

Supplement Proposal Justification for SGER: Learning through Observing and Pitching In to Community Activities

Project Director: Barbara Rogoff, University of California, Santa Cruz

Summary of proposed work: This proposal requests supplementary funds and an extension, to expand on the successes of an SGER funded for October 2008 to September 2010 for convening and publishing research of an international, interdisciplinary consortium. The project has exceeded expectations thus far. The supplement would leverage the project by supporting:

- 1) Fellowships for 5-7 more scholars to be able to submit articles for publication.
- 2) Submission of a *Monograph of the Society for Research in Child Development* that pulls together the findings of a number of consortium members.
- 3) Creation of a public website giving access to publications and other work of the consortium.
- 4) Preparation of a research grant that would gather new data and develop an integrative book summarizing the research findings and theoretical advances of the consortium.

The SGER investigates a valuable model of informal learning that can be found in many communities where schooling has not been prevalent, especially Indigenous-heritage communities of the US, Mexico, and Central America. In such communities, children are often integrated in the activities of their families and communities, and learn by observing and pitching in to the activities around them.

What is the intellectual merit of the proposed activity? The goal of the SGER project is to advance the Science of Learning with research on the processes of learning through observing and pitching in to community activities, with a focus on Indigenous-heritage communities in the US, Mexico, and Guatemala. The research examines cultural differences, similarities, and historical changes (including those associated with Western schooling) in:

- learners' *access and interested contribution* to valued activities in families, communities, and other settings, with eagerness to learn (related to intrinsic motivation, based on belonging)
- *keenness of attention* as children observe events around them,
- *collaborative engagement*, with more experienced people guiding and learners taking initiative,
- *multiple means of communication*, especially nonverbal conversation grounded in shared endeavors,
- *learning in order to be responsible contributors* to the community, and
- *in-context assessment* of learning in support of learners' contributions.

The 39 members of the consortium are the primary investigators of this topic, worldwide. (We added 8 members since the original proposal.) It is an interdisciplinary, international, intergenerational group, with excellent representation of researchers from Latino and Indigenous backgrounds. The SGER funds provide 1-2-month fellowships to give participants time to write articles on this topic, leveraging resources available in their data sets at low cost.

Now that an excellent track record has been achieved for this model of leveraging research submissions for publication, it is clear that a bit more funding for writing fellowships would be fruitful. We have stretched the original funding designed for 11 fellowships to cover about 20 article submissions; about 5-7 more excellent proposals are expected.

In addition, the supplemental funding would support three new endeavors that were not part of the original proposal: The PI and a subgroup would put together a *Monograph* of related research articles; the consortium would mount a website about our research and other work; and the PI with colleagues would develop a followup grant proposal for original research and for an integrative book.

Our research contributes directly to the Science of Learning by investigating how people learn and how communities support their learning. In addition, our research benefits science learning and instruction by examining how people learn in communities where science instruction has not been an end in itself, although science understanding is integral to everyday functioning. The research itself involves science and math activities, including STEM learning in computer games, geometric paper folding, medical practice, plant growth, climate and cosmology, water conservation issues, visualizing and constructing 3D figures, and exploring a magnet exhibit.

What are the broader impacts of the proposed activity? Understanding ways of learning in nondominant communities is a pressing need. This is both because the Science of Learning needs to move beyond overgeneralizing from middle-class European-Americans to humans worldwide and because increasingly large proportions of children come from nondominant communities.

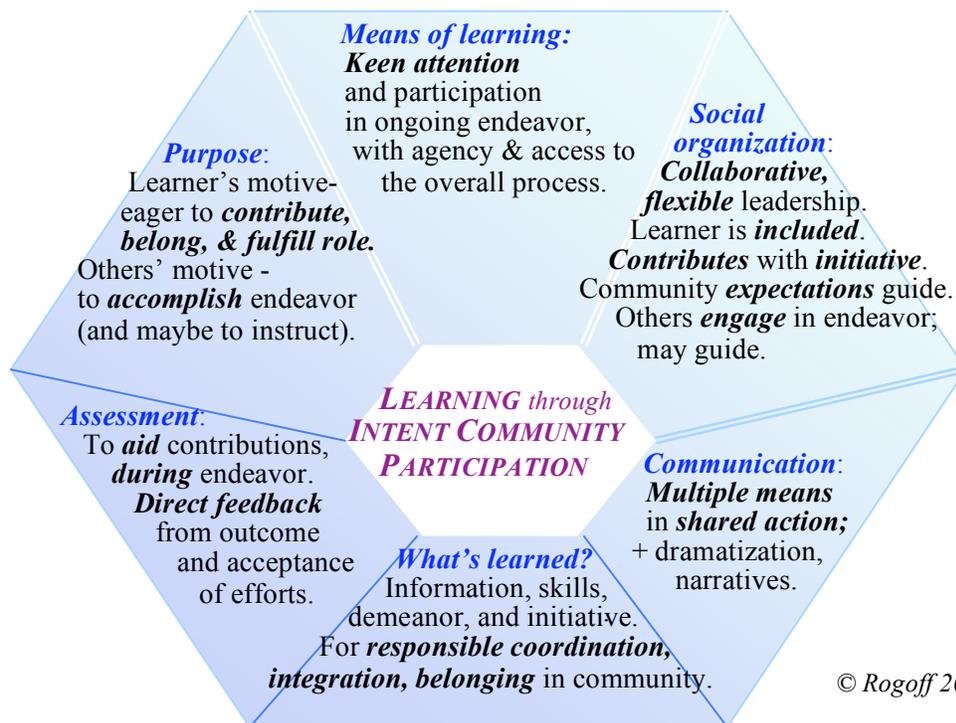
The project benefits society by developing understanding of an approach to learning that is likely to be familiar to many US children from Mexican-heritage, Central American, and Native American backgrounds. Because children's ways of learning are based on prior experience (*How People Learn*, NRC, 1999), they come to new learning situations with skills and expectations based on the learning structures that are familiar in their families and communities.

The research provides ideas for how science centers, innovative schools, and after-school programs can improve science and math instruction for children from these communities, and indeed from all backgrounds. In addition to making research and theoretical advances, the consortium also contributes to policy and applied work. Our workshops include public outreach to teacher, parent, and colleague groups.

In addition, the consortium enhances the infrastructure for research by creating interdisciplinary and international networks and partnerships for future research. The SGER also serves instructional functions, as it integrates research and education among the 13 graduate students, 11 postdoctoral fellows and new researchers, and 15 senior researchers of the consortium. Many of the participants are themselves members of underrepresented cultural groups. (The consortium includes 15 US Latinos, 1 American Indian, 9 Indigenous people of other nations of the Americas, 2 Mexican mestizos, and 12 people of European heritage; all work in Indigenous-heritage communities of the US, Mexico, and Central America.)

The Work of the Consortium to Date

Theoretical progress. A major advance due to the SGER project has been to refine theoretical understanding of how children learn by observing and pitching in with initiative and access to a wide range of community activities, together with more experienced participants who support them. We call the phenomenon *learning through intent community participation* (Rogoff et al., 2003, 2007). The prism below articulates the multifaceted key principles defining learning by observing and pitching in.



Research workshops. Progress in both research and theory are supported by the SGER through our workshops. The first one supported by the SGER was held in Guatemala in July 2009; plans for the second workshop are underway for August 2010, in Guadalajara Mexico. These workshops allow consortium members to describe their research progress of the prior year and to discuss methods and findings. They support conceptual progress and formulation of future research projects through debates regarding the processes by which learning occurs in this learning tradition. The multigenerational makeup of the consortium supports extensive mentoring between grad students, postdocs and junior researchers, and senior researchers. The consortium members also communicate between workshops via electronic means, consulting with each other and sharing references and other resources.

Because the researchers all have experience in Indigenous-heritage communities of the US, Mexico, and Central America, we have been able to build on our disciplinary and cultural variations with a common understanding of the phenomenon of learning through intent community participation. Our discussions have elaborated the prism above; the independent findings of the researchers 'speak' to each other; and the varied methods complement each other. The researchers represent several fields that can collaborate in studying the phenomenon (psychology, anthropology, sociology, linguistics, education, Chicano/Latino studies, and history). The international makeup of the consortium (and the fact that most members have lived in several countries) supports learning about the similarities and differences across nations in this approach to learning and changes in families' ways of facilitating learning when they immigrate.

In addition to supporting the annual workshop, the SGER has supported several travel fellowships allowing smaller groups to meet. Eight consortium members participated in an extended symposium on learning through Intent Community Participation at the meetings of the 2010 International Indigenous Language Policy Research Conference, at the University of New Mexico. Two graduate student members of the consortium from the US received travel fellowships to visit the research site of a consortium member in Mexico, in order to plan collaborative research.

Research publications. The SGER project fosters new research publications that stem from the synergies and cross-fertilization in the consortium. The research focuses on how the principles identified by the 6 facets of the prism operate, are organized, and relate to each other; whether the principles involved in the 6 facets do indeed differ across cultural communities in the ways predicted by theory and prior research; how they relate to family and community experience with Western schooling; and what processes of change occur.

For example, several studies addressing the facet focused on 'learning through paying attention' have found especially keen attention to surrounding events among Guatemalan Mayan children from traditional families and US Mexican-heritage children from rural regions with little family schooling, compared with European-American and Mexican-American children with extensive family schooling.



A Mayan child sustains keen attention to instruction given to his sister on how to make a toy, while he waits his turn to make a different toy. A European-American child from a family with extensive schooling pays little attention (Correa-Chávez & Rogoff, 2009; Silva, Correa-Chávez, & Rogoff, in press; López, Correa-Chávez, Rogoff, & Gutiérrez, in press).

The following 20 articles are supported by the SGER's writing fellowships, including 5 submitted for publication and 3 that are accepted for publication. (Four proposals are currently under review.) We have stretched the funds of the original SGER proposal well beyond the proposal for 11 fellowships to submit research articles for publication.

| First author | Topic of SGER-funded article | Populations | Article submitted or accepted |
|---------------------|--|---|---|
| Mejía Arauz | Learning in nonverbal conversations | US: MexAm, EuAm; MX: Indig, Cosmo | <i>Developmental Psychology</i> |
| Correa-Chávez | Horizontal collaborations and multimodal communication | US: MexAm Hi Sch, Pueblo | |
| Chamoux | Ancient Aztec methods of education | MX: Nahuat | <i>Cultura y Educación</i> |
| de Haan | Responsibility for learning | MX: Mazahua | |
| Gaskins | Observational learning | MX: Maya, Mazahua | <i>The Anthropology of Learning in Childhood</i> , in press |
| Jordan | From experiential learning to logocentric learning and back | MX: Maya; Global hi tech industry | Being resubmitted |
| Orellana | Learning language through intent community participation | US: MexAm | |
| Urrieta | Learning to live in community, in formal and informal learning contexts | MX: pueblo | |
| Angelillo | Children's cross-age involvement | US: EuAm; Guate: Maya; Congo | <i>Perspectives on Psych'l Science</i> , in press |
| Corona | Proposed: Generational changes in children's contributions to community events | MX: Mexica | |
| Corona | Proposed: Conceptualizations of cultural change and continuity | MX: Mexica | |
| García | Learning to be 'people': Respect, collaboration | Perú: Quechua | |
| Roberts | Children's reflections on cultural ways of working together | US: MexAm, EuAm | |
| Tsethlikai | Am Indian cultural participation and story recall | US: Am Indian | Being resubmitted |
| Alcalá | Proposed: Helping with household work as a learning context | MX: Cosmo, Indigenous | |
| Coppens | Proposed: Children's views of pitching in to household work | MX: Cosmo, Indigenous | |
| López | Learning by collaboration and helping | US: MexAm Hi Sch, Pueblo, EuAm; MX: Cosmo, Pueblo | <i>Handbook of Cultural Psychology</i> (in preparation) |
| Lorente y Fernandez | Being respectful is being human -- morality and pedagogy | MX: Nahuat | <i>Dialectología y Tradiciones Populares</i> |
| Ruvalcaba | Requests for assistance showing community responsibility | US: MexAm Hi Sch, Pueblo, EuAm | |
| Silva | Attention to ongoing events | GUA Maya; US: EuAm | |

The four goals (and logistics and management) of the proposed supplement and extension:

1. Extending the writing fellowships, building on our SGER's excellent record of supporting the submission of research articles. We have made fellowship awards for 16 articles and are in the process of considering proposals for 4 more. These 20 articles have 19 of the consortium members as first authors. These awards have pretty much used up the funding allocated for the fellowship, but we anticipate 5-7 more excellent proposals being submitted in the coming months. The supplement would provide funding to continue these fruitful fellowship awards.

Logistics and management: As in the original SGER, participants requesting a fellowship submit a brief solicitation for a fellowship of 1 to 2 months, to be spent exclusively on preparing research findings for submission for publication in a peer-reviewed journal or book. Their solicitation specifies what findings they propose to publish, how far along the work is already, and where they will submit the manuscript at the end of the fellowship period.

Project Director Rogoff considers the solicitation with advice from the Advisory Council, often providing feedback on the process, thereby guiding the participants and the projects. Some solicitations are returned to the participant for modification; a few have been declined. At the end of the fellowship, the awardee sends a copy of the submitted manuscript to the PI and Advisory Council (Ruth Paradise, CINVESTAV, Mexico City; Rebeca Mejía-Arauz, ITESO, Guadalajara; Pablo Chavajay, U New Hampshire; and Maricela

Correa-Chávez, Clark U). [When members of the Advisory Council solicit a fellowship, they recuse themselves from the selection process. Project Director Rogoff will not apply for a fellowship; her time on publishing (and administration) is volunteered.] Awardees also present their results at the annual workshop meetings.

Researchers are encouraged to spend their fellowship away from their home institution, at the institution of another member of the consortium, and 42% of the awardees have done so. This helps to free researchers from distractions of their home institution and helps create fruitful interchange of ideas across institutions, disciplines, and nations. The participants receive their stipend when their fellowship is complete, and if they plan away-from-home stays, they also receive a small budget to cover airfare and costs of arrival at the fellowship site.

2. Submitting a research monograph to the *Monographs of the Society for Research in Child Development*, consisting of a set of related research reports from PI Rogoff and several members of the consortium. The supplement would support the time, secretarial assistance, and some small expenses in putting together the manuscript.

The monograph would consist of a theoretical overview and review of research on learning through intent community participation, as well as research reports of studies representing the different facets of learning through intent community participation, a concluding summary integrating the findings of the studies, and one or two commentaries from other researchers. The following table shows tentative contents.

(*The four starred studies are currently funded or proposed for SGER fellowship support.)

| Authors (not in order) | Article for proposed <i>Monograph</i> | Data source | Facet of the prism |
|--|---|-------------------------|---|
| Rogoff and colleagues | Theoretical overview and review of research on learning through intent community participation | Theoretical review | All |
| Rogoff, Najafi, & Mejía-Arauz | Generational shifts and stabilities in Indigenous-heritage practices | Interviews | All; methodological – on cultural practices |
| *Alcalá, Mejía-Arauz, Rogoff, Coppens, & Roberts | Cultural differences in Mexican children’s contributions to household work | Interviews | 1: Eagerness to learn, to contribute and fulfill role |
| *Coppens, Alcalá, Mejía-Arauz, & Rogoff | Mexican children’s views of contributing to household work | Interviews | 1: Eagerness to learn, to contribute and fulfill role |
| Roberts, Mejía-Arauz, & Rogoff | Cultural variation in Mexican children’s simultaneous attention | Videotaped observations | 2: Learning through keen attention |
| *Silva, Shimpi, & Rogoff | Guatemalan Mayan and middle-class European-American children’s attention to surrounding events | Videotaped observations | 2: Learning through keen attention |
| Paradise, Mejía-Arauz, Silva, Roberts, & Rogoff | Challenges and resources in teachers’ attempts to shift their aid to learners to supporting rather than controlling | Case studies | 3: Collaborative, flexible support (vs. unilateral control) |
| *Mejía-Arauz, Roberts, & Rogoff | Mexican Indigenous-heritage and cosmopolitan children’s use of multiple means of communication | Videotaped observations | 4: Multiple means of communication in shared endeavors |
| López | Mexican and Mexican-American views of spontaneous helping | Interviews | 5: Learning to be able to contribute to community |
| Rogoff | Testing-talk in the nursery (if not included in Nelson-Barber book) | Videotaped observations | 6: Assessment to aid contributions vs to test |
| Rogoff and colleagues | Summary and conclusions | Conceptual | All |
| TBN | Commentary 1 and 2 | Conceptual | All? |

Logistics and management. We plan to complete the manuscript and submit it by the end of the supplement period. PI Rogoff will be responsible for coordination among the authors. Funding will provide for travel among authors who need to meet to collaborate on completing their manuscript for the monograph, secretarial assistance, and incidental costs such as postage, copying, and communications.

3. Creating a public website giving access to publications and other work of the consortium and of related research on learning by observing and pitching in. The website will be in both English and Spanish.

Logistics and management. We have begun to gather abstracts and pdfs of relevant articles. They need to be translated into English or Spanish for the bilingual website. Funds will support technical assistance and costs of mounting the website. The project is led by two bilingual consortium members, Omar Ruvalcaba and Lucía Alcalá, in collaboration with PI Rogoff.

4. Preparing a grant proposal for gathering new data and supporting the writing of an integrative book. The grant would have two parts: supporting new research by PI Rogoff and her research team, and supporting the consortium in collaborating on a scholarly book summarizing and integrating the research reported in the articles that the consortium has been publishing with the aid of the SGER.

Logistics and management. We plan to complete the grant proposal and submit it by the end of the supplement period. Rogoff will be the PI, taking responsibility for writing the proposal. Her graduate students will participate in planning the studies to be proposed, and the Advisory Committee will participate in planning the integrative book to be proposed. Funding will provide for travel of the Advisory Committee to gather for planning the integrative book, secretarial assistance, and incidental costs such as postage, copying, and communications.

Human subjects

No new data are collected or analyzed under the auspices of the original SGER or of the supplement. Authors of manuscripts will have followed Human subjects procedures of their institution in the collection and analysis of their data.

Dissemination

The direct products of this supplemental grant will be the publications resulting from the fellowships, the monograph to be submitted to *Monographs of the Society for Research in Child Development*, and the grant proposal.

The proposal fits with SGER priorities:

- This line of work is in its infancy and is original (and therefore somewhat risky) in connecting researchers across disciplines and nations to work on related angles of a scientifically and practically important novel topic.
- The work is transformative: The idea of intent community participation involves a paradigm shift from ideas of learning and teaching that are common in schools and among highly schooled people. In addition, the design of the consortium itself could transform how research agencies and scholarly societies address minority issues: collaboratively across disciplines and cultural backgrounds, with a focus on a research topic as well as on particular minority groups.
- The proposal makes use of new expertise and new approaches that stem from attention to the strengths and resources of underserved populations. The healthy balance of relevant cultural backgrounds among the participants also provides the field with new and crucial expertise.
- The work is urgent. Understanding learning traditions in Latino and Indigenous communities is an important key to fostering children's development, education, science, and indeed, society. The international work is not only an intellectual advantage of the work, but also addresses a pressing for knowledge of a large proportion of US children and families who travel across these borders and create lives that build on the practices of several 'homelands.'
- The original proposal has catalyzed rapid and innovative advances in theory and research, with a small outlay of funds, leveraging research projects within a streamlined organization. The cross-fertilization among the researchers has yielded well-informed, innovative ideas for future research. The supplemental funds and extension will 1) expand the submission of research articles, 2) bring together a research monograph that will more broadly disseminate the theoretical approach and integrate some of the studies, 3) create a website for public dissemination of findings, and 4) aid preparation of a grant to support original research building on the SGER and a book integrating the findings of the consortium.

Funding for this supplementary period of international, interdisciplinary research would be both scientifically and practically important for broadening our understanding of how children learn and for helping formal and informal educational institutions to better serve them.

References

- Correa-Chávez, M., & Rogoff, B. (2009). Children's attention to interactions directed to others: Guatemalan Mayan and European American patterns. *Developmental Psychology, 45*, 630-641.
- López, A., Correa-Chávez, M., Rogoff, B., & Gutiérrez, K. (in press). Attention to instruction directed to another by U.S. Mexican-heritage children of varying cultural backgrounds. *Developmental psychology*.
- National Research Council, Committee on Developments in the Science of Learning. (1999). *How people learn: A report of the National Research Council of the National Academy of Science*. Washington, DC: National Academy Press.
- Rogoff, B., Paradise, R., Mejía Arauz, R., Correa-Chávez, M., & Angelillo, C. (2003). Firsthand learning through intent participation. *Annual Review of Psychology, 54*, 175-203.
- Rogoff, B., Moore, L., Najafi, B., Dexter, A., Correa-Chávez, M., & Solís, J. (2007). Children's development of cultural repertoires through participation in everyday routines and practices. In J. E. Grusec & P. D. Hastings (Eds.), *Handbook of socialization*. (pp. 490-515). NY: Guilford.
- Silva, K., Correa-Chávez, M., & Rogoff, B. (in press). Mexican heritage children's attention and learning from interactions directed to others. *Child Development*.

Budget justification for the extension period

(For 6 months, or ideally for 12 months, October 1, 2010 to September 30, 2011)

| | |
|--|-----------------|
| Assistant salary and benefits | \$ 9,993 |
| Participant travel | \$ 4,000 |
| Participant support stipends and travel | \$33,000 |
| Supplies, copying, mailing, webpage, phone/fax | \$ 1,300 |
| Indirect costs @ 15.1% on salary, benefits, supplies | \$ 1,705 |
| Total | \$49,998 |

B. Salaries and Wages – Other Personnel. \$9,993 salary and benefits

The Workshop Coordinator, Karrie André, will handle correspondence with the participants; assist in organizing the website, the Monograph, and the grant proposal; aid in travel arrangements; and track budgets.

E. Participant travel. \$4000

Travel for a meeting of the 4 members of the Advisory Council and the Project Director to work on the grant proposal.

F1. Participant Support: Stipends and participant support travel. \$33,000

The \$33,000 of stipends and travel continues the activities that are currently carried out under the existing SGER, but with different members of the consortium proposing writing fellowships – ones who have not previously been awarded a writing fellowship.

5-7 fellowship stipends for 1-2 months

\$4000 per month for post- PhD participants

\$1800 per month for graduate students (requires involvement of their advisor)

For a fellowship away-from-home, the participant will be awarded up to \$1300 to cover airfare and ground transport.