**“Exploring Fundamental Transformations of Learning and Discovery in Cultures of Participation"**

### Monday, August 29, 2011

* 8:30 – 9:00 Continental Breakfast
* 9:00 – 10:30 The NSF CDI Project
  + Gerhard Fischer: “Overview and Fundamental Research Issues of the Project”
  + Kris D. Gutiérrez: “Creation and assessment of social design experiments”
  + Jason Zietz: “The Application Domain: Energy Sustainability”
  + Hal Eden: “Technological Developments”
* 10:30 – 11:00 Break
* 11:00 – 12:45 Invited Presentations (abstracts and bios: see following pages)
  + Barbara Rogoff (University of California, Santa Cruz): “Cultural Aspects of Learning: Observation and Collaboration in Shared Endeavors”
  + Shirley Brice Heath (Stanford University): “Learning on our own time and in our own way: Voluntary specialists at work”
  + Allan Collins (Northwestern University): “The Functionality of Literacy in a Digital World”
* 1:00 – 2:00 Lunch
* 2:00 – 3:30 Discussion “Fundamental Transformations of Learning and Discovery” (Organizer: Kris D. Gutiérrez)
* 3:30 – 4:00 Break
* 4:00 – 5:30 Demos
  + Jason Zietz: “Energy Sustainability”
  + Kris D. Gutiérrez: “Projects at El Pueblo Mágico”
  + Michael Eisenberg (CU Boulder): “Educational Technology in the Physical World”

### Tuesday, August 30, 2011:

* 8:30 – 9:00 Continental Breakfast
* 9:00 – 10:00 Discussion “Cultures of Participation” (Organizer: Gerhard Fischer)
* 10:00 – 11:00 Invited Presentations with Demonstrations
  + Hal Eden: Envisionment and Discovery Collaboratory
  + Alexander Repenning (CU Boulder): “Social Computational Thinking Tools”
* 11:00 – 11:30 Break
* 11:30 – 12:30 Comments and Assessment by the Evaluator of the CDI Project
  + Sharon Derry (University of Wisconsin, Madison)
* 12:30 – 1:00 Final Discussion

## Abstracts and Bios for Invited Presentations

## Barbara Rogoff

**"Cultural Aspects of Learning:   
Observation and Collaboration in Shared Endeavors"**

In some communities, a prevalent form of learning is through keen observation of ongoing community events in which people collaborate when they are ready. This approach to learning seems to be especially common in Indigenous-heritage communities of the Americas, and less prevalent in communities that segregate children from the range of activities of their community. These ideas will be illustrated with research in Guatemalan Mayan, Mexican-heritage, and European-heritage US communities as well as observations in an innovative US school (reported in *Learning Together*, Oxford University Press, 2001).

**Brief bio**

Barbara Rogoff is UCSC Foundation Distinguished Professor of Psychology. She is a Fellow of the National Academy of Education, American Psychological Society, American Anthropological Association, American Psychological Association, and American Educational Research Asociation. She has been Fellow of the Center for Advanced Study in the Behavioral Sciences, Kellogg Fellow, Spencer Fellow, and Osher Fellow of the Exploratorium. She has served as Editor of *Human Development* and committee member on the Science of Learning for the U.S. National Academy of Science. Recent books include *Learning Together: Children and Adults in a School Community* (Oxford, 2001), *The Cultural Nature of Human Development* (Oxford, 2003), and *Developing Destinies: A Mayan Midwife and Town* (Oxford, 2011).

## Allan Collins:

**“The Functionality of Literacy in a Digital World”**

When young children learn to listen and talk, they are driven by the desire to get their parents to respond to their desires. Learning to understand what their parents are saying and learning to tell their parents what they want have a huge payoff for young kids. Not so for learning to read and write in school. By learning to read and write, kids gain very little ability to control the world around them, unlike what they gain by learning to listen and talk. The major payoff for learning to read and write has been to please parents and teachers. If their parents and teachers don't much care, then as Frank Smith (1988) argues there is very little incentive for kids to learn to read and write. In the digital world, this is beginning to change. Children are texting their friends, setting up Facebook pages to interact with others, playing online games where they read about strategy and communicate with other players, spending time at web sites like Webkinz World, Club Penguin, and Barbie Girls, and joining Fan Fiction clubs and other web communities where people of different ages pursue their interests. These activities are changing the face of literacy. They provide a variety of incentives for kids to read and write, beyond just pleasing their teachers and parents. They develop children's identities as literate people who are empowered to interact with the world. This is a radically different world than the one most of us grew up in. It behooves literacy researchers to change what they are studying and literacy educators to incorporate the power of these activities into the ways we teach reading and writing.

**Brief Bio**

Dr. Allan Collins is Professor Emeritus of Learning Sciences at Northwestern University. He is a member of the National Academy of Education, a fellow of the American Association for Artificial Intelligence, the Cognitive Science Society, the American Association for the Advancement of Science, and the American Educational Research Association. He served as a founding editor of the journal*Cognitive Science* and as first chair of the Cognitive Science Society. He is best known in psychology for his work on semantic memory and mental models, in artificial intelligence for his work on plausible reasoning and intelligent tutoring systems, and in education for his work on inquiry teaching, cognitive apprenticeship, situated learning, design research, epistemic games, and systemic validity in educational testing. From 1991 to 1994 he was Co-Director of the US Department of Education's Center for Technology in Education. His book with Richard Halverson entitled*Rethinking Education in the Age of Technology: The Digital Revolution and Schooling in America* was published by Teachers College Press in September 2009.

## Shirley Brice Heath

**“Learning on our own time and in our own way:   
 Voluntary specialists at work”**

In modern economies, individuals and groups are busily turning upside down several time-honored aspects of learning and teaching. Their emphasis is on identifying, not solving, problems. They rely on curators as monitors, advisors, guides, and critics. They regard what they do as “playwork,” even while they admit the 10,000 hours-plus of practice, trial-and-error, and working-it-out they do to achieve their goal of expertise. They struggle to find their way into systemic thinking, claiming that what they want to do does not require them to operate within “any system.” For those who stay with one or more core interest or problem niche for 20 months or more, four surprising patterns characterize transformative turns in their learning. These generalizations are based on three decades of study in 300 families in the US and interviews with 480 youth dedicated to “artscience” (2008-2011) in Norway, Australia, and England.

**Brief bio**

Shirley Brice Heath is Margery Bailey Professor of Dramatic Literature and English and Professor of Linguistics and Anthropology, Emerita, Stanford University. She is a member of the National Academy of Education, American Anthropological Association, Linguistic Society of America, and Modern Language Association, and she is a research fellow of the American Educational Research Association and the Centre for Aboriginal Economic Policy Research at ANU (Australian National University). She is best known for her contributions to ethnography in the study of: child language development in different cultural settings; the multi-media worlds of reading by children and young adults; adolescent learning in under-resourced community organizations; and the cognitive and linguistic work of scientists and artists in studios, rehearsal zones, and laboratories. With Brian Street, she published *On ethnography: Approaches to language and literacy research* (Teachers College Press, 2008). Her multi-site ethnographic study of the 300 families whose lives she first documented in *Ways with words: Language, life, and work in communities and classrooms* in 1983 (Cambridge University Press) will be published early in 2012 (*Words at work and play: Three decades in family and community life*, Cambridge University Press).