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## Stanford expands distance learning across the globe

BY LISA TREI

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Researchers at Stanford and at universities in Africa and Latin America are pushing the boundaries of distance learning to develop new collaborative models that will prepare students to work in an increasingly borderless world.

Under the recently launched International Outreach Program (IOP), headed by Reinhold Steinbeck, Stanford faculty are helping to redefine the way students learn whether they are in high-tech classrooms on campus, in remote wildlife parks in Tanzania, in teacher-training colleges in Chile, or at a university in Cali, Colombia.

"What's really exciting about this is that it opens a whole new chapter in engaging students in these countries in globally distributed courses," Steinbeck said of these and other pilot projects supported by IOP, which is based at the Freeman Spogli Institute for International Studies (FSI) under the auspices of the International Initiative. "We are very determined to make this a collaborative process."

The concept for IOP grew out of Stanford's experience in distance learning with universities in Russia in the late 1990s. Katherine Kuhns at FSI led that effort. Political science Professor Coit Blacker, now FSI's director, team-taught a popular Stanford political science course, *International Security in a Changing World*, to college students from Moscow to Siberia. "With the IOP pilot projects, we wanted to build upon the lessons learned from FSI's Initiative on Distance Learning, which fostered critical thinking skills in a new generation in Russia," Blacker said. "We're delighted to expand Stanford's outreach efforts into other regions with new interdisciplinary content and innovative approaches to learning and teaching."

Blacker and Stig Hagstrom, co-director of the Stanford Center for Innovations in Learning, provided seed funding for IOP, which has been further supported by the offices of the Dean of Research and of the President and Provost. Steinbeck's longterm objective is to make the programs self-sustainable with outside support and to launch new pilot projects through a new fundraising effort.

### Dunia Moja—One World

IOP's approach is closely aligned with Stanford's International Initiative, which seeks to



Reinhold Steinbeck  
Professor Rachel Lotan, right, speaks during a three-day workshop in Santiago, Chile, on pre-service teacher education.



Reinhold Steinbeck  
Students sit in a computer lab with Internet access in a rural school in central Chile.



Reinhold Steinbeck  
A student works at a computer at Mweka College of African Wildlife Management in Tanzania.

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- Stanford University International Outreach Program
- ENGR 310: Global Team-Based Design Innovation with Corporate Partners
- Center for Design Research
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make the university a collaborative partner in designing solutions to interdisciplinary global challenges. Under IOP, Stanford has launched a pilot project called Dunia Moja—"One World" in Swahili—with Makerere University in Uganda, the College of Wildlife Management in Mweka, Tanzania, and the University of the Western Cape in South Africa. The project uses state-of-the-art mobile phone technology to teach a Stanford-developed interactive course on international environmental education. In countries with limited access to computers and e-mail, "smart" phones can record and transmit multimedia images via rapidly expanding regional cellular broadband networks, Steinbeck said. The technology is being used to connect students with their teachers and to move beyond a traditional lecture-based distance-education course toward collaborative, project-based learning. "I'm really excited about giving people access to education," said education Professor Shelley Goldman, who jointly heads the project.



Reinhold Steinbeck

To help launch Dunia Moja, Sony Ericsson donated 30 mobile phones to IOP equipped with video cameras, audio recorders and Internet capability. During spring quarter, students and faculty in the four countries communicated by sending text messages, photos and video clips, and participated in mobile weblogs, or "moblogs." Sarah Lewis, a doctoral student in the Learning Sciences and Technology Design program in the School of Education, repeatedly tackled technical obstacles to ensure the pilot project worked in each country simultaneously. "As far as I know, it was the first time students not just *sent* things over the phone but actually *interacted with* the material over the phone," Lewis said. "It's not intuitive to students there or here what it means to have such a collaborative course based on communication and conversation versus just reading and repeating. When discussing global warming, we want people in East Africa to *show* the melting snows on Kilimanjaro and *show* the dust from the Sahel that clouds the view of the mountains in Queen Elizabeth National Park" in western Uganda.

The course allows students and faculty to share their local experiences and solutions and to understand how these are connected globally. During this academic year, IOP wants to raise money to offer a second iteration of the pilot and bring students from the four universities to a December conference in Cape Town, South Africa. "There are so many details in a project like this that you don't even realize what your assumptions are until you throw everything back to your partners and ask them what they think," Lewis said. "It takes a lot of cultural permission to know someone well enough that you can share disagreements and expectations."

#### Reforming teacher education in Chile

In Chile, with the support of IOP, education Professor Rachel Lotan has introduced inquiry-based instruction used by STEP (Stanford Teacher Education Program) to teacher educators at Pontificia Universidad Católica de Chile in Santiago, Universidad Católica de Temuco and Universidad Católica de la Santísima Concepción. Lotan, a native of Romania who grew up in Israel and has led workshops in the Netherlands, Denmark, Sweden, Belgium and Hungary, is fascinated with how universal principles of teacher education are interpreted in different cultures and societies. In Chile today, "the rhetoric is to promote equity and democracy" through education, Lotan said. But the country's rigidly top-down teacher training system has created a yawning disconnect between theory and practice. Cristian Cox, an educational reformer at Católica in Santiago and a former Tinker Visiting Professor at Stanford, said a 2004 report on Chilean education by the Organisation for Economic Cooperation and Development stressed that teacher training must be overhauled to improve educational outcomes. Despite this understanding, Lotan recognizes that reform will not happen overnight. "What happens inside Chile is dependent on all kinds of local and cultural factors," she said. "It is really difficult to change a cultural tradition that is so historically institutionalized."

After meeting Lotan at Stanford, Cox invited her to Chile to teach workshops last summer and this spring based on STEP's methodology, which trains teachers to be reform-minded critical thinkers. "When I go to a place, I never want to be 'a light to the nation'—it's silly to say *this* is what you need to do," Lotan said. "I present an open-ended project and find out what aspects are transportable to their context." Lotan said the educators were impressed by the importance of linking theory with practice and wanted to know how to teach in classrooms with students from different social, economical, ethnic and cultural backgrounds. Following initial skepticism, she said, the educators opened up and wanted to know more. "I can tell from the kinds of questions they're asking that their heads are in the right place," she said. "You have to present visions of the possible to people and say it *can* look different."

According to Cox, STEP offers an effective model for Chilean education. "The program has been successful in solving all the key knots in teacher training," he wrote in an e-mail. "The collaboration with Stanford means the possibility of consistent and top-level technical assistance and support, and tackling issues where we need to advance fast."

Last month in Concepción, Jack Dieckmann, a STEP math instructor, and Daisy Martin, associate director of the Historical Thinking Matters Project in the School of Education, led three-day followup workshops for 21 teachers of middle school math, history and the social sciences. Next month, Susan Schultz, a former STEP instructor and now Stanford Linear Accelerator Center's chief educational officer, will lead a workshop at Católica in Santiago focusing on the natural sciences. Chile's education ministry, Universidad Católica and the World Bank have supported this outreach, Steinbeck said. "The next step is to think about putting together a joint proposal between Stanford and the partner universities to take this collaboration beyond the pilot phase and formalize a longer-term research and development program that allows Chile to revamp teacher education," he said.

### Engineering 310 heads south

Since 1962, Stanford has offered a course through the Mechanical Engineering Design Group called ENGR 310, *Global Team-Based Design Innovation with Corporate Partners*. The course pairs teams of graduate engineering students with their peers at universities in Europe and Japan for nine months to work on projects from concept to prototype. Students communicate via videoconferencing and e-mail and in face-to-face meetings. Professors Larry Leifer and Mark Cutkosky, directors of the Stanford Center for Design Research, teach the flagship course, which attracts about three dozen Stanford students and seven students from each of the partner universities to work with companies such as Panasonic, Audi and Nokia.

"Our research has shown that team diversity is a key factor influencing the creative performance of new product design development teams," Leifer said. "Working creatively in globally distributed teams is hard, yet the need for performance leadership in these scenarios is in high demand. Our students and corporate partners demand global-savvy people, products and services."

Last year, for the first time, ENGR 310 invited students from a university south of the border—Universidad Nacional Autónoma de México—to design a better automobile navigation system through a project with Volkswagen. Philipp Skogstad, a graduate student who directs the program, said Steinbeck knew the program wanted to expand further into Latin America and, with the support of IOP, put Leifer in contact with Maria Fernanda Camacho, an industrial designer and adviser to the provost at Pontificia Universidad Javeriana (PUJ) in Cali, Colombia. "She understands our methodology, what we're doing and can implement it," Skogstad said.

This fall, two teams of PUJ students will work with their Stanford counterparts on two corporate-sponsored projects. Camacho said the program has the potential to improve Colombia's social and economic development by strengthening the connection between academia and industry, a bridge that traditionally has been weak across South America. "This collaboration is important to us because we are convinced of the need for innovation for the development of our economy," she said. "With globalization in place, we want our industries to be competitive at all levels, not just at producing parts of products for some foreign company. We need to build an intellectual property capacity in Colombia."

Skogstad said the partnership works both ways. "If we stay complacent with what we've got and don't expand, we'll be surpassed by emerging countries," he said. "We're ahead now, but who knows for how long? If we want to remain competitive and stay ahead, we have to be five times as inventive. In Colombia we will learn about working in a developing country. I really see this as a two-way street."

Leifer and Camacho said each side has openly discussed security issues and negative stereotypes associated with each country. Discussions have led to the drafting of a formal set of guidelines and arrangements that will be used to promote and assure safety, both for Stanford and PUJ students, Leifer said. "While stereotypes tend to have a long life of their own, we need not be locked into them and take the situation as another opportunity to be creative," he said. "We look forward to the partnership, the learning opportunities and the development of global innovation leaders through direct, immersive, everyday collaboration."



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