

# PennGSE

The Graduate School of Education • University of Pennsylvania

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## FAIR-TRADE SCHOOLS

Bringing new technology—  
and training—to Nicaragua

**Penn GSE Leads Globally**  
Initiative will improve  
science and math teaching





TREVOR DIXON

When President Amy Gutmann laid out her vision for the University in the *Penn Compact*, “engaging globally” was one of the key principles she identified for making Penn eminent among research universities worldwide. “A great 21st-century American university engages dynamically with communities all over the world to advance the central values of democracy and to exchange knowledge that improves quality of life for all.”

In this issue of *Penn GSE Magazine*, we introduce you to just a handful of the ways that this School is advancing Penn’s commitment to global engagement. Our cover story, *Fair-Trade School*, describes how GSE researchers are partnering with a multi-generational Penn family to introduce laptop computers to a rural Nicaraguan school. More important, the research team—led by GSE Senior

**Our work at GSE is focused on research and development to create ideas, programs, and tools that will strengthen education—not just in the U.S. but around the globe.**

Lecturer Sharon Ravitch Gr’00—will collaborate with the local community on a technology-based curriculum and teacher professional development program.

You’ll also read about a fascinating study conducted by another GSE faculty member, Alan Ruby. Asked to help the Panamanians understand how they could improve their education system, Alan’s team compared education in Panama to the system in Costa Rica—and in doing so, discovered pathways to improving teacher preparation and school finance for a nation.

This issue also covers a project close to my heart – improving high school math and science teaching in the U.S. and around the world. Working with the Asia-Pacific Economic Cooperation (APEC) group and other university partners, GSE is spearheading a project that will look at teacher education in math and science in a select set of countries to generate hypotheses about how the best practices in one country might inform new initiatives in another.

But these articles only scratch the surface of what GSE is doing on the international front. Our International Programs Office, headed by Vice Dean Cheng Davis, oversees a host of programs that enable countries from around the globe to learn from each other. Through Davis’s offices, GSE is now working on projects as diverse

as cooperative Ed.D. programs with leading universities in China, and cross-national research projects that offer professional development and educational enrichment programs. In addition, Professor Nancy Hornberger, a renowned expert in bilingual education policies and practices around the world, chairs the School’s International Education Advisory Committee, which has done wonderful work in the past several years in articulating our international strategy, organizing efforts to bring more international scholars to GSE, and helping our own faculty and students understand the wealth of knowledge and experience that GSE can claim.

And that’s just the faculty side of things. In this issue, you’ll read about the inspiring work that one of our doctoral students, Thomas Hill, is doing to develop peace-building programs in Iraqi universities. He’s just one of many GSE students engaged internationally. In Ghana, Nana Ackatia-Armah is studying an NGO’s work with young women living on the streets. In Sierra Leone, Nicole Behnam is looking at the impact of human-rights work on intergenerational authority relations. In Taiwan, Wei-shan Hsu is studying the integration of foreign spouses from South East Asia into the society. In Korea, Kathleen Lee is researching English language teaching. In India, Cynthia Groff is focusing on the educational experiences of young Kumaoni women and their teachers.

Our alumni, too, are active abroad. Just last year, Dana Holland Gr’06 moved to Kabul for a faculty job at the American University of Afghanistan, and Christopher Steel GrEd’09 is a Fulbright Fellow, working to develop educational programs in Ecuador.

As you know, our work at GSE is focused on research and development to create ideas, programs, and tools that will strengthen education—not just in the U.S. but around the globe. This snapshot of our international engagement only begins to capture the scope of what GSE faculty, students, and alumni are doing in the international arena.

Andy Porter



At 12, Otto de Montenegro was on the verge of dropping out of school to work in the coffee fields. A collaboration between Penn GSE and one of Nicaragua's leading families hopes to keep students like Otto engaged by what they're learning in the classroom.

MATTHEW TARDITI GED'09



A collaboration between GSE researchers and a prominent Penn family brings computers—and teacher professional development—to a school in rural Nicaragua

# FAIR-TRADE SCHOOL

By Nancy Brokaw

*At* 12 years old, Otto de Montenegro felt the lure of the coffee fields. Like many of his friends, he wanted to earn money and help support his family. School seemed beside the point.

For Otto's mother, though, school was very much the point. Rosa de Montenegro had moved to the Nicaraguan region of Jinotega nine years earlier to find a better life for herself and her family. The mother of 21 children—13 lost to poverty—she had heard through the grapevine that the coffee farm in Buenos Aires is a good place to work. Buenos Aires is a fair trade farm, and people are treated well there. So Rosa picked up her family and moved all the way across the country to work and raise her children.

But even there, Rosa faced an all-too-common problem among the rural poor of Central America: punishingly high drop-out rates as young people leave their education for the immediate return of field work.

When she realized that Otto had started cutting school to work in the fields, she sat him down and told him she was going to give him a gift: she was going to give him a day to catch up on his schoolwork.

She told him, "The second you lose your right to a pen and pencil, they're going to put a machete in your hand for the rest of your life."

## The Context

La Virgen Número Uno—the community where Rosa lives and Otto attends school—is small, with only 60 families and 960 registered residents. They are engaged mostly in coffee production, raising livestock, and grain farming, but some run small grocery stores, restaurants, or shops. Typical houses are built mostly of wooden planks with tin roofs and outdoor privies. Basic services—electricity, communication, potable water, and roads—are poor at best.

Stretching out across a string of mountains, the coffee farm—called the Finca Buenos Aires—employs about 1,300 workers, many of them seasonal. And as Rosa's story attests, it's an extraordinary place. Finca Buenos Aires is part of the holdings of CISA Exportadora, a firm owned and operated by one of Nicaragua's leading families. A distinguished Penn family that has sent four generations to the University, the Baltodanos are among those leading a nascent social responsibility movement in a country struggling to recover from the bitter civil war of the 1980s and the devastation wrought by Hurricane Mitch in 1998.

According to United Nations statistics, a quarter of the population across Nicaragua lives on less than a dollar a day. More than half subsist below the poverty line. In the rural areas, almost 50 percent of the population is illiterate.



MATTHEW TARDITI GED'09

The XO Laptop was developed by Nicholas Negroponte's One Laptop Per Child initiative that aims to provide individual computers to students in developing countries.

Nationwide, approximately 15 percent of children have dropped out of the education system.

As Dania Baltodano, the company's executive director, explains in a recent video, "We saw that we could make a difference in the lives of these children....With this in mind we organized a school sponsorship program where CISA, together with its partners—international roasters and financial groups are the sponsors—help bring the wonderful gift of education."

In 2001, the CISA group launched an Adopt-a-School program that, to date, includes 16 schools in rural Nicaragua, the Buenos Aires School among them. That school—the one Otto attends—serves 86 students, most of them farm workers' children, and today it is poised to benefit from a collaboration between the Baltodanos and researchers from Penn GSE.

### The Computer

That initiative—a project to introduce laptop computers and a technology-based curriculum—came about when Penn GSE faculty member Sharon Ravitch Gr'00 was invited to Nicaragua to speak about community psychology.

Ravitch, an expert on applied research in developing countries, got another invitation, this time to visit the coffee farm. There, she met Duilio Baltodano W'70, the president of CISA Agro, and his son Ernesto Baltodano W'05. The three exchanged ideas about the school and the family's interest in the One Laptop Per Child initiative.

"Duilio and I shook hands after an evening of talking on the finca," Ravitch says, "and then we all worked hard over the next few months to make this project happen."

The brainchild of Nicholas Negroponte, One Laptop

Per Child (OLPC) aims to provide each of the world's poorest children with "a rugged, low-cost, low-power, connected laptop with content and software designed for collaborative, joyful, self-empowered learning."

Announced with much fanfare at the 2005 World Economic Forum in Davos, OLPC's XO laptop is sold to government education systems for use by primary school children. The size of a textbook, the weight of a lunchbox, and the color of the Nicaraguan rainforest, the XO is durable, functional, energy-efficient—and inexpensive.

The idea, as the name suggests, is to provide a computer for every student, and since going into production in 2007, more than a million XO laptops have been delivered to developing countries worldwide.

But some educators have worried that, like far too many international aid efforts, OLPC suffers from a Western-centric perspective on learning and a top-down approach that doesn't account for local contexts but, rather, imposes outside values onto rural communities.

### The Community

Ravitch shares these concerns, but the more she heard about the Buenos Aires School, the more interested she was in what the Baltodanos were doing.

Accompanied by her research assistant, Matthew Tarditi GEd'09, she visited the primary school, which has four combined-grade classrooms, and interviewed the three teachers—head teacher Evelyn Estrada, a four-year veteran who teaches the combined fifth- and sixth-grade class; Junnieth Portillo, a 19-year-old who handles the third/fourth grades; and Jorling Ortiz, who teaches the first/second grades and is filling in at the preschool until the arrival of a replacement.

"I insisted on visiting a lot of people's homes as a first step in the process," Ravitch explains. "I wanted to get a sense of the community." They sat in Rosa de Montenegro's modest home and heard her life story, and they listened as Marco, the head manager of the finca and a veteran of the Revolution, talked about his work on the farm and his hopes for the community's children. Together, she and Tarditi began to get the feel of the place.

Back in Managua, Ravitch told the Baltodanos that their idea was exciting but cautioned that, if they just did the typical One Laptop Per Child project, it wouldn't work. She explained that the research literature on the initiative points to some genuine weaknesses in the model, among them a lack of adequate professional development and a failure to account for the community context and infrastructure.

"In Managua, we went to a One Laptop Per Child training," she explains. "And it's good—but it assumes a baseline of digital literacy and that teachers would know how to integrate this technology with the curriculum. The teachers in this school, for example, had never seen or used

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## Conventional wisdom holds that bridging the digital divide is an unalloyed good, but some experts warn against introducing technology that doesn't account for local context.

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a computer before. So we're going to give them five hours of professional development and tell them, 'Go ahead?'"

Instead Ravitch proposed a comprehensive program that would provide intensive, collaborative professional development for teachers, a participatory action research component to design a new curriculum that aligns with the standardized curriculum of the Ministry of Education, a significant ethnographic community study, and an evaluation of the program's educational impact on students' and teachers' learning and development.

At first, the Baltodanos questioned the need for such a large qualitative component—but listened as Ravitch made her case. She argued for conducting an ethnographic study to gain a deep understanding of the community, its resources and needs. "I wanted to be sure we collected considerable baseline data on student learning and skills, teacher learning and skills, and also on the community as a whole—its perspectives on education, careers, family, work." She also wanted to be sure that this project was truly collaborative, respectful, and community-centered, and she knew that only deep and sustained engagement within the community—with parents, children, community leaders, teachers, and those who run the farm—would succeed."

### The Digital Divide

When it comes to the digital divide, opinions vary. While conventional wisdom holds that bridging the divide is an unalloyed good, some experts warn against introducing technology that doesn't account for the local context.

Most residents of places like Finca Buenos Aires are farm workers and often such communities don't offer many other forms of employment. "What happens if you prepare the next generation for these new jobs but the community doesn't have the infrastructure to support them?" Ravitch asks. "You have multiple generations living together here. I worry about breaking up families. I worry about migration away from these communities. Who am I to say? At the core of my angst about this is, Who am I?"

That said, Nicaragua—and the Finca Buenos Aires—offered two compelling arguments for proceeding with the project. The first required an understanding of coffee farming. Across Latin America, technology is transforming the industry. "People have started wearing handhelds to track their activities in the fields," Ravitch explains. "So if Nicaragua falls behind significantly, it will no longer be competitive in the marketplace, which would have massive implications for this and many other coffee farm communities"

Add to that the need for leadership. On most farms, middle management workers are recruited from elsewhere. But the Baltodanos want to develop leadership from within the community—and for that they need a well-educated pool of workers. The interview with Marco, the farm's manager, brought that point home: "The farm managers

are trained agronomists," Ravitch explains. "They're the middle class of Nicaragua. We spent hours and hours talking to Marco, and here was this man, the son of farm workers who everyone told me was very quiet. And he engaged us with an impassioned speech about how important this project is in elevating education for the children and their families in this community. And as an insider, he—his words, his perspective—shaped our own thinking about the potential positive impacts of this initiative."

To both these factors—the need to remain competitive, the need to cultivate leadership—Ravitch adds another: "Everyone is so excited about the computers, but I'm not as excited about them per se. I see them as a great vehicle and a great tool to bring considerable professional development and resources to this community. And that, for me, is the model that I want to replicate." The idea of replicating what Ravitch and her team builds in Buenos Aires is at the center of the Baltodanos' efforts.

### The Curriculum

Still, the arrival of the computers this summer *was* exciting. Ravitch was in Nicaragua for an extended period this

Penn GSE faculty member Sharon Ravitch Gr'00 and Matthew Tarditi GEd'09, the project's research assistant, with students in the Buenos Aires school.



MATTHEW TARDITI GED'09

summer and was on hand to see the XO's delivered.

"The people in the community are extremely excited," she reports, "There were tears of hope and joy that their community can help shape this project in ways that will elevate their children's sense of possibility."

Before arriving, she and Tarditi spent months building a professional development framework and a set of objectives for teacher and student learning. They used a math module developed by Christine Massey, director of research education in Penn's Institute for Research and Cognitive Science, to draw up practice lessons and even simulate class sessions. NancyLee Bergey, a Penn GSE instructor with dual expertise in science education and teacher preparation, helped them with the professional development component.

Once in Nicaragua, they kicked off their first week by getting to know the teachers and establishing a collaborative working relationship. "After we broke the proverbial ice," says Tarditi, "we quickly transitioned into the integration of computers and technology in the school.

"Following our first sessions," he continues, "we began to work directly with the XO laptop computers, starting from the most basic operations and functions—opening

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and turning them on. On a daily basis, I have been working to familiarize the teachers with computer programs or software, while we have been developing daily lesson plans that incorporate these programs in coordination with the Ministry of Education's curriculum."

In addition to the teachers, Tarditi works side by side with a teacher-facilitator who will be responsible for replicating the project in other schools in the Adopt-a-School network.

Ravitch is closely supervising the project, but Tarditi is Penn GSE's man on the ground and key to the project's success. A graduate of the School's Education, Culture, and Society program, he was originally hired as the project translator. He ended up writing his master's thesis on the issues at the heart of this project—the digital divide and rural poverty—and signed on for a one-year stint on the coffee farm.

On his own now, Tarditi is not only facilitating the professional development but also continuing the ethnographic study, making daily observations and conducting interviews with community members—parents, students, teachers, and farm personnel: "It's his judgment in the moment, and it's his wisdom," says Ravitch. "One of the reasons I knew he'd be perfect is that his orientation is deeply collaborative."

As Tarditi explains, "On a regular basis, once or twice a week, I make home visits in order to get to know the community. The teachers have been invaluable to my engage-

ment with students and parents. On my initial visit to a household, they always accompany me. Evelyn Estrada is like the mother goose of the flock. She has a terrific relationship with the community as a whole."

He goes on: "The initiative is embedded in an ethnographic study of the community and the effects of technology. It is important to understand the realities of the people, their views on education, their daily lives, their experiences, their trajectories for themselves and for their children, their knowledge of technology, ... and it is imperative to be culturally sensitive and respectful to the community. So I am engaging with them as much as possible to include them in the conversation and in the overall process or at the very least, allow them the opportunity to express their opinions, concerns, thoughts, ideas, expectations, etc., about the project and their children's education."

That kind of commitment to collaboration is central to the way Ravitch and Tarditi are doing business. In the traditional research model, researchers position themselves as "experts," people trained to extract information—to collect data on their "subjects" and then write scholarly papers for refereed journals. This project, however, follows the participatory action research model, in which research is not merely collaborative but is undertaken to address problems identified by the local community. It's research conducted *with* and *for* people, not *to* or *on* them, Ravitch says.

### The Future

The project's deliverables are specific and tangible: a professional development program and a computer-centered curriculum, both documented in a training manual and curriculum guide to be used for replication throughout Nicaragua.

But Ravitch hopes to accomplish more: she wants to conduct a longitudinal study that will provide a detailed picture of the impact of the laptop initiative and all that it is bringing to the community at large. Her interest here is far more than academic. Her interest, like the Baldonados', is in replication. "If we innovate," she says, "if we design an emergent curriculum in a respectful way, that complicates what needs to be complex, that evaluates in a very real way, that uses a truly democratic process—if we really do this well, it will be worthy of replication."

Early signs are that Nicaragua may be eager to adopt the model. The partnership with CISA and the Baltodanos has brought an extraordinary level of visibility to the project: Estudio 24 Horas—Nicaragua's answer to 60 Minutes—featured interviews with the team; the local press has profiled the work; and business leaders and government VIPs have expressed the same level of enthusiasm as the workers on the Finca Buenos Aires have.

Indeed, after one particularly high-powered meeting, one of the people at the Ministry of Education turned to Ravitch and said, "Central America is watching us, Latin America is watching us, the world is watching us." ■



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