

The Challenges of Development Economics: An Interview with the Blum Center's Kweku Opoku-Agyemang

By Tamara Straus

Kweku Opoku-Agyemang, a postdoctoral fellow at the Blum Center, believes that one of the greatest downfalls in the field of international development is detachment.

"Training in development is often solution-oriented. It involves implementing projects," the 34-year-old Ghanaian said. "This may be why it's easy to be detached from people and places. But detachment can have bad outcomes."

Opoku-Agyemang has been subtly underscoring this point in his UC Berkeley course, "Poverty, Technology, and Development." During a recent lecture, he told students the case of the Lake Turkana fish processing plant, a \$22 million project designed in 1971 by the Norwegian government to provide jobs to the Turkana people of Kenya. The idea was to get the Turkana to run a fish processing plant for export, but the Turkana are nomads with no history of fishing or eating fish. And the plant operated for only a few days, because running the freezers and providing them clean water in Kenya's northwest desert were just too costly.

The field of international development is strewn with such stories of ineffectiveness or, to use Opoku-Agyemang's word, "detachment," in all its cultural, psychological, sociological, and historical variations. "About half of World Bank projects fail, costing billions of dollars," he reminded his students—before launching into the larger question of the course and his current research: whether the current wave of technological advancements can alleviate global poverty.

"That's an ongoing discussion," said Opoku-Agyemang. He is measured in his opinions, perhaps from a decade-plus of education and research, in which he earned a doctorate in Development Studies from the University of Wisconsin-Madison, an M.A. in Economics from Ohio University, and a B.A. in Geography from the University of Ghana. "It depends on the example. There is a lot of excitement about technology and development now, but I think it's too early to tell how successful the results will be."



Kweku Opoku-Agyemang, who was selected in an international search to be one of the first postdoctoral fellows at the Blum Center, is using interdisciplinary approaches to understand the effects of mobile communications on civic participation and governance.

Still, Opoku-Agyemang is not waiting on the sidelines to find out. He is among a new generation of international scholars using interdisciplinary approaches from political economy, development economics, behavioral economics, business economics, and applied econometrics to understand the effects of technological advances, particularly mobile banking and communications, on poverty alleviation. Already, he has designed several applied research projects that document, through both qualitative and quantitative methods, how best to both formulate and evaluate development projects.

According to Jeremy D. Foltz, a professor of agriculture and applied economics at University of Wisconsin, Madison, Opoku-Agyemang's doctoral thesis was a standout because it provided new insights into informal finance, particularly in savings and credit markets. Opoku-Agyemang's thesis looked at Ghanaian *susu* collectors, who work out of marketplace kiosks and through whom rural earners without bank accounts deposit and access their own money. *Susu* collectors are one of the oldest financial groups in Africa. For a small fee, they will hold onto people's money and enable savings. But Ghanaians who deposit money with *susu* collectors do not establish formal credit worthiness with banks, even though their savings rates can be relatively high. Opoku-

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Agyemang's question was why—and, in turn, what does credit worthiness really mean?

In the summer 2010, he conducted a survey to explore how small entrepreneurs use *susu* collectors. Some made daily or twice daily deposits; others parted with their earnings twice-weekly, fortnightly, or monthly. What he found from collecting questionnaires from 400 clients confirmed a hunch: the more frequently a person deposited money with a *susu* collector, the higher that person's credit score would be in traditional finance. Banks took note. Rural banks in the Central Region of Ghana even used Opoku-Agyemang's credit worthiness measurements to expand their customer base.

"Kweku gained exceptional access to local bank officials in the Central Region of Ghana, where there is a banking sector project to scale up micro-lending and do mobile banking," said Professor Foltz in an email. "In the space of one summer, he was able to collect the best and most comprehensive dataset on *susu* banking in West Africa that I have seen."

Opoku-Agyemang has been pleased to see the results of his research: More Ghanaian banks now work with *susu* collector unions to mobilize funds to their best clients. But he wonders whether some entrepreneurs' savings rates will change as they enter the formal banking sector. "Working with a *susu* collector is very social," he explained. "One of the shortcomings of formal banking is that it's relatively impersonal." In other words, there may be less motivation to save when you give your earnings to a machine as opposed to a person who can commend your will power to save rather than spend.

Opoku-Agyemang's current research is looking at the role of mobile technologies in Ghanaian activism and political reforms. He explains that a decade following the reforms of the 1990s, which led to new constitution and a multiparty system, Ghanaians' confidence in local government has dipped—in spite of a robust national democracy. Especially in rural areas, many Ghanaians are politically disengaged. District and town meetings are badly attended. Even the strong Ghanaian tradition of using radio shows as means for citizens to complain directly to elected politicians, seems to have waned. "People used to line up around the block to call into the radio shows. It was a very influential way to be heard and make change," Opoku-Agyemang said.

His current study, like his previous one, is based on a hunch: people will become more informed and politically active if they have an easy mechanism to voice their opinions—particularly to those in power. To test this, he designed a field experiment in five languages for Ghana's Central Region that randomly varies access to politically participatory radio shows and enables more call-ins through mobiles and voice messages. Opoku-Agyemang plans to see if those who call in more often are more likely to vote in local elections.

Opoku-Agyemang, who grew up in the historic trade city of Cape Coast, does not think he necessarily has an advantage being a Ghanaian studying Ghanaian and African development issues. "I am only one person," he said. "I tend to be very hesitant if someone is generalizing about a people or a situation. Ghana is a nation of 25 million people."

This preference for individual perspectives may have something to do with Opoku-Agyemang's early education and family background. Unlike most academic economists, he grew up on literature. Opoku-Agyemang read Shakespeare as a teenager. He penned short stories in college. Literature is also the

Opoku-Agyemang family business. His father, Kwadwo, is an emeritus professor of literature at University of Cape Coast, an expert on African oral literatures, a poet, and a novelist. His mother, Jane Naana Opoku-Agyemang, is a literary scholar, an internationally acclaimed expert on the African diaspora, and Ghana's minister of education. Even Kweku's siblings have felt the strong tug of books. His sister, Adwoa Atta, is a graduate student in French literature at University of Toronto; and his brother, Kwabena, is a graduate student of English literature at University of West Virginia.

Opoku-Agyemang explains his break from the family business in a matter of fact way "Mathematics is a language, too," he said. But he admits that economics has appealed to him "because it tries to provide solutions. It provides me with a way to think about poverty as lived experience and as a public policy problem."

Opoku-Agyemang said the experience that confirmed his interest in political economics occurred after he graduated from college. In Ghana, all public university graduates are required to spend a year working for the government. Opoku-Agyemang got assigned to the HIV/AIDS Secretariat and to a project aimed at lowering infection rates. Although there was public awareness of the disease, by 2005-2006 rates were rising. One of the results was that Ghanaians with HIV dropped out of basic school. The HIV/AIDS Secretariat decided the best approach would be reinvigorate the curriculum and set out to work with the Teacher's Union. They decided that to reach students, all taboos should be on the table for discussion.

The creation of the teaching guide took six months of continual student-teacher workshops and a year before a final document was published. "The experience put me in touch with basic technology adoption—understanding how many iterations and modifications are required and how long it takes," said Opoku-Agyemang. The experience also led to results. HIV infection rates fell from 3.6 in 2003 to 2.2 by 2008, and in 2013 only 1.3 percent of the Ghanaian population had contracted the disease.

"I think it would have been very easy to quickly write up a teaching guide, give it to teachers, and be done with it," Opoku-Agyemang said of the project's success. "Instead, we realized that there needed to be as frank discussion as possible, that teachers and students would have to make themselves vulnerable." In other words: no detachment.

Development experts around the world are now using psychological insights to inform social and economic policies—sometimes with results like one Opoku-Agyemang experienced at Ghana's HIV/AIDS Secretariat. "Behavioral economics has become popular because in the past economists had a limited view of how people acted," he said. "There wasn't enough attention paid to basic human behavior, to procrastination and forgetfulness. What I like about behavioral economics is that what looks common sense is only proved after the fact. Common sense before a rigorous study is actually not so clear to pinpoint."

UC Berkeley Professor Ananya Roy, who serves at the Blum Center's education director, views Opoku-Agyemang's work as part of an interesting moment in development studies



"Behavioral economics has become popular because in the past, economics had a limited view of how people acted," said Opoku-Agyemang. "There wasn't enough attention paid to basic human behavior."

and especially development economics.

"On the one hand, there is great interest in specific methodologies such as RCTs [randomized control trials], as well as in the technologies that can be used to perfect such methodological approaches," she said in an email. "On the other hand, economics is returning to broad questions of political economy, tackling the puzzles of capitalism and persistent poverty and inequality. What is inspiring about Kweku is how comfortably he inhabits both worlds. He thinks like a political economist, recognizing the need to have a global, historical, and critical understanding of development. But he is able to act alongside the practitioners of development economics and the advocates of poverty action. In this sense, Kweku represents the best aspects of the amalgam of approaches and worldviews that make up the academic programs of the Blum Center, notably the Global Poverty & Practice Minor and the Designated Emphasis in Development Engineering."

Big Ideas Turns Nine



The contest's 400-plus student teams and award winners have gone on to secure more than \$35 million in additional funding, and 30 percent of winners from 2006-2011 have won at least one additional award or business plan competition. 50 percent of the winners report their Big Ideas project is still running.

By Jenna Hahn

In 2006, Big Ideas @ Berkeley was launched to support multidisciplinary teams of UC Berkeley students interested in big challenges, such as clean energy, safe drinking water, and poverty alleviation.

Nine years later, the yearlong student innovation contest has become a model for on-campus collaboration and action—and has expanded to 16 universities around the country and world, including the entire University of California system and the USAID Higher Education Solutions Network.

As Big Ideas moves toward its 10th anniversary, it is facing big numbers. More than 4,000 students have submitted 1,248 proposals to the contest. During the last three years, participation from undergraduate students has increased dramatically—from 35 percent in 2010 to 70 percent in 2014.

According to an internal study from the Blum Center for Developing Economies, which manages Big Ideas, the contest's 400-plus student teams and award winners have gone on to secure more than \$35 million in additional funding. Thirty percent of winners from 2006-2011 have won at least one additional award or business plan competition after participating in Big Ideas, and 50 percent have reported that their Big Ideas project is still running.

Among the projects that originated from Big Ideas are: Acopio, a data sharing software platform for agricultural producers, now managed by Fair Trade USA; Nextdrop, which uses mobile phone technology to transmit water supply and distribution information for Indian consumers; and Back to the Roots, a U.S. company that sells mushroom kits made from coffee grounds.

“From the beginning, Big Ideas was about developing an ecosystem of innovation to help bright young people get from idea to reality,” said Maryanne McCormick, executive director of the Blum Center for

Developing Economies. “The contest is run and organized around the belief that there’s a value to giving young people more autonomy early in their career—and there’s a value to encouraging them to identify something that they’re passionate about. Over the last nine years, we have seen those values bear fruit.”

This year’s contest will offer up to \$300,000 in funding for winning teams. It also will offer applicants a new contest category, Food System Innovations, sponsored by the UC Global Food Initiative and the Berkeley Food Institute. The UC Global Food Initiative, launched in July 2014 by UC President Janet Napolitano, brings together the university’s research, outreach, and campus operations in an effort to develop and export solutions throughout California, the United States, and the world for food security, health, and sustainability.

The contest launches on September 2, and spans the academic year, beginning with the submission of a five-page pre-proposal by November 13. If selected, finalist teams will be then prepare a full proposal by mid-March.

From September to March, when the final proposals are due, teams have the opportunity to attend information sessions, idea generation and networking events, writing workshops, editing blitz’s, and office hours with Big Ideas advisors in person and online. In addition, teams will be matched with mentors with expertise relevant to their project from a range of social enterprises, academia, nonprofits, and businesses.

Unlike many business competitions, Big Ideas is focused on supporting projects focused on social impact. The contest challenges students to step outside of their traditional university-based academic work, take a risk, and use their education, passion, and skills to work on problems important to them.



“The Big Ideas Contest helped us to think beyond what we had initially envisioned and push past our boundaries,” said Priya Iyer, a member of the Sahay team that won third place in the Information Technology for Society category in 2014.

UC Students to Develop Solutions to Global Food Challenges

By Sybil Lewis

Inspired by the depth and breadth of activity across the University of California to address challenges in the global food system, Big Ideas@Berkeley, the flagship student innovation contest, has launched a new contest category: Food System Innovations.

The category responds to UC President Janet Napolitano's UC Global Food Initiative—an effort to catalyze all 10 campuses, UC's Division of Agricultural and Natural Resources, Lawrence Berkeley National Lab, various institutes and centers, and a multidisciplinary consortium of faculty, researchers, and students to address food security issues and the related challenges of nutrition and sustainability.

In her talks about the initiative, Napolitano has underscored that today a billion people, mostly in the developing world, suffer from chronic hunger or serious malnutrition, and another billion, primarily in the developed world, are obese. "Put on top of that the increasing pressure on our natural resources, land and water, and you can see the magnitude of what we have before us," Napolitano said at the initiative's launch in July at the Edible Schoolyard in Berkeley. "The issue of 'food' is not just about what we eat. It's about delivery systems, climate issues, population growth, policy. All of these and more come into play when you begin to think about the colliding forces that shape the world's food future."

The Big Ideas prize is leveraging this call to inspire students to craft creative solutions. "We hope the category will motivate undergraduate and graduate students throughout the UC system to come up with innovative ways to address the growing pressures facing our global food system," said Phillip Denny, manager of Big Ideas and chief administrative office of the Blum Center for Developing Economies, which administers the contest.

Can students develop new systems, technologies, or approaches to one of the 21st century's thorniest problems? Denny, who has seen scores of Big Ideas contest winners go on to create high-impact ideas, says yes. He also points to the wide constellation of UC professors and researchers who have

incorporated food sustainability and security into their work and whose passion for agriculture, health, nutrition, energy, water, labor, and social justice will help inspire students.

The Berkeley Food Institute (BFI), a sponsor of the Food System Innovations category and member of the UC Global Food Initiative, is working to facilitate cross-disciplinary approaches to food security, food justice, and environmental sustainability issues. "Developing effective solutions to food and agriculture challenges requires multi-dimensional expertise and innovations in many disciplines and across sectors—from production to distribution to consumption of food," said Ann Thrupp, executive director of BFI. "Addressing these challenging issues is a great way to encourage group learning, and to address problems collaboratively. Food can be a catalyst that brings people together in universities and everywhere."

Several projects and courses on UC campuses seek to include students in problem solving for food security. On the Berkeley campus alone, there are more than 90 academic courses related to food and agriculture and more than 150 faculty and staff that teach and conduct food-related research.

The School of Public Health at UC Berkeley, for example, offers an interdisciplinary graduate course called "Eat.Think.Design," which encourages students to connect with nonprofits and government agencies to implement projects that address challenges in food systems. Jaspal Sandhu, a lecturer in design and innovation at the School of Public Health and a former Big Ideas team mentor, said he designed "Eat.Think.Design" to "create links between the classroom and the real-world to motivate students and ensure a worthwhile learning experience." Past students from the course include a computer scientist who traveled to Uganda to test a post-diarrheal zinc therapy and health writer now working on special programs for the Culinary Institute of America.

Sandhu is among those who believe that because the challenges of food security affect us all, solutions require interdisciplinary collaboration. "At the moment, not enough of



UC President Janet Napolitano joins UCLA student Ian Davies in a student-run garden, to draw attention to the UC Global Food Initiative addressing food security, sustainability, and nutrition.

our students and faculty are focused on food security," he said. "Adding this FSI category to Big Ideas will bring the brightest minds to the table."

Winners of the Food System Innovations contest will be announced in March, and student teams will receive cash prizes of up to \$10,000.

Although in past years, there was no category for food innovation or security, students have won for related Big Ideas prizes. During their last semester as undergraduates at UC Berkeley in 2009, for example, Alejandro Velez and Nikhil Arora developed a plan to grow gourmet mushrooms from used coffee grounds. They submitted their idea for a project called "Back to the Roots" and won a \$5,000 prize, which helped launch a company that is now in its fifth year of operation and boasts two products: the Mushroom Kit and AquaFarm, a self-cleaning fish tank that grows food. The company's products are currently sold in thousands of locations, including Whole Foods, Nordstrom, and The Home Depot. In 2013, Back to the Roots was named a Martha Stewart American Made Awards winner and one of Forbes 25 Most Innovative Consumer Brands.

Velez said Back to the Roots aims not only to turn waste into food, but to redefine how people view waste. "More and more, we're starting to appreciate the ecosystem that we're a part of," he said. "In reality, there is no 'waste' in nature. We just have to take the time to figure out what is its second life."

A New “OnRamp” Class for Social Innovators

By Tamara Straus

Some people have called it the personalization of higher education. Others see it as the natural evolution of pedagogy at a world-class public research university. Lina Nilsson doesn't disagree with either of these interpretations, but she definitely sees on-campus, in-class social impact work as “the changing face of education.”

“Connecting academic learning to real-world issues and problem solving is something that students are demanding,” said Nilsson, director of innovation at Blum Center for Developing Economies. “And students can't be expected to pull together all the pieces needed for their ideas to have impact. In addition to subject-matter expertise, they also need coaching and mentorship. They need to learn by example. And there's no reason that can't be made available to them at the university.”

These are among the reasons Nilsson launched a new Blum Center-sponsored course this fall called “Social Innovation OnRamp.” Created in part to provide a space to accelerate the projects of UC Berkeley students who have won the prestigious Big Ideas@Berkeley contest, the course provides an overview of a broad range of skills for the creation, evaluation, implementation, and growth of early-stage projects that serve the public good. The course also comes with an OnRamp website that provides resources for budding social innovators to find funding, startup and training programs, and recommended reading.

In its first offering, the OnRamp course quickly oversubscribed. Several of the students, such as Political Science Major Michael Alexander Clark, have unabashedly said, “It is the best class I've taken at Cal.”

Part of the energy in the class comes from Nilsson herself, who while a post-doc in bioengineering at UC Berkeley, created a startup called Tekla Labs, which provides guidelines for medical professionals in developing countries to build lab equipment using locally available supplies. For this, Nilsson was named a MIT Technology Review Innovator Under 35. But Nilsson admits that she and her Tekla Labs colleagues “could have done a lot of things better, if we had learned a few things earlier.” This need to learn from both successes and failures has shaped the theory and the practical drive of the OnRamp course.

The OnRamp's high-energy atmosphere also comes from the students themselves. They are a mix of graduate and undergraduate students representing departments as diverse as business, political science, computer science, psychology, information management and systems, mechanical engineering, applied mathematics, anthropology, environmental economics, energy resource, and peace and conflict studies. Some projects focus on mental health; some on agriculture; others are pushing along ideas that might “innovate” or “disrupt,” to use the parlance of social innovation, student career support and homelessness. About half the student teams in the class are focused on U.S. social impact, and the other half on developing countries.

Along with Nilsson, Course Facilitators Kate Fenimore and James



Connecting student learning to real-world issues and problem solving are among the reasons that Dr. Lina Nilsson launched the Blum Center-sponsored course “Social Innovation OnRamp.” The course provides an overview of the skills needed to scale up early-stage projects that serve the public good.

Roditi, and a dozen guest speakers serve as both cheerleaders and cautioners for student innovation. “What we try to say is: ‘Here's a scaffold of skills and insights you need to master and evaluate if you want to have meaningful impact as a social entrepreneur,’” explained Fenimore.

The course presents 12 such scaffolds, including: framing and pitching ideas; developing a theory of change; identifying, understanding, and communicating with stakeholders; understanding, maximizing, and measuring social impact; network, outreach, and communication; social impact concepts; product/service prototyping and design; execution and logistics; business models and legalities; and knowing when to pivot or quit. Every week, a practitioner engages the students in an hour-long discussion on these scaffolds, with the possibility of additional mentorship.

John Romankiewicz, a dual master's degree student at the Energy & Resources Group and the Goldman School of Public Policy, said he enrolled in OnRamp to move along his idea for The Food Bikery, which seeks to deploy a low capital, low footprint alternative to food trucks. He reasoned that food trucks, which are now a \$1 billion industry in the U.S., may not be as green as many people think. They cost about \$50,000 to outfit with a kitchen and generator, whereas food bikes cost around \$5,000, and generate much lower emissions, take up less space, and serve as a more affordable pathway for budding chefs to showcase their talents. Eventually, Romankiewicz would like to see co-ops of food bikes in relatively flat, temperate cities like Berkeley and Austin that could share food storing and prepping facilities.

To put his idea into action, he and Jason Trager, a Cal mechanical engineering PhD student, built a prototype in 2013 made from recycled materials for a 150-pound, two-wheel trailer. They outfitted the trailer with a griddle and propane tank and rigged it to a standard street

bike. Romankiewicz, who goes by the moniker “Sustainable John,” began to show up at parties and make Jian Bing, a Chinese egg crepe garnished with green onion and cilantro that he mastered while living in Beijing. He wrote a proposal for The Food Bikery, entered it in the Big Ideas contest, and won a \$2,000 prize in May 2014. Two weeks later, he won another \$2,000 prize from a food company called So Delicious, which was running a small sustainability grants competition on Twitter. “I have a minimum viable product,” he said. “I know it works. What I don’t know is if I can get around the regulatory issues.”

That’s where the OnRamp course comes in. Romankiewicz said the OnRamp has forced him to refine his pitch, research the regulatory hurdles for food bikes—which like food trucks would need to meet health and food sanitation requirements—and analyze the financials. He estimates that food bike owners could sell 30 to 40 meals per shift, taking in \$200 to \$400 in revenue, which, he said, “would come to about \$25/hour, well above the minimum wage earned by kitchen workers.”

Right now, the project’s greatest hurdle is refrigeration and sanitation. “Nobody wants

to carry a refrigerator on their bike or drag a generator through the streets,” he said. So he needs to argue to city and county officials that food bikes should have a four-hour operation window, during which time a bike cook could load his trailer, arrive at his location, cook his meals, and call it quits before any food spoils.

The OnRamp class has served a similar prod for Tchiki Davis, a NIH-funded doctoral student in psychology. She has been working with her father, a software engineer, on a series of online games that train young people to focus on positive information. Davis is among a growing group of psychology researchers who believe that happiness, much like math or music, is a skill that can be learned—and that positive cognitive stimulation, such as looking repeatedly at a sea of smiling faces, can reduce stress. Her Lifenik games are based on peer-reviewed papers by psychology scholars like Derek M. Isaacowitz of Northeastern University and Mark W. Baldwin of McGill University, who have conducted repetitive visual training tests that have been shown to increase self-esteem and reduce stress. “So much of our behavior is socially engineered in negative ways, but we can change our engineering,” said Davis.

“Most people know that if we can retrain ourselves to regularly exercise, then we will improve our physical health. But it is also true that if we retrain ourselves to regularly think about the world in more effective ways, then we will improve our emotional health.”

Like Romankiewicz, Davis is a Big Ideas contest veteran seeking practical guidance. “I have the research training,” she explained, “but not the business training,” adding that what she has found in the OnRamp classes is quite different from for-profit business workshops. “My greatest hurdle is not necessarily understanding the market for the games,” she said. “It’s making sure the games are psychologically effective. It’s balancing the social impact and scalability aspects of the project.”

Davis is currently applying for a \$450,000, two-year NIH grant to help build Lifenik games. Like her teacher Nilsson, she doesn’t intend to use her PhD for a tenure track academic career. “I want to turn research findings into actionable, user-centered products, tools, and interventions that improve people’s quality of life,” she said. “Right now, this project is my passion, and I intend to pursue it.”

Free Speech Movement Legacies and the Promise of Community Engaged Scholarship

By Sean Burns

While the 1964 Free Speech Movement at UC Berkeley focused on one central demand—the freedom of students to openly speak about and engage in political advocacy and organizing on campus—the many months that students dedicated to winning this struggle was nourished by much broader discussions about the nature of higher education and the role of the university in a democracy. This week’s 50th anniversary of the Free Speech Movement at UC Berkeley marks an opportunity to reflect on these broader discussions and their legacy. Specifically, as a student advisor and faculty member affiliated with the Blum Center’s Global Poverty & Practice Minor, I want to offer a few thoughts on the meaning and challenge of “community engaged scholarship” in higher education today.

For those of you new to the phrase, community engaged scholarship is a set of educational practices and principles that fits within a much larger civic engagement movement in

higher education. While community engaged scholarship has many roots (some of which go



UC Berkeley student Mario Savio stands atop a car on Oct. 1, 1964 to speak out on behalf of free speech and activism on campus. Fifty years later, UC Berkeley students and scholars are asking how to build community partnerships that can build a more just society.

back to the 19th century), it’s fair to say that the Sixties’ era student appeals for political relevance in their education was a historical milestone. Certainly here at UC Berkeley, the Free Speech Movement must be seen as the fountainhead for contemporary social justice struggles faced by students today.

In the fall of 1964, through countless meetings, rallies, and protests, the students of the Free Speech Movement built a culture of social transformation. At the heart of this culture was a dedicated passion for dialogue and debate on the pressing issues of the era—most notably, the persistence of white supremacy in 1960s America. As students shared their concerns on the steps of Sproul Plaza, in dorm rooms, dining halls, and occupied administrative buildings, they began to increasingly ask why their college courses were not taking up such issues. In short, they began to ask fundamental questions about the relevance of their schooling to the urgent social issues of their day. Today, those of us committed to community engaged scholarship—students, faculty, and citizens in

general—continue to ask these questions.

At the most basic level, community engaged scholarship is about invigorating the public and democratic character of education by linking up classroom learning with the efforts of communities (both local and international) to address the social problems they face. While this might sound a lot like the popular, educational practice known as “service-learning,” community engaged scholarship projects are often conceived as efforts to remedy some common, problematic features of service-learning. Rather than discuss these problems abstractly, I want to talk a bit about two, complementary programs I am involved at UC Berkeley and how these programs approach community engagement.

Founded in 2007, the Global Poverty & Practice Minor aims to support students from all disciplinary majors who seek to understand why high levels of poverty persist throughout the world. Born at a moment when the “Millennials” began arriving on campus, the Minor sets out to examine and complicate a number of contradictory features of the era. On one hand, the 21st century has seen a proliferation of concern for injustice. It is no longer the task of a small collection of international agencies to solve famines, mitigate sprawling urban slums, and tackle new epidemiological crises. Rather, all of us are called to take action. Well, at least certain kinds of action: to run races to support the homeless, to shop to fund education, to party to reduce infection. Sound familiar? Students are especially recruited into this alluring logic. An enormous industry exists through which they can “make a difference” during their education, be it through volunteer-centered spring breaks, semesters abroad, summer trips, or co-curricular programs like ours.

So how does our program try to navigate this climate of what might be thought of as the neoliberalization of social action—where efforts to change the world are so often channeled into individualized and monetized activities that more or less reproduce social inequalities (or, at worst, aggravate them).

To start with, the Global Poverty & Practice Minor aims to work with students in understanding global problems through historical and critical examination. Critical here means: rigorously investigating the assumptions through which we see problems. When we ask a specific question about poverty, we also ask what are the political ingredients of that question? If we find ourselves desiring to take up action in specific ways in specific communities, we ask what are the ingredients

of those desires? (Many examples of faculty demonstrating this kind of thinking can be found in our #GlobalPOV social media project.) Our program, as such, isn’t framed in terms of impact, but instead is focused on the kind of study and reflection that we feel is requisite for making any meaningful, long-term impact. We see this humility as vital in light of the long history of Western higher education’s implication in colonialism, empire, and environmental destruction. Our intentions are not to stifle student action; the

of poor communities in the United States. A primary learning objective for our program is that students gain tools for thinking, strategizing, and innovating at this systemic scale, and, in terms of how we seek to relate to community efforts, solidarity has become a cornerstone concept in our program.

Now, even if we set out to partner with communities in their work in a spirit of solidarity, that doesn’t end the challenges. In fact, it really just begins them. Students



Similar to the goals of the Free Speech Movement, community engaged scholarship is about invigorating the public and democratic character of education by linking up classroom learning with the efforts of communities (both local and international) to address the social problems they face.

world itself provides enough obstacles in this regard. Rather, we aim to inspire a certain kind of reflective action that can guide them throughout the course of their lives. As GPP founding professor Ananya Roy eloquently states, we seek to open up a space for students “between the hubris of benevolence and the paralysis of cynicism.”

Crucial to this space is a vision of working with communities rather than serving them, as “service” is often heard as a paternalistic term—expressive of the attitude that when university students engage with communities, the student is there to give, while the community is there to receive. In our time of such profound poverty and inequality, certain kinds of service provision are undoubtedly necessary. My point is: they are insufficient. Food pantries are not a substitute for food justice. Homeless shelters are not a substitute for establishing housing as a right. Tutoring in prisons must be seen as one node in a web of activity to dismantle mass incarceration

and faculty who aspire to engage with communities in a manner that is reciprocal and mutually beneficial have to grapple with a range of tensions. First, we all know that systemic social change takes a long time—certainly beyond the time frame of a student’s college years. So an important question we are sitting with (along with many others engaged in community engaged scholarship) is: how to build community partnerships that last and that can incrementally build a more just society? Second, the framework of partnership is an ideal. Contained within this ideal are the realities of building relationships across space—from campus to community, from community to campus—when these relationships are mediated through complex, historical issues of power, knowledge, and representation. The points of encounter between powerful research universities and marginalized communities are not innocent spaces. Precisely for this reason, the transformative possibility for all involved is immense. Free Speech Movement students

like Mario Savio who participated in the 1964 Mississippi Freedom Summer knew this edge of peril and promise, and so do, perhaps better than anyone, today's first generation college students who often arrive at Berkeley from these marginalized communities.

To speak to these challenges and possibilities of partnering, I want to reflect a bit on a course I teach through the American Cultures Engaged Scholarship program called "Social Movements, Urban History, and the Politics of Memory." The motivation for the course stems from two basic observations I've made in my 20 years of social justice education in the San Francisco Bay Area. One: students have little awareness of, let alone contact with, the dynamic and diverse population of social justice activists in our area. Two: these community organizers so often have insufficient time to document their work; the immediate struggles are too pressing. Therefore, the course trains

students in methods of community history and social movement scholarship and links them up with community members to document important social histories of the Bay Area. We do this in collaboration with a respected community history organization called Shaping San Francisco and make the collaborative research available through an online wiki-based archive "Addressing Injustice: Bay Area Social Movement Histories." Because the course foregrounds the analysis and experience of community activists, it illuminates the benefits of what might be thought of as an important form of "public education." The impact on students is profound. Intellectually, it makes all the difference when the questions that shape the class are not emanating solely from the professor or "the academy" but rather from dialogue with communities. This makes deep impressions on the students about what voices matter, who speaks with legitimacy on what topics, and what democratic education

can mean. On a personal level, the results are even more telling. Students have told me (and community members) time and time again how their visions for their future are altered by building relationships with these activists and the movements they are committed to.

The key word here is relationships. Nothing meaningful in the development of community engaged scholarship can happen without committing significant time and energy to building campus-community relationships. If we at Cal want to truly honor the legacy of Free Speech Movement on this 50th Anniversary, we have to recognize the need to embolden our commitment to this public purpose. Many other research universities are doing just this, and the results are significant: in terms of the quality of student learning, the direction and scope of faculty research, and, in the most fundamental sense, the blossoming of our commitment to a just and democratic society.

Providing Cellular Coverage to Rural Communities

By Sarah White

Cellular phones provide vital communication service across the globe, but more than 1 billion people worldwide live beyond the reach of existing networks. As a result, rural users are systematically denied access to valuable services such as emergency communications, taken advantage of by intermediaries because of information asymmetries, and waste already limited resources on less efficient mechanisms for communicating with friends and family outside of their community.

To respond to these challenges, the Technology and Infrastructure for Emerging Regions group at UC Berkeley has developed the Community Cellular Network, formerly known as the Village Base Station. The project serves as one of the Development Impact Lab's demonstration projects—selected for their promise in creating real and measurable impact, while also serving to demonstrate and refine the Development Engineering approach and inform Development Impact Lab's strategies for scaling transformative innovations. The Development Impact Lab was launched by the Blum Center in 2012 with a \$20 million grant from USAID.

In the highland villages of Papua, where

the first Community Cellular Network was deployed in February 2013, the area is too remote and the people too few and poor for a big phone company to have interest in building needed infrastructure for a cellular network.

The Community Cellular Network is a GSM (Global System for Mobile Communications) cellular tower designed for low density areas owned and operated by local communities. Powered by sun or wind, it provides villagers with local calls, text messaging, and web surfing. Each Community Cellular Network is extremely inexpensive (costing under \$10,000) and efficient, using less than 50W average power draw.

Now in operation for 18 months, the Community Cellular Network deployed in rural Papua provides cellular coverage to a remote community of 1,500 people previously without basic cellular service. As of June 2014, the network has handled over 450,000 communications, including 140,000 out-of-network text messages, 100,000 in-network SMS text messages, 55,000 local calls, and over 7,000 credit transfers.

The network is also sustainable, generating nearly US\$1,000 per month for a local primary school, while also supporting the school's



Although 4.5 billion people worldwide have mobile phones, there are still many places that are too remote, unpopulated, and poor for a big phone company to provide cellular network coverage.

Internet access and community building. When asked about the impact of the network, Ben, the school's director explained, "The system has greatly increased our efficiency. When we send our fixer to town to do shopping it is generally a two-day trip. Invariably, things happen in this environment: some of the supplies we need are not available or there are changes or additions that have to be made. With a few short text messages, we can now work out what would have meant another two day trip to town."

To scale the model and bring coverage to those worldwide still lacking cellular coverage, the technology is being commercialized as Endaga.com. Currently, Endaga is making about \$1,000 per month from a few hundred customers and expects to break even on its \$10,000 investment in a year.

Generation Innovation: Sergio Venegas Marin's Quest to Influence Public Policy

By Andrea Guzman

In 2010, Sergio Venegas Marin, a student at Cosumnes River College in Sacramento, was aiming to transfer. He looked at eight universities, and settled on UC Berkeley because of it was the only one that offered a course of study like the Global Poverty & Practice (GPP) minor.

Born and raised in Cadiz, Spain, Venegas said the GPP minor attracted him because poverty and social problems were part of his everyday life.

The youngest of three children, he was raised by a single mother who worked several part-time jobs. Venegas said it seemed unfair that his mother had to work sometimes 20-hour days in order to provide basic necessities for her children.



Sergio Venegas Marin, pictured here with classmates, said he chose UC Berkeley because it was the only American university he could find that offers a course of study like the Global Poverty & Practice minor.

"It was complicated to make a living," Venegas, now 25, said. "It was difficult and it didn't feel

right that it was that difficult."

Venegas' family and many of his neighbors relied on social assistance programs to make ends meet. But when more conservative political parties took office, the programs were cut. School dropout rates increased and many youth became involved with crime or drugs. Cadiz, a southern port city that has long struggled with high unemployment, is now experiencing rates of 40 percent.

Venegas said his old friends from Cadiz are living "completely different lives"—marked by low job prospects and economic struggle.

When he was 17, Venegas' life changed. He followed his mom and dad to Sacramento, California, where his father's family lived. There, he learned English and enrolled in community college.

At Cal, he majored in economics and took as many classes as possible with a development focus. He said the GPP minor enabled him to channel his passion for social and economic justice. He found like-minded fellow students—people with similar experiences and interests and who sought to use their education to reduce poverty and inequality in the United States and around the world.

After graduating in 2012, Venegas searched for jobs and discovered that many social sector positions were unpaid. Frustrated and worried about money, he applied to investment banking and private sector jobs.

But at the interviews, he realized those jobs were not for him. Seeing the lack of minority professionals reminded him of all the social problems that need to be addressed.

He decided to turn down a \$75,000 job offer, and worked part-time as a campus host at the Academy of Art University in San Francisco and as a part-time instructional assistant at his community college in Sacramento.

"I was very frustrated, because I felt every opportunity in the development field was open only to people who didn't need to be paid,



During the summer of 2011, Venegas traveled to Nakuru, Kenya to work at an orphanage as part of his Global Poverty & Practice fieldwork requirement. "There was a part of me that did not want to leave," he said.

who already had an economic advantage," said Venegas.

He soon landed a job as an analyst at a consulting firm called Mission Analytics, which evaluates and provides technical assistance to government social welfare programs. Venegas not only found a way to influence public policy through the job, he opened the door to fellow Global Poverty & Practice students to do the same. Two other members on the Mission Analytics team are GPP alums. He said the firm chose to hire them because of their unique skills and education.

"I think it's the ability of looking at a problem from different standpoints," he said. "GPP students have a way of mixing everything they have learned. They are able to care about the methods but also the end goal we want to accomplish."

In the future, Venegas intends to get a Master's in Public Policy and return to Spain to help create a more participatory democracy and a stronger welfare state. He advises students still in the GPP minor to get the involved in their communities and pursue their passions well before and after graduation.

"Instead of wasting your time and just wanting to graduate, you should get involved," Venegas said. "Being passionate prepares you to take on the world."

Makerere University Team First Africans To Win Big Ideas Contest

By Tamara Straus

Growing up in a rural town in Kyankwanzi District, Uganda, Moses Rurangwa witnessed an epidemic of preventable blindness. In his community many people become blind or near blind from trachoma, an infectious disease that affects places with poor sanitation, crowded living conditions, and not enough water and toilets. Trachoma forces the eyelid to turn inwards and causes the eyelashes to scratch and eventually damage the eye.

“Many people don’t know they have the disease until it is too late,” said Rurangwa, “and they don’t know how to get medicine. The first stage is a small itching below the eyelid, which is not always noticeable. But the last stage, if there is no diagnosis or prevention, is impoverishing blindness.”

When Rurangwa moved to Kampala to enroll in Makerere University in 2011, he became a tech geek. He could not put down his cell phone. He decided to major in computer science. Looking at the issues facing his country, he said he began to feel that “although ICT [information and communication technologies] is not very strong in Uganda, it is a path to solving our own problems. There is capacity—people just need motivation.”



Makerere University students Moses Rurangwa, Anatoli Kirigwajjo, and Kiruyi Samuel created the mobile phone app E-liiso to provide quick and affordable detection of eye diseases like trachoma. Currently, one fifth of the Ugandan population is at risk of contracting trachoma, which can lead to blindness.

Rurangwa, now 22, might as well been talking about himself. A year or so into his studies at Makerere, he decided to figure out a way to use ICT, specifically mobile phones, to diagnose and prevent trachoma, which 8 million (nearly one fifth of) Ugandans are at risk of contracting. He and two Makerere University classmates—Anatoli Kirigwajjo, a computer science student, and Kiruyi Samuel, a medicine and surgery student—developed an idea for an mobile phone app that would photograph the eye using a smart phone, and examine and compare the image for color, far- and near-sightedness, and the presence of cataracts and other conditions. The images could then be sent to doctors who could make an initial diagnosis, contact the patient for testing, and even track the progress of treatment, if medication was administered. Rurangwa,



Kirigwajjo, and Samuel call their app E-liiso: “e” for electronic and “liiso,” the Lugandan word for eye.

Rurangwa says his reason for inventing the app is pragmatism; it could save time, money, and livelihoods.

Diagnosing trachoma and other eye diseases is not terribly difficult, what has been difficult for Ugandans is the cost of ophthalmological examinations. A typical eye exam in Uganda costs approximately US\$50, too high for a country where the annual per capita income is US\$506. The number of trained eye professionals is also very small; most are found in big cities. And in village schools, there are no longer routine screenings because of government funding cuts. But Ugandans do have mobile phones. The Uganda Communications Commission reported there were 12 million subscriptions in the country in 2011 and the number could be slightly above 17 million today, among a population of 36 million.

To fund E-liiso, and its umbrella company, Sight for Everyone, Rurangwa and his colleagues have turned to innovation contests, especially ones with cash prizes and Western connections. In March 2014, they took third place in the BigIdeas@Berkeley contest, which had opened several contest categories for the first time to the seven universities in USAID’s Higher Education Solutions Network (HESN), which includes Makerere University.

“The E-liiso team was not the only Ugandan team that beat out hundreds of student groups from Berkeley, Duke, and Texas A&M,” said Phillip Denny, project manager of BigIdeas@Berkeley and Chief Administration Officer of the Blum Center for Developing Economies, which runs the contest. “There was another finalist from Makerere, behind an idea called Agro Market Day, a mobile app for farmers. What this shows is that African students have plenty of social impact solutions for their own countries.”

Deborah Naatujuna Nkwanga, engagement manager at HESN’s Makerere-based Resilient Africa Network, said that the university is focusing on ensuring that more students and faculty engage in innovation and research activities that serve local needs. “By teaching entrepreneurship, Makerere is also striving to turn out students who

are job creators rather than job seekers," she said. "We have incubation centers within departments, where student ideas are tested, refined, and readied to be scaled."

Nkwanga noted that Makerere students faced technical challenges that their American counterparts did not. "Internet and power were a regular problem," said Nkwanga. "At one point, Phillip [Denny] extended the deadline of submission because of Internet and power problems." Still, eight Makerere groups applied in the tech-dependent open data for development contest category.

The Sight for Everyone team is now finishing up its first testing phase. This has involved processing algorithms for more than 100 photos of trachoma-infected eyes that can serve as comparison images.

The team is also testing its mobile application with doctors at Jinja Hospital, an

eye center in Kampala, as well as improving its website so that users can post images of infected eyes and get responses from ophthalmologists.

Rurangwa says Sight for Everyone is seeking \$30,000 in startup funds this year to proceed with commercial testing of E-liiso. It received \$3,000 from the UC Berkeley prize and in 2014 participated in the Microsoft Imagine Cup and Orange competitions. Although the Ugandan government halted new e-health initiatives in January 2012 due to e-health "pilot-itis" and researchers there and at MIT are working on other eye disease apps, Rurangwa is not worried about competition.

"My main worry is that we do not have enough people embracing technology in the [Ugandan] medical sector," he said. "The only real competition we are facing right now is faith. People wonder if this thing, e-health, can really work."



Moses Rurangwa believes that information communication technologies provide "a path to solving our own problems" in Uganda.

TechCon Conference Coming to the Bay Area

In collaboration with the U.S. Agency for International Development and its Global Development Lab, The Blum Center's Development Impact Lab will host the second annual Higher Education Solutions Network Technical Convening in the San Francisco Bay Area November 8-10, 2014. The three-day public event will bring together academic experts with other leaders in international development to address how science and technology are shaping international development.



Blum Center Op-ed in Washington Post

"In labs around the world, a new generation of engineers is emerging. They are men and women concerned by the gulf between rich and poor and by environmental changes and resource depletion. They are what we call 'development engineers' — engineers (and often economics, business and social science majors, as well) who are dedicated to using engineering and technology to improve the lot of the world's poorest people. What is development engineering? Its goal is to create technologies that improve health care, education and socioeconomic mobility. Development engineers at the Blum Center for Developing Economies at University of California at Berkeley, for example, have invented an instrument called a CellScope — essentially a toolkit that turns a cellphone into a microscope or other diagnostic tool that can transmit images to hospital labs." — "Engineering improvements to the world" by Lina Nilsson, Blum Center Innovation Director, and Shankar Sastry, Blum Center Faculty Director, *Washington Post*, Oct. 6, 2014



Blum Center for Developing Economies
The University of California, Berkeley
Blum Hall, #5570
Berkeley, CA 94720-5570
e-mail: blumcenter@berkeley.edu
Website: blumcenter.berkeley.edu

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