

Ending Poverty: How Universities Can Help

(Transcript)

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Universities have a role to play in development work, and I think it's an extremely exciting opportunity, something wonderful that we should be doing. Development work is great for research, it's great for the students, and it's great for the meaning of universities in the world. Universities are special institutions, because their mandate does not end with research and teaching. It reflects the fact that our universities are, uniquely, repositories of knowledge, and most importantly they are repositories of unbiased knowledge. Universities can do things that other institutions can not do; consulting firms, profit-maximizing firms, and the international institutions may have knowledge, but they are also driven by boards of governors reflecting geopolitical interests, or businesses out to get a contract.

We in the world of higher education have a very special role, and that is that we need to teach, we need to promote knowledge and research. We need to teach not just our students, but the world. That's a special responsibility, one that means public education in a lot of ways. But we also need to act, although not every university feels that way. Not every university president or dean feels that way, but I can't tell you how thrilled I am that my university president, Lee Bollinger, feels that way. My provost, Alan Brinkley, feels that way. They have told my colleagues and me to act, to apply our knowledge, and to do something useful for the world. It will be something useful for Columbia as well. It is an incredible privilege.

At universities, structure and roles should follow the problems. Some problems come within disciplines, and other problems don't come within disciplines. It's turned out in my own career that the problems I am most interested in do not fall neatly within disciplines. As a result, a lot of what I have been doing for 15 years now, first at Harvard and now at Columbia, is to work on building interdisciplinary efforts at the university. I do not think that it is the only thing that universities should do or can do, but I think it is something universities need to do, because certain problems just can't conceivably be solved without an interdisciplinary approach.

One example is economic development: don't you dare leave it to an economics department. It's hopeless, believe me. I've been in an economics department for 25 years. There is no way in the world economics departments are going to solve the problems of poverty on their own. But, when economists work together with malariologists, public health specialists, agronomists, climatologists, soil scientists, hydrologists, engineers, what they can achieve is absolutely phenomenal. The good news for the social sciences is that the scientists who know so much more about the problems of development are no good at public policy. So thank goodness there's a role for us. We get to play with all the really smart people, who have the scientific expertise but can't figure out how to actually get it done on the ground. That's why you need division of labor and why you need shared work.

I am very privileged to head a cross-disciplinary research institute. The Earth Institute is quite a unique undertaking. It is a bold commitment from Columbia. The administration brings a lot of central university resources into it and then tells us to raise even more. It brings together the earth sciences, engineering, public health, ecology and economics and politics, and other social sciences. We are working together, which is not the norm in cross-disciplinary work. Everybody at the Earth Institute is driven by the overarching problem of sustainable development, among which poverty issues and climate change are two main themes. Both of these are deeply inter-disciplinary sets of problems.

There is no way to understand these issues, particularly the one that is my specialty, which is poverty and development, through theory, teaching and research alone. I have seen this in my own life. I got tenure on the basis of several nice, published, mathematical papers. Then I went to do something else and realized I didn't know what I was doing. It was a phenomenal piece of good luck for me that, at an early stage in my career, I already had tenure and was able to change directions early on.

In 1985 I started working on particular practical problems. What I learned was that all that theory, which I knew I couldn't do my work without, was also such a small part of what I needed to know. I had to go back to school, which I had been doing for 20 years, both in the literal sense of acquiring new formal knowledge in other disciplines, and in the informal sense of working outside the university, which is critical to gaining expertise in certain areas. Most economics departments don't agree with this; mine didn't particularly. They said, well, you can go do your advising if you want, but you should take time to do your serious work. I think it's a huge misunderstanding about knowledge in the world.

I saw what passed for serious work, and it seemed to me to have no relation to reality. And how could it? The world is so much richer and more complex than we can ever imagine, sitting in our offices, or from a mathematical model of an economy, or an article in an academic publication.

So I lost interest in that approach. It's very important to have your theory and your academic pursuits within the university, but in certain fields, it's extremely important to be out there. Most economics departments – I pick on them because I

know them very well – do not understand that field work is not just a side interest. Telling an economics student to write a dissertation based only on a dataset from Nigeria is like training a medical doctor without ever making him see a patient. We should never have students write dissertations on countries that they have not visited and worked in. Doing so is a terrible intellectual lapse.

Field work is very problem-driven. In trying to solve public policy problems, it is essential to be out there in certain ways, unless you're one of the very, very few geniuses – I am not one of them – who can figure out spectacular things sitting without leaving the office. Most of us are not capable of figuring out incredible things through sheer reason alone. I find that being in the field is critical.

We also need, as universities, to be making partnerships with the universities in those countries affected by extreme poverty. The Carnegie Foundation is pushing ahead with a marvelous multi-foundation initiative to achieve this kind of cooperation. We need to make the connections between us and them, both to save American universities, but also to help universities in developing countries, because there's a lot of knowledge here that would be very helpful to those universities. If we're studying globalization – which, in some way, we all have to be doing in the 21st century – we should be more formally connected with universities in the places we are studying. Classes and lectures should be videoconferenced with foreign institutions: for a lecture on China, a Chinese academic at Tsinghua University can give the lecture, and the American professor can give the lecture in their class on another topic. We should all be thinking about ways to truly partner with other universities.

When I was at Harvard, there were two counts against this approach. The first was that it's fine to do your work outside the university, but only if you make sure you do the real academic work within the university. That is a huge intellectual mistake. There is also a major conceptual mistake at the university, which is to think that the only criteria by which to judge what a university does is how it affects its students, its teaching program, and its research.

Harvard's explicit position was that it may be fine to do good work out there, but that's not the role of Harvard University. The role of Harvard University is leadership in scholarly excellence, in teaching, and in propagation of knowledge. Its role is not to do good works. For that, join an NGO, or volunteer your time. In my view, this is really wrong, although I'm sure that opinions are divided on the issue. I think it's wrong because institutions have multiple purposes and multiple lives, and they, too, should be judged on what economists would fashion as comparative and absolute advantage criteria. There are things that universities can do that no other institutions can do. What I've learned is that, in public policy, universities can play unique roles that cannot be replicated by any other kind of organization.

Big institutions like the IMF and the World Bank cannot mobilize good science. Few scientists want to go work at the World Bank, except on a short-term basis, because it's not a scientific institution: it's a bank. Scientists do work in the private sector, but those firms typically cannot do the kinds of good works in the world that universities can do, because they have a financial stake in their contracts. The private sector is inevitably filled with partnerships that are problematic from the point of view of giving honest advice, because conflicts of interest are everywhere. Universities also have conflicts in much of what they do, but there are fewer direct, financial conflicts than in almost any other major institution. The IMF and the World Bank are also essentially run by the U.S. government and a few other rich country governments. They are politicized through and through. This is sometimes for better, and sometimes for worse, but it means that their advice can never be truly balanced. NGOs are wonderful institutions, but they typically lack the knowledge and expertise to be able to meet the more complex challenges.

In this sense, I would ask those who say that the university's job is teaching and scholarship: who will do some of these other important things? I believe that we have, at times, clearly understood this basic fact in American universities with respect to American objectives. The Land Grant Universities were the genius of Abraham Lincoln, and he understood 150 years ago that universities have a unique role to play in helping communities be more productive in farming. The Massachusetts Institute of Technology helped us to build not only the greatest technology, but also the strongest military in the world. That was an absolutely valid investment in our society. Universities now have roles to play beyond our borders. Ninety-five percent of the world's population lives outside of the United States. Eighty-five percent of the world's population lives in so-called developing countries. It is simply ludicrous to talk about development economics as just one course you take in economics. The whole discipline should be development economics, with one course in high-income economies, who are only one-sixth of the world's population. You could do a special course entitled "How Did That Happen?" But we teach it in exactly the opposite way, and it's a big mistake. Most of the world lags far behind in living standards and access to basic needs. Part of the world – by my reckoning, about one-sixth of the world – is fighting every day for survival.

Extreme poverty is not the poverty we know in our country, which is awful, unjustified and remediable. I am a meliorist, through and through, and believe that we're doing a horrendous job in our own country on these matters. But extreme poverty is a different phenomenon. We eliminated extreme poverty in this country decades ago. Extreme poverty means that you could die tomorrow because you are too poor to stay alive. You could get a simple infection, which requires three days of treatment with an off-patent antibiotic, and you can't afford it, because it costs a dollar and you have zero. Or, there's no clinic within 20 miles of your village. Or, you're not sleeping under an insecticide-treated bed net. Or, typically, there's no safe drinking water anywhere nearby, so you're constantly ingesting pathogens, and your children are carrying worms their whole lives, from their earliest days.

Or, as in Malawi, the rain fails for two or three weeks at the end of the crop season, but the crops are so nutrient-starved, because the soils are so nutrient-depleted, that even a short perturbation of rainfall means that the whole crop fails. Who dies in the influenza? Typically people who are already weakened – elderly people or undernourished people or people who have other weaknesses. Crops fail in Niger or in Mali or in Rwanda or in Malawi, not only because the rains fail, but rather because people are already in a situation in which they are not using improved seed, designed for short rainy seasons, and they are farming on soil that is depleted of nutrients.

It is reasonable to say that, perhaps 1 billion to 1.5 billion people are in this situation in the world. It is reasonable to estimate that about 10 million people die each year, many of them children and, in recent years, young adults, because of AIDS. They die because they cannot get the basics to stay alive. As a development specialist, my view is that this is anachronistic. That is how life was one hundred years ago. Yet we've made a lot of progress on the planet, and development is a real phenomenon. It has reached five-sixths of the people on the planet and has lifted them out of extreme poverty. Mercifully, for our generation, that includes most of China, and soon will include most of India. So we're getting down to the narrow numbers, where you could realistically aspire to ending this phase of economic history. It sounds outlandish, but we've done it already in our societies, and most of the world has ended the "you could die today or tomorrow" kind of poverty.

But the parts of the world that have not done so include, of course, most of sub-Saharan Africa, parts of our own continent – especially the Andean region, where there's geographic isolation, indigenous communities in the highlands who are not integrated in the world market and have been victimized by many cultural and geopolitical forces throughout history – and much of central Asia, which is also one of the most economically isolated regions in the world, because of heavy transport costs to places like Afghanistan, Tajikistan, Mongolia and so on.

Now, I believe universities can play a huge role in ending extreme poverty in those parts of the world. I'm trying to live out that belief right now. The Earth Institute is in a particularly wonderful position, as the neighbor of the United Nations. I personally wear two hats: one is as an Under-Secretary General of the UN, and one is Director of The Earth Institute. In the process, my colleagues and I have learned a great deal from one another. I've learned how soil nutrients work or how land that is farmed year after year without fertilizer becomes nutrient-depleted. I have to go out and see those things, because I can't figure them out in pure theory. I never learned anything like that in economics, because I never had a serious course about agronomy and agro-ecological systems and how they differ around the world.

The Earth Institute, on the other hand, has a tropical agriculture unit that is deeply involved in our poverty reduction work. We have a malariology unit engaged in

stopping the spread of a disease that is almost entirely treatable and largely preventable, and yet will claim the lives of approximately three million children this year. The situation is perverse in many ways, but one of the perversions is that the United States government has not seen fit to help impoverished people, who have no resources, gain access to simple technologies like long-lasting, insecticide-treated bed nets. It has tried to sell the nets at a discount to people who have no money. Both policy and science expertise are required to understand this problem. Malariologists can explain the technical options, and how to organize a country like Tanzania to tackle the disease. You need the economist to understand the issues that are blocking the solution, whether they're matters of logistics, procurement, or underlying finance issues. You need a team to be able to address the many aspects of the problem.

What I want to tell you is that we're just skimming the surface. I think we've made some good observations that are getting into lots of fancy international documents, but it's unclear what those mean. Very little of what is said is acted upon. We just went through a U.N. World Summit last September, where we drafted much of the section on development, and now I fight every day to try to make any of those words into something real. It is not easy especially with the particular administration we have in this country right now. But it's never easy here, because our country's not paying attention to these problems, and neither are our universities.

But I have seen how thrilling it is, and how colleagues in all of these vital disciplines are lining up to be involved right now. The reason for that, as I'll show you now in just a few pictures, is that you see things that are deeply challenging intellectually, pose some very profound operational assistance questions, and are also just about as moving as can be. Because of that, we're finding that the Earth Institute is not just a bunch of scientists put together who don't necessarily want to talk to one another. Rather, it is now an extremely vibrant place that people are flocking to and asking, "What is our piece of this growing puzzle?"

Students are coming forward by the hundreds, because this is what they want to do with their lives. They want to do something meaningful. They want to solve real problems. They want to learn the techniques to do it. They want to apprentice. I am an expert in negotiating policy documents, or in translating an IMF program into something that is halfway sensible, at least I'd like to think, and I have a good record of it. If I have students at my side, this is the only way they're ever going to see this, because you need an apprenticeship to learn these skills. It's too complex and too amorphous to put into a textbook. It requires learning by doing. By putting all those pieces together-- working in across disciplines, working abroad, solving problems in the world—we are seeing that the result is an incredible gift for the university.

Finally, let me show you just a few things from my book, "The End of Poverty." This is the first picture in the book, and I visited this woman and several of her

neighbors again just a month ago, although we met her in 2002. Since then, this child has died, and this man died. That's life in a village like this: it is very short and very fragile. But in 2002, this woman was facing drought and famine. She was facing drought and famine again this year, because the last week of the rains failed in February. She doesn't use fertilizer. The soils are utterly depleted of nitrogen; she lost a whole crop, and has nothing to eat. We came there on a Sunday and I asked her, "What are you doing to eat?" She said that she's allowed to stand at the village mill, where the grain is husked, and she can keep the husks. I had never heard anything like this. I said, "Can you show me?" She said, "Well, today is Sunday, we don't eat today. We don't eat at all today."

So this is the reality on the ground. I spent the whole summer seeing and visiting people like this. It is a problem that needs to be solved. Have you read a lot about it in the newspapers? No. I'm trying – with my colleagues – to design a \$37 million program that would cover five million small farm owners to help them get improved seed, and a bag of urea fertilizer for the October planting. The world couldn't care less. Do you know what \$37 million is in this world? I don't know a macroeconomist that goes to five decimal points like that anymore. We're in a \$37 trillion world. So that's a millionth of world GNP. I can't understand that. That's how messed up we are on the planet.

This is a child we saw recently in malaria convulsions. Three million children will die this year of malaria. Yet the disease is utterly treatable. But this child was treated with sulfadoxine–pyrimethamine, SPE, which has lost its efficacy in western Kenya. But the donors, including the United States, have not seen fit to help the financing go to a \$1.20 a treatment drug called artemisinin combination therapy, or the specific drug Coartem, produced by Novartis, because it would cost us, per person in the United States, another 30 cents a year to help these countries make the transition. Well, we haven't done it, so you see children like this in comas regularly.

This is what passes for a ward at a sub-district hospital, where you have three children to a bed, and three mothers to a bed. So you sometimes have six people lying in the bed at the same time, sideways. One has malaria, one has diarrheal disease, one has acute lower respiratory infection, and they're all in bed together. An adult goes in with TB, he comes out with malaria. The mosquitoes are buzzing everywhere. There is no running water in this hospital. Can you imagine, 170 year after Semmelweis ago pointed out the need for running water in hospitals, there's no running water in most of the sub-district hospitals of Kenya, because the government is too poor to run a health system. The Kenyan government can't afford it. It costs about \$40 per capita, and they can manage about \$6 per capita. It's not corruption. It's just extreme poverty. They can't do it.

This is the ever-charming sight of women in Africa, until you pause to realize that this is her life: carrying water to and from a water hole, six hours a day. So by the time she's weeding the fields, caring for sick children, cooking and carrying

extraordinarily heavy loads – this is her wash, but she’s also got the water on the side – she’s like a beast of burden. It’s brutal. There’s no transport other than a woman’s head in most of these villages. There’s not a truck to be seen.

That’s the indoor air pollution from a wood-burning, three-stone stove. This was an extraordinary scene that we saw in Ethiopia just a couple of months ago, in a place where we’re working, where the water situation is so extreme that the river, which is a perennial river, has run completely dry. So this is a group of men in the village digging a hole in the riverbed, to reach the water table that is a few feet below. This was the perennial river, and now there’s not even running water, so they have to dig a hole. Of course, people are dying in these circumstances. They’re dying of disease, typically.

I’d like to give some analysis, just one point, and I’ll come back to it later. This is a map of hunger hotspots that we’ve studied, where there’s a high prevalence of children with below average weight-for-age. It’s divided into several agro-ecological zones. One of the aspects of development that is crucially important, and what makes it such a wonderfully interdisciplinary study, is that the nature of the underlying challenge depends entirely on the ecology. Is it a pastoralist community? Is it a humid, tropics community growing tree crops? Is it a bimodal maize community? Is it a root crop community? Everything differs if you’ve got irrigation or not, or if you’re pastoralist and tending herds instead of planting and harvesting wheat or maize. So one of the things we’re doing now is establishing research sites in all 10 of the major agro-ecological areas.

One of the things I’m going to do is invite any university that wants to be part of our project to be part of it. Because this is the way students are going to understand the reality on the ground. What you see there is amazing: understanding the hydrological cycle by trying to see how a community can have enough water; understanding the nutrient cycle, the nitrogen cycle and the Anopheles-Plasmodium cycle. You see it by doing it, and if you’re doing development, you’d better be where it needs to be done.

I’m pushing a concept called clinical economics, and I’ve given you all of its basic ingredients. My wife is a clinician. She’s also a public health specialist. I watched her for 20 years take a history of a patient, when somebody called with a fever. It’s really quite a remarkable thing to watch a skilled clinician at work. The logic of the questions, the way you just ask questions, the way you drill down in a systematic algorithm, because you’ve got to ask certain questions first, because if the answer’s yes, you’ve got to get them to the hospital before you ask the next question. But if the answer’s no, you continue down the decision tree in a very systematic way.

You know that if a patient presents with fever there are 1,001 possible underlying etiologies, and it’s your job to figure out which one is at work. If you’re doing it by phone on the initial call in the middle of the night, you have to triage or separate

out the emergencies from the non-emergencies. You have to figure out whether this is something that can wait until the morning. You have to know the whole family history, because you have to understand – and by the way, our medical system's falling to pieces because none of this is true anymore – you have to understand whether that mother normally reacts that way or not. So many times, my wife would say, “this woman is not normally so nervous. Something is seriously wrong.” Boom: it's meningitis, or another similarly urgent problem. Knowing the whole ecology of illness is critical.

The same thing is true with development. If you don't understand the history, the transport costs, the disease epidemiology, the hydrology, the soils, you're never going to get it. We're not training our students in this way, because we don't have clinical hospitals next door like the medical students do. So we don't actually have the possibility to develop an apprenticeship model given the way our universities are structured right now. But what's worse is that my colleagues in mainstream economics departments don't even know this is an issue. They think they're training people to write more journal articles, rather than training people to solve problems. And 99% of what we ought to be doing is solving problems, and the other 1% of what we do should be to help solve more problems in the future. Those of us in academia should not simply be a self-replicating group that's isolated from the outside world.

I believe we need clinical economics in my field, and we need clinical practice in general. It's really a brilliant insight that was new to the United States in 1920. It is a revolution that the Rockefeller Foundation, among others, helped to install and instill: having a clinical hospital alongside the teaching, and having a teaching hospital alongside the medical school. As universities, I think this is the practitioner strategy that we ought to have and get out into the world.

I want to show you two more pictures and then I'll stop. We're working in villages now. I'm trying to encourage other universities to take on village projects. We have a very detailed set of ideas and algorithms, but they aren't fully formed yet. I want a lot of universities doing a lot of creative things. I envision, universities getting together every year for the Millennium Village Annual Conference, to learn that Stanford made a fabulous breakthrough, and Williams did this incredible thing, and in Columbia's village, this intervention didn't work for the following reason this year. That's what I would like us to establish as a learning enterprise, and to do it together with the universities that you're supporting, because all of these institutions ought to have their own African base, and they don't right now. African universities don't get out to their communities effectively. They don't have the resources, or the mandate. They're not viewed that way politically by their governments. They're shy of being pounded on for getting into politics and so forth. So there are many things that we could help to instill, that I think would be quite important.

The most thrilling part of all of this is actually not putting together the malariologist and the hydrologist and the agronomist and this other specialty, although that is enormously fun. The most exciting thing, of course, is the interchange with your counterparts in the other countries, because the main thing your students will learn is that these are real people. They are not statistics, they are not inert. They know all about their situation. They understand their poverty, they understand our wealth. They are people with great dignity, with great knowledge. They're just unbelievably poor. It's a fantastic thing to be engaging directly, because it's gratifying and eye-opening. It's life-changing. It's been life-changing for me, because I've been doing this for a while, but I think it's life-changing for students as well. This is a picture of a town meeting where we've called the village together. And that's another wonderful thing about villages: they can be learning sites. Before we come in, they're not being taught, or helped with real information. But they're so hungry for it, it's incredible.

So we've been having many community meetings, talking about strategy for the village and so forth. There was a village committee that was put together in this particular village in Sauri, Kenya, where we were going to train about 30 of the villagers who were heads of the various sub-committees, and 200 villagers said they wanted to get the training as well. They wanted to learn how a spreadsheet works, and they wanted to learn how to do strategic planning, and they wanted to learn these basic concepts of management. Nobody's inert: they're fighting every day for their children.

This picture shows another wonderful day in the village where we're working in Ethiopia. In a natural amphitheater in a canyon in Tigray Province, 1,000 or more people came out, sat on the rocks, and we had a brainstorming session for four hours. It really was a discussion. We talked about how to do land reclamation, because this is a mountainous area, with many gullies and tremendous land degradation. We also talked about soil nutrient replenishment, starting nurseries with drip irrigation, distributing bed nets to fight malaria, and many other things. It was a wonderful day. One of the most gratifying experiences of my life was at the end of the day when an old man got up and walked, hunched over, to the front. He took the megaphone and said, through a translator: "I'm not part of this program, but I want to tell you something. I was born in this village, and I've lived all my life in this village, and nobody has ever come, in my whole life, to give us hope like you did today."

It's a wonderful thing, and I think we can play an absolutely special role that – as I've tried to argue – can strengthen every aspect of what we're doing in our professional, our scholarly, our teaching, and I'll say also our personal lives. Thanks a lot.