Professor Christopher Yoo on his project 1 World Connected and how connectivity saves lives transcript (08/11/2010)

[00:00:04] Welcome to Case in Point, produced by the University of Pennsylvania, Kerry Law School. I'm your host, Matt Merin, the Multimedia Coordinator in the Communications Department. And today we're joined by Professor Christopher Yoo. Professor Yoo is the John H. Chestnut professor of Law, Communication and Computer and Information Science. He's also the director of the Center for Technology, Innovation and Competition. Today, we'll be discussing his internet connectivity research project, One World Connected.

[00:00:32] I'd just love to get started by asking you what is One World Connected?

[00:00:37] The internet has become so much a part of all Americans' lives that we almost take it for granted. And what we overlook is that almost half the seven billion people in the world have no access to the internet. And what's even more shocking is, what's even more troublesome is adoption rates are slowing. We have internationally set targets of how many we're going to reach in a certain timeframe, and we are not on track to get there. And in fact, it's getting worse all the time. One World Connected was designed to address that problem by identifying innovative ways that people are using to connect people to the internet and to share that news with the rest of the world.

[00:01:18] What is lost in a society that's unconnected, or a village or a city?

[00:01:25] There is a growing awareness that internet connectivity provides enormous benefits. First and foremost, it allows people to participate economically in ways that were impossible before. There are new markets people can reach. So if you're an agricultural farmer, uh, often, let's say that you're a fisherman and you're actually out in the ocean and you have to decide which port to land in, which market you're going to sell your fish in. It used to be that you had to make a decision, and by the time you got there and you found out you were in a place that did not predict good pricing, it was too late to change. Very simple thing. Internet connectivity can allow you to query different ports, negotiate deals and actually gain access to the highest value market so that you get your product to the people who value it the most. Another part is you can advertise for businesses online and get access to markets that go far beyond what you could reach before, because the internet has such phenomenal potential to gain not only access to distant domestic markets, but even international markets. And there are new types of businesses altogether you can do online. That's just the tip of the iceberg. What we're discovering, for example, during the COVID pandemic is that internet connectivity has a tremendous potential to enable people to access healthcare, to enable people to access education in innovative ways. And it's interesting, one of the things we found from our research is that teachers are rather conservative and been very reluctant to experiment with online digital tools, and many of them feel threatened by them. Many are worried that it will cause them to lose their jobs. So what we now have is a forced experiment where people are trying to do new things. And we're getting out of the first generation where people just replicated their lectures online and they're realizing that good online learning tools can customize to students to a level that you can't when you're standing in front of a classroom with twenty-five kids. And it's a really interesting set of opportunities. Another huge part of this is access to financial services. Huge numbers of people in the world have no access to banks or other institutions. They can't save, they can't transact, they can't transfer money. There's different populations, migrant populations, refugee populations that have particular problems with this. All of that open it up enormously. There are other aspects, but one of

the most—I'll close with this one, the most interesting one is what we think of as psychosocial benefits. People stay connected with their families. People can actually maintain relationships to a greater extent when than were previously possible and they are no longer dependent on distance. And what's fascinating is they can then do measurements beyond, actually, the number of connections and the quality of their connections, ask them questions about how that's affected their psychological well-being. And there's a lot of evidence that shows that connectivity provides benefits along all those dimensions. We have a general understanding of the benefits, but we still have a lot to learn about their magnitude. So to say that this improves economic growth, we have some very general ideas. But to actually make that really tangible at a specific level, is a missing link in the equation. And in fact, we've heard some people describe it exactly that, as the missing link. Consider this: say you're their health minister and you could invest money in internet connectivity and services, but you have a lot of other financial needs, investing in building new hospitals, training doctors, any one of a number of things.

[00:04:53] And they need to know, OK, in a world of multiple priorities, I have to allocate different percentages of my budget to different topics. I want to ask, what do I get out of investing? They want to ask what do I get out of investing more in digital technologies, given that I'm in a world with lots of lots of demands, and we don't have great answers to those questions yet.

[00:05:16] We understand in a general sense of what the benefits are. But in a specific sense, where the key decision makers are, you have to make the tough calls. They need more data. They need more answers. And that's part of what One World Connected is trying to do, is to generate the research that can support stronger, empirically-based decision making, where it's not just hunches and feelings, but actually it's based on concrete evidence.

[00:05:39] How did One World Connected come to be? Can you maybe discuss the evolution—kind of where you were when you first started, or where you're at now?

[00:05:47] There is an annual conference called the Internet Governance Forum. It's one of only two United Nations-sponsored organizations that has authority over the internet. And we were at the IGF talking with a number of actors who were really lamenting the lack of really good data on which to make decisions. Many of the panels spend a lot of time dwelling on what wasn't working.

[00:06:14] There was also a general sense that there were some things that were working that weren't getting talked about, and weren't being shared.

[00:06:22] And so a series of conversations among different people who are interested in the space and were regular IGF attendees, brainstormed this idea of an initiative that would systematically evaluate what's working and what's not working. And in a way, it's funny, people are so busy building projects, they very rarely have time to write down what they're doing or talk about what they're doing. And they almost never collect data about what they're doing. And on the limited occasions where they do collect data, it's usually incompatible with the way other people are collecting data. And you can't make comparisons. You can't make claims in a systematic way about what's working and what's not working. And if anything, there's also a bias that to the extent to which anything gets talked about, it's the things that are perceived as success stories. We discover that many of the so-called success stories actually weren’t, and some of them folded up fairly soon after we did our case study. But there's also a number of failure stories which have

important lessons that were being lost because, who knows, who talks about failures? It's just not something people are prone to do. And we became aware of a need for a more systematic analysis of what's going on in the world. We found something else really interesting. There are a number of international organizations that do have databases that contain a lot of this information, but they were disabled from analyzing it in a way that picked winners and losers. When you're a U.N. organization, you can't say, oh, Country A is doing it well, Country B is doing it badly. It's just not politically acceptable. And they actually welcomed and encouraged us to analyze the data they had, and to start making some of those tough calls. And again, it's not intended to be critical, but it's just to provide information to people about what really is cost effective and sustainable and is working to actually help people, and what's mostly hype.

[00:08:19] Great. Thank you.

[00:08:20] And so what are you most proud of so far in the research?

[00:08:25] I ask the entire One World Connected team what they were the most proud of. And I would sum up what they said is that we are moving beyond talk and theory into actual implementation and practice. You will find an on-ending cavalcade of people who are willing to talk off the top of their head about what they think needs to happen to get more people connected. And these are very smart people and very well-meaning people, but they often have no empirical foundation for what they're saying. And a good example, we're looking at mobile health services, and there's a question about how you design the interface.

[00:09:07] Do you have to put a video interface in it or can you get away with just voice? And a lot of people were saying, oh, you have to do video, which is a lot more expensive and takes a lot more bandwidth. And what we discovered is that has not been validated by our data. That, in fact, the applications that simply put a voice feature, even if the population is illiterate, they can push the buttons, or they can actually get the navigation on their apps to where they need to work. And that, in fact, we, the case studies we've done do not support the idea that you have to have video. Now, that becomes a critical question, not just in terms of designing the app, but the quality, the device you have to have to run it, the network support you need. Often you're negotiating with a network provider for free connectivity to make this work properly. And obviously, if you’re gonna have to do video, it's going to take up a lot more—it’s going to be a lot more expensive ask to a telephone provider, that you get that to happen. And these become really—that's one small example,

but key design decisions where instead of relying on someone's very well-intentioned opinion that video is necessary, that actually is really defensible and can make a lot of analytical sense. We're relying on real world experiences and evidence of what worked in deployment, in the field. The other aspect of that is not just collecting the data, but we made it a point in our international appearances not just to talk ourselves and to create platforms for the so-called experts to talk. We would routinely fly in people from the developing world who were actually doing this on the ground, and let them speak with their own voices to explain exactly what they were doing, and what the benefits were, and how it all worked. And giving those people that platform, many people who attended those events said they thought those were some of the best panels they saw during the entire conference, because they spoke with a depth and an authenticity that was missing from all the other presentations. The other thing that was really interesting and invigorating and reaffirming, was the people we invited to come along. So there is a former Peace Corps volunteer who is doing work in Vanuatu who had created a network there, a community

based network for the first time. And she was feeling isolated, and she had put so much of herself into this project, she was starting to lose steam. We all do. And she said she wanted to thank us because she was inspired by the ability to connect and share her story. It was important to her, but to also tap into other people doing similar things and learn from what they're doing and being aware. She wasn't alone. It wasn't just her. And she expressed her gratitude to us. And I turned around and said, it's we should be thanking you because we've done a small step by allow you to connect with people and share your story. But the real hero are the people on the ground who are making it happen. And together, both sides of that experience of bringing those people into the process who are people who often aren't brought in, I thought was perhaps the single most meaningful part of this project.

[00:12:22] Now, you're at the stage where you have empirical evidence to kind of get things implemented, but then at that point, what does the project become or where is the project going?

[00:12:33] The first direction is to start analyzing the data we've collected. We have identified eleven hundred innovative projects around the world and collected basic information about all of them. And in addition, we reached out to all eleven hundred of them and asked them to do case study interviews with us. And we created a structured script that allows us to get information in a systematic way to really determine what's working and what's not. We're in the process now of writing some papers, academic papers and analysis, really synthesizing these together. One about basic connectivity—what technologies work, what business models work, what troubles do you have to watch out for? But in addition, we're looking at key domains such as healthcare and education and agriculture and financial inclusion. And we're looking at other key disabilities such as gender and other—physical disability and age. And we're starting to explore the dataset to find what learnings we can take from them. You know, a good example, one of the big obstacles is digital literacy. What –everyone knows we need to have digital literacy training. But what does that mean? Is it basic training? Is it training entrepeneurs? Is it training coders so they can actually start creating apps? Even if it's basic training, what's in the curriculum? What's the optimal length? Is it short bursts or is it more a sustained experience? Can it be done through apps or does it have to be done in person? We're learning certain things. Actually having online communities where people can continue to connect with each other afterwards is a critical component as well. So you end up with this richer set based on actual—you end up with a richer sense of what's really required to make these different things work. And we're trying to pull that all together and share that with people. The second area of research is to build on the relationships we've made with certain case study partners to conduct a second wave of research that actually examines in greater depth how a particular intervention benefited the community it's in. So we are doing field work in Rwanda and Nepal and Vanuatu. We have explorations out right now, also in Latin America and other African countries in Bangladesh and other places. We're developing opportunities to actually study, in more detail, what the impact of connectivity is along, particularly dimensions such as health care. But sometimes, and much more generally, we have other case studies that are trying to understand its impact on general economic activity. And it's not just internationally, there are areas of the US that are struggling with the lack of connectivity. We have a paper on tribal lands, you know, on Indian reservations to try to understand that better. We have another paper on rural—we have another paper on fixed wireless technologies in rural states in the Midwest, to try to understand, in areas where it's too expensive to lay wire and fiber and cable, can you rely on an innovative wireless solution to help close the gap? Well, we discovered that even in

rural areas, it's too—it's not granular enough. So there's urban clusters within rural areas, which are part of a rural county, but have enough density to support service.

[00:15:53] Then there's a ring around those areas where there's other technologies that rely on the urban technologies to make a go of it so they can, if combined with certain things, provide a certain level of connectivity. And then there's what I would call hyper rural areas where you're really distant from everyone else, and then those require different solutions. And it's funny in those hyper rural areas, those areas are des—are begging companies to work with them to try to build a solution that works. And the idea that we're going to create a fiber-like experience in those areas, well, the alternative to kind of a lack of connectivity is not fiber, it's nothing. I mean, you know, you've got to actually have a system, a compromise there where you understand what's really feasible. And we have to think about the funding sources, whether it's for the government or privately funded, how best to make this work.

[00:16:41] So phase two is really going to build on what we've learned in phase one, but also build on the relationships to take the learning to another level, to understand in greater depth not just that people are adopting and what the connectivity technologies they're using are. But what are the key drivers? What are the key obstacles? And most importantly, what the impact of that adoption is? What are the real benefits to people in terms of economic activity and access to health care, access to education, access to financial services? Because no one gets an internet connection just for its own sake. You get an internet connection because of the other things that it helps you do. And one of the great contributions we really hope to make is to provide a better foundation for understanding what internet connectivity means to people on the ground in their real lives.

[00:17:30] Given the time that we're in with the coronavirus, has One World Connected been involved with any research as it pertains to people being connected during the pandemic?

[00:17:39] One well connected is involved in one major piece of COVID research, which is helping schools and educational institutions understand how to respond to COVID. But on a more forward-looking basis, asking what we learn from COVID, how to prepare for a similar event in the future. And so we've looked at basic connectivity, changes to curriculum, changes to training. It turns out, you know, it's not just getting students connected, but the teachers have to be connected in a different way. And we've learned that, um, actually administrator communications with their teachers is a critical element that's often missing. How do you submit grades? How do you do evaluations? How do you communicate the information that you normally would just do in a faculty meeting or just in hallway conversations from administration to faculty so they can actually [get to] the teachers? And we're part of a major UNESCO-sponsored project studying this, and we're in the process of editing the final report right now. And we're contributing what are called guidance notes, which is separate, smaller pieces studying different aspects of the problem, and it's been a privilege to be a part of that. There is a hope, in terms of research COVID actually presents opportunities to go along with the fact of the great human tragedy that it's represented, which is, as I mentioned earlier, it's forcing people to experiment with distance education, it's forcing some doctors who might have been more or less resistant to some remote healthcare and telehealth solutions to try new things, and given us a chance to learn from that. So I think that what we would learn in telehealth, there are many treatment/problems that can easily be handled online. We didn't necessarily know before whether they required an office visit, but because that was what was keeping people healthy, we kept doing that because you don't want the patients to bear the brunt of how

we learn. What we have in this situation is a forced circumstance where it was better for the patient to stay at home because of the danger of being infected by COVID. COVID has given us a chance to learn which types of diseases and illnesses or health care situations require face-to-face examinations and which ones can be handled without any intervention at all. And in fact, the tools are better now. So I keep thinking back to when we had our first child and the number of times we called the pediatrician during the first year of his life.

[00:20:04] And that's a classic situation, with a little basic connectivity over the phone, we didn't have to go in at all. We eventually learned by Child 2 what not to worry about.

[00:20:14] I would say that beyond that, now we can get images and video. You can do some routine examinations where you can ask joints to be manipulated in a minute in a moving fashion or just talking with a person to understand how they're feeling and read their language to see if they're in pain or get them express their own words in a much more dynamic way what the problems are. And so it goes beyond just, you know, being able to communicate remotely, but we're able to communicate remotely in depth with video and with support in real-time. That was never really possible before. So it's one of those things. It's one of the few nice things about COVID. It is teaching us certain things about distance learning and telehealth that we might not otherwise have a chance to learn. And we do have some work going on to try to study that. Although I've met most of the work we've done actually was done about interventions that were initiated and completed pre-COVID.

[00:21:12] So not that much of our work is designed to take advantage of that. Some of the most interesting stories that we will release on a podcast shortly is about the use of connectivity in Vanuatu. And the second largest island is called Maewo and basically there are people on the eastern side of the island that have no access not only to healthcare, but they don't really have access to transportation to get to hospitals.

[00:21:37] There's no hospitals on the island, and the hospitals—the two or so hospitals [they] have access to—specialize in different things. And so if you want to be even seen in a clinic, they had to put you on a stretcher and carry you from the east side of the island over a mountain to the west side of the island where a nurse could look at you. And then the nurse would have to sit there and figure out what to do, and nurses are heroes, but they themselves know there's a limit in their training around what they can diagnose. And then you've got to actually get transportation, whether it's an airplane or a boat, to get to the main island. And by and large, it took well over a day, often two days to get from the east, village on the east side of the island to where you're going. They use their internet connectivity to setup remote diagnosis facilities in the east part of the island. They're able to identify which cases were serious enough to justify the trip. But in addition, they could get the logistics for transportation moving from the time they left the east side of the island,

[00:22:34] so by the time they got to the west side, the boat or the plane was waiting for them and they shorten up the entire time immensely. And interestingly, it gave a crowdsourced basis for people who couldn't afford it to raise a little money. And actually people would contribute to defray the costs of allowing people to get access to health care. And they said that in the first six months, they think it actually may have saved as many as 60 people in that island very quickly. You start to appreciate in a much more direct way what that kind of telehealth intervention can really mean, particularly in areas where access to health care is particularly difficult.

[00:23:10] Great.

[00:23:11] Well, thank you very much for the interview. I just want to ask you one final question. Where can people find out more information about what's going on with One World Connected?

[00:23:20] The best place to go is our website, which is 1worldconnected.org. You can find our case study, some blog posts and the podcasts that describe these events and also some information about upcoming conference appearances where you can meet with us in person and hear us talk more about the work we're doing and the work we're going to do. Although during the COVID time, in person probably means virtually “in person”, not face-to-face.