

Annual Reviews Conversations Presents

An Interview with Elinor Ostrom

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Host: You are listening to an Annual Reviews prefatory interview. In this interview, Margaret Levi, editor of the *Annual Review of Political Science*, talks with Elinor Ostrom. Professor Ostrom is the cofounder, with her husband, Vincent Ostrom, and longtime codirector of the Workshop in Political Theory and Policy Analysis at Indiana University, and she now serves as its senior research director.

She is currently the Arthur F. Bentley Professor of Political Science at Indiana University, as well as research professor and the founding director of the Center for the Study of Institutional Diversity at Arizona State University. She is cowinner of the 2009 Nobel Prize in Economic Sciences.

Margaret Levi: I have a couple questions that I am going to prime the pump with here, Lin, and then we can let conversation flow however it does.

There are many things about your history and what you've done in your career that are immensely impressive and have broken all kinds of barriers. But one of the things that I've been most intrigued by, and which I know very few other people have achieved, is the way in which you have not only tolerated and encouraged a multiple-method

approach to how one does work, but how you've conquered so many different methods.

You really are very *au courant* in just almost—first, you learned game theory, and you learned microeconomics. You've been president of the Public Choice Society. How did you do that? What gave you the capacity to do that, and what gave you the reason to do that?

Elinor Ostrom: Well, partly, as an undergraduate, I had to work my way through UCLA, and I took a double major. Political science didn't look like it was much of a potential place to get a job, and with economics—and I took some business. I thought maybe that would enable me to get a job, eventually. It did, and—

Margaret Levi: You were right.

Elinor Ostrom: Yes. I spent, then, three years in Boston, and my first experience of graduating from college and going out in the world was, "Do you have typing *and* shorthand?" I didn't have shorthand, so I had to learn it via—that was one of the first skills I had to learn after my baccalaureate, and actually I still use it. If you're doing an in-depth interview, and you can take the first six words or eight words—you don't have to take the whole thing. And it's fast—

Margaret Levi: And no one has to transcribe it the same way they do—

Elinor Ostrom: Yeah. They're not teaching it the way they used to, but I, fortunately, did have to take it. I actually didn't ever use it for a real job. I just used it as one of my skills. Then, going back, I was in business, in personnel management. I went back home and became a public personnel manager at UCLA and started coursework for a master's and thought, "Hmm, this is kind of neat"—a lot different than undergraduate because when I was an undergraduate, my goal was graduating, and I was working 30 hours a week, and you learn how to take exams. So I consider my baccalaureate to have taught me how to take exams.

Then I got into these graduate seminars and, "Oh, they're really interesting and fun." So I thought, "Well, why not go to graduate school?" And I went over and talked to the folks in economics, and they said, "Don't think it makes very good sense." They didn't want to have me apply, even.

Margaret Levi: I think they're kicking themselves right now.

Elinor Ostrom: Well, political science would admit me, but then, I think in the prefatory [review], I mentioned that they had not a woman in the department for simply years, and they admitted 4 of us in a class of 40, and it was a huge controversy that we found out. Fortunately, there were four of us because we could kind of buddy together.

I took a lot of economics in my graduate program, but I was studying water resources there, so I had to take some water resources [courses]. I took Oscar Grusky in sociology, and so I learned a good deal about the sociology of things at that point. My PhD committee had engineering, sociology, economics, and political science on it.

Margaret Levi: So you've always been interdisciplinary?

Elinor Ostrom: Yeah. I just thought that was the way you did things.

Margaret Levi: And did the economics give you a base for learning these other skills that you learned? The game theory, obviously.

Elinor Ostrom: Oh, yes. Well, yes and no—

Margaret Levi: But the behavioral economics, the experiments, is sort of whole another set of

skills, right?

Elinor Ostrom: Yes, but that grows out of those, having a very firm, solid interest in economics, which I've had all the way along, and then learning game theory—I didn't learn it as a graduate student, but I learned it later and had the great pleasure of working with Reinhard Selten. So I had learned it from a—

Margaret Levi: The master.

Elinor Ostrom: Pretty great master. But my—

Margaret Levi: So you learned that, that year in—

Elinor Ostrom: Bielefeld [Center for Interdisciplinary Research at Bielefeld University].

Margaret Levi: —in Bielefeld.

Elinor Ostrom: I had started to have some reading in game theory before I went there. Then that year, I sat in on a seminar that was not a course. It was just visiting lectures. Then he [Selten] invited Vincent [Ostrom] and I back. Vincent had to edit a book, and I was back for a whole semester. And I took his game theory in German. That helped both my knowledge of game theory and my knowledge of German. So I learned he is a master and is not trying to show off. He's trying to really get you to have an understanding of what is the foundation and what are the reasons, and why do you come to this conclusion versus that.

I worked with Franjo Weissing the second time I went back to Bielefeld. He is a mathematician also and a biologist and—

Margaret Levi: Interesting.

Elinor Ostrom: —so I was able to do a couple of game theory articles with him. I really have treasured game theory as a way of getting into the hub of some things. Now, sometimes, what it helps you [with] is it shows something in game theory being unlikely or irrational. You can take that and put it in an experimental lab, and I was very, very fortunate that Jimmy [James M.] Walker came to Bloomington just as I was getting hungry for, "How would we ever put these things in a carefully developed laboratory experiment?"

He is a fanatic for getting everything well designed, pretested. When you do a lab experiment with an expert like Jimmy, you know you've taken the theory and put it in the lab, as Vernon Smith urges you to do. Jimmy did a postdoc with Vernon Smith, so there's a connection there. It's enabled us to take things that I observed in the field. Then we could look at it through game theory. Then we can go to the lab and test [it]. Was this just an unusual set of things that I saw in the field, or would you find it repeated under situations that were very carefully designed? [It was] wonderful to be able to go back and forth.

Margaret Levi: Well, it sounds like you're both a lifelong learner and a learner by doing.

Elinor Ostrom: Well, yes. I now have published several things using remote sensing. Now there, I have always done that with a coauthor. I know enough about remote sensing that I can do some of the fieldwork that's necessary to do—

Margaret Levi: Now could you explain what remote sensing is, a little bit?

Elinor Ostrom: It's using GIS, or geographic information systems, to record some of the data from the satellites that go over. What I learned from taking a seminar with Tom Evans, here on this campus, is that that satellite sends back images, but they're in long strings of digital numbers,

so something has to interpret it. And over time, they've developed very general programs for interpreting it.

If the light coming from the sun is coming on a hillside, it reflects differently to the satellite than when it comes to [a] flat [surface]. And when it comes and there's corn, it's sometimes hard to tell whether that's corn or a young forest. If you're really going to do a good job of interpreting, you have to take a geographic position system, a GPS machine, out into the field, and at key junctures take measurements and record where you were exactly and what you saw.

Then that gets back into the computer and tightens up the analysis, and you do—say, you take 100 sites out in the field. You put 50 in, and then see what happens. Can you predict? You take 25 of your other sites. Can you now predict them? And if you can predict them at 90% accuracy, you don't need to do anything more. If you can't, you take some of those other 25 and put them in to the point you can predict at 90% accuracy.

Margaret Levi: What you've been doing is finding—you started, in many ways, I mean your original research, when I first met you many years ago, was doing fieldwork. I mean you were literally out there counting things—

Elinor Ostrom: Oh, yes, yes, yes.

Margaret Levi: —and talking to people, and you've developed all these other skills that improved that analysis, and you seem to keep going back between the field and a high level of abstraction but informed by both theory and a very sophisticated—whatever the cutting-edge methods are as we develop them.

Elinor Ostrom: Now I try to teach my graduate students that they should learn one method really well at just [a] far-out expert [level]. They should have a second one that they learn very well, not necessarily right at that extreme level, and then be aware of the skills from some of the others so that they can work with teams. With the remote sensing, I don't do all the analysis. I've worked with Harini Nagendra and other colleagues who are experts, but I know enough that I can work with it.

Margaret Levi: Well, you're also bringing some questions that they might not otherwise ask.

Elinor Ostrom: Yeah. On some—right now, I'm doing a lot of work in forestry. That means we go and we define the boundaries of a forest. We draw a random sample of plots. Random sampling is something I'm familiar with, but then inside, we draw circles of 1 m, 3, and 10, and we have to count every tree. Well, I can count trees, and I've now learned how—do you know what a DBH is?

Margaret Levi: I haven't a clue.

Elinor Ostrom: Diameter at breast height. It is a very key measure so that if you measure a tree about here [gesturing]—there's a real place for it, but it's basically under your chin, about—and then you measure the height. You can get a volume, and that's one of our ways of getting a basal area and getting a sense of the volume of wood and carbon in a forest.

Margaret Levi: So how does this relate back to your institutional analysis? What are you doing with the remote sensing data, for example, that is informed by the kind of the institutional analysis that you've made famous?

Elinor Ostrom: What you have to do is get a foundation of the slope and all aspects, et cetera, the ecology—but you can't do it unless you can get clear boundaries of what's on the ground, and that takes a lot of fieldwork to get the boundaries and to know the rules. Then you can look at

three time periods and the space, and look at, “What difference does having the boundary here [make]?”

In some cases, the boundary makes no difference. Everything going around on every side of it is the same. In other cases, the boundary cuts off.

Margaret Levi: Makes all the difference.

Elinor Ostrom: Makes all the difference, but you’ve got to have the institutional knowledge to get the boundaries right. If you can’t do that, you can’t use it for institutional analysis.

Margaret Levi: Right. So this very much fits with the work you’ve been doing about the conditions all your life, really, about the conditions under which different kinds of institutional arrangements work and other kinds work, and which kinds of governance systems will promote one goal as opposed to another goal.

Elinor Ostrom: Yeah, and it’s fun.

Margaret Levi: It sounds like fun.

Elinor Ostrom: Well, one of the ones that is in the supplement for the article in *Science* that Tom Dietz and Paul Stern and I did on “The Struggle to Govern the Commons”—I love that title—is for protected areas in Guatemala, one of which is Tikal. This is a simply beautiful area. People flock to it—

Margaret Levi: It is gorgeous.

Elinor Ostrom: —from all over the world, and they pay a good fee. They pay so much that the protected area sends money up to the government; thus, they can put walls around. They can march around, and it’s in excellent shape. In the same remote picture—not picture, but same remote image, there are two other protected areas—same institution—devastated by deforestation. There’s a fourth one that is in good shape, but nature’s protecting it. It takes by three days by mule to get up there.

Margaret Levi: Interesting. So the other theme I’m hearing here, which brings me back, in some ways, to the workshop, is collaboration—

Elinor Ostrom: Oh, yes.

Margaret Levi: —and interdisciplinarity. I know that lots of people this week have been talking to you about the obstacles that you faced as being a woman, but I’m also interested in the obstacles you faced as being someone who’s seriously committed to interdisciplinary work and to collaborative work. We tend to think of scholarship, unfortunately, I think—you know I share this taste with you—as being sort of monastic. You know, everybody goes into their office or goes off into the field. But you really are committed to interdisciplinarity and teamwork, and the workshop is the model of that. So what kind of obstacles have you faced in sort of creating that kind of institution?

Elinor Ostrom: It’s been a challenge. Disciplines don’t like it when you publish in other places, and, for example, I was very thrilled when Jimmy Walker, Roy Gardner, and I had an article in the *American Political Science Review* in 1992. That was “Covenants With and Without a Sword,” and it turns out to be a very key publication in terms of looking at the role of people monitoring each other. But Jimmy and Roy were told by their department that it would give them no credit at all—the *American Political Science Review*—and I think some of my articles in economics have not

been given much credit by my department.

So I do advise my graduate students: “Until you have tenure, please be sure that there are two or three articles, and you’re the only author, and it’s in your discipline. I hate to advise you this way, but I want to see you have tenure.” I know in many departments, one, they don’t know what to do with coauthors. So any time you have a tenure thing, you have to write all your coauthors and ask them to say whether or not you did anything, and if there are none—I was on the college tenure committee—people coming up for tenure who had only coauthored were frequently rejected because they did only teamwork. So part of our rules inside the university is not enhancing interdisciplinarity and teamwork.

Margaret Levi: I know it’s still a very tough road for nontenured faculty. Do you think it’s gotten easier?

Elinor Ostrom: A little. There are now schools that are interdisciplinary and are a lot easier to—

Margaret Levi: Yes, there’s more of that.

[Cross talk]

Elinor Ostrom: —if you’re traditional economics or traditional political science, it’s rough.

Margaret Levi: I don’t know; I’ve been noticing that in some of the best political science departments, the highest-ranked ones, it’s become a lot easier to do that. There’s a recognition that cognitive science is a crucial tool, that economics is a crucial tool, and that you, therefore, might publish in their journals if you’re really good at that work.

Elinor Ostrom: Yeah, otherwise, you’re making claims that aren’t supported.

Margaret Levi: But is that your—

Elinor Ostrom: I think you’re right, but it’s—

Margaret Levi: It’s still a tiny fraction.

Elinor Ostrom: Yeah, it’s still—we need more of it.

Margaret Levi: Absolutely. Well, what about once you got tenure? Did you still face all kinds of obstacles about—I mean, you’ve mentioned the problem that Jimmy and Roy faced.

Elinor Ostrom: Well, partly. We created the workshop, and so our life and activities were a weekly colloquium, our own graduate students—getting them out, bringing in NSF [National Science Foundation] money. I did do a great deal of writing grants, and NSF has been wonderful. [Looking upward] Thank you very much!

Margaret Levi: And you’ve helped NSF this week. I hear Barbara Mikulski was noting you—Senator Mikulski was noting you to help make sure that the political science program and NSF continued to be funded.

Elinor Ostrom: Yes.

Margaret Levi: So thank you, Lin!

Elinor Ostrom: Well, thank *you*, NSF, because you can’t do the kind of—if you’re going to do large-N—and one of my studies had a survey of 18,000—well, you can’t do a random sample of 18,000 people without external—then we did another study that was of 80 metropolitan areas in the U.S. We’re now doing a study of over 200 forests around the world. None of that is feasible

without financial support.

Margaret Levi: Right. By getting these grants and having the workshop, you were able to insulate yourself, I take it—to some extent—from some of these counterpressures towards doing interdisciplinary work.

Elinor Ostrom: I was not ever concerned about salary, so that's never been an issue for me. For some colleagues who have big families, and all the rest, it's a major issue.

Margaret Levi: Well, they also tie up their prestige with their salaries.

Elinor Ostrom: Yeah, and I don't. In fact, when I was chair of the Department of Political Science, I purposely kept my salary at zero because our junior faculty were just—we weren't competitive, you know?

Margaret Levi: Yeah.

Elinor Ostrom: I was very, very worried. So for me, that sort of thing—I don't compete with my colleagues. It's just not something that—that's not the way I think. It really hasn't been an impediment. So we've had excellent political scientists involved in the workshop for a very long time, and some of them were so excellent that other places have hired them.

Margaret Levi: Yes, I know. So in the prefatory [review], you talk about the problems of getting a job in the first place and even the problems of getting tenure. Were there any problems you faced going from associate to professor to full?

Elinor Ostrom: No, I don't think so. I'm not sure how many years—I just didn't pay any—you know, I had tenure, so I wasn't paying attention to these things.

Margaret Levi: It just happened when it happened.

Elinor Ostrom: Yeah. After being so turned aside at an early juncture, where it was, “You'll never be able to teach at a major university. You just can't get a job,” I think getting tenure and being able to have the workshop and the activities—that was so satisfying that I didn't worry about some of these other ranking things.

Margaret Levi: Right. One of the questions that I've—you talk a little bit about this in the prefatory, but I've always been deeply curious about it. You saw the video we did last year with Robert Dahl and the history of how he got into the concept and the way he thought about democracy. The thing that you've really focused on is the commons and the way in which—and common-pool resources and how people manage those. How did this issue come to be so critical to you?

Elinor Ostrom: I heard Garrett Hardin give a lecture, and I didn't know—when I did my dissertation on groundwater basin management and watch[ed] 700 people go through a very tough job of negotiating in the shadow of the court and creating special districts and doing incredible things—that they were dealing with the commons. My dissertation used the concept of public entrepreneurship, so I was very much influenced by [James M.] Buchanan and [Gordon] Tullock and [Joseph] Schumpeter. Schumpeter's notion of entrepreneurship was what I was looking at, and it was public entrepreneurship.

Margaret Levi: Why water resources, then? What got you—?

Elinor Ostrom: The first seminar I took with Vincent, and then we didn't continue being student

faculty because we dated and all. He had a brilliant idea. He had been studying water resources in Southern California, and he was seeing that the various groundwater basins were organized differently. He made it apparent to anyone who might be in a graduate seminar that they would have to take one of these basins and really dig in and figure out what was going on.

I was assigned West Basin. I don't even remember why. We just all—there was a list, and you got assigned it. It turned out that West Basin was 45 min away from UCLA—the headquarters—and I went down, and I started to attend the meetings of the private association that they had created to discuss this. I could see them struggling with these ideas and what to do and how to do it, and then I interviewed them in depth.

The wonderful thing, when you study local—sometimes you have access to files that you don't have if you study Congress. So I was talking with them, and I said, "Well, how would I find some of the early paperwork?" "Oh, here's the file drawers."

[Cross talk]

Margaret Levi: "It's right there."

Elinor Ostrom: Yeah, "It's right there. You can open any file drawer. You can take anything we have a copy of." So if there was a copy, I could literally have one of the copies, and if there wasn't one and I wanted it, they said, "Here's the Xerox. Make it." Of course, it was in the days before you had computers.

That gave me insights into people, some of whom had spent 20, 30 years trying to solve this tough problem. There had not been one thing they did. They did a number of different things, including building a barrier against the ocean coming by putting water down through wells—very ingenious. I didn't know I was studying the commons.

Well, then in 1968—I defended [my dissertation] in 1965—Mancur Olson's book [*The Logic of Collective Action*] was written and published in 1965, and so it wasn't something I read at the time of doing the dissertation. Buchanan and Tullock [*The Calculus of Consent*] was 1962, so I had [read it]. Hardin gave a speech on the IU [Indiana University, Bloomington] campus, and I went to it, and he indicated the more general—but then it was that he really was worried about population. He indicated that every man and every woman should be sterilized after they have one child. He was very serious about it.

Margaret Levi: This was Garrett Hardin?

Elinor Ostrom: Yes—not Russell [Hardin]. Garrett Hardin. I was somewhat taken aback: "My theory proves that we should do this," and people said, "Well, don't you think that that's a little severe?" "No! That's what we should do, or we're sunk."

Well, he, in my mind, became a totalitarian. I, thus, had seen a real instance where his theory didn't work. His theory he was carrying forth at such a level—and we were then doing the studies of police. We did that for 15 years all over the country, and that would've been studying local, public goods, a different kind of commons, but nonetheless.

Margaret Levi: But these were the issues that were gripping you, how people solved these problems.

Elinor Ostrom: Yeah. There was a National Research Council committee created. What they had found was that political scientists were in there talking to economists or sociologists or engineers or historians. People who studied Africa didn't talk with people who studied Asia, and if you did fishery, you didn't know anything going on about water.

So we had three ways of cutting into the study of common-pool resources and no accumulation,

none. We then had a big meeting in Annapolis in 1986 and began to discover it, and within six months, we had identified over 1,000 case studies written all over the world. That was just amazing. All of us who lived through that experience were changed, and that was when I first turned to meta-analysis of how did we identify [cases] and see if we couldn't code them.

It was agonizing because you'd identify 10 variables, and then Case A had five of them and not the other five, and Case B had—

Margaret Levi: The other five.

Elinor Ostrom: —yeah. We had to go through an incredible number of individual cases before we could get a set that had common variables, and so you knew your theory—

Margaret Levi: This was what years?

Elinor Ostrom: Oh, this would've been—the big meeting was 1986, and so we were struggling in the late 1980s to create the database. What was wonderful about it was our field was a filing cabinet that we could all go to. So we would be arguing about this and, “Well, now, let's go back and recode your cases with this idea. Check on new cases about this.”

Margaret Levi: But it wasn't all digitized?

Elinor Ostrom: No. Oh, no.

Margaret Levi: Just to remind our viewers of how recent computers are.

Elinor Ostrom: It turned out meta-analysis was unbelievably useful because the field was right there. We met every week, and we would work on something, and then we'd say, “Hmm, we don't have this quite right. Let's go back, reread some of what we've done, and take another case or two,” so that we'd push it ahead. You can't do that out in the field.

Margaret Levi: So some of this work informs governing the commons, obviously.

Elinor Ostrom: Oh, yes. I worked and worked on that, and Edella Schlager and S.Y. Tang did their dissertations on this, and eventually, part of that became the book *Rules, Games, and Common-Pool Resources* with Jimmy [Walker] and Roy Gardner. When I was in Bielefeld the second time, everyone pushed me for, “Oh, let's get some—what kind of market rules will work? What kind of bureaucratic rule?” I mean they wanted [the] simplest. I kept reading, and we couldn't come up with simple answers. I took—I had a sabbatical. And Jim Alt had asked me to give some lectures at Harvard, and Doug [Douglass C.] North had asked me, too.

Margaret Levi: I remember that.

Elinor Ostrom: Oh, it was a wonderful thing. Doug had given a lecture on some early work that was at Wash U [Washington University in St. Louis], and he said, “Oh, you should do a book,” and then Jim Alt asked me to give the lecture at Harvard—five of them.

Margaret Levi: This was for the series that they were then coediting?

Elinor Ostrom: Yes. I had a sabbatical and an invitation to do a book and five lectures at Harvard. I thought, “Ah, what an opportunity.”

Margaret Levi: Several years later—

Elinor Ostrom: Well, I had to give those lectures that spring, and about February, March, I thought, “There's no way. I can't.” I just got desperate because I was identifying this kind of—you

know, was it all that they used three-quarters rules? Was it majority? Did they have to have a leader? I couldn't find any of these statistically significant. That's when I went up a level and said, "Well, can I get some of the commonalities?" that I, then, ended up calling design principles. I chose cases that had been at least 100 years, if not more. So why were some successful, and why were some failures? Did those design principles account for anything? I put them out because that was as good as I could do, and, fortunately, they've been quite sustainable.

Margaret Levi: They certainly have.

Elinor Ostrom: I mean, now, a study of 110 systems or so that—articles that have evaluated them and a very large number of case studies, and they seem to be pretty robust. Not perfect, but robust.

Margaret Levi: It sounds like the whole project that led to the publication *Governing the Commons* was really, in some ways, transformative for your career, as well.

Elinor Ostrom: Oh, yes. Oh, yes.

Margaret Levi: I remember inviting you to do a reader-meets-your-critics panel at APSA [American Political Science Association] right after *Governing the Commons*, and—

Elinor Ostrom: Yeah, and the design principles were so far off that—

Margaret Levi: I mean people were just like—right.

Elinor Ostrom: Boundaries.

Margaret Levi: It was a whole new language to learn, a whole new way to think about things. Absolutely.

Elinor Ostrom: Fortunately, I had just been so immersed in it that it really made a difference, but I didn't come up with a decision rule. I said that people had to be able to make some of their own rules and then adapt them over time, and that's what's so important.

Margaret Levi: The adaptation was also very important.

Elinor Ostrom: Really important, and people keep wanting the formula. If anything—if I want one lesson, it's there's no ideal formula for all of these things. Think how different they are.

Margaret Levi: You also imply that it depends what the problem is, at what level of government it's solved.

Elinor Ostrom: Yeah, and some things need national. Some things need global. Some things need various—

Margaret Levi: Very local, right.

Elinor Ostrom: —and some things don't need to be governed at all.

Margaret Levi: Right—or governed. So where did that lead you, then? You did *Governing the Commons*, and you still weren't doing experimental work at that point, right? You were doing fieldwork. You were doing meta-data, and then you started getting really seriously—I can see how the game theory informed all that. That was clearly part of the story.

Elinor Ostrom: I had been reading about experimental, and I actually taught, with Bobbi [Roberta Q.] Herzberg, a graduate seminar on experimental research, which was all work that

others had done. One of my graduate students at that point, Rick Wilson—there was a faculty member that wasn't an experimentalist; Jimmy hadn't come in yet—and he did his dissertation using game theory and experimental. I'm trying to find a way of—taking a computer lab and turning it into experimental lab was tricky, but Rick did a fabulous job.

Then Jimmy came to campus, and I looked him up and said, “Have you ever thought—” because he had already done a lot on public goods, but nothing on CPRs [common-pool resources]. With Roy here as a game theorist, it really enabled us to put those techniques together.

Margaret Levi: Oh, that's fabulous.

Elinor Ostrom: Yeah. Again, I wasn't a game theory expert. While I know enough to write [about] it occasionally—I can collaborate—I wasn't an expert in experimental, but I was really interested. To be able to work with two experts, and then to bring things from the field back to the lab, really made a difference.

Margaret Levi: Absolutely. One of your skills—one of your many skills, and this one was not so much learned at Bielefeld or required by a job, like shorthand—is to find the people who have the skills you need or the capacities you want and bring them together with each other, as well as with you.

Elinor Ostrom: Well, but happenstance is part of that. I didn't recruit—

Margaret Levi: Well, not everybody can make happenstance—

Elinor Ostrom: I didn't recruit either Jimmy or Roy.

Margaret Levi: No, I understand that.

Elinor Ostrom: They were here, and then I heard about them, and we began working together.

Margaret Levi: When we were doing the review this week of the workshop, one of the things that became quite apparent is a number of people are there because you “married” them, as it were, sometimes quite literally—

Elinor Ostrom: Intellectually.

Margaret Levi: —but intellectually, more importantly, where they had sort of been vaguely aware of each other but didn't realize that they had some common interests that would make—that there was a really mutual and big, positive gain from working together.

Elinor Ostrom: We have had a tradition of working groups, and they're informal. Vincent and I did not say, “We must have one.” People would want to get started on something: “Okay, do you have an initial list? Don't put it all on your secretarial staff. Get it organized and thought through.”

I've been in some and noticed that, “Well, we needed a few more skills here, so can we get somebody else in?” So I've invited people in and then sometimes said, “Gee, can we work together?”

Margaret Levi: That's great. We've gotten up to where you're dealing with game theory now and beginning to get involved with experiments. Now what—and that led to the trust and reciprocity work and a variety of other things that begin to explore the common goods and common-pool resource problems at a whole different level in a whole different set of settings—what led you to the remote sensing? The environmental questions that you study clearly come out of some of the common-pool resource questions.

Elinor Ostrom: Well, one of the things that NSF did was indicate they wanted centers that would be looking across the ecological social science, and we set up one here on the—it's called CIPEC, the Study of Institutions, Population, and Environmental Change. Emilio Moran, who is a superb anthropologist, suggested we go in on a proposal, and we did, and we became a center.

For a while, I codirected the workshop and codirected CIPEC. One of the tools he had learned—as an anthropologist who had done a great deal of fieldwork—and they were making claims about things from remote sensing that he thought were wrong. He had trained himself in remote sensing, and then we ran a summer program where we trained them in remote, in a little bit of game theory—not too much, but enough—in institutional analysis, and in fieldwork.

Margaret Levi: So was this the first time with CIPEC that fieldwork had been brought together with remote sensing?

Elinor Ostrom: No, Emilio had certainly brought it together before.

Margaret Levi: So Emilio is crucial in this.

Elinor Ostrom: Yes. He was studying the Amazon and some of the patterns of deforestation, and by going up, he could observe patterns that you can't on the ground, and that's why they're so important. Because you can interpret it better if you've been on the ground when you're looking [from] above. He has some fantastic early articles that are just unbelievable, and I learned so much.

Margaret Levi: I only have a few more questions because we are beginning to run out of time. I can't help but ask how the Nobel Prize is affecting or likely to affect your work and your life?

Elinor Ostrom: Yeah.

Margaret Levi: I know it's very—you just won it on Monday.

Elinor Ostrom: I'm still not—

Margaret Levi: The one thing I didn't find credible about your winning the Nobel Prize was the announcement that you were *woken* at 6:30. My experience of you is that you're sending emails at 4:00 in the morning.

Elinor Ostrom: Sometimes. I had been up early and gone back to bed [laughter].

Margaret Levi: Oh, there you go. You were taking a nap when they woke you up.

Elinor Ostrom: I sometimes now—you know what I mean—I'm in my seventies, although sometimes I do actually sleep to 7:00.

Margaret Levi: Oh, good for you, Elinor. I'm glad.

Elinor Ostrom: But I had been up, yes. They woke up because I had gone back—I was really sound asleep.

Margaret Levi: How do you think it's going to change the way you do work and what your life is going to be like?

Elinor Ostrom: It's not going to change the way I do work because that's teamwork and—

Margaret Levi: And you want to be part of the team.

Elinor Ostrom: Yeah. I haven't quite absorbed—the email load has just been unbelievable. It's fun talking with you, but this is about—I've been averaging six or so interviews every day.

Margaret Levi: Right. Well, this was planned a while ago.

Elinor Ostrom: It was planned a long time ago, and what a pleasure for me. Hopefully, there'll be a little bit of quiet in here somewhere where I can actually think about this.

Margaret Levi: Yeah, I imagine.

Elinor Ostrom: We've got new research projects that were already coming along, and we're going with them.

Margaret Levi: Good. That's great. Is there anything else you want to tell me, or you think our readers should know about?

Elinor Ostrom: Well, I think they should read your work.

Margaret Levi: Oh, thank you.

Elinor Ostrom: Well, I think that—I very learned a great deal, and I think part of our overlap of interest is that just having formal rules is not enough. The question is, “Where do the rules come from? What are the incentives of the people inside? What—are they to go by them and not let anybody know, and just cheat? What are the incentives to change them?” All of those things. We've been taught, as political scientists, that those rules are the rules. What we know from the field is that rules on paper and rules in form are different.

Margaret Levi: Absolutely.

Elinor Ostrom: So that may be the lesson.

Margaret Levi: Thank you, Lin. This has been a real pleasure to talk to you, as always.

Elinor Ostrom: Thank you.

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