The Discipline of Endless Wonderment

Conversation with Jack Whalen

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COS: What questions does your work address? What is it that organizes your own activities, questioning, and research?

Jack Whalen: My research over the last decade has focused on the endogenous social organization of work activity, with a particular interest in technology saturated work sites. I was trained in ethnomethodology, in conversation analysis. I got involved in studies of work serendipitously. Someone brought some tapes of 911 calls to one of my colleagues. The person knew that we were interested in conversations and thought they might interest us. What was initially interesting to me was thinking about the kind of work the people who processed those kinds of calls were doing. That led myself and several colleagues to go to a local 911 center and say, "Can we hang out and learn more about what you do?" And they said, "Sure." People are usually flattered that you are interested in their work. So we just started doing classic ethnography down there, asking a lot of stupid questions.

COS: And observing.

Jack Whalen: Observing, yes, and holding shifts all night or all day.

COS: Was that for a couple of weeks?

Jack Whalen: We did it periodically for many months. We couldn't do it often because of our teaching and studying. I was still a graduate student then.

COS: Could you tell me a little bit of the background that brought you here, of your journey? Where were you born and where did your folks come from?

Jack Whalen: I was born in New Jersey. My family was Irish American.

COS: I see. When did they come over?

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[1] The conversation with Jack Whalen took place as part of a global interview project with 25 eminent thinkers on knowledge and leadership. The project was sponsored by McKinsey & Company and the Society for Organizational Learning (formerly the MIT Center for Organizational Learning). The interviews and the summary paper are accessible as free downloads from www.dialogonleadership.org.

Jack Whalen: My grandparents came over sometime around 1912. At that time it wasn't that unusual for poor Irish families to have another family take in a child or two because they didn't have enough. So that's what happened. My father's mother had many kids and no dad. His dad left. So my dad, who's a doctor, was raised by the Whalens. His stepmother died when he was 12, and so his older brother raised him. This was in Hell's Kitchen in New York City. We don't know much about his ancestors, except that they were the Carrolls and they were first-generation. My grandparents on my mother's side both came from the same town, but they met in America.

COS: And where did you go to school?

Jack Whalen: I got my bachelor's degree from Temple University in Philadelphia. I didn't go to graduate school right away. I worked and was trying to figure out what to do with my life. I had been a sociologist --

COS: During your undergraduate or your graduate time?

Jack Whalen: I had been a sociology major and I really liked sociology, but this was during the '60s and early '70s --

COS: It was a really interesting time.

Jack Whalen: There was a lot of turmoil.

COS: What was it like back then?

I. Revolutionaries in 1968 and Beyond

Jack Whalen: Part of my interest in sociology came from being caught up in that time. I was in SDS; I was very involved in the student movement. Sociology was a way to try and understand the dynamics of society, and the kinds of social and cultural changes in the world.

COS: When did these questions first wake up in you? Was that in 1968?

Jack Whalen: I think so.

COS: It was in the air back then.

Jack Whalen: Yes, it was. My family were liberal Roosevelt Democrats. Franklin Roosevelt was like God to my grandparents and their families. They came through the depression and he was their hero. I had an orientation to social political issues. At the same time, my wife, who I met my first year in school, gave me this book that she was reading in her sociology class by Irving Goffman.

COS: Which one?

Jack Whalen: *The Presentation of Self in Everyday Life*, his first book. The idea that you could begin to understand the dynamics of ordinary activity and interactions at this kind of detailed micro-level was really fascinating to me. So I always had these two separate sort of interests in sociology, and eventually the interest in political and social movement. That fell away completely, and the other interest took over. I remember trying to read *Studies in Ethnomethodology*, which is a very dense book.

II. What Is A Social Fact?

COS: Can you explain the difference between ethnomethodology and ethnography for me?

Jack Whalen: Ethnography is a method, traditionally practiced by anthropologists, of studying through direct observation. They try to get as close as possible to their subjects, to their world. Anthropologists tend to study preindustrial peoples. They go out into the field -- to the jungle, the desert -- and try to understand that society and culture from within, by living there. Your technique would be taking field notes, using informants, and asking people questions.

COS: You live with the people.

Jack Whalen: Right, getting as close as possible. In industrial society you study the society that you yourself are part of.

Ethnomethodology is a particular perspective, a theoretical stance. It's essentially interested in the methods that members use to organize and make sense of their world, of social lives. So "ethno" for members, "methodology" for members' methods. They study members' methods for common sense, reason and practical action.

Conventional social science starts with the social world as a fact and then looks at the objects observable in that world -- social classes, families, groups, organizations -- to see what the structure of those parts might be, and then how they might interrelate. Ethnomethodology says, well, what is it that makes it possible for these things to be visible or recognizable in the first place?

COS: So you're more focused on the practices that bring forth these, and that's the social order?

Jack Whalen: Yes, exactly. You're indifferent to the traditional concerns of sociology, methodologically indifferent to it. You're not interested in relations between the sexes, for instance, which is a classic concern of the sociologists. You'd

be interested in how members could be recognizable as males and females in the first place. It's certainly not the majority view in sociology.

Most sociologists' studies of work have almost nothing about the work itself. **Focusing on the details of how work actually gets done is what interested me.** That's when we went to the number one center we were interested in, which is ...

COS: So that during your graduate years?

Jack Whalen: Yes, initially. When I left my first and only job in academia, at the University of Oregon. I got my Ph.D. at UC Santa Barbara, and then was an assistant professor initially at the University of Oregon.

COS: And that was when?

Jack Whalen: 1983.

III. At the Edge of Life and History

Through the '80s and '90s I got more interested in work, and less interested in more writing about social movements or social change. The work I was doing was more about the relations between individual life histories and the course of history. Biography and history. More social psychology than sociology.

COS: Biographies and histories, so that was your earlier work?

Jack Whalen: The intersection of life history with history. How does being caught up in historical events shape the course of individual lives? How can you see the course of individual lives as shaped by the involvement in the courses of history itself?

COS: That sounds fascinating.

Jack Whalen: Yeah, it was very interesting.

COS: What did you find out?

Jack Whalen: I worked on my dissertation in a book about what happened to people who were student activists, like myself. What course their lives had taken after the student movement.

COS: What did you learn about that? What journeys did you discover?

Jack Whalen: We used life history interviewing, so I spent many hours just traveling around and talking with people, like this. We picked a particular group of people who had been through a single event together.

COS: What was it?

Jack Whalen: In February of 1970 the Bank of America branch in Isla Vista, which was the student community adjacent to UC Santa Barbara, was attacked and burned to the ground. There were arrests and trials for that, and other trials associated with campus demonstrations during those months. The National Guard occupied Isla Vista; there was martial law declared. It was a pretty intense experience. So we took the people who had been arrested or in some way central to the student movement at UC Santa Barbara and followed their lives since then.

COS: What happened then?

Jack Whalen: I did all the interviewing, but I was working with Dick Flaggs who was a sociologist at Santa Barbara, who was my thesis advisor. Dick and I worked together on the book. We also talked to and spent a good deal of time with people who were students at UC Santa Barbara during those same days, but who were in fraternities, sororities, on the football team, people who were part of --

COS: The other side of --

Jack Whalen: The other cultural side, the other subcultures on campus. So we had people who shared a common experience but from different perspectives.

COS: From both sides. And you tracked them both?

Jack Whalen: Yes. We talked to them after, so it was retrospective. I think I did my first interviews with them in '78, and my last interviews in '85, '86. Over the course of eight or nine years we continued to go back to them like to see what had changed, how their lives had changed.

COS: I did some work on the German healthcare system, which is in major transition. There are lots of networks forming among physicians. They self-organize as learning communities and try to develop other relationships that are non-HMO driven. The driving forces within these networks are more often than not the “1968 people,” so that’s a funny pattern. What did you end up finding out about how these folks went through their lives after that event?

Jack Whalen: Essentially, they were as different twenty years after the movement as they had been before. The people who were not activists were more conservative and traditional in their lives than the people who had been activists. That’s not to say the activists hadn’t changed. Times have changed. Ronald Reagan was president when I was doing the last interviews in the '80s. That was quite a change from their expectation that society was on the verge of some revolution they were going to be part of.

I guess the one thing that you could use to summarize their lives **was they needed to remain morally accountable to who they had been.** They could say, "Well, looking back, some of the things I said or did were not the smartest things. Some of my views have changed. But in some fashion I still define who I am now to who I was. That was a particular way of looking at that experience: this was something that was meaningful and important, and I'm proud, in most ways, of what I did and what I believed, and I've changed. I still feel some need in making sense or justifying or coming to terms with why I do what I do or think the way I think now. I feel I have to be accountable to who I was." And that's interesting. The results of a cultural dimension to the '60s, was a sort of resistance to adulthood. To grow up was to die, in a sense, to lose --

COS: The source.

Jack Whalen: The source. It's not surprising that the activists did not have children as soon as the non-activists. They didn't get married as soon. In some ways adulthood was something they were struggling to come to terms with. They didn't just graduate from college, get a job, settle down, buy a house, and so forth. I'm caricaturing the non-activists in some ways, but that was pretty much the path they followed. They had also been affected in interesting ways by their involvement in the student movement. Some had been liberalized by it, and their view of the world had changed significantly. Others had hardened their political conservatism: that event demonstrated the bankruptcy of the extreme views and the need to have real law and order.

That's the story. The book is as much about the process they went through as it is about the outcome. If you look at studies of '60s activists, people always want to know, are they still radicals? I'm more interested in whether we see can see the relationship of the ways their lives changed as history unfolded. Can you see the continued impact of this earlier experience, and in what way? The contribution of our book was a detailed understanding of the whole dynamic by which people's lives change.

COS: That related to your research perspective in your current work, right? Because you're trying to understand how it shows up in the concrete phenomena, the concrete individual.

IV. "Why don't you actually work for us?"

Jack Whalen: You could say that. I haven't really even thought much about that work for over a decade now. Since Marilyn gave me Goffman's book thirty-two years ago, I've been interested in trying to understand the social world by getting very close to it, and as you say, to understand it in as much concrete detail as I can. To be

trained as a sociologist you have to master advanced statistical techniques, and a variety of methods. I had to take courses and seminars, and I was pretty good at building fairly sophisticated statistical models, using times theories, path analysis, other techniques. But I always felt that it was so far away from the details that --

COS: -- from people's lives.

Jack Whalen: Yes, from people's lives, that it was not terribly satisfying to me to do.

COS: So what techniques are you using now?

Jack Whalen: I still spend a lot of time just doing ethnography, just spending time with people, watching, asking questions, observing, trying to learn as much about the work itself, the job. **I finally decided if I really wanted to understand dispatching, to study 911 operations and public safety, I would have to actually do the work**.

COS: Just as a technical question, would it still be considered ethnography if you moved from observing the work to doing the work?

Jack Whalen: It's an extreme involvement, but yes. As a participant-observer, you participate in the world that you're studying as an observer. I was participating as a member and that was quite different. On my sabbatical that is what I did. The Eugene police department said, sure, this sounds interesting.

COS: How did that begin in the first place?

Jack Whalen: We started listening to these 911 calls on tape. We wrote some articles about this kind of conversation interaction, and the ways in which the features of ordinary conversation were adapted or transformed in some fashion in the course of these conversations. I got more and more interested in the work, and I was hanging out, doing some videotaping, writing some more stuff about the work, and then eventually the police department said, "why don't you actually work for us?" So I did.

COS: They asked you?

Jack Whalen: Well, I went to them and I explained that I had done all this other work with the dispatch center that we had studied in Southern California. I said, "You can talk to them if you're worried, is this guy crazy?" I got on very well with them. They said, "This is interesting. Why don't you come and actually do this job if you think you really want to understand it?" I didn't think they would ask that or say that. So I did.

COS: So you took a sabbatical?

Jack Whalen: Yes. I went through the training. I was like anybody else. I had to pass all the tests and go through the training, and not kill anybody, the usual. I really liked

it, it was very interesting. It's really hard work because you were working all different shifts and it's very high-pressured. I learned a huge amount.

COS: What did you learn?

V. Technology and the Organization of Work

Jack Whalen: I learned about the interrelationship between the technology and the organization of the work. The introduction of computers and automation into these operations was occurring as we started to study them. Previously these places had manual operations. You just wrote things down on paper and passed them on. As these operations grew in size, and especially with the introduction of this three-digit special number, the volume of calls increased dramatically. But there was also a consolidation of operations. So instead of these tiny little dispatch operations -- the sheriff over here, the local police department over there, the state police there -- public safety answering points were being established. The larger they got and the more the call volume increased, the more technology was introduced to manage that load, and to automate some of the processes. Computer-aided dispatch systems were being introduced.

So I had the opportunity to participate in the introduction of this technology. I got interested in documents, because the people who take the calls are not the people who work the radios and decide who to send and coordinate the response. At a large center you can't be interrupted when you're on the radio to answer the phone. You begin to see a division of labor between the two jobs. I worked on the phones and then I was trained as a radio-dispatcher.

For someone's phone call to the police to become a call in an official sense, it has to be documented. The documentation takes place digitally now. In a lot of ways this is part of the problem with the introduction of computers. They just transferred these forms to computer screens. You typed in the incident, address, phone number, etc., instead of writing it with a pen, and you transmitted it electronically instead of handing it to someone. In larger operations they would put them on a belt. This little part of the belt went to the fire dispatchers, that went to the police dispatchers.

I was particularly interested in how this document was assembled and then transmitted to someone else who had nothing to work from except the document. You had to make all sorts of decisions, and on what basis? What were the practical actions involved with that decision-making? They were also beginning to introduce expert systems into dispatch to help you make those decisions about who to send, given the type of incident, and where it is was located. All these factors can be complicated for a variety of reasons. I was the first-generation user of this system. I was trained completely on the model of "you make the decision yourself, based on your

assessment of the information available to you on your screen that you've recorded from what people are telling you over the radio about where they are, and so forth, and who you've sent here and there." You have some protocols about this type of incident needing this type of response, coming from these units because of where it is. So it moved from that kind of human assessment of a fairly wide range of information, to a computer-assisted assessment. I wrote a paper about that. That's when I first got very interested in expert systems and their use in the work place.

I also got interested in how documents afford coordinated action across time and space. It's a simple thing in a dispatch center. It's just this digital document, or in the case of the cards, paper documents that simply get handed to somebody else who then has to do something. But if you extrapolate from that, that's the way training is transformed. The trainer transformed a social life by no longer having to rely on oral culture alone, let's say, before writing. How could people coordinate actions across time and space? Well, through stories and traditions which were passed down. But that is a very loose coordination. You can't have complex civilizations in this fashion. Writing made "civilization" of a complex sort possible, and printing was further transforming. It's similar to what the computer is doing now with respect to how you can move information extremely quickly and reproduce it like this.

COS: As you observed these technological shifts going on, what were the different modes of organizing that were required in order to get the work done?

Jack Whalen: I think we're just learning about what the digital revolution means with respect to the organization of information and its documentation. The copy machine was a great knowledge-sharing device, maybe one of the most important ever invented. The capacity for sharing information and getting access to the quantity of information, and the speed and scope of its distribution through digital has exponentially increased. In some ways that connects with my interest in practical reasoning and action.

VI. Knowledge Management and the Eureka Story

I think knowledge management and the information revolution are responses, in part, to the glut of information. It's difficult to find what you want and then you have all this stuff, and yet, what does it mean? There are problems of meaning and use, essentially. I think that's where information management has become knowledge management. The term is being used as people's shorthand way of trying to capture the problem of meaning and use in the digital revolution. If you look at work, the way people coordinate their actions involves a great deal of inventiveness and improvisation. If you look at what they actually do versus the formal description of what their jobs might be, you can think of it as a kind of improvised choreography. That orderly improvisation requires a close coordination in the exchange of a great

deal of information through a variety of means. That's where I got interested in how people have to invent a lot of solutions to things that aren't available in the training. And the dark arts of any job, which is --

COS: The dark arts?

Jack Whalen: I'm borrowing this from Julian (Orr) and his book on service technicians. He's retired now, but he wrote this wonderful book about service technicians called *Talking About Machines*. Julian captures this very nicely in his writing, but it is true of any job. I mean, in the dispatch center there were all kinds of things. How did you become a competent -- just competent dispatcher? How did you become able to do this job? Well, it involved incorporating a lot of skills that you learned from your peers. There was a lot of stuff circulating amongst us that wasn't --

COS: In the books.

Jack Whalen: Exactly. And it was the stuff you needed to survive. Coming to PARC and leading the Eureka Project was a natural extension of all of these interests. It had started from seeing an expert system as the solution -- you know, put knowledge in a box. That failure, to the credit of the computer scientists --.

The Eureka Story

COS: Tell us your Eureka story.

Jack Whalen: Well, the real story --

COS: The real story.

Jack Whalen: There were these computer scientists, **mathematicians, AI guys, who were trying to build the world's greatest expert system. They built what they thought was a pretty cool one and found that the users did not want it.** It wasn't terribly effective because the problems with machines that are really difficult cannot be solved through algorithms based on laboratory machine performance and ideal conditions. They are due to how the machine is used in the real world. A 1090, which is a mid-volume copier that's ten years old, is not the same as one that's five years old. This matters, and technicians know that this matters, and the problems change over time. **It's a constantly moving target out there in the world, knowledge with respect to machine operation. Technicians who are competent develop the ability to understand these problems and have to invent solutions all the time. But they often have to do things that aren't part of the official protocol** in the book, such as with the dark arts. You've got to keep the machine running. You've seen this. You walk into the copy room and there's some guy with the guts of the machine all over

the floor, and toner all over the place. And you've got this pile of stuff you need for your course, or whatever --

COS: Now.

Necessity is the mother of invention

Jack Whalen: Now. When is it going to be ready? "When I'm done." Technicians are under constant pressure. These machines are critical to a lot of work sites, and technicians have to solve the problem. They can't just leave. Sometimes they're completely stumped and have to admit failure. But for the most part they know they have to solve it. Necessity is the mother of invention here, it's as simple as that.

This was clear to these computer scientists who, to their credit, spend a lot of time talking to technicians. They can see they're doing a lot of things to fix machines that involve cheat sheets and secret tips, and so forth, that circulate in little groups. Suppose we capture all this, write them down, and share them with everybody? This would really be valuable. In the field they depend on each other, and we can simply expand their natural sharing practices, their stories, their willingness to help each other. **Through technology, we can enhance and expand the scope of it. We're simply following their own practices, we're not introducing a radical idea to them**.

Writing down these practices is new; this is not a natural act for these guys, or for most of us. **When you tell people, "We want to capture your best practices," what does this mean?** You can sit with them and they can tell you in great detail how they did "X" and it may be a fascinating story. You try and document it. But for whom? **How do you anticipate who's going to use this? In what context is it going to be used? If you don't have any understanding of it, how can what they did be seen as relevant, other than an interesting story**?

A product of that context and those problems is not easily transferable as a best practice. It's something which emerged out of a particular environment. The significance of it might be indirect. It might inspire or lead other people to think about new ways to do things, but you can't just plop it down here. "They did this in Dallas, we're going to do it everywhere." This is why these things fail in large part. When technicians write these tips down, at least they know they're writing them for another technician. They can anticipate the kind of problem that has led the person to say, what the hell am I going to do? Much of the knowledge that it takes to do this work is implicit, if you read through the tips. A lot of background knowledge is assumed. They can rely on this common community of expertise, and the tips move very easily about in this environment. They have all said, "Gee, this might be really

useful for us." But it's not so easy to figure out how. Can we just give these 23,000 records to the engineers and say, "Read these"?

COS: And you produce these by having people visit the engineers and interview them, and then create it based on that document?

Jack Whalen: I'll describe it. **The technician has an idea for a solution. He writes it up, he submits it. It goes into a pending database. A group ofevaluators, people who are the product specialists, review them. If they think it's good, then they'll make it available to everybody**. If not, they'll talk to the guy who wrote it and explain why or why not. They might have a conversation, make it better, change it, whatever. Out of that conversation --

COS: Like the academic publishing system in a way, right?

Jack Whalen: Yes, peer review, exactly.

COS: And the incentive to participate would be what?

Jack Whalen: That is a good question. The technicians get their name on the tip. Being known as a smart guy, or a smart woman, is valuable in this community. We think this matters quite a bit. **The evaluator's name also goes on the tip, so the tips are not just pieces of information, they are social objects with a history, with a personal relationship in some fashion.** If a technician submits a tip, they want to know what's happening with it, they don't want it to disappear into a black hole. **We notify them when somebody is checking them out, and again when it's been accepted or rejected. The names stay on the tips, even if they're improved over time** by another evaluator. The original author, the person who originally validated, all the people who contributed -- their names stay.

COS: So you see the traces of the knowledge generation.

Jack Whalen: Exactly so. We think that this matters a lot. Another reason is just altruistic. But they already turn to each other all the time. They know how important it is for them to get some help when they're stuck. It is a reciprocal thing.

This is where sharing knowledge is completely different from distributing information. We have the technical means to distribute huge amounts of information very quickly to anybody as long as they have access to a digital device. But that's not sharing. It's this relationship amongst technicians that we think the system is built around. It's a community knowledge system, it's not just an information distribution system. We think it's an absolutely critical distinction. **The social and technical can't be separated.** We discovered that this is absolutely the case of creating the system.

When we first did this in France, we experimented for six months with a group of technicians. We had technicians write up a whole bunch of tips, because we wanted to seed it with some good stuff. Then we made that available to a bunch of technicians. We found 40 others who were just like these guys, same products, service -- a control group, if you will. We simply followed the performance of the two groups: one had access to this stuff, the other didn't. The performance of the people who had access to this stuff improved tremendously -- parts, usage, time on call, and so forth. It seemed to be having a real impact.. We had this relatively controlled experiment, a natural experiment, in the world. The people who didn't have access to it were saying, can I see your laptop? It didn't seem fair to say no, but you'd mess up the experiment.

COS: You said no?

Jack Whalen: It wasn't possible to make laptops available to everybody in France at that time. The French had this Minimal system.

COS: Minimal?

Jack Whalen: Minimal. Years ago, French Telecom wanted to save money on printing phone books. They decided to just build phones that have a terminal as part of it. When you want to look up somebody's number, you type it in and look it up. There's no phone book to be printed. Everything is updated immediately. That was the initial inspiration behind Minimal. The French built this network, like an early version of the Web.

So we thought Minitel's everywhere, we'll do this on Minitel. Now this is a very primitive technology, it's essentially a dumb terminal. There were all sorts of technical reasons why this was not the best decision to make. But for social and cultural reasons, and just the contingencies of the French environment, it was just the right thing to do.

There's no Minitel in North America so we had to think what kind of server are we going to put this on? They had a bulletin board system the technicians were familiar with. A lot of them had laptops. They were going to be giving them to everybody so it made sense to use the laptop as the client. They were familiar with the BBS, so we put it on the BBS server. All sorts of technical problems arose, things we couldn't do because of the limitations of that server. **So again, for social reasons we made certain technology decisions that for technical reasons were not optimal.** In each case we've tried to adapt the technology to the cultural environment and the contingencies of the work that the particular group of technicians, whether in France or Canada or the States, are engaged in. Not everybody has access to an Internet service provider. The idea was to make the technology fit to the work practice as much as possible.

VII. Tacit Knowledge = Power = Security

COS: When you grow or develop or build these knowledge communities, what power issue comes with it? As a practitioner, you're building these communities where you're asking me to reveal my power base, right? My tacit knowledge is my security for the future of my own job. So the risk that I would run as a practitioner is that I make it available to everybody, and then am much more vulnerable.

Jack Whalen: That is a good question. In France, the field engineers said if technicians have all this stuff on their laptops, or in this case Minitel, they won't have to call us as much. And then what's going to happen? The company is going to say, "We don't need you."

Through discussions we came to an understanding with the field engineers that their jobs could change. **There was a lot of value in them not having to answer stupid questions.** There was a lot that could be done proactively in their work that wasn't being done because they were having to be so reactive to this wide range of requests. They came to see that their jobs could change in a way that they in fact felt better about. It was more interesting, and they were going to manage this knowledge base. They were going to ensure its quality, they were going to get people to try and use it, and so forth. I think this is a good example of how it's not necessarily the case that people become expendable if they give up their skills. It may be that a lot of what they know isn't really being utilized to the degree that it should be. **If they told other people some of what they know, at least they could now have more time to do more important things**.

COS: Who is learning that knowledge? It's not the individual, but is it the organization, or the community? What would be the difference in a month or two?

Jack Whalen: It was very important that the technicians and the field engineers thought that this was their system, that it wasn't some repository established by some committee of experts and engineers in Rochester. They don't feel that a documentation is theirs. They know that it's written by people whose job it is to write these things. They know that the documentation writers and the product engineers get together and determine what kinds of things need to be put in the book. But this feels very different to them and they treat it that way. I've had many people in the field say to me, "You know, in the 20 years I've been with Xerox there are only two things they've ever given us that really matter, that are really useful. One is this radio and the other is Eureka."

I think it's a more compelling story that these technologists -- whose first inclination was to turn to technology, knowledge in the box -- came to turn the whole thing on its head and say **instead of an expert system, let's build the system for experts**. It changed their whole view. It's been an almost 180-degree turn.

COS: From where to where?

Jack Whalen: From pursuing AI as the way --

COS: The magic box.

Jack Whalen: From knowledge in the box to you can't put knowledge in the box, the knowledge is in the world. We need to find ways to enable its circulation, its validation, its use, its access, and so forth. These are the interesting problems, not boxing it up in these series of algorithms. I'm being a little cynical. I'm very interested in expert system design and I have some ideas. We've talked in the group about things we could do that would be different kinds of expert systems. But for the most part that's not the most interesting thing to us.

It's a more compelling story. People who were trained in one way achieved this just because of their openness and their willingness to see what was going on around them. They were willing to listen to technicians, to users, seriously listen, to completely change their approach. That's the real story of Eureka. There was also a lot of resistance early on. Management would say "If they'd just follow the damn book." It's a control issue, and essentially we were saying, **"Well, technicians should have more control over their own work."** This gives them that control, versus trying to control them in terms of how they repair machines through management directives and repair protocols. They do use the book, but there are a variety of contingencies. We need to build systems to make it possible for them to make the best decisions for customers and themselves.

COS: If you look at the development of your work in this field over the last couple of decades, what would you say has really been accomplished so far? What have we learned?

VIII. Key Learnings

Jack Whalen: Intervening successfully in the work place, which is what the introduction of the new technology or some organizational change involve, requires a profound and detailed understanding of that environment.

I think going down to the lowest levels, to the ground floor itself, in the field, on the shop floor, in the office, is not something people find easy to do. It also seems incredibly laborious. It's much easier to do an intensive round of interviewing over a week, and then carefully assess what people are saying. But I think the issue is, is there a payoff for doing it in this way? The proof will be in the pudding. There are those who would argue that you don't need to understand that much to intervene. That could be with respect to some strategic decisions. Nevertheless, with respect to design questions, I think the evidence is irrefutable that the deeper the understanding

of the work or the user's world, the more likely it is that the technology will artfully integrate with it, to use Lucy Suchman's term. It will actually be accepted and used.

Lucy Suchman's plan of situated actions is pioneering work, but essentially Lucy says, look, there's an engineer's view of reasoning and human action which is a plan. Essentially a structure which can be modeled in algorithmic way. Then there is the actual situated way in which people act in the world, make decisions, reason about things. The two are incommensurate views, and each has very different consequences for how you might want to then build things. The engineers could say, "We've built some pretty cool things and people find them pretty damn useful. Who are you to say this?" In a lot of ways they'd be right. One, good engineers, when they do it right, have a pretty good understanding of people in their world and their needs. You don't have to be trained as a social scientist to develop this kind of understanding, at least in a general way. And second, users themselves are pretty inventive about using things in ways that weren't anticipated, or finding ways to use things that turn out to give them a lot of value.

The telephone was initially envisioned as something that only business would use. The idea that ordinary people would want one of these in their homes and would spend hours chatting to each other, this was not anticipated at all, that it would enter into the world in this fashion. The computer, the same way. Why would you even want a computer on your desktop? Who's going to want that? People use word processing and spreadsheets or whatever, but what you really want to do is use it to talk to other people. The Web has just exploded, because this is what people really want. These are communication devices, knowledge-sharing devices, knowledge access devices. They're not information repositories.

All of this is answering people's need to work together. People have ways to get more out of technology than the designers could have anticipated. I think ethnography is recently and increasingly being seen as making a valuable contribution. The proof will be in our ability to work as part of this design community.

IX. Transforming the Social Scientist's Job

I think the problem for social scientists is we have to change, we just can't expect designers to change. "Just listen to us, you have to change, we stay the same." Who's going to want to listen to you? You have to recognize that when you enter into these kinds of environments to do this kind of work that you're going to change. This is something that I've really come to understand. I'm not the person I was before I started doing this work and started working closely, especially with computer scientists, mathematicians, software engineers, engineers, and such like. They've changed me as much as I've hope I've helped to change them. We're developing, I hope, a hybrid sort of enterprise in which we're essentially trying to bring together

the set of skills that will make for good design and good strategic vision, also, of technology**. We've moved from critique to the initial forays of actual involvement**.

The next step is the most frightening one. It is to step into this world and say, "I'm going to have to open myself up to responding to other people's needs and ways of thinking. It's not enough just to stand on the sidelines and point out all the things they're doing wrong." It's risky because you have to make all sorts of compromises anybody has to make in terms of the contingencies of design: political structure, time lines, all the reasons that people end up doing whatever they have to do to get done whatever they have to get done. So it's not pure, it's not the ideal. In corporate environments all sorts of other things enter into decisions that aren't just around the best things for the user.

COS: In a way your own career is an embodiment of the transformation of the social scientist's job, which is turning from an observer, or a participant observer, toward becoming what you studied.

Jack Whalen: Yes. I think if the Eugene police had said, "We're going to create a job for sociologists," I would have said, "Sure, where do I sign?" I was that interested in actually working with people to figure out the ways to do things, changing the word process, technologies. It wasn't like I was ever going to get carte blanche to do what I wanted. But they didn't say that, so I went back to university. When the opportunity came to work with IRL and then with PARC, there was no question. I just wrote a two-sentence resignation and sent it to my department head. It wasn't an easy decision to make, I should say.

COS: If you compare these two worlds, what did it feel like being part of the traditional academic world, and then part of the other world?

Jack Whalen: Being at PARC gives me more capacity to actually have an impact. PARC has a lot of resources and a whole history of commitment to trying to understand how to make the social world a better place through technology. They're interested in particular in making a more interesting effective sort of environment for people through good technology design. In a lot of ways being at PARC gives you the best of both, because you're dedicated to real research and contributing to science and you're expected to be involved in the implications of that engagement. The difference really turns on this engagement. It was very exciting working with the police, not just because police work is more exciting than copiers.

I felt at the university that you have a tremendous impact on people. I always enjoyed teaching. The best for me was students telling me how much a difference it made to them. Not that they were going to become professional sociologists, but that in some way you would touch them and get them to think about things in a different way. Just to inspire them about intellectual ideas in general, and how ideas could really matter.

This is very fulfilling. Being able to actually take the ideas and build things and change things is also. Actually getting your hands dirty, digging in and seeing what you can do with the ideas is great.

COS: So in these design teams your role would also be to teach capacity building so the other team members could get these experiences themselves?

Jack Whalen: I'm the only social scientist in our group. We're about to start the next step. Eureka's being introduced worldwide throughout Xerox. Within another year there will be 25,000 people using it. Operationally they've got a whole system set up to manage this and support it. We want to continue to study what this scaling up means. There are real lessons here about knowledge management, knowledge-sharing systems in scale. We don't really understand the problems fully, and this will be a good environment to see. We're not naive about the difficulty in maintaining the quality of these systems.

Knowledge bases tend to collapse under their own weight. They get filled with too much stuff, junk, and are no longer useful to people. How do you keep them evergreen? You know, Nonaka's notion of *ba*. We have this idea that what you want to create is a space in an organization for continual innovation, and questioning about what you're doing. Once it becomes an ordinary corporate program with a whole hierarchy of management and support, the tendency is not for people to say, "Let's rethink this whole thing." The tendency is to go on and just make it work. But you need that kind of experimentation and innovation. We think we can learn from this, but we can't do that. It's not interesting for us as researchers to be continually involved with the maintenance of a system. And it's theirs now.

You can try and make them use this device, but if they don't really want to they'll find ways around this. This is just an amazing thing to watch, people working. They'll find a way to do what they need to do in the way they want to do it. Or they'll try their damnedest, and you can try all sorts of things and they won't give up. This makes perfect sense from their point of view. So instead of whacking people upside the head**,** how can you begin to respond to this and give them what they really need?

COS: I heard you describing three different roles that you are performing and enacting. One is the researcher or the observer, the ethnographer, who tries to figure out what's going on. The second one is the capacity builder, who helps other members in a team to observe or to get into the field, to get the experience of the field more effectively.

Jack Whalen: Yes, I think so.

COS: And the third one would be what you described in the 911 case, which is becoming what you study, so that you are engaged as a member as you study.

Jack Whalen: Yes, it's very difficult to do this. I can't fix a copier. So I can't really understand the work in the way that I ideally want to, but the contingencies of being at PARC and my research and other requirements of my work make this impossible. I try and rely on technicians to help me with these things, to get as close as I can.

But the other thing that I have to do is -- you could think of it as theory, in a loose way. What can we learn? What are the lessons that we can draw from this experience? Early on I think I was articulating what it is that we've got and what is significant in that respect. That's something I think we've really needed, because it's not just a tip-sharing system for technicians --

COS: It is.

Jack Whalen: It is, but what are the lessons about knowledge-sharing, about knowledge and its relationship to action in organizations? What does this mean about technology and its enabling capacities -- or its crippling capacities? These are the kinds of lessons from Eureka that we need to draw out. That's what I've spent a great deal of my time doing. Some of the engagements with potential external customers have contributed to that, because in looking at other kinds of work, you begin to expand your thinking about what's generalizable. Right now we're in the process of writing up some of this stuff. We haven't had much time to do any of that, because just there's so few of us and the demands on the project were so much.

Xerox is embarking on a major knowledge focus. You've seen our ads, "keep the conversation going, share the knowledge." We're very committed to this notion that the document and knowledge are intimately related. What this means is not quite clear, but Eureka is knowledge-sharing around digital documents. **One of the things we want to explore is the paper/digital interface—what needs to be on paper and why**. Nevertheless, Eureka is at this point a digital system. PARC is being asked to help articulate what it means to go in this direction, so that's been a major role I've had to play.

X. Blind Spot: An Inadequate Grasp of the Social

COS: When you look back over the work of the last decades, what would you consider to be the blind spot that prevented us from attaining another level of understanding?

Jack Whalen: Number one, an inadequate grasp of the social. There was a feeling that the social was too soft and too complex, or that it was too hard to get your hands on it. We thought we could at least think about organizational culture. Culture was essentially treated as a set of beliefs and attitudes without really understanding what that means. All the stuff that people are looking at with respect to what to build or

how to structure an organization involves dealing with settings that are fundamentally social in their organization, and beginning to grasp what that means.

In part, my dissatisfaction with efforts by people in the social sciences is that a lot of this stuff is just being repeated as a mantra, as if just saying things would make it so. The kind of work-practice ethnography that a number of us have been doing really does have a concrete way to get at this, a rigorous methodology, a way of working with a clear set of experiences to build on. We can talk to each other, we've learned a lot from our experience. I think we're able to work closely now with consultants, designers, and others to help begin to tackle this. We take seriously what it means that these settings are fundamentally social in nature. They are not just beliefs and attitudes. They are actual practices, ways of doing things. We're less interested in what people say about what they think or believe, and more in what they actually do, because that's what really matters. Their beliefs and attitudes are embodied in what they do. Just asking them is necessary, but --

COS: -- not sufficient.

Jack Whalen: Yes, and it's just part of the story. It's certainly important to understand people's psychology and motivations and values. I'm simply saying that the fundamental setting itself is organized around these practices and you need to understand them in a formal way. Being able to get at that and articulate what those practices might be and how they might matter is a doable task and I think we have ways to do it. I think the challenge to those of us who would make such an argument is to prove that we can do it.

What is social reality?

COS: That reminds me of something you said earlier. The two interests that you had originally, the more macro-social aspects, and the other interest around the concrete embodiment of social practice. Your work really gravitates around this question of what is the social. I am finding this difficult to understand. Could you tell me what the social really is? What is a social fact, and how does the social come into being or into reality in the first place?

Jack Whalen: Well, social life is organized endogenously. It's not something which is preexisting so that people simply play out various forces and roles and norms. You cannot account for the details of behavior in terms of some normative order. If you look at what they are doing, they are improvisationally, but in a very orderly way, assembling for themselves a unique event and experience. There will never be another exactly like it. But it will be like so many others that a set of shared practices for organizing activities are brought together and used on each and every occasion to

produce the specific, concrete features of that occasion. Social life is organized in this way. What are those practices? Can they be described?

This is what the social actually consists of. It's not just attitudes and beliefs, it's ways of acting that have practical reasons. In each and every case if you see a pattern behavior, the first question you ask is what problem is this responding to? Not a problem in terms of a social problem, like poverty, but a problem of coordination, a problem of sociology, a problem of task management, whatever. Once you understand that you look at what other problems might be implicated in that. **Because essentially practices are shared ways of dealing with the world** and finding ways to come to terms with the features of the world in such a way that you can do whatever you need to do.

COS: What I heard you saying is that the focus of your work is really on social practices rather than on what people say --

Jack Whalen: Yes. Some of them are coping with generic problems for all members of any social species. Like at a most basic level, how do two members of any social species act together? One wants to do something together, without necessarily knowing whether the other does, but perhaps anticipating that they do -- when engaged in some activity together, how does that first member make known in some way this fact? And then how do the two parties coordinate some entry into the activity? This could be true of ants, as well as humans. The coordination of activity, the sociality, what makes any species social? What are the features of sociality in that species? These are very generic problems to which practices have developed. When I say responses to contingencies or coping with certain conditions and problems, these don't have to be domain-specific, you know, late 20th century. They could be at various levels. But that's the way to understand practice.

COS: And practices are what?

XI. Social Practices

Jack Whalen: Practices are shared ways of acting that are systematic, not dependent on who or where or what in a complete degree, and not shared in that sense. In other words, technicians' ways of dealing with certain problems don't necessarily have to do with who the technician is, what job they're on, what day it is.

COS: And yet they are context-specific.

Jack Whalen: Yes. This provides for the constant improvisation and flexibility and uniqueness of any moment in social life. And its enduring, immortal features.

COS: So practices really have zillions of manifestations.

Jack Whalen: Could be, sure.

COS: So “practice” is not the particular practice, but the generic pattern that’s enacted, depending on the context and the --

Jack Whalen: Exactly. You’re looking for fundamental features of some domain of social organization. It could be the domain of conversation, it could be the domain of technical service work. It’s the range of areas or domains in which this way of thinking are useful, it doesn’t have any bounds. But there are various levels of scope and scale there.

COS: Does that cover all practices? How does this problem or issue come into being in the first place? Isn’t that also something which is enacted by a social system that needs to be taken into account in our analysis of social reality formation?

Jack Whalen: I understand what you’re saying. The problem I described of coordinated entry into activity, into a shared activity by two or more members of any social species -- that problem is given by the need for coordination to begin with. Certain things can’t be done or achieved by one person alone. That’s fundamental. I don’t want to construct a tautology here. The question you’re raising is: do the problems themselves just come out of thin air? Or are they themselves emerging from the way in which other practices are arranged? Yes, there’s a large degree of truth in what you say. We’re talking about a web of practices.

I’m saying that a lot of the problems that are presented to members in any community domain of the world are in part problems that are created by just the ordinary way the world is and might come to be. Some are clearly the result of other people’s ways of acting and being in the world, some of which have more power than others, which obviously enters into it. So if your bosses have laid out certain rules this is a starting point. In the case of the telecommunication technicians, you might propose radical ways of reorganizing the entire system as to no longer make certain things the problem in the way that they were. **But you can’t understand what you might do that would be effective in that respect unless you first understand the practical reasons people have for doing whatever they’re doing.** They’re calling 70 percent of the time. What are we going to do about this? This is a big problem -- now with a big “P” -- for us. You could propose various kinds of organizational changes. But the reasons they’re calling are complex, and are embedded in a web of relationships and practices.

I’m not trying to suggest that these problems simply are inherent in the nature of things. They’re not inherent at all; they’re themselves socially constituted by certain arrangements, certain ways in which the world works. It’s a world that we built -- we meaning humans. That didn’t come from anyplace else.

COS: Plus, there may be a class of practices of actions which are not defined as problem-solving but as something else, which is creating or bringing forth new futures rather than reacting to what's already out there.

Jack Whalen: Yes.

COS: In the work that you shared with us last night about product development, envisioning complete new spaces of interaction in a new world, the kind of data that you need doesn't yet exist in current practices, does it?

Jack Whalen: That is true. One of the arguments made on the project in Dallas on Xerox's customer services support operation was, why we shouldn't go out and spend a long time looking at how people did the work? We're going to do away with all this and we're going to transform it, and what's the point? There's a point to that, but we need to understand the fundamental issues involved with doing that kind of work, and how they do certain things to deal with those kinds of issues, those contingencies. Some might be good things that you want to find ways to support rather then do away with. Like they wanted to spend a quarter of a million dollars on building a digital knowledge-base system, so all this paper was going to be done away with. We pointed out that if you look at how they use paper, they've created at-a-glance documents. Some of which they designed themselves, some of which were pieced together from other documents through highlighting and other tricks, if you will, to make them glancibly interpretable. There's nothing better that. They saved about $200,000.

This was a case where envisioning the future meant, in part, understanding the fundamental features of the present that were going to persist to some degree, and the practices that people had developed which were valuable resources for doing the kind of work that they had created. No one had told them, post these things on your wall in this way. They had invented this. There were things worth preserving, or if you weren't going to preserve them, replicating as close as you could. Some things you just had to do away with. You couldn't take what was on the walls of three different jobs and put it on one person's wall because there's not enough wall space, for example, and so forth. So this meant some thinking about what kind of aids and what sort of paper resources you would use, and such like. In envisioning a future, you're not starting from nowhere.

What is the Essence of Community

COS: The last question on this line of thought around "what is the social" came to my mind as you were speaking. You're talking about and work a lot with building knowledge communities. What is the nature of the reality of the community? How do you put your arms around the --

Jack Whalen: I'm laughing because it's a good question. **For all the talk about communities of practice, I think there's been way too much attention to the community and not enough attention to practice.** Secondly, and I don't like to use the term "community of practice" much at all --

COS: Why?

Jack Whalen: Well, because I think what a community is is problematic. I use it in a vernacular sense for the most part, not in a technical sense. What's the difference between a community and a group, for example? What makes a community a community is a sense of shared identity and a recognition of some boundary around us that makes us people who have something in common, and share a certain way of thinking and acting in the world. But that also defines a group in some ways.

Community has tended to mean a geographically organized, a social ecology, if you will. Community studies meant studies of geographic areas that were geographically bounded and organized in some fashion, and through this living close to each other had developed a necklace of relationships that constituted a community. There's also a romantic sort of dimension to this use of communities. It can tend towards romanticism, I think. That's not necessarily bad.

COS: The romantic part?

Jack Whalen: Oh, the idea that these are ideal, real things, meaningful things around which people's identities are built. And these other units, groups, divisions --

COS: Organizations.

Jack Whalen: -- **organizations are lifeless, bloodless creatures, compared to communities that are rich**. You know what I'm saying? There's certain value in going down that road**. But you go too far and you're in the realm of ideology and it doesn't help you see things clearly anymore. You become more worshipful, and you begin to talk and use a lot of rhetorical devices instead of some serious thinking**.

The problem also is it's the shared practices that interest me. It's clear that technicians think of themselves as a community of sorts. And it's certainly worthwhile to talk about working with a community rather than just working with a work force. It helps you to recognize that these are people who share more than just a position in the organization, they share an identity. **Community and identity are inseparable, and that's the real key to understanding what it means to talk about community**.

Communities of practice were in part developed as an alternative -- some people actually proposed it as an informal organization that existed alongside the formal. **I think it's more of a reflexive relationship. The organization's rules and units and**

boundaries and divisions are resources people in the organization use to make sense of and coordinate their activity. They exist insofar as people treat them as real and have to engage with them in a variety of ways. It's important not to just dismiss that formal stuff as not particularly meaningful. It's extraordinarily meaningful and important to understand, insofar as what is its meaning and how do people use it? Not just that it's there because it's on a piece of paper, but how does it enter into their activities in some way, and you could clearly see how it does.

I use the term "work communities" more than I use the term "communities of practice." Maybe because "communities of practice" is used all the time. You just see it everywhere, and it's become meaningless in some fashion. **I was disappointed in Wenger's new book on communities of practice. It's largely about communities and not a whole lot about practice**. It's important to study it in the context of community life, where people's identity and sources of meaning and value lie, and their relations with others. **We talk about building systems for communities rather than organizations. We want people to identify with this as theirs, rather than as an organizational application that's on their laptop. We want some sense of ownership which is personal**. We think that helps tremendously with people's willingness to participate.

COS: Now tying this notion of practice back to the social question, if we look at the whole social reality, what is not social practice? Because it seems to me that social reality really consists of practices, everybody's actions. So what is it that you are *excluding* if you're using this term as a focus of analysis?

Jack Whalen: First of all, I'm not taking a philosophical position here, I'm talking about a methodological strategy that I think is particularly powerful to get out --

COS: Okay.

Jack Whalen: -- what you need to understand in order to do the kinds of things you might want to do. That having been said, in a philosophical sense, I suppose the social world consists of embodied action, and nothing more. In fact, I think there's one ethnomethodologist who said that human beings are nothing but courses of action with consciousness. It was meant to be provocative. From a social scientific perspective, we're interested in this embodied activity. By embody, I mean bodies are doing it, it's not roles that are being enacted. It's human beings with bodies. Minds that are engaged in some coordinated activity. It's the coordinating of human activity which constitutes the object of interest, at least for me and for the kind of sociology that those of us who think this way do. What makes this concerting and coordinating possible? That's a particular way of defining a problem and it's not the only way.

COS: How do the new practices come into being?

How do new practices come into being?

Jack Whalen: Part of the difficulty in addressing the problem is what does a practice actually consist of? I think practices emerge haltingly and from innovative behaviors in novel responses to conditions, or novel conditions to which responses develop. It's kind of an evolutionary perspective around social or cultural evolution. We can clearly trace the way certain conventions of speech developed. We can certainly find communities in which it developed and trace not just the etymology of the words but the particular conventions.

There's a wonderful book by Iana and Peter Opia. They would call themselves folklorists, but essentially they are child ethnographers. They've traced the origin and development and spread of nursery rhymes across the UK. How variations in rhymes develop in a certain place and then spread. This is another good example now. Some kid invents some novel way to sing "The Farmer in the Dell," and over time others begin to adopt it and it spreads. I think this happens all the time. It's just part of the fundamental aspects of human life. But the problem of coordinating entry into activity, I think those practices are pretty pan-cultural. They are not specific to particular cultures. Certain aspects or features of them might be. New technologies create problems for coordinating speech exchange or coordinating activity ...

COS: New conditions.

Jack Whalen: New conditions. Like when the telephone was invented, how do you identify who you are so that you make available the resources to the other party as to how to act or how to treat you? There are certain conventions that have developed around coordinating and entering into phone conversations. The phone can ring at any time, including very inconvenient times for people, and yet there's some compelling need to answer it. Technology has created certain issues and practices -- call waiting, answering machines. This is always ongoing -- new technologies, new practices.

XII. Social Science: Helping Others to See Themselves

COS: What's your role as a social scientist? Your role is really creating devices and helping others to see their social reality creation.

Jack Whalen: That's right. When it comes to knowledge-sharing itself, I think the best place to start is, what are the current practices? Because then people will value what you do, rather than just have the top essentially define the things they need to know and how it's going to be organized, and the categories we should use, and so forth and so on. This makes no sense whatsoever. Yet a lot of information repository with access retrieval and distribution functionality is all it is.

COS: Fascinating.

Jack Whalen: This gave us a way to start with this telecommunication group, and now the heating and cooling system group we might work with. It gives you a framework too, it's a guide. It's a heuristic, it's not meant to be a formalized "we can package and shrink-wrap this."

COS: So if the purpose of your work is to help these knowledge communities see themselves, that also would convince the traditional audience, which is reporting back to the colonialists about the --

Jack Whalen: You're absolutely right. Well, not just to the administrative colonialists, but to the intellectual circles that were interested in esoteric and exotic doings of foreign and strange people.

COS: So in today's terms, reporting back to management and management researchers?

Jack Whalen: Yes.

COS: -- which would be equivalent to colonists and the intellectual.

Jack Whalen: Yes, exactly so. When we did the telecommunications work, we didn't start by interviewing management and some selected workers. We started by going to the garages and riding around in the vans with these guys. We went to the technical support center where these people were calling 70 percent of the time. We spent a couple days there talking, listening to calls. Hanging out with the engineers, talking with people who had built the various knowledge systems they were using there. We were always looking for stuff they were doing because they found it useful, valuable stuff. How could we support this? How could we integrate it? How could we enhance it? We did that from the bottom up. How can we enhance their capabilities? They know best, let's try and support it.

COS: If you apply your methodology to yourself, what are your own practices? Of all the millions of things that you do, what are the few generic practices that allow you to perform the work that you are doing?

Core Practice 1: Openness and Building Emotional Connections to People

Jack Whalen: Phew! That's a good question. Physician heal thyself**. I guess an endless fascination with the concrete features of people's lives and work. That kind of fascination is a great motivation.** Like with the telecommunications technicians, I would say, "Hey, where's the garage? I'm going to ride with you." I've got to ride with these guys. It's not just a methodological or philosophical commitment, it's because it's interesting? You learn about something. People are

usually so flattered that you're interested in these details that they're very open to this. **That openness is very rewarding. You build relationships with people. At the end of the day you really like this person and you've learned a lot about them. There's an emotional connection there. So this is a practice, I guess.** And it's valuable because it also serves nicely to help us do the kind of work that we believe needs to be done. If I didn't get such joy out of it, it would be tedious.

Core Practice 2: Appreciation for Other Professions and Disciplines

Another practice might be an interest in other scientific disciplines, perspectives, their way of coming at problems -- like developing an appreciation for the work of software engineers, what it takes to do that. I have the same sort of respect and admiration for whatever anybody's doing to get whatever done that they have to get done.

At Oregon my most interesting relationships were in the research institute that I was a member of, the Institute for Cognitive Decision Sciences. I was the only sociologist in the institute, but these are people tackling problems in a way that I found more intellectually exciting and more compatible with my own interests than most sociologists in my own department. So that kind of interdisciplinary commitment is essential to a problem focus rather than a disciplinary focus. I'm a sociologist, trained as a sociologist, I want to make sociology better, but my life's work is not devoted to enhancing sociology per se. It is to doing the kind of work that I think is valuable to do in the world. That requires more than just working with sociologists or with social scientists.

Core Practice 3: The Discipline of Endless Wonderment

The final thing I would say would be if you have an endless fascination with the concrete details of people's work, and work lives, or lives more generally -- **How do you build a discipline or a set of practices around endless wonderment**? In which the uniqueness and particularities of everything you see become themselves the object of interest? In some ways, some social science commitment to understanding the world of your subjects, to identifying with them, to understanding the unique features of their lives, their culture, and their practices can take you down that road. Essentially you have a discipline of endless wonderment. Oh, look, look at this world!

COS: Thank you very much.

XIII. Summary

Whalen's research focuses on the social organization of work activity and technology. Early on, he became interested in social reality from two different perspectives. At the macro-level, he studied the dynamics of society and the kinds of social and cultural changes that shape the world. For example, he did his Ph.D. dissertation on the intersection of life history with history, tracing the life stories of a group of people who where involved in a tumultuous event during the 1968 riots in California. At the micro-level he focuses on understanding the dynamics of ordinary activity and everyday interactions.

Whalen's ethnographic method aims at getting close to reality, close to the enactment of social practices. His key learnings include the understanding that the social and the technical can't be separated, and that intervening successfully in the work place (with introducing new technologies) requires a profound and detailed understanding of that environment.

Throughout his career, Whalen has conducted his work as a social scientist in a multitude of roles. These roles have involved observation, participant-observation, capacity-building (for practitioners), and becoming a practitioner himself who performs the practices that he studies.

Reflecting on his own experiences, Whalen identified the following core practices for doing his kind of work: openness and building connections to people; an appreciation of other professions and disciplines; and the "discipline of endless wonderment."

XIV. Bio

Jack Whalen is a member of the Scientific and Engineering Reasoning Area in the Systems and Practices Laboratory at Xerox Palo Alto Research Center (PARC). He works on the design and deployment of systems to support knowledge-sharing in work communities, the design and use of artificial intelligence applications in the workplace, and understanding the problems of "documents in action" (how the use of both digital and paper documents actually enters into the detailed organization of practical activities). He received his Ph.D. in sociology from the University of California at Santa Barbara and joined PARC after three years at the Institute for Research on Learning in Menlo Park, where he was Senior Research Scientist, and eleven years at the University of Oregon, where he was Associate Professor of Sociology and department head.