ROGERS HALL: So while he's trying to fix this problem, I just wanted to say this book sounds fantastic. I have an anxiety attack every time I hear it mentioned because I was supposed to write something in it, and I want to apologize to the editors and thank them for allowing me to participate in the writing debt consolidation program and still be on this panel. If Ricki were here, I think I would have to like kneel down.

BRIGID BARRON: She's coming.

ROGERS HALL: Oh. Well, I'm really happy to be here. I think I've probably learned more from people on this panel than I could ever hope to contribute and other people in the room, too. So it's nice to be here. I want to start by apologizing for perhaps reminding you of a prior political error, yet another one you'd like to forget. But I think that the point here is just that we all in our everyday lives pay careful attention to interaction. We think it's very, very powerful and so it's a perfectly reasonable thing to want to do to figure out how to analyze it. So I have a few things to say about that. I want to start by talking about doctoral training. I was invited to give a little overview of the way I do my work with one of my faculty colleagues who is using a Sage Press book by Chambliss on Making Sense of Social Life or something.
Chambliss is a sociologist and the book is fine, but if you take a look at it, the overview of qualitative methods includes participant observation, intensive interviewing and focus groups only. And if we think a little bit about that, we really want to focus in on the difference between what people say they do and what they do. And video recordings are potentially very, very powerful for doing that. The second bid in Chambliss, this is the book they were using so this is the way I started to make contact with those folks, is that you really don't want to write anything down when you're in the field because it's too intrusive and you can really kind of think it all through and recover it later when you're sitting alone in your box and remembering it. And most people here would not agree with that so you'd better have some kind of a strategy for recording if you're going to do this work. And then finally, this really freaked me out, but so there is the argument that at its best this kind of research can be a form of literature, beautifully teaching its readers the deeper truths of the human condition which isn't bad. I mean if I could do that, I might be happy. Doesn't seem to happen. And then even more insidious, like journalists, even the best qualitative researchers may be drawn to the odd, the unusual or the available. We're just a bunch of
oddballs here. All poor substitutes for other things. And I would argue that really we want to think about this as the analysis of comparative cases and developing grounded theory. These are not new ideas at all, and that's what we're all struggling to do. So just as some framing remarks, I think we ought to do a better job of training our students.

So with those three issues in mind, I will hopefully be able to argue that video recordings are reality close material and only that. They have to be turned into data if they're going to be used in that way. I'm sure Fred's going to say something about that, too. I want to point to some strategies for recording that are what I think of them as fast, cheap and in control mostly or usually. And I'll say more about what I mean by that in a moment and then finally, you know, show some examples of comparative case analysis in the development of grounded theoretic categories. Maybe I'll get that done. So one approach to capturing usable video recordings is to get some really whiz bang technology to go out and do it. And I think for most people who are going to be doing this research and most doctoral students who are being trained in graduate programs right now, they're not going to do that because those are very resource intensive and labor
intensive techniques. No one really knows how to use them yet. What's amazing is we have incredibly high quality consumer grade cameras. Wireless microphones and multiples are pretty cheap and get better all the time. All that stuff can be battery operated. We know how to buy notebooks and write notes in them. And if we also make time indices then we already have an index to some of the stuff we're collecting. And it's very easy to get audio recordings of all kinds of stuff. This image is really, really old, but I mean you can audio recorders for 150 bucks now that'll make 12 hours worth of continuous recording. Stick it in your pocket. Of course, getting microphones for those are a little bit difficult. So at any rate, it's possible to get some very rich material very cheaply. And I'm afraid this video is probably not going to run, but I'll try it. Yeah, it's not a video in this. I apologize for this. So this was a clip of film. I'll just tell you what's in it. We were in the field with some people on what we call the Bug House Project. These are people who follow termites around, and we were following them around. And this may have been the first time that we actually got completely free of tripods and had everything battery operated. So they were wearing mikes. I was carrying the camera. We could go wherever they went.
These two women, one is an entomologist, the other is a chemist, have this cart and they're going in and pulling wood bundles out of the ground. You'll see more of that in a second. And they take off, and we start following them. And they're moving faster than we are. And my graduate student at the time, Susan John now Susan Gerou runs up and says can we look at your notebook, you know, acting as though she's helping. And she brings this complex representational form back and I stop and we're filming and, of course, we're hearing nothing from these microphones which are, by the time we look up, you know, 300 yards away. And if I could play the video for you, we can hear them breathing in the video record. And, of course, then we run. You know, we're running to catch up with them in the field. So this is the kind of thing you get when you think about taking these consumer grade cameras and these audio sources and you deploy them in a sampling scheme and stuff takes off. You get very complicated stuff.

Some other little ideas about how to train people. Often, you know, you're going to be stuck in a single position with a single camera, and I just wanted to make a couple of observations. I mean we're talking about boundary objects for technical practices. Well, how would
you operate a camera if you're trying to follow speakers and media at the same time? And so this is a little contest of zooming versus panning. And I don't remember who was -- you can see in the background there that someone is operating a fixed camera for a wide view of the activity, and I think I'm carrying a follow camera. So there are two speakers, these two guys, and there's some media in play. And so you might think, well, I'll follow this speaker. Oh, my God, that speaker's pointing at some stuff. I'll go down and get the media. Someone else starts to talk. I better go get that speaker. And you're whipping around and you end up with a record that looks like this which you probably don't want later on. There's another way to do it which is to realize there are people talking. One of them is the current speaker. Media come into play. You better get close enough to that to see what's on the form, otherwise you can't figure out what they're talking about because they're not going to say explicitly usually. Another speaker starts, pull back out. So really, rather than panning you're zooming in and out, and you're preserving some aspect of context. So this is just a little lesson that I think it's very difficult for people to learn this. Over time it's been very difficult for my graduate students to learn this. So I assume this
is not a widespread competence in the field. There's all kinds of stuff we can get better at.

Okay. What we want in the end, of course, is to be able to take talk and interaction captured in meetings like this. These are people on this Bug House Entomology Project, they're interacting with a statistician who's wearing the white shirt in those images. And we want to figure out what they're talking about. And I put these two cartoon strips in because in the top one, Mark, the lead entomologist is gesturing across the top of the table surface. People are looking on. He's describing something that's happening along the East Coast of the United States. He's sitting in California. He's describing something that happens in this odd liminal future time, not where they are now, and he's allocating the entire story he's producing to the statistician who's sitting there who's never been to the field and never been certainly to the East Coast of the United States to look for termites. So there's a very complex laminar thing going on in this conversation, and we need some way to figure out what they're talking about. So one of the things that I'm trying to bring up is that many of these studies end up collecting information across multiple sites and those sites are threaded both semantically and threaded developmentally. In the bottom,
another one of these entomologists is literally, well, taking figuratively a collection of chemical data extracted from termites, hiding it below the surface of the table so humans can't contaminate the possibility of finding structure there, and describing the use of cluster analysis and then bring the stuff back up. So these people are actually making up the future of their work by drawing from the past in the current moment. And we know these things are consequential because we follow their publication trails and they do these things in the future. So these are studies that have gone over many years. Well, how complicated could their work be? So more on this multi-sided business. The Bug House has a pretty complicated representational infrastructure. These are images from what they call a wild land site. It is a grid of sampling tubes. You can see one in schematic punched into the ground in an arboretum, and they go every month and they pull wood out of those to figure out what termites have been hitting. And the map that you see is simply a map of that arboretum and all of their sampling points. They take that wood into another site, which in this case is a wood lab where they scrape the wood down with wire brushes, dry it out in an oven and then weigh it to see how much the termites have been eating since the last time they brought
it from the field. In the right image they're actually tapping termites off those wooden bates out in the field. And this is a complex piece of work to produce the yellowish line down on the bottom of that graph which is wood that is lost to human handling for sticks that have not been hit by termites versus wood consumed by termites. Hey, Ricki. Well, no, I was just making a joke at your expense earlier. Well, my expense actually.

Now, how can they bind together work in the field, work in this dirty lab that they're scraping wood in, and work that happens over the surface of a very clean office table in conversation? Well, these representational forms are doing a lot of that work. The map in the field which is at the bottom of this layer is actually a map of space in the field. There's no time. The intermediate representation is a matrix that arranges field worker time, and then the graph on the top is a representation of seasonal time in termite activity. So these representational forms in complex ways bind together human and termite time and space. It turns out that the field workers are not really very good or flexible with managing these time relations, and the more senior people are very good at it. And so one of the things that's going on in this group is the junior members, people like Chris and Gay
are exchanging routine labor in the field and the lab, what they call dirty work for access to innovation at the tabletop in interaction with these more senior participants. And the senior participants, of course, don't have the professional time scale that allows them to spend much time in the field. So this is just a routine aspect of the multi-sided, threaded aspect of learning and teaching in naturally occurring settings.

Okay. So you go out and you collect a lot of this stuff. So this is just an image of, you know, one frigging tape after another. Tremendous indexing and content management problems. I'm assuming other people have similar bookshelves. I don't really think it helps a lot to digitize it all and put it in a folder. You just have, you know, another grid with very complicated objects in it. You'd better have put together, oh, Lord, you'd better have put together some kind of a time index like a trail of bread crumbs through this material if you're ever going to find anything later. We know something about that. It's not a mystery. This is a table out of Ray McDermott's paperback in '78 on criteria for an ethnographically adequate description of activities and their context. So this is a sort of temporal zoom down into particular turns at talk and particular interactional
configurings in those turns of talk. Erickson and Schultz have a wonderful paper on this called When Is a Context Also. So these are not mysteries. They're just not very widely taught or practiced techniques. So a couple of comments on comparative analysis of cases. So one of the projects I worked on a few years ago, we really burned the midnight oil collecting video recordings of classroom settings and work places where pair wise, we could argue that the school and the work place sites were related through a family resemblance around some subject matter areas, so in architecture, biology or mapping. And we've been mining that material for quite a long time since, building up ever better index structures around it. And so there are a series of publications that have come out of this, and each of them takes a particular comparative stance. So I guess what I'm arguing here is that it is possible to have a corpus of materials and then systematically find new questions by comparing one thing with another. So there's a whole set of comparisons that have been done within the adult work places. There are comparisons that have been done within subject matter, thematic areas across work and school, stuff that's been done comparing classroom sites with each other. These are publications from my students. This is usually very
encouraging for new students because they think this could actually be done as opposed to just being told it's very hard. And Tony Teralba is just now finishing a dissertation that I think is going to make good comparative sense of this biology collection.

There are other ways to think about comparative analysis. This is a purpose of sampling scheme to find cases in which the same statistical consultant works with clients who come from different domains where the question is how are learning and teaching organized as the statistician moves across client projects. This is an image showing the same statistician two different years working with two different projects, the Bug House Project on the left and then a Stream Ecology Project on the right. We have a paper out under review in Mine Culture and Activity on this right now. The question is how concepts can be made to mean the same thing across different domains of application. And we're thinking about statistical consultation as a disruption to the representational infrastructure within a client project. But then if you follow it over the longer historical span, you're looking at how concepts are distributed through conventional work practices as statisticians move like a disease vector across clients. This is sort of a conceptual infection
A final bit. I've been talking about video material, video material treating it as data as though this is entirely an analyst's concern. It is also possible to allow people to collect their own video recordings and do things that are very heterogeneous and not under the control of investigators. And I just wanted to mention an activity, a little study done with Reed Stevens many years ago in which we initially noticed two things about life in a museum. This was the Exploratorium in San Francisco. One is that people waiting to get to a highly used exhibit would stand around and watch what other people did. And if you watched over time you would find that if you had a couple of people doing some really bizarre thing with the exhibit, the next few people who were standing around watching did something kind of related to that. So there was a historicity to the use of the exhibit that was sometimes quite surprising. And we decided that we might try and record people's activities and then allow them to look back over them. This is an image of a kid running through a tornado, and what adults tend to do is just stand and look at it. It's a very beautiful thing. And then we brought them into this little soundproof booth with our little video set up and we let them roll back through their
own activity, slow it down, stop it. This is a stop. Reed managed, I don't know how Reed managed to do this thing on the left. He has stopped the video recording just as a little girl's puff of breath carves through the central column of the tornado and you can see the displacement of the vapor on the other side. And this starts this whole conversation about what did you do. You didn't touch it. What did you do to it? And people go back out onto the museum floor. This stuff, we tried this a little later at the Lawrence hall of Science. We actually kind of intervened in the exhibit and put new signage up to see what people would do. And we found family groups came through repeatedly and then finally began to build these trace documents and in the end really enjoyed looking at them. And watching those trace documents, that itself was an occasion for having other conversations. So in the bottom panel a little girl is talking about how lift works with an airplane wing, and she actually introduced the Bernouy. We tried not to. It turned out her dad was an airplane pilot. And Reed has since gone on to actually create some software that I think is going to be pretty device independent soon where people can make a recording and then they can put an audio layer over the top of it and they can also trace with a cursor over the top of it as
they talk. And I don't have the stuff on this machine, but he's done this with, you know, crew and rowing, dance. He sort of gives these people these technologies and they talk. I think he's got a chapter in this book that's up and coming. That's it.

(Applause)

BRIGID BARRON: Any questions or comments while we transition?

ROGERS HALL: Really?

AUDIENCE MEMBER: Yeah, this question's might reveal my naivety in the (inaudible) field about funding and stuff like that. But I was wondering about the very practical question. I'm very interested in the potential that you talk about about having some of the rich video data that you can then mine later on for further analysis because of (inaudible) sources. But what I'm wondering about is usually, at least my understanding of what is (inaudible) is usually (inaudible) to collect some (inaudible) rather than do new analysis on existing data. And what I'm wondering about is, you know, wanting to do some of this mining of stuff that already exists, you know, what kind of sources are there for funding where what you're proposing is a new analysis or a comparison across the old data perhaps and how that works. You know, are there resources
to support that? Because I think having that would really help.

MALE SPEAKER: Yeah.

ROGERS HALL: I mean one strategy and you might imagine funders would expect this of you anyway is that if you spent a lot of money and time to collect corpus and materials, it's not unreasonable in the next proposal to say we found these things. We're going to begin the next project with the further analysis of stuff in this corpus and design this new study. So it's conceivable the same investigator could overlap studies over time. I haven't detected a very high level of willingness to allow people to get fresh money to do secondary analysis. I mean I just never -- I almost never see that happen.

AUDIENCE MEMBER: Yes.

ROGERS HALL: We were never able to get money to make this video traces thing. And I think Reed has just done it on fumes in his own labor.

AUDIENCE MEMBER: I think it depends on discipline. You know, I do a lot of work in (inaudible) where we can't collect the U.S. census on your own every week as much as we'd love to. And so there's a long tradition there. And the funders at NIH and NSF who fund a lot of that research are accustomed to funding secondary analysis. So maybe
it's just an education process to show that you can get better results and better work on your theory from re-analyzing data at lower cost than you would by going out and collecting new data. I know that that requires a commission of talent, you know, as much as program options.

BRIGID BARRON: (Inaudible) this (inaudible)? You want to respond, John?

JOHN: We don't get (inaudible) much secondary analysis. If we get it, it would certainly be an appropriate thing to do. The other sciences do a lot of that education researchers don't. They track their own data and analyze their own data rather than analyzing somebody else's. There's also issues of IRB approvals if we have access to data. So it's not very simple to get data access (inaudible). I don't think that, you know, in our charter that says we can't (inaudible). We just don't get proposals for it. Tim's might be an exception.

BRIGID BARRON: There is an issue though about (inaudible) especially like to see something new. I mean I think it's attention in the system so.

(Everyone talking at once.)

MALE SPEAKER: The difference between (inaudible) and this field is that there's no shared database. If you want to propose a trial language to do analyses, for example,
there's a shared database. You go out and you at least run that for, you know, your first preliminary studies. But here actually you would be actually proposing to look at your own data which people would say, well, why haven't you already done that?

MALE SPEAKER: Well --

MALE SPEAKER: So if you were looking at data across projects, then that would be very, you know, easily motivated I think.

BRIGID BARRON: So we're going to stop now, and we're going to go on to the next speaker. And we do have a very long time discussion so I'm going to note that this is a hot topic and we'll come back to it. Tim?