TIM KOSCHMANN: Thank you. I think one way of approaching this idea of developing standards for analytic work, and it's certainly the approach that I use, is to look for exemplars of what constitute fine examples of analysis. And certainly some of the work that I turn to as a standard against which I measure my own analytic efforts comes from people who are in this room. I'm thinking of some of Donna McBeth's work. I'm also thinking of some of Chuck's work which I turn to on an almost daily basis and look at and study as examples for what constitutes an acceptable level of analysis.

Now, what I'm going to do in my presentation in the very brief amount of time that I have is shift gears here. What we've been doing in the other presentations is sort of talking about field work and talking about analysis in the abstract. And what I've done is actually brought some data from our current work, and what I'm going to offer to you is the skeleton of an analysis as an object for a discussion. Now, what I would like to show you this morning is, and I will argue, an example in instance of instruction. Now, it doesn't suffice to say that something is instruction simply because it takes place in a setting where instruction is supposed to occur. What we need to do is demonstrate how that is so and specify what about this
makes it recognizably instruction. I should also say that
the setting where I do my work right now is in the
operating room of the teaching hospital. So (inaudible)
accordingly.

(Laughter)

TIM KOSCHMANN: Okay. The surgical work being
performed here is work to free a particular structure for
its eventual removal. Our interest is in how this work
gets carried out. The clip reveals a sequence, some of you
may have noticed it, which is repeated twice. We've
referred to this in our work as guided dissection
sequences. What I'm going to do now is replay one of
those, the first of the two. And what I would like you to
attend to is the fact that the sequence occurs in two
phases, one in which one of the participants presents a bit
of tissue and then a second phase in which the other
participant divides or dissects that using a cautery tool.

The two phases are finally coordinated and both
partners can be seen to continuously monitor each other's
actions. The first thing that can be noticed with regard
to this activity is the extravagance of this organization.
The worker's presentation and division each require only
one hand to execute. And since the normal complement of
hands is two, it would seem that this activity could easily
be conducted by one person. The fact that it is not suggests that there's something else going on here beyond a simple dissection order. As I mentioned earlier, this surgery was conducted at a teaching hospital. The two participants occupy different roles in the training hierarchy. One whom we will label the attending is highly experienced and a member of the faculty. The second whom I will refer to as the resident is a surgeon in training. In the sequence just displayed, the presentation phase was performed by the attending and the division was done by the resident. So a second observation that we can make about this particular sequence that we're examining has to do with the division of labor and how it's structured. What we see here is a two by two table displaying a breakdown of dissection sequences for this pair of participants for the first hour of this surgery. This only represents a quarter of the surgery. The surgery actually went on for four and a half hours. What I would like you to attend to here, first of all, if you look at the diagonal that goes from the upper left to the lower right, the 16 and the five, those are basically straight ahead dissection work carried out, in the first case by the attending, in the second case by the resident. The other diagonal is the more interesting one for us because that represents joint
activity. And what is fascinating about this is the disproportionate distribution. We have zero in one quadrant and 100 in the other. And it raises the question why. The division of labor, this division of labor functionally balances requirements for participation and accountability. The resident is enrolled in a program designed to prepare him for independent practice. Before achieving independence, however, he must become familiar with and fluent in all of the embodied aspects of doing this work. But surgeries are performed on living patients and it is the attending who is legally responsible for the safe outcome of any surgery conducted at a teaching hospital. This then is the attending's dilemma, how to provide adequate opportunities for the resident to engage in practice while simultaneously ensuring the safety of the patient. I will argue the guided dissection appears to be one method employed by participants to balance these two requirements. The activity is organized to afford the resident direct participation in consequential work while providing the attending with complete control over what gets divided, where it gets divided and when it gets divided. Let's look specifically at how this gets done. The presentation not only selects the next candidate for division but actually isolates it, separates it from the
tissue (inaudible) comes below. And we'll see here two examples of that. This one performed with a forcep and then a second one where the attending actually uses her own double gloved hand to interpose between the tissue and what lays below protecting the tissue below from possibly being cut by accident.

One of the things, and I realize that in this blitz presentation of this data you really haven't had a very good opportunity to look at this stuff, I will give you a conclusion. I'll play you a little bit more so you can sort of have an opportunity to audit the claims that I'm making. But one of the things that you can see is that the participants are using a local convention with regard to if you say this is the thing that I want cut, and you hold up a piece of tissue, that still leaves open the question of where shall I do the cut. And I would argue that this is actually not as open ended as it might seem. And the convention that's employed is to bisect the presented region. So when you open up a forceps like this, you create an angle and the unspoken requirement is for the person performing the cut to bisect out through that angle. They say moving from known to unknown, unknown meaning the part that you can't see the tips of the forceps anymore. And so when this person inserts the tool and does that,
she's providing a very, very tight specification for exactly where she wants the division to be performed. And the same applies when she uses her finger. With her finger I have multiple instances of her saying go down the middle of my finger. And so she's doing exactly the same thing but defining the field in a slightly different way.

Okay. Well, there's still a third issue that's left, and that's when to do the cut. Now, what you have to realize is that that thing, that tool that he's performing the cut with is like a soldering iron. It's an electronic soldering iron. But what will cut the patient's tissue will just as easily cut anything else that happens to be in the field, including the gloves of the participants. And they're working in a very, very compressed space. Now, that device is not -- actually, it's a misleading analogy to refer to it as a soldering iron because the thing can be --

TIM KOSCHMANN: -- third question that we might ask is how do they work out the timing of this? How do they know precisely? And what I'm going to show you right now by stepping through one of these examples is just exactly how that's done. Now, here we see the beginning of one of these cycles which I've referred to as a guided dissection sequence. And you see the forceps entering the tissue.
She kind of burrows it in. You see the cautery tool is hovering but not activated above the place that she is working. Now, watch what she does with the tool. It's not the opening of the tool that triggers this. As she opens it, she's actually doing some blunt dissection here. She pokes around, and she opens it and closes it. She opens it again. Closes it. Now, this time she opens it wider, and at this point you'll see that the motion of the forceps jaws are arrested. And what I'm going to do is count through the period of time that they stay open. So starting at frame 18, we'll move one frame at a time. One, two, three, four, five, six, seven, eight, nine, ten, 11, 12, 13, 14, 15, 16, and at this point, if you look very, very closely you see a white flash which represents, marks the point at which the cautery, the division actually begins. So what you saw there was an approximately half second period of time when the tool does not move. And I will argue that it is that arresting of the tool, it's not the action but the lack of action of the tool that marks the preparation for division to begin. And in other examples that I've looked at, this is a consistent finding. There's an approximately half second to a second and a half pause that occurs in every one of the examples that I've examined.
Okay. So as promised, I'm now going to give you a series of six of these, thank you, six of these sequences. And I'm going to play them in real time. It might be noted here the guided dissection sequence within this chain are both context chafe and context renewing in the sense described by Heritage in his book on ethno methodology. The execution of each sequence changes the material environment and creates the context for the sequence that follows. The members' roles, however, are also constant in the very performance of these sequences. Through their actions, they jointly construe one member as having the skills and authority to provide structured guidance, and the other is standing in need of precisely that kind of guidance.

(Video clip being played.)

TIM KOSCHMANN: In presenting this example, I was deliberately modeling a certain approach to conducting research on instruction. I sought to display a discovered category of instructional practice to make visible some of its features. Its status as instruction was not taken as a given but was demonstrated through a series of noticings with regard to its local and embodied organization. Though the content of instruction may vary across settings, we operate under the assumption that interactional methods for
producing instruction are general and recognizable across situations. Instruction invariably requires specific kinds of work making noticeable certain features of the environment, making abstract categories concrete, interactionally producing situated understandings, etc. Taken together, these might be referred to as practices of instruction. To seriously engage in any program for reforming instructional practices we will need to become much more articulate with regard to what these practices might be. Now, I'd like in closing to thank NSF for its generous support of this project and thank you for your attention.

(Applause)

BRIGID BARRON: Jay?

JAY LEMKE: Yeah, I had questions to raise and you don't necessarily need to answer them at this point. One is we just saw what I assume were two synchronized video scenes of the same event, one with a tight focus on the surgical tools and the tissues and one further back seeing the whole scene with the group operating there. And so my first question is what interesting kinds of things do you learn from being able to look back and forth across those? Could you just as well do without let's say the larger scene and work as you, well, as you commented to us only
from the smaller one. The second question is about the relationship between seeing this video as a video itself that could be used for instructional purposes in the training of surgeons versus seeing this as a video used as you did to identify as a researcher various patterns and standard practices that they were using. And the question really is is the same video in some sense equally useful for both of those purposes or maybe more generally when is the same video equally useful for both of those purposes?

TIM KOSCHMANN: Okay. Well, those are I think mostly we can -- both those were huge questions, and I hesitate to get drawn too deeply into that, but I would like to respond while the image is fresh with respect to the question of the two views. I would argue and this actually might represent a point of departure from some of the things that Rogers was saying. I would argue pretty strongly for the need of researchers looking into interaction that you'd require multiple views of the event. And I think that that could be very clearly demonstrated in this example where we are fortunate to work in an environment where it's fairly easy to get a clear shot of the work site, the place where the people are working. But that is not a completely acceptable view. For one thing, it's not always possible to tell whose hands are whose on the scene that you're
viewing. And so one must resort to other views to figure out where did that hand come from or where did that tool come from? And but I would argue that this is not a particularity of this setting but that if you are interested in filming an event where you have two people talking to each other and you're interested in the details of how they organize that with gaze and gesture, I would argue that there's no place that you can put a single camera that's going to give you all that you need in order to perform that analysis.