♦ DIALOG

Mining Videotapes for Evidence of Learning:
A Research Dialogue

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Increasingly turbulent environments have created a need for improved organizational learning capacity. As a result, many organizations have turned to interorganizational exchanges (e.g., industry best practices meetings, quality benchmarking, annual meetings across business units). A frequently used approach is the theme conference (e.g., "implementing teams," "total quality") where experts and "successful" organizations share how they have "done it." As researchers, the three of us writing this article ultimately want to understand better how exchanges between people from different organizations can be made more conducive to organizational learning. We have engaged each other in a dialogue about this topic, and we present parts of that dialogue here. We believe that our dialogue will help clarify for managers and researchers some of the issues involved and provide some insight as to how to benefit from such exchanges (Evered & Tannenbaum, 1992).

This article will present, in essence, three dialogues or communication streams. The first is the one in which we are currently engaged—between us and you, the reader. It includes all instances of communication where we speak directly to the reader. This introduction, the transition paragraphs, heading labels, and our explanations are all part of this first dialogue.

The second dialogue is the research discussion between the three authors. It was stimulated by videotapes of participants at a self-managed work team network meeting who were discussing common issues they faced at their work sites. Our dialogue forms the structure of the article. The nature of our conversations fell naturally into three broad categories, and we have accordingly divided the article into sections based on these categories. We refer to the first section as Mining the Videotape Data. Here we discuss what we will do to derive meaningful results from the cur-

AUTHORS' NOTE: The dialogue has been edited to enhance readability. Names of companies and their representatives have been disguised.

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rent videotapes. Second is Future Directions. In this section we discuss strategies for collecting and analyzing data from future network group meetings. The third major section is What We Have Learned. In this section we discuss our personal learnings both from the videotape data themselves and from our dialogue so far.

The third dialogue is the actual conversations among the network group participants. We present excerpts from several different groups for the purposes of illustrating some of the points in our research dialogue and to give the reader a sense of the raw data. We do not use the word *dialogue* to refer to these conversations. We want to distinguish them from our research *dialogue*, so we refer to them variously as conversations, exchanges, discussions, and so on. We describe the meetings in detail in the next section of the article.

Several conceptualizations of learning appear in this article. In the network group meetings, we specifically are interested in the learning of the *individual* participants. Although we ultimately are interested in organizational learning, our current videotape data do not allow us to address this directly. Thus we focus in our dialogue primarily on the learning of individuals. We view the network group participants as agents of their organizations. The organizations will not learn from the network exchange if the agents do not learn. We believe that if individual agents learn from these exchanges, the probability that their organizations will learn is increased. We address the issue of organizational learning as a direction for our future work.

With respect to the learning of the individual meeting participants, we will discuss two types of learning —*information exchange* and *joint inquiry*. Information exchange involves the sharing of facts and data. Joint inquiry involves the sharing of models and assumptions. We believe that the difference between these two types of learning are analogous to Daft and Huber's (1987) distinction between a system structural perspective on organizational learning and an interpretive perspective. The former, comparable to information exchange, is best suited for well-structured problems. The latter, similar to joint inquiry, is most appropriate for unstructured problems. We argue that the problem faced by the network group participants —implementing self-managed teams—is unstructured and would thus most benefit from joint inquiry on the part of the participants. Thus, as researchers, we want to figure out ways of inducing joint inquiry and discovering indicators that it has occurred.

In our dialogue, we also refer to our own learning. These too can be seen as two types, parallel to the two types of learning we've just identified. We discuss the factual type of learning we have so far derived from the videotape data. In addition, we recognize that our own joint inquiry about the videotape data has enabled us to learn and develop new models of the research enterprise.

The rest of the article will be structured as follows. We first present a narrative description of the network groups (part of that first us-to-reader dialogue). Then we present the three sections of our dialogue, illustrated in places by actual conversations from the network groups. Finally, we end with a summary and conclusions, again in narrative form.

THE WORK TEAM NETWORK

In 1987, the first author started a network consisting of manufacturing plants in the North Carolina region that were implementing some form of self-managed work teams (Novelli & Gryskiewicz, 1989). This has evolved into an action-research program at the Center for Creative Leadership (CCL) that seeks to improve the prospects for collaborative learning across organizations. The network has spread from North Carolina to include plants from nearby states, and a second network has been established in the Pacific Northwest.

Network members meet once a year. Participants must come from organizations that have some experience with implementing self-managed teams. People from all levels and areas (i.e., team members, team leaders, team staff support, human relations management/organizational development (HRM/OD) operations, plant manager, and multiplant team coordinators) are encouraged to attend. The yearly meeting's purpose is to promote interorganizational learning about effective team implementation. The premise, provided to potential participants, is that "everyone knows something about how to make teams work, but no one knows everything. In exchange for sharing what you know about how to make teams work, you stand to gain the accumulated experience of all the other attendees in those areas where you might need some help."

The most recent North Carolina meeting attracted 46 people from 20 sites. Two issue discussion sessions were the heart of the meeting. At the meeting outset, people were asked to list issues they were currently

facing within their organizations. CCL research staff content analyzed their responses and identified eight topics (e.g., pay and rewards, supervision, management support, and so on). People signed up for discussion topics based on their interests. These issue discussion took place in small "breakout" rooms and were videotaped.

MINING THE VIDEOTAPE DATA

Our first challenge is to gather meaningful results from the videotapes from these meetings. We begin this section by presenting an excerpt from one of the network group meetings to provide an example of the kind of data from which we are trying to extract meaning. The following conversation from one of the network meetings took place about midway through a discussion of training. This segment began with Al asking a vaguely worded question:

Al: Do most of you find that the meetings occur in blocks—with weeks of it steady—or a few days each week, or what's working best?

Bob: What we feel works the best is to at least have the preshift meetings, just for the immediate exchanging of information, but we try to stick with a 2-hour-per-week training schedule.

Al: In the initial team development though?

Bob: We used that right from the start.

Chuck: We did it a little bit different; we assigned a sponsor to the team, a management person that was just there to be a support type person for anything that they needed. We moved into a "sharing rally" where we had all the teams within the location come together to discuss some of their failures and their successes so all teams could learn from each other. That has been very helpful.

Dave: What was your resource person's role?

Chuck: Just to be their support and to help with anything that they needed. Some of the production people didn't know how to go and get certain things or how to go about getting something they needed when their job changed.

Did Al learn from this exchange? Did Dave? Did anyone else learn? What might be done to improve the learning potential for people participating in similar discussions? We now begin our research dialogue by discussing ways of analyzing the videotape data to answer such questions.

Looking for Indicators of Learning

L: One indicator of joint inquiry is evidence of model sharing or shared understanding developing within these groups. These activities are to be distinguished from information exchange.

P: Do you have some thoughts about what methods we might use?

L: I think that there are some exchanges where people take into account what other people have just said.

Here is an example from one of the tapes of participants' seeming to take into account what others have said. It starts with one person describing how teams in his organization were set up:

Bill: Our company trained us well in the new team concepts, what we needed to do in our jobs and what our responsibilities were. I think that as a team we came together. Senior operators would help us out when we were getting behind—they in turn asked that we give them a little help when they got behind. Everyone knew what their job was. Senior operators helping us made us want to help them. It started with helping each other and we've improved from there. If there was a problem the team would get together. We don't have a lot of time, it's sort of rushed, but everything just fell into place.

Don: Did you handpick the first team?

Bill: No, it just went by seniority, you picked what machine you wanted to run, the most senior people got the jobs they wanted. Most of us wanted to be on this machine.

Chuck: Did they identify the scenario the team would be working in—was it explained in a formal session, or in writing, that this is a new team concept that we're going to try to start and these are expectations of this team? Or did it just kind of start?

Bill: They told us as new hires that we were expected to do certain things.

Ed: Were you assigned to a team then? Did management pick the team, the number of people, and then go out and start recruiting?

Bill: No, we had existing jobs and those jobs were filled according to seniority.

Ed: I understand the jobs, but we want to get back on the team concept.

Bill: Management didn't pick the team.

Frank: Who picked the teams? Did the people get together and say there are 10 of us in this room and we're going to get together because we have something in common?

Bill: What formed the team was us picking that certain job.

Frank: So the team was formed around a certain job task or functional area, so that all the people that work in a certain area are a team?

Bill: On that one machine, most of our teams are formed around one machine.

Frank: OK.

L: The group members who were questioning Bill seemed to have pretty clear ideas about what a team is, and Bill's description didn't seem to match those ideas. The kinds of questions that they were asking provide an indication of the models they were using, and that they were trying to understand Bill's model. Near the end of the sequence, one person indicated that they understood how the teams were set up.

P: Is there something more general you could say about the types of questions that indicate understanding? I wonder if there is some generalization we can come to about how to characterize or describe such questions.

L: I think it's fairly subtle, but it seems they were not really asking questions. They were really making statements. It's hard for me to be clear about this; but it's not that they were asking for information that they didn't have. It's more like they were confirming whether the description that was given fits their model.

P: So in other words, they had hypothesis-testing questions?

L: Yes. That's a good way to phrase it.

P: That may be one of the generalizations—that in order to probe for understanding, people have a hypothesis, and they test their hypothesis against data. So understanding is a process of formulating hypotheses and confirming them as the process goes on.

L: Right.

K: That brings to mind Braten's [1988] ideas about monoperspectives and multiperspectives. When learning occurs through sharing models, there should be at least one alternative model competing with the dominant model. He spoke about allowing equal interchange of ideas by suppressing model dominance initially.

L: As a matter of fact, that's what this segment reminded me of. Each person had a perspective on what a team was. One individual's description of how teams had been set up in his plant appeared to be contrary to the rest of the group's understanding. It would be interesting to see if we can tell whether the group has opened up to alternative perspectives. Or, if they came to a judgment that what Bill described wasn't really a team because the characteristics that they thought are needed were absent.

K: So you're suggesting that they came to the table with their fixed idea of what a team was and then, in a hypothesis-testing mode, compared this against what was said in the conversation and decided whether or not what was described was a team?

L: Right. Another example dealt with a discussion of how many people can be on a team. One participant told the rest how many her company was trying. In response, one individual stated, "In my experience, that's probably too many." Here, I question if any learning occurred. Instead of exploring the basis upon which different people in that room had come to the conclusion that some specific number was the manageable number, it was proposed as a statement that closed off exploration.

K: So, if you fix on one idea in this way, are you really sharing models or assumptions?

L: I think not.

P: I have picked out a segment that may illustrate learning in another way. Here, we see one group member clarifying what another group member said for a third member. In this exchange, they were discussing pay and reward systems for teams. Claire has just finished telling the group that employees are rewarded for the number of skills they acquire, irrespective of the position they hold.

Following is the segment just described:

Joe: If everyone in an organization could conceivably get to the highest level, then how do you differentiate between high contributors, and people who are just . . .

Sam (interrupting): No. She [Claire] just said that all of them have the same skills and they are contributing equally . . .

Joe (interrupting): How can everyone have the same skills is my question.

Sam (irritably): She just said that they all have the same skill level. You have to get to a certain skill level before you get that pay.

P: This passage suggested to me that another indicator of learning was when group members incorporated information provided by other members within their own arguments.

K: I remember that group. I remember thinking that Joe didn't seem very open-minded. He was very insistent on making his point about the difficulty of this kind of reward system.

P: That could be another indicator—insistence. How much do people's questions change? Some people come to a group with one song to sing, and they intend to sing it. If they're always asking essentially the same question, or making the same point, that could indicate lack of learning.

Framework for Analyzing Dialogue Interactions

K: One question is what kind of verbal and nonverbal cues can we get from the videotapes to provide evidence of model sharing?

P: Karl Weick recently gave a talk based on a paper he's writing with Karlene Roberts [Weick & Roberts, 1991]. In the talk he presented a two-dimensional model that may provide some clues or suggestions about what we might do with the network group data. One dimension has three *modes of interrelating*. The first mode is *contributing*, that is, participating in a conversation. The second is *representing*, ways of cognitively capturing the actions of others. The third is *subordinating*, modifying one's actions to the system.

The second dimension contains four *dispositions of interrelating*. The first disposition is *flexibility*, or the capacity for a system to be modified. The second is *comprehensive*, which is a tendency toward inclusiveness or complexity. The third disposition is *imaginativeness*, which is responsiveness to mental images rather than sensory input. The fourth disposition is *heedfulness* or paying attention to what's going on. In his talk, Weick suggested that you could make a table from these two dimensions by asking questions such as, Are people contributing flexibly? Are they representing comprehensively? The more you answer "yes," the more effective the group.

L: Is there any sense of what this would look like?

P: His work is in the context of high-reliability systems such as nuclear plants and navy aircraft carriers, so his dependent variables are things like number of serious accidents. In our case, we could ask whether the extent that people are interrelating flexibly, comprehensively, et cetera, would provide a measure of how much they are learning. Now, we may or may not choose to adopt this model, but we could certainly think about how flexibility, comprehensiveness, imaginativeness, and heedfulness might meet our needs. In any case, a fundamental question for us is what dimensions can we use to indicate that learning is occurring, whether based on this model or some other.

K: I think that this could be a way of operationalizing learning. You know, Daft and Huber [1987] state that learning happens when equivocality is reduced. Argyris and Schon [1978] and others have suggested how learning might occur but don't provide the kind of details we are looking for. Weick's model could be a way of getting at those indicators.

L: Another thing that intrigues me about Weick's framework relates to my hypothesis that there would be contingency patterns. If we used this, or some modification of it, to develop profiles, I would look for differences between information exchange profiles and joint inquiry profiles. It would be tricky because it is unlikely we would find pure examples of either.

K: So, for you, learning has a lot to do with joint inquiry, as opposed to information exchange?

L: Yes, I think coming to some joint understanding of a problem is a key first step. So I think it's a good idea to explore this framework for looking at learning in the network meetings—whether or not it fits, how well it fits, and what kind of modifications might be necessary. For example, flexibility seems less transparent when people run into dead ends in a conversation and then try to take different routes for dealing with it. I would like to see how the model might help us with this type of data.

P: Another way to look at flexibility is whether or not people are willing to alter or abandon their hypotheses when disconfirming evidence is present.

The Effect of Heterogeneity of Experience Levels

L: A reality of the network meetings is that people are at very different points in their knowledge base. Some are new to teams and come to find out how things work.

K: That makes me wonder about the impact on joint inquiry. There were people in the meetings who

the group perceived as having more knowledge. Perhaps a joint inquiry actually is better when everyone in the group feels that they are somehow on the same level. In looking at groups with people from companies that have reputations because of their history with teams, many of the other group members tended to defer to their expertise and ended up giving way to the expert's model.

L: That suggests to me something we could do with our current data. We could examine the way people, categorized by something like their knowledge base or length of experience, interact in those meetings.

P: You mean things like measuring the amount of time people spend speaking and who speaks to whom?

L: No. In terms of something like Weick's dimensions. Are those that are coming in without much knowledge focusing on different segments of the matrix than those who are more experienced with teams? I agree with Kathy that something around the expert-neophyte dynamic is apparent in these tapes.

P: Perhaps SYMLOG [Bales & Cohen, 1979] could be used for something like this.

L: You mean, for example, determining if experts are in fact high on the SYMLOG dominance scale? We might expect to see more information exchange and less joint inquiry.

K: Maybe we could develop SYMLOG norm profiles around experts' interactions with the group.

P: SYMLOG would also relate to a dimension like flexibility from Weick's framework. It would be terrific to look at how flexibly people move around the SYMLOG space in the course of a meeting. I would hypothesize that the more movement there is, the more flexible the system is, and perhaps the more learning is occurring. We might find, for example, that in meetings where experts are flexible, there is a high degree of learning.

Impact of Different Ways of Starting Conversations

L: The way the discussions were started seems to me to be important. There were some meetings where one individual would say something like, "I don't know about the rest of you, but I am new at this and I am here to get some information about 'X.' " That would get the ball rolling and send the conversation down a certain track. It may be useful to take a look at the impact on learning from how a group started. Another related point deals with agenda setting. I had given instruction to the groups for individuals to brainstorm what they wanted to talk about within the general topic, display these on a flip chart, and make a group decision about which items they wanted to talk about and how they wanted to use their time.

K: I seldom saw them do that unless it was one of the groups that had a CCL facilitator present.

L: Right, very few groups created this kind of structuring on their own. Some facilitators encouraged them to do that. One group went through the process pretty thoroughly. They completed an extensive brainstorming of aspects of the topic that they were meeting around and they had labeled the ideas with letters.

Here is the videotape segment:

Cindy (looking at the list of subissues, identified by letters, which the group has just generated): With all that's up here, I don't believe we're going to be able to attack all of it.

Dave: We've got to pick a couple.

Ed: We've somehow got to come down to two topics, and I think that B should be it—I like that one. All of us are talking about that one. But we can start voting.

Cindy: The "what kind" in topic D gets at the type of training listed in B.

Fred: Add topic B under topic D. Is that what you're saying? (pause)

Cindy: Ed made the suggestion—to do something like everyone gets three votes, and see which ones have the most energy.

Ed: And you can vote for more than one.

Greg: That second group, B, D, E, and G, seems to be growing to be the largest and they touch on everything. Maybe instead of voting we should just say that will be our major topic. We can set a certain time limit and see where we go from there. At the end of 30 minutes, I think we've got an hour, we can see if we are at an end or if we should go into another topic, one that we haven't touched upon. Either way it doesn't matter to me.

Cindy: OK!

Hal: Let's do it!

L: I have a hunch that groups which start off in this structured way have a different experience than ones that begin with free interaction, but I don't know exactly how they would differ. If you leave groups on their own, there is no telling how they are going to

start, and how they start can make a difference in where they go and what they learn. I would like to determine what kind of intervention would be necessary early in a conversation in order to set up the proper structuring.

P: That certainly fits with Gersick's [1988] assertion that groups set norms very early in their lives.

L: We do have some ratings of people's reactions to the discussion groups. There is a possibility of looking at how meetings start and relating that to perceptions of how the meetings went.

FUTURE RESEARCH DIRECTIONS

Our conversations about analyzing the current tapes quickly led to discussions of how we would run future network group meetings differently and what kind of data we would want to collect.

How Important Is Structuring for Obtaining Desired Meeting Outcomes?

P: Do we think it's possible at all to find indicators of joint inquiry by examining the tapes as they are now?

L: Your question suggests to me that we need to consider what we should change in the groups, structurally, to produce the kind of data that would provide indicators of things such as openness. I think we're saying that the way these groups were constructed makes any indicators in the tapes of what might be going on highly equivocal. The way they were structured doesn't help highlight the kind of data that we'd be looking for.

P: If the way these groups were structured makes it difficult for us to find the kind of data we're looking for, could it be because nothing really happened? Maybe people didn't learn from the meeting the way you hoped. This would suggest that structuring a meeting not only has the effect of giving us measurable data, but may also cause the phenomenon that you wanted in the first place.

L: I agree with that. What may have happened at these meetings, in essence, was that people came together around a task. They're good sports, so they filled up the time. They had an opportunity to meet some interesting people that have the same kind of problems that they have. But other than that, there was not a lot of focus toward what they should be seeking as an outcome.

K: I think this occurs generally in business meetings that don't have proper structure—even in ones that on the surface have a structure. I have been in many business meetings where people came together and attended to the task, but there was no real learning or even closure on the agenda items.

P: What about expertise? Should we explicitly structure meetings according to people's expertise? In the past, Luke, you've urged people to form groups with mixed expertise, right?

L: Yes, and this brings to mind a phrase I've coined, "the tyranny of expertise." In groups where there are one or two people who are advanced in their application, the meeting becomes a question-and-answer session.

P: So you are now asking whether that kind of mix is detrimental to joint inquiry?

L: I know one problem is that those who are advanced tend to see the meeting as less useful. They are giving information and feel that what they have to gain is relatively limited. A structuring device where you give people who are advanced a meaningful way to interact, I think, would help the entire group come away feeling they've gotten some benefit.

How Can We Design Our Data Collection Process to Find Out What Leads to Joint Inquiry?

P: Were any clues, explicit or implicit, given to the network groups that there is another agenda beside information exchange? Did you ever introduce the concept of joint inquiry explicitly?

L: No.

P: That may be something to do in the future meetings.

L: Yes. I would agree, and there are probably other structural issues we should explore.

P: What do you think about an experiment? What I have in mind is to take some network groups and impose different ways of structuring on them.

L: At CCL part of why we bring people together is to conduct experiments so that we can learn how to do these activities better, so I would be in favor of doing something like that.

P: I would also like us to look at stages of group development in the future. Part of the difficulty we may have in trying to apply any classification system is that we're dealing with collections of individuals that may or may not be groups. This is an idea that Clay Alderfer explained very well to me one day. He

described groups as containers of interpersonal interactions. In order for there to be a group, a skin must form which then contains the interactions. If groups have not developed to the point of having this skin, then interventions are not likely to have much effect. Maybe not much learning would occur either. In the case of the network groups, it may not make sense to ask questions about flexibility, comprehensiveness, et cetera, when you don't know if the participants have really formed a group.

L: So, we would want to find out to what degree people seemed to create that kind of system, even it it's of temporary duration? Perhaps we can explore ways to induce the appropriate degree of development before they sit down to dialogue.

P: Luke, you mentioned that you had used a cognitive mapping exercise in the past?

L: Yes. The version that I use is a modification of the Bougon, Weick, and Binkhorst [1977] approach. In essence you ask people to imagine that there is an organization out there that's identical to theirs in every way except they solved the compensation, or whatever, problem effectively. Then they generate a list of questions to ask the people in that setting which would provide them some insight as to how that solution worked. They then reflect on the underlying ideas or concepts that they were trying to tap with their questions. They end up with a list of concepts that they think are related to that issue. Those all get posted and I ask them to cluster similar concepts. It's like a mental factor analysis. I ask them as a group to create a model that links the factors. The point is the cognitive mapping is a structuring device to help people surface their assumptions. One way the assumptions get surfaced is when they are confronted with people that hold other assumptions about how things work.

P: Suppose we did that, what would be evidence that learning had occurred?

L: I would look at their follow-up conversation. Let's imagine that we could use something like the dimensions we mentioned earlier from Weick's talk, and we are able to identify a profile of learning. We could create an experiment to determine whether cognitive mapping is a process that can lead groups to generate profiles that indicate that learning has occurred.

P: I like the cognitive mapping idea. Didn't you have another idea for surfacing models and assumptions?

L: Yes, I thought of giving participants a case study pertaining to their issue discussion.

P: So the case would be structured so that people would bring their own experiences to bear on the analysis of the issue?

L: Exactly. It's kind of a neutral device to let them project and to get away from the specifics of other people's situations.

P: What about that mechanism would prevent individual cases from predominating?

L: I think it would really need some heavy case facilitation to get people to probe for their assumptions.

P: It sounds to me as if the facilitation is the key rather than the case.

L: Right, facilitation is important.

K: I agree. It sounds like you are really ready to strengthen the facilitation of these meetings.

P: Here's another idea. What about introducing technology? I wonder if we would get useful data from having participants use something like OptionFinder [Watson, Alexander, Pollard, & Bostrom, 1991] for agenda setting in these meetings?

K: That might help to reduce some of that wandering around.

P: I would feel pretty strongly against having too much technology support. It would be a challenge to figure out where technology ought to be inserted and what level of support would be best.

L: I've used OptionFinder a couple of times in connection with another process. I think it lets people visualize where the weight of consensus is, and I have found it really helps focus conversations and moves groups along. With some creativity, I think we could find ways to use technology to move these groups fairly quickly through places where they've gotten bogged down in the past.

What Happens in the Organizations After the Network Meetings?

K: I am interested in the longitudinal aspects of the data. We know that we are going to continue to see these groups, and I would like to evaluate what happens when they go back to their corporations. Is there any reframing? Any use of the information that they acquired in the meeting? We could use a preassessment and than a postassessment. I want to understand what types of information gets disseminated throughout the organization and whether we can get data on changes in management styles. We can gather data at least as a case study on how they feel about the whole network experience. Poppy and I had already agreed

that we would develop an impact assessment tool for the next network meeting.

L: That is of extreme interest to me. It is something we need to do, and we've already dabbled at it. It will prove useful to track the information or the learning once it leaves this building. It's a way we can begin to grapple with organizational learning.

K: The participants are not always the same, so we would need to decide, if we were going to do some longitudinal tracking, whether we need to have the same participants.

L: Revolving participants is a reality of these kinds of meetings. We could create an artificial one where we get the same people back, but from an interorganization learning perspective I think we want to track things as they really happen.

K: Bringing together different people from organizations may help us to understand something about organizational memory.

L: Exactly. These people are agents of the organization, so we are looking for learning that is independent of the specific agents. If we brought the same people back that would be useful and it would put some controls on it, but it's not the way I see these kinds of interorganizational exchanges actually occurring.

What Is the Effect on the Dialogue of Who the Audience Is?

P: I think we should consider examining how dialogue differs depending on who the participants think the consumer is. I think it relates to what you said, Luke, about altering the instruction set. Part of the instruction set is who the consumer of the dialogue is.

L: What are some possibilities of alternative consumers?

P: One consumer would be the people who participated in the dialogue and the other alternative would be the people who didn't participate in the dialogue. I'd like to know how people's dialoguing behavior differs if they know that the only people who have to get something out of it are those participating, versus if they want someone who is not there to get something out of it.

L: That triggers for me the idea that these dialogues take place in a context. We really need to think about how the orientation toward a particular audience might affect the outcomes.

K: We could experiment on the impact of suggesting different audiences.

L: Right. Having two network meetings really gives us a chance to do something radically different in the two sessions.

P: To me the issue of consciousness about the consumer of the dialogue is quite interesting. I personally feel very conscious of being conscious that there will be consumers of our dialogue.

L: (laughing) That certainly has had an impact on us.

WHAT WE LEARNED

One thing that emerged from our dialogue was that there were a number of things we felt we had already learned, without needing to do further analyses of the videotape data. In this section of the dialogue, we share these learnings.

Structuring the Context Is Important

L: If people were to read the transcripts of the network meetings, they might suggest that these people just need some training in basic communication skills. But on average, these people are probably about as trained in group process as you can expect. What that says to me is either the training is not enough or the network meetings weren't structured so that the participants were encouraged to use those skills.

P: Luke, could you say a little more about what led you to believe that more structure was needed? Was it this process that the three of us have been going through specifically? Or is it something that may have happened anyway? Some combination?

L: Partly it's a realization that I have expectations for what I think should be happening at meetings. And I didn't see those things happening. Originally, I thought I'd just bring them together and let whatever happened, happen.

P: And how did this help you realize that structure was needed? Did this idea just come to you over time, or did you sit down and think about it?

L: I think it was a case of some experiential data creating a conflict with what I was saying to myself. On the one hand I said, "I shouldn't be intervening in this; all that should happen is I get people together, create a context, and they will, on their own, determine what their needs are and enact those in whatever way is appropriate for them." But after a meeting I would feel tension and conflict around the outcome. It be-

came more and more obvious that the audio didn't match the video.

P: So your realization came as a result of analyzing why you were experiencing conflict?

L: It wasn't all that much analysis. All I know is that at the end of those meetings, I felt dissatisfied with the outcome.

P: It sounds to me like the root of conflict was an unquestioned assumption that the outcomes that you wanted were not aligned with the outcomes that the members wanted. You now realize that there *is* alignment.

L: I now see that during the initial parts of the meetings, I should make my expectations an open part of the agenda setting.

K: It sounds to me as if you're realizing the importance of structure comes from a combination of having been at the network meetings, looking at the tapes, and trying to draw some conclusions.

L: Right. And it was less the tapes and more just watching groups. What the three of us have done has also been very helpful. I still think the network meetings are valuable. What I don't think is working is the way I've defined my role. I am now willing to structure the meetings in order to move groups to some of the outcomes that I think are important and to be explicit at the beginning of the meeting about what I think those outcomes are. On the other hand, I want to be careful about overplanning. To me, what we want to do is set context—to create conditions for a type of result to occur.

P: Although you can't plan what somebody is going to learn, our main learning is that freely interacting groups will not necessarily be effective. This is not anything new. Delbecq, Van de Ven, and Gustafson [1975], for example, showed that structure is needed. Past research has already shown that when groups are left up to their own devices, they are not likely to come up with very effective structures. It has been useful for me to relearn this through the network groups.

It Is Important to Create "Requisite Variety"

K: It seemed to me that the network groups perhaps had too much data and not enough process. The groups weren't able to manage all the information that they produced.

P: Do you mean that they simply shared information without coming to terms with what it would mean for their organization?

K: Right. These data are very rich. *We* had trouble processing it when we first approached the tapes.

P: Right! None of us individually had the requisite variety! By this I mean the notion that a system needs enough sensors to render an accurate picture of its environment. We need to dialogue among ourselves in order to understand the network groups' dialogues. So we have made a joint inquiry to understand what was going on in the network groups; none of us by ourselves would have had the requisite variety to do that. But as a team we have it.

K: The different perspectives we bring makes our research much richer.

L: The concept of requisite variety also applies to the network groups in terms of whether they have sufficient variety to actually engage in joint inquiry.

P: If that's true, then we need to seek ways to increase that variety.

L: The requisite variety idea also supports one of my hypotheses—that you can't easily transfer the results of joint inquiry. Rather, you have to re-create the conditions under which it occurs. That is in essence what we have done. To try to understand the network groups' dialogues, we became heavily involved in our own, came out of it, and then went back to looking at the network groups.

P: You don't believe in vicarious learning?

L: I do, but I think that there are many tacit elements that are missed vicariously. I think we have picked up a lot of knowledge about dialogue that is hard to express, but gives us an intuitive sense of some of the things that we see going on in the tapes.

SUMMARY AND CONCLUSION

In brief, this article has been structured around a dialogue between the three of us discussing possible ways to approach some videotape data we currently have, ways to design data collection in the future, and what we feel we have learned from this process. We made a distinction between two types of individual learning—information exchange and joint inquiry—and have placed our primary interest in the latter. A direction of our future research will be to examine the effect of exchanges between individual agents on interorganizational learning.

As a result of this project, we gained a healthy respect for the importance of process structure in group meetings. A great deal of information was generated in the network group meetings, but it was not

fully available to the participants. Why? We discovered as have other researchers before us that just getting a group together for a discussion without setting the proper context is not sufficient.

The major conclusion that we draw from our dialogue about the network group meetings is that information exchange is a relatively easy form of learning to bring about, whereas joint inquiry is more difficult. This conclusion seems to be consistent with the views of other scholars about these two types of learning. For example, Argyris and Schon (1978) classify single-loop learning as easier than double-loop learning. We believe that our distinction between information exchange and joint inquiry is analogous to the Argyris and Schon model. We reached this conclusion by comparing our own dialogue to the conversations of the network group participants—the two major dialogues of this article.

These two dialogues differ from each other on several dimensions, but the two that we think are most important are *purpose* and *audience*. First, these two dialogues had very different purposes, and the participants in them hence took very different approaches to them. The network participants took an instrumental approach to their conversations. Those exchanges were a means to an end—namely, gathering information about practices at other companies. The individuals attending these meetings had the purpose of gathering information to help solve specific organizational problems.

On the other hand, as researchers, we were interested in both our dialogue and the network group conversations as ends in themselves. Whereas the network group participants were interested in the results of the dialogues, we are more interested in the dialogues themselves. Our purpose is to find ways to change the dialogues. In some ways we have made finer discriminations among dialogues than the network participants. By this we mean that there are several types and purposes of dialoguing, and we are starting to recognize the subtle differences among them. The network group participants may also be able to make these discriminations but usually are not primed to do so. Consequently, they may be less likely, when left to themselves, to adapt their style of conversing to fit different purposes.

The second way in which our dialogue differed from the network groups' conversations was our consciousness that there would be an audience. The network group participants did not have the same expectations about the consumers of their dialogues as we had. Most of those participants were accountable to report in summary form what they got from the network meetings. We, on the other hand, want our audience to follow along with us our process of coming to a summary and conclusion. We believe that this difference is also related to the likelihood of joint inquiry occurring. An obligation to present only summaries and conclusions to an audience is compatible with an information exchange approach to learning, whereas a desire to share one's reasoning process with an audience is conducive to joint inquiry.

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