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How can participants in distant meeting places obtain the same value as participants in local meeting places? Read about ways of using new technology to improve distance collaboration.

Supporting Distance Collaboration

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As part of a research program on distance collaboration at Sun Microsystems, we carried out a study of a number of groups, each of which was located in more than one geographical location and had well-established practices for collaborating despite the separation.

We looked for groups reflecting a range of technologies. Our focus was on a series of regularly-held distance meetings with participation from all locations (e.g., staff meetings). We were interested in the use of various distance technologies (audio, video, and data sharing) in making these meetings and the collaboration within the group possible. Our goal was to observe well-established practices, learn what did and did not work, and—where appropriate—intervene with new technology and ways of using it that might improve the collaboration.

Our study produced a number of conceptual framings and corresponding practices that provided better support for distance meetings. We will discuss

three of these here: 1) the conceptual framework of a distance meeting place; 2) the mandate to level the playing field in distance meetings; and 3) the importance of providing local hosts.

From local to distance meeting places

1) Local meeting places. It is natural to think of a meeting occurring in a physical space—an office, a conference room, or even a hallway. However, it is interesting to note that participants work to create the conceptual space that holds their meeting. For instance, meetings may migrate, leaving one space and continuing in another, or they may take place in spaces occupied by others not participating in the meeting (e.g., hallways, cafeterias, large rooms, and shared offices). Consequently, work must be done to identify and separate the meeting within space, across time, and across people.

We will use the term *place* to refer to this conceptual location within which a meeting occurs.

The notion of the place of a meeting can be usefully extended

to cover its existence in time as well as space. The bracketing of a meeting with “start” and “stop” is also a production of its participants, and may be quite complex. Bracketing the meeting may include negotiating to acquire the space, deciding to start the meeting, transitioning from a preceding meeting, following a separate meeting that has some of the same participants, deciding to end the meeting, and relinquishing the space to others.

2) Distance meeting places. It is attractive to analyze distance meetings as a pair or group of connected local meetings.

However, an alternative framing leads to an entirely different view: Just as we discovered that installing continuously on video between two offices at Xerox PARC in Palo Alto, California, created the perception of a single shared office, we learned at Sun that a distance meeting occurs in a single constructed place called a *distance meeting place*.

Distance meeting places are constructed just as local meeting places are. The participants construct them in the course of their activity, and refer to them naturally as places. For example, a telephone call exists not *here* or *there*, but in some (distance meeting) place encompassing both. The *there* in “Are you still there?” refers to that place, and also appears as, “Are you still here?” or “Are you still on?”

Similarly, a meeting composed of 35 people in two conference rooms, with an additional eight people calling in from their desks, and five more from their homes, is experienced as a single place. For example, we observed participants

asking, “Who’s just joined us?” and “Is George here?”

Along the same lines, a participant in a video-based staff meeting stated, “I am counting on all of you in this room [to help me review this].” The room referred to was neither of the two physical rooms involved, but rather the place—a conceptually constructed room—holding all participants in the distance meeting.

That people are creating distance meeting places is supported by much of what we observed in our study. Their behavior reflects that they are doing whatever is necessary to

and looking into the middle distance when interacting. However, participants in the large local meetings were also involved in exchanges that took place solely in their local meeting places, as evidenced by strong eye contact and visible gesturing. An interesting boundary case was a meeting in which two people who usually called in from their individual offices participated together by sharing a telephone in a local conference room. Much of the time both participants oriented to the distance meeting place; it was as though each was still in their own private space.

DIFFERENT TECHNOLOGIES HAVE DIFFERENT CHARACTERISTICS AND INTRODUCE DIFFERENT CONSTRAINTS, AND ARE THEREFORE APPROPRIATE FOR DIFFERENT CIRCUMSTANCES.

create a single distance meeting place out of actual local spaces and the communication mechanisms that serve as raw material.

Further, the construction of a distance meeting place from local spaces may or may not be accompanied by the creation of local meeting places. For example, in a large distance meeting, the larger groups in two sites each constructed a local meeting place as well as the place for the distance meeting, while several calling in from their desks at another site were part of only the distance meeting place. We saw an interesting contrast between the orientations of these two types of participants. Both were oriented “out” to the distance meeting place, as evidenced by addressing everyone

Level playing field

Ideally, a distance meeting would provide an experience just like being present in a local meeting. In reality, however, the addition of distance technologies to communication media changes things radically. Different technologies have different characteristics and introduce different constraints and benefits, and are therefore appropriate for different circumstances.

1) Local meeting work. The task of holding meetings is work and requires skill. As part of membership in a working group, people develop meeting skills of considerable complexity and sophistication. Moreover, people count on the system that supports

meetings to provide many things for them as participants. There are many such provisions. They include being able to:

- a) see who is present and what they are doing.
- b) hear participants talk.
- c) see how participants react.
- d) make yourself heard.
- e) direct remarks to one or more people.
- f) shape your behavior to affect or minimize the effect on others.
- g) design what you say specifically for the person you are addressing (“recipient design”).

These characteristics are also reciprocal. If something is true of the action/relation from me to you, then it is true of the action/relation from you to me.

over-shadowed and forgotten by people using sophisticated skills to repair difficulties. For example, they move their chairs so they can see, look uncertain when communication is unclear, or cup an ear to signal to speakers that they are having trouble hearing.

Distance technology does a much poorer job of providing equality of access. Remote participants are harder to hear and see, and in telephone conferences, it is much harder to tell when they are present. The presence of the local reality is much stronger than the presence of the remote reality. Lacking pressures to the contrary, people are likely to forget about the remote realities in favor of the local realities that impinge on them much more strongly.

Interestingly, much can be done

More importantly, the local access to slides is such a strong force that participants local to the speaker will always have an advantage. Worse, speakers will inadvertently trade on their richer access to local participants, producing behavior that only works locally (e.g., pointing at a slide).

Creating a level playing field in this case produces a surprising result. Both remote and local people should work from hand-outs of the slides. All participants then have equal access to the material, which prompts the speaker, even when talking to local people, to refer to the slides in a way that works for everyone. In our study, we found the practice of everyone working from paper to be far superior to using slides alone.

EVEN LOCAL SPACES DO NOT PROVIDE EQUAL ACCESS. THAT REALITY IS OVERSHADOWED AND FORGOTTEN BY PEOPLE USING SOPHISTICATED SKILLS TO REPAIR DIFFICULTIES.

2) Meeting skills. A distance meeting is regarded as a meeting, and therefore people use their existing meeting skills. In the absence of anything else, people bring to bear on the distance meeting all their skills for acting in local meetings.

3) Providing equal access. We take it for granted that the space in which we work supports these meeting activities in a uniform way, providing equal access to all participants across physical locations. Actually, even local spaces do not provide equal access. That reality, however, is

to reduce this discrepancy of access between the local and the remote. Practices specifically for this purpose can be introduced and enforced. We call this constructing a *level playing field*.

For example, in telephone conferences, a common practice is to show slides locally at all locations, synchronizing slide changes explicitly or technologically. However, our observations revealed that this practice has problems. First, the mechanics of synchronizing and confirming the changing of slides distracts people from attending to the content.

Local vs. distance hosting

1) Local hosting. One of the most important factors in supporting distance meetings is providing a coordinated hosting infrastructure. Setting up local meetings requires local access. The activities include determining that a room has appropriate, operational equipment; the room is available for use; and previous occupants have vacated the space in a timely fashion. Generally someone must set up equipment and be present before and during the meeting so that people know that the meeting is taking place and speakers have whatever they need. When a meeting is changed to another room at the last moment or even changed during the meeting, the host must arrange for all participants to be notified of the change.

2) Distance hosting. Distance meetings require local hosts at each space. These hosts carry out all the local hosting activities and ensure that they are coordinated. To achieve this, they need to be in touch with each other to bootstrap the communications, help break down the walls between the spaces, and set up the boundaries that identify and define the distance meeting. In short, as a team they must be the distributed support structure for the local meeting places and the distance meeting.

Three conceptual framings for supporting distance meetings have been discussed: 1) the idea of a distance meeting place; 2) the mandate to level the playing field in distance meetings; and 3) the importance of providing local hosts. These framings and mechanisms are effective in enabling participants in distance meetings to achieve the sense and actuality of collaboration that is normally produced and taken for granted in local meetings.

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