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CHAPTER SIX

COLLABORATIVE e-RESEARCH

Perhaps more than anything else, a collaborative online project like Postmodern Spacings demands that you realize that at any moment the project cauld either explode in a hundred directions or collapse into silence and a blank screen. Personally, I havefound that challenge quite rewarding.

Mark Nunes, 1997

Many important research projects are large enough to require the energy, commitment, skills, and expertise of more than one e-researcher. In addition, many research problems are based on regional or geographical contexts, in which collaboration across distance is critical. Interestingly, these disbursed projects are often those of most interest to provincial, state, and national funding bodies.

The Net's particular strengths lie in its support for communication and for sharing information across distance and time. It should therefore come as no surprise to learn that Net-based collaboration tools offer the e-researcher a great deal of opportunity to improve the effectiveness and efficiency of e-research teams. In addition, the Net serves as an accessible repository for data, personal and collaborative memos, and other documentation useful in creating, informing, and authenticating the research process.

In this chapter we discuss some of the tools currently available and the potential cost and time savings provided by their use. We also explore new technologies based on peer-to-peer networking that promise to further increase the advantages afforded by effective team-based research.

The collaboration tools and techniques most useful for e-research teams are the same tools used by work, social, or community groups as they resolve problems or undertake large-scale tasks. These tools generally fall into five categories:

1. Communication toolsreal-time, chat, audio, and video conferencing; private and group-based asynchronous email; computer conferencing; and voice and video mail.

2. Data and document sharing toolsshared workspaces in which files can be stored, exchanged, updated, and managed to avoid the problem of multiple authors altering the same document simultaneously. In addition, the means to search for documents by a variety of indexes (including keyword, date, and author) or to select documents containing a single word or phrase in the full text of the object is required.

3. Application sharing toolsshared working environments in which applications such as word processing, sketching, or data analvsis tools allow team members at different locations to manipulate the same documents. This sharing should be supported both in real time and asynchronously, based on the evolving needs of the members of the e-research team.

4. Project management toolscalendars and scheduling tools that allow users to coordinate activities, set deadlines, and report and monitor progress on project tasks and objectives.

5. Community management toolsthe ability to track members of the e- research group, their current activities, the last time they logged on or contributed, when new documents were added or deleted, and a push facility that sends announcements or invitations to participants via email.

There are a number of Net-based commercial and open source products designed to meet these communication and knowledge management needs. The majority of this chapter consists ofreviews of these early products, highlighting how they are designed to accomplish the tasks previously listed. First, however, we look at ways that collaborative tools can enhance the e-research process.

TYPES OF e-RESEARCH COLLABORATION

Collaboration in research operates at many levels and in many types of processes. Etienne Wenger's (2001) characterizations of a "community of practice" can be useful in describing a wide variety of networked and face-to-face communities, and in thinking about e-research collaborations. Wenger argues that communities of practice share three characteristics: a common domain of knowledge, a community, and a practice.

1. The domain of the e-researcher includes, of course, the overlapping abilities associated with general research design and implementation and with using network tools both in the research process and for communicating. This shared level of competence distinguishes members of this community from others and provides both with technical skills and attitudes conducive to applying

networking to solve research-related problems.

2. The community of the e-researcher is established via ongoing communication with the group. Members use their domain knowledge and skill to help one another, seek advice, develop grant applications and proposals, and

filter information for each other. This mutuallv assistant interaction, over time, builds trust and communication competence, which furthers the development of the community of practice.

3. The practice of the community is instantiated in collaborative work. In many ways, the community stays at a superficial level until a task or challenge, such as a collaborative e-research project, unites it with common tasks, timelines, and potential for recognition and reward.

Although the community of practice described above is the most common form for e-researchers, there are other collaborative-research relationships. For example, those involved in ethnographic research have a unique responsibility to establish often intense social relationships with individuals or communities, to understand the world-view of their subjects (Hine, 2000). Collaborative action researchers need tools to effectively work with participants in researching problems of personal or local concern and to insure that researchers become partners in the research process. Collaborative research can also link multidisciplinary teams (at a single location or multiple locations) that work on multifaceted problems. Interaction between members from these different academic groups (Becher, 1989) provides challenges to effective communication and collaboration. Universities and governments currently stress the need for collaborative research between university scholars and private business. Again, successfully overcoming cultural barriers between these groups requires a high degree of communication among participants. In all of these cases and in many other variations of collaborative e-research, quality communication, data sharing, and provision for discussion and project planning are critical.

Riger (1997) describes the critical factor to collaboration between researchers and community activists involved in "action research" and the elimination of social problems. She notes that issues of trust, time frame, and talent often arise between researchers from one culture and activists from a local culture. Riger outlines the tools needed to overcome these hurdles, as follows:

When you start to work together, create a decision-making structure that makes explicit what people's responsibilities and areas of control are. To do this, we need to have on-going conversations and negotiations between researchers and advocates. We need a forum in which we can begin to talk about these issues and identify our common interests. We need to create relationships, and structures to contain those relationships, in which agreement can be sought, and disagreement can

be worked out. Only by such sustained efforts will the potential of collaborative research be fully realized.

Certainly Riger was not referring to Net-based environments and technology mediated communication when she described her communication needs in 1997. However, it is uncanny how closely the major design thrusts in collaborative e-research tools mirror the needs expressed above. Here, as in other discussions, we see that issues of e-research are not much different than those found in earlier, pre-Net, collaborative