

The What, Who, Where, When, Why and How of Context-Awareness

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I would like to participate in this workshop from the standpoint of what we can learn from community networking and educational networking infrastructures and applications. My work has been carried out in the context of the Blacksburg Electronic Village, one of the prominent community networking projects of the 1990s. In January 2000, more than 90 percent of the Blacksburg population (of about 36,000) has network access, compared to about 40% nationally. Over 150 community groups and more than 450 local businesses maintain Web sites (more than 75%). There are many unique community-oriented initiatives (15 community newsgroups, various lists, a town chat, a senior's nostalgia archive, public-access kiosks).

The Town of Blacksburg makes extensive use of the BEV, providing on-line forms for surveys, house check requests, and e-mail to town officials, as well as electronic dissemination of schedules and other documents. All 20 county schools have had T1 Ethernet for the past 4 years, compared to about 65% nationally. The BEV is a well-established community network, fully operational for more than six years.

Our work has involved observing and assessing activities in the BEV, as well as collaborating with various community groups on innovations in the BEV infrastructure and in applications and services. Three of our projects have been the Virtual School project (a networking infrastructure that supports synchronous and asynchronous collaboration among science students in four schools, and a participatory design collaboration now in its fifth year), MOOsburg (a Java-based MOO modeled on the geography of the town of Blacksburg and the surrounding area that has explored direct manipulation, map-based navigation and the support of novel community activities like a virtual science fair), and Nostalgia (a Web-forum designed with the seniors to support informal community history-building).

All of these projects involve sharing, creating, and maintaining contexts. For example, high school students collaborating on a science project need to have a sense of the state of progress of their remote collaborators, to avoid duplicating or divergent effort and to ensure that subprojects are adequately coordinated. These projects progress synchronously (in real-time, within a class period) as well as asynchronously (across many weeks and even months), thus collaborators need to be apprised of context at different grains of detailing. Students also need to be aware of social context - for example, who is currently present at another networked site, who among a group of collaborators has read an email or reviewed a project report. The Virtual School incorporates a variety of awareness mechanisms to support these various senses of context. (Isenhour, Rosson, et al., submitted).

Context is uniquely important in community computing since the networking infrastructures are implemented within the physical space of a real coextending community. Thus, the database underlying our community MOO project, MOOsburg, is a hierarchy of maps - views of real spaces in the community as well as conceptual spaces associated with real locations. We have recently written an extensive overview of the MOOsburg project (Carroll, Rosson, et al., submitted).

For community networks to be sustainable, they must be extensible by community members (Carroll & Rosson, 1996). This raises another entirely different context-awareness issue -- ensuring that an arbitrary piece of software fits into the collaboration context provided by the community network infrastructure. Much of our work on collaboration toolkits has addressed collaboration-awareness issues of this sort (Begole, Rosson, & Shaffer, 1999; Isenhour, Rosson & Carroll, submitted).

I think that community networking and educational networking are important application areas for examining issues of context-awareness, and that our current projects can provide useful examples for discussion and analysis at the workshop.

References

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