Cooperative Work on the Web: Developing a Framework for Understanding what People are Doing Now with Web 2.0 Technologies

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ABSTRACT
This poster presents the preliminary results of a national survey of knowledge workers about their use of publicly available, Web-based application services to support cooperative work. Our aim is to understand how widespread the use of such technologies is, and—further—to develop a sense of the sorts of activities these technologies support. To achieve this, we developed a catalog of key activities that the providers of such services claim their technologies support. This list was tested and refined before it became the basis for the survey, in which we also asked participants about their uses of other, more common Web-based communication transactions (i.e., e-mail and instant messaging). Survey results will next be used to guide the initial design of a dashboard technology to support group members' self-analysis of cooperative work activities. This dashboard technology will be studied through context-rich activity evaluations in the next nine months.

Author Keywords
Web-based interaction, Web 2.0, activity classification

ACM Classification Keywords
H.5.3 [Group and Organization Interfaces]: Computer-supported cooperative work

BACKGROUND
Work-oriented, Web-based applications to support groups are being developed and offered to the public at a rapid rate. Our ability to account for these emergent technologies and their connection(s) to traditional CSCW concerns has developed at a slower pace [4]. As has been noted recently [3], CSCW researchers are already challenged by the available models and frameworks to support their work, so it is no surprise that this rapid expansion of new technologies presents yet another set of issues to be addressed.

One of the important challenges for CSCW researchers is accounting for the range of activities that technology users can collectively engage in to accomplish work with publicly available, Web-based application services. Such services, which are often referred to in the popular vernacular as Web 2.0 services, take many forms and are deployed by users to multiple different ends. To date, however, there is yet to emerge an agreed upon rubric of uses to categorize what people do together with such technologies at work. As described below, our research attempts to address this key challenge.

Yet another area in which knowledge needs to be developed is in understanding how widespread the use of such technologies is. In the absence of any authoritative data about usage levels of such technologies, it is impossible to assess how significant this new class of technologies is in supporting the actual, cooperative work of groups. Though our research is too preliminary to provide any definitive findings in this area, it is suggestive of what we and subsequent researchers might expect to find.

THE STUDY
To develop a sense of how people are using the many publicly available, Web-based applications on the Internet now to support cooperative work, our research group developed and conducted a pilot version of a national survey. The survey asked about people's experiences using the Web to support their work activities, focusing on Web--based applications that clearly support conversational, communicative exchanges between people who must work together (i.e., e-mail and instant messaging). Beyond this, the survey then focused on uses of other Web-based applications that facilitate interaction through workspaces in which texts and other digitized objects (e.g., drawings) can be worked on collectively.

The categories of activities presented on the survey were developed and refined through a two-stage process before

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they were tested with a small, preliminary group of survey participants. Initial activity categories were identified by reflection of group participants on their individual experiences with such Web-based services. This list was then refined based on an analysis of the public descriptions of such services published by more than 20 of the most prominent service providers. This list was then tested with six individuals who participated in an alpha version of the survey. The list of activities that emerged for the subsequent pilot study is

- Forming/setting up/maintaining a collaborative environment
- Managing/coordinating work on a collaborative project
- Contributing to the collaborative creation/development of information in a shared environment
- Managing/coordinating my own time
- Analyzing collaboratively shared information such as graphs, schedules, and data tables
- Sharing ideas/expertise in an online community forum
- Constructing/reading/analyzing aggregated information about my own work
- Interacting with my network of professional contacts on non-work-related matters

Survey participants for the pilot version of the study were recruited through two online, work-focused communities of professionals affiliated with technology and related technical matters. During the two four-day time frames that the Web-based survey was available in April, 2008, 176 unique individuals participated. Many of the key results from this pilot offering are shown on our poster. Perhaps most interesting is our finding that these professionals report using publicly available, Web-based services at work for a considerable portion of their day (23%) with their work activities ranging across the spectrum of possibilities about which we inquired. The rank ordering of activities that the pilot survey participants reported using the services for is shown below with its average frequency of use (1=never and 4=very often) indicated after each item.

1. Managing/coordinating my own time (2.46)
2. Contributing to the collaborative creation/development of information in a shared environment (2.41)
3. Sharing ideas/expertise in an online community forum (2.37)
4. Interacting with my network of professional contacts on non-work-related matters (2.35)
5. Constructing/reading/analyzing aggregated information about my own work (2.28)
6. Managing/coordinating work on a collaborative project (2.26)
7. Analyzing collaboratively shared information such as graphs, schedules, and data tables (2.02)
8. Forming/setting up/maintaining a collaborative environment (1.96)

FUTURE DIRECTIONS

Over the next year, our group plans to expand on this preliminary research in three ways. First, some adjustments to our survey instrument will be made, and the survey will then be offered to an expanded population of professionals. Second, the categories of activities that we have described here will be used to code activities observed and recorded through a series of planned work studies. These work studies will allow us to gain a deeper understanding of the actual work practices mediated by such Web-based applications, including such considerations as cross site versus same site work and interdependencies associated with the uses of these technologies (see [1]). Finally, our group is pursuing the development of a dashboard technology that will allow knowledge workers to consolidate and configure data streams from the multiple Web-based applications they use to support their cooperative work. Data from this pilot and the subsequent survey will be used to guide our design work (see related discussion in [2]) on this dashboard technology project.

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