

Promoting Awareness of Work Activities Through Peripheral Displays

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ABSTRACT

The globalization of the workforce, growing prevalence of dynamic project-oriented teams, increasing flexibility in work times and places is beneficial to companies and workers. However, they contribute to the fragmentation of the workforce, reducing awareness of colleagues' activities. These awareness "gaps" result in missed opportunities for collaboration and sharing of relevant knowledge, as well as a diminished sense of community. We have conducted a user study to better understand these gaps in one particular workgroup, and designed a system to promote stronger awareness of workplace activities using peripheral displays.

Keywords

Awareness, community, CSCW, collaboration, peripheral information display, social issues.

INTRODUCTION

Awareness gaps are an increasing problem in many organizations, including the research group at Accenture Technology Labs, which is composed of 50 people in three locations who are engaged in approximately 20 projects at any given time. Lab members are involved in conducting research, publicizing the research, commercializing the results of research and sharing expertise with others. As demands grow for the latter two tasks, with no corresponding reduction in the demand for the first two, members have less time for maintaining awareness of what others are doing. Thus they are in an impoverished position with respect to identifying opportunities for collaboration, routing information requests to appropriate individuals, and taking advantage of the latest skills and experiences of others. In informal conversations with the researchers, we found that most members of the group were familiar only with their own work and that of people who were doing work closely related to their own. Many expressed dissatisfaction with their knowledge of their colleagues' work. This observation led us to conduct a study to find the causes of the communication breakdown, discover what types of information they desire, and design a new approach to providing this information that would reduce these awareness gaps.

USER STUDY AND DESIGN MOTIVATION

We conducted eight semi-structured interviews in which we asked participants for their thoughts on information dissemination in the lab, what types of information were of interest about their coworkers' activities, and what they wanted others to know about their own work.

Limitations of Current Methods

Nearly all participants expressed dissatisfaction with the channels through which they received information. The content of mass emails or electronic newsletters was often irrelevant or not of interest to them, and many objected to receiving email that they felt was unsolicited and distracting. All but one thought that the group's web page provided a good summary of mature or completed research, but not coworkers' *current* activities. They were also unwilling to check the pages regularly for updates.

Despite the complaints, all but one of the participants expressed a need to stay updated on others' work, and were enthusiastic about a tool that would provide information easily and at their own terms. One participant responded that he felt that everyone ought to be able to make an "elevator pitch", a short summary, about the current work of every other person in the office to clients or others outside of the firm, but most people could not.

Most of the researchers were willing to input information about their own work into a system and already had ways of doing so, such as posting articles about their work on their cubicles, seeking out the people whom they thought might be interested and talking to them in person, or sending targeted emails. Each method had flaws: cubicle postings can only be seen by physically collocated people; informal discussions and targeted emails will likely miss others who would be interested. They did, however, demonstrate to us that the researchers already put some degree of effort into disseminating this information voluntarily.

Target Users and Content

We limited our user population to people who are interested in having access to information about coworkers' status and in disseminating information about their own work.

Respondents typically desired information pertaining to milestone events, such as ventures, market offerings or other commercialization, opportunities for research, new projects, conferences, publications, and major meetings with people outside of the firm. In general, they were not interested in receiving information about people's ordinary day-to-day activities or personal interests.

DESIGN GOALS

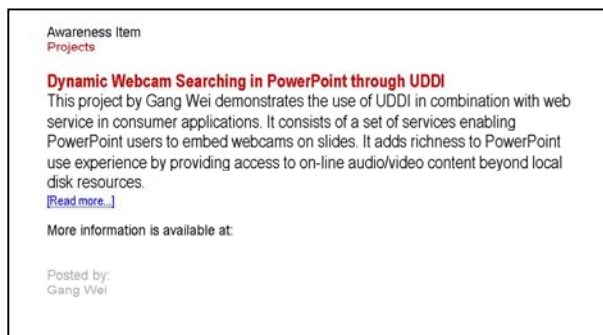
In designing a system to satisfy our users' needs while avoiding the pitfalls of the current methods, we aimed to meet the following requirements:

- Provide simple input interaction, requiring minimal effort on the users' part, comparable to the amount of effort they were already exerting to share information.
- Minimize the amount of distracting or obtrusive information sent to users' personal workspaces.
- Give users some control over what information they receive, and the depth of the information.
- Make information visible in the work environment, thus increasing general awareness, and making information available to everyone.

SYSTEM DESIGN

The Awareness Module is built on top of the Ubiquitous Peripheral Displays framework [2] that supports multiple channels of information shown on displays other than primary workstations. The Awareness Module utilizes a large display located in a public area or the office, and an attached passive badge reader. Users input "awareness items" to the system at their desktop machines using a web-based form accessible from any browser. The form provides fields for a short blurb about an item of interest, an optional longer description and optional uploaded files. A user might go so far as to write up a comprehensive project description, or simply write a sentence or two about it, and attach an existing document, such as a conference paper or newspaper article.

The short blurbs are displayed randomly on the large public display for 15 seconds at a time, providing an experience similar to that of seeing headlines while walking past a newspaper dispenser. An example is shown below:



By selecting the "read more" option, the user sees the long description and documents associated with the awareness item. If the user wants to read it at another time, she can swipe her ID badge at the reader, and receive full text and documents via email. Using this interaction, users receive only the detailed information in which they are interested.

RELATED WORK

Other work has explored the notion of awareness and public displays. The Notification Collage [1] contains items posted by users within a workgroup, but rather than a single item at a time, posted items create a collage; we believe the Awareness Module, by cycling through single items, provides content that is more easily digestible to passersby. The What's Happening screen saver [4] also addresses group awareness,

but does so through a window on the primary workstation, rather than a public display. BlueBoard [3] provides information on a large, public display, but focuses more on explicit interactions for information management than peripheral awareness of group activities.

EARLY RESULTS

We have deployed the Awareness Module prototype in the office, and early feedback has been very positive. In the first three days of deployment, about a dozen items were displayed, on topics ranging from new projects to conference participation. People have thus far been willing to compose descriptions and upload documents for their items. While users have expressed concern that enthusiasm to create items might diminish over time, they also suggested that interest might increase if the system gave an indication if – or, even better, which or how many – people were viewing their items. This feedback might also encourage people to read an item, if they see that it is popular or new.

We had several interesting instances of use of the new tool. Several people noted that they became aware of a new project in the Palo Alto lab through an awareness item; people typically don't learn of projects in other labs until project leads present them in a weekly videoconference, which often does not occur until well a project is much further along. Another item concerned a person who had changed jobs within the firm, which had not been known to most of the other members of the lab prior to its display on the public monitor. Other, unexpected, uses included short-term awareness items, e.g., messages such as "I need to leave early today; if you need me, find me by 3:00" posted by a support person. All of these items might have been circulated via email, but people reported that the delivery via public display was preferable.

FUTURE WORK

We plan to simplify the input process by allowing users to email their awareness items to the system, provide feedback to the authors (and readers) regarding accesses of posted items using hit counters, integrate the output of the system into UniCast (a peripheral display within a person's individual office [2]) for those who would prefer to receive the item on their peripheral desktop display as opposed to via email, and install the system in multiple locations to test its utility in promoting awareness between remote office locations. Finally, we plan to conduct an evaluation to better assess the effectiveness of this approach to the dissemination of awareness information.

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