Exploring the Usefulness of Awareness Widgets in Online Shared Workspaces: a Preliminary Case Study

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ABSTRACT

Users of different online shared workspaces have different activity awareness needs that should be supported by the application. This support could be provided through the use of widgets, which should be easily understandable, easy to use, and provide information expected by users. We conducted a preliminary investigation of the use of awareness widgets in uCern, a shared online workspace in the healthcare industry. In particular, we analyzed which awareness widgets uCern users used most, reasons for their choices, and perceived usefulness of these widgets for workflow management. Data collected through interviews and surveys showed that users chose widgets for general, team, and group awareness; content management; supporting connection among collaborators; and use of utilitarian features. Issues faced by users, implications of the study, as well as directions for future research are suggested.

Keywords

Online shared spaces, social business collaborative systems, awareness, content management, widgets, uCern.

INTRODUCTION

In recent years, a lot of attention has been drawn to the potential application of shared online spaces for knowledge and information management in fields such as business, learning, and leisure (Paroutis & Al Saleh, 2009; Williams, Karousou & Mackness, 2011). These spaces involve multiple users who may generate huge amounts of information during their interactions and activities, which, for individuals, may cause anxiety, poor decision-making, difficulties in memorizing and remembering, and reduced attention span, and, for organizations, to lead less efficiency and poor decision-making (Edmunds & Morris, 2000).

Availability of these amounts of information creates the necessity to organize and manage it according to individual needs. This information organization and management helps users stay aware of the activities and interactions going on around them, those that are of interest to them and those they are involved in.

One way that shared online spaces can support awareness is through the use of widgets. These are software components that can be embedded in an application to allow users to collect and have easier access to information needed. Widgets need to be usable if they are to be useful in raising awareness among people who collaborate and interact on a shared online space. According to Gutwin, Roseman and Greenberg (1996), awareness widgets should be easily understandable, easy to use, provide information expected by users, and present no distraction of users from their tasks.

This research is a preliminary case study of use of awareness widgets on uCern. uCern is a powerful social-networking, collaborative platform, where over 30,000 Cerner Corporation associates, Cerner clients, and industry partners share their thoughts and ideas, make connections with peers across the healthcare industry and gain insights into how Cerner provides solutions for many of the issues facing healthcare today (Cerner Corporation, 2011).

LITERATURE REVIEW

Shared workspaces promote collaboration among people working from different locations, departments, or even companies (Nomura, Hayashi, Hazama, & Gudmundson, 1998). People using shared workspaces are able to collaborate by carrying out joint work on tasks, simplifying communication about shared artifacts, coordinating activity through visual means, and maintaining awareness of others (Dourish & Bellotti, 1992; Gutwin et al., 2008).

To enhance collaboration in shared workspaces, team members need to maintain awareness of each other’s activities, outcomes of those activities, and future activities (Ganoe et al., 2003; Gutwin & Greenberg, 2004). Thus, Wenger et al. (2002) as cited in Carroll et al. (2006) view activity awareness as critical for success of communities of practice and Dourish & Belloti (1992) view activity awareness...
awareness as essential for providing an individual team member with a context for their own activity.

According to Gutwin & Greenberg (2004), people collaborating on a shared workspace want to have information on the changes taking place in this dynamic environment not just for knowledge sake, but in order to accomplish set collaboration objectives. They suggest that shared workspaces should be designed to support workspace awareness “for people to sustain effective team cognition” (p. 1), which leads to better team performance as a result of reduced effort, increased efficiency, and reduction in errors.

Given the importance of maintaining activity awareness among collaborators, it is imperative that shared workspaces be designed in such a way as to support activity awareness. According to Carroll et al. (2006), embedded awareness subsystems should enable collaborators to ‘become aware’ with as little effort as possible, leaving them to concentrate on tasks that directly relate to attainment of collaboration goals.

PURPOSE OF STUDY
The purpose of this preliminary case study was to investigate the usefulness and meaningfulness of awareness widgets on uCern – an application used by Cerner Corporation employees, clients, and associates.

In particular, the research questions were:
1. Which awareness widget options do uCern users choose?
2. Why do uCern users choose certain awareness widget options?
3. What are the perceptions of uCern users on the meaningfulness and usefulness of the awareness widget options they choose?

METHODOLOGY
Participants
Five participants were recruited using convenience sampling and were represented by users who had their uCern interface customized to include awareness widgets. Participants had different job roles, which was aimed to determine if there were any differences and similarities in terms of the awareness widgets preferences.

Procedures
Data was collected through semi-structured interviews and survey questionnaires, which were administered in participants’ natural working environment during 45-60 minutes sessions. All sessions were recorded using Morae 3.2.1 software. Interview questions were aimed at uncovering whether or not and how the use of awareness widgets in uCern helped team members collaborate on projects. Survey questionnaires were used to determine participants’ demographics, duration and frequency of uCern use, job roles, and their ideas about the importance of activity awareness for collaboration.

Results
Demographic Information
Five participants were represented by three men and two women. Among them, two were 20-30 years old and three were 30-40 years old. All five participants had used uCern for more than a year. Three participants used uCern every day while the other two used it several times per week. The sample included two solution designers, one strategist, one project manager, and one software engineer.

During the time of the study, uCern offered 41 awareness widget options that were grouped into four categories (see Figure 1).

Figure 1. Awareness widgets available on uCern.

Content category had 21 widgets linked to popular discussions, recent content, popular blog posts, tasks, and documents; Places category involved projects, groups, and other spaces that a user could belong to; People category provided options such as watching another user, recent activity, and status updates; while Other category provided features for individual user interests such as weather, clock, Google calendar, bookmarks, and RSS subscriptions.

Research Question 1: Choice of Awareness Widgets
The total number of awareness widgets that participants customized their views for during the study was 13 out of the available 41 options: Recent content (4); Popular discussions (3); Your groups (3); Your projects (3); Your bookmarks (2); Status updates (2); Connection activity (2); Weather (2); Popular blog posts (2); Spaces (2); Your content (1); Your places (1); and My Tags (1).

Research Question 2: Reasons for Choosing Widgets
Asked why they chose these widgets, participants gave reasons that could generally be grouped into the following five categories.

General awareness
General awareness was the major reason why users opted to use widgets. Users needed to know what was popular and what was new and expressed the need to remain aware of the context of the online environment in which they worked through the use of recent content, popular discussions, and popular blog posts. Participants were of the opinion that
available awareness widgets were instrumental providing insights on activities within uCern. Popular discussions and popular blog posts were considered to be useful even when their content did not relate directly to the job, group, or project that a user was involved in.

**Team and group awareness**

In addition to general awareness, participants mentioned their desire to remain aware of the activities occurring in the groups and project teams that they belonged to by using widgets such as your groups, your projects, recent content, and popular discussions.

Four out of five participants reported that their work significantly depended on the work of other team members and awareness about activities of other team members was extremely important to them. Participants emphasized the importance of using widgets to help them find content such as conversations, documents, and posts that could assist them in their jobs and would allow them to use the knowledge capital of others in carrying out job related tasks and overall workflow management.

**Content management**

uCern was seen as an extensive application that had a lot of content; therefore, participants considered widgets to be useful for making it easier to access and manage information that was relevant to them. Indeed, customization of widgets was viewed as a convenient way to organize content and to save time when seeking information on the application. Furthermore, the widgets were located in places easy to find on users’ uCern home pages.

Participants seemed to want to avoid the cognitive overhead that might otherwise be required to remember the location of content that was of interest to them. Customizing certain widgets allowed the users to avoid searches since the information they needed would have been filtered by the widgets. In a way, widgets were seen as a navigational aid, enabling users to avoid disorientation. In this regard, it could be argued that users customized their views using widgets to enhance their information search experience on the application, which allowed them to concentrate on more pertinent tasks.

**Supporting connection among collaborators**

Shared online workspaces like uCern may have many groups, teams, and activities. It may, therefore, be difficult for users to identify other individuals that they could collaborate with, or groups of interest. Participants felt that filtering information by use of widgets to view only what was relevant to them increased the probability that a user would find representatives of the same communities of practice, which would allow for more relevant knowledge sharing.

**Utilitarian features matching users’ interest**

Participants indicated that they could choose widgets of high utility regardless of their usefulness for collaboration within the shared workspace. For example, one user considered the weather widget to be ‘cool’.

Interestingly, the choice of awareness widgets by uCern users in some instances contradicted their answers to the survey questionnaire. For example, the participants indicated that the most important activity awareness elements for them were information sharing (5), communication (3), collaboration (3), and coordination (3); however, the widgets they chose were not used or intended to be used primarily for communication or coordination. Interviews revealed that uCern was not used as a medium for communication; instead participants used other means like instant messaging for this purpose. Rather, it was used as a place for information preservation and storage. Three out of five participants viewed coordination as important for teamwork; they did not think it was directly applicable or relevant to their job roles. This mismatch in data stipulates the need for future research with a larger number of participants.

**Research Question 3: Usefulness of Awareness Widgets**

Participants were generally satisfied with the usefulness of widgets for general awareness and efficient access to information on uCern. However, they also expressed concern about some functionality features inherent to the application such as strict security settings, complexity and frequent changes of the application, and a big number of users who generated large amounts of content that was not organized in a structured way.

An important aspect of the awareness widgets usefulness was for content management, in particular, their facilitation of quick access to the required information, which matched participants’ reasons for choosing the widgets. Because users had an opportunity to customize widgets according to their needs and preferences, they could save time when looking for information that was relevant to them and their workflow.

Having widgets was perceived as useful in providing quick access to information and facilitating general awareness; however, not much usefulness was associated with widgets in respect of awareness about project and team activities. This scenario was attributed to the fact that participants in the study were in teams that were co-located. Awareness of team and projects activities was facilitated much more through face-to-face interaction rather than through uCern. Widgets were, however, helpful to users in staying aware of the activities of groups that they were members of.

A number of issues that hindered user satisfaction and full exploitation of affordances of widgets available on uCern were identified. First, due to a large number of users, the amount of information filtered through widgets was still overwhelming, especially if users chose to stay aware of multiple activities or to follow activities of several people at
the same time. Participants felt that the application had a lot of irrelevant information, for example, random conversations that created obstacles for focused collaboration. Secondly, some functionality and usability issues within uCern in general were also viewed as affecting utilization of widgets. For example, one user expressed concern about unexpected re-design of a widget that changed its functionality, thus altering the original purpose for which he had customized the widget. Another user was concerned about restrictive permissions for team members, which significantly hindered the usefulness of the widget and contradicted the primary purpose of its customization.

CONCLUSION

Research demonstrates that awareness is an important component of shared workspaces (Gutwin et al., 1996; Tang, 1991). For uCern users, the most important type of awareness was general awareness, which allowed for information sharing and provided users with the information about the context for their activities and motivated interactions among them.

This study has three implications. First, participants indicated that they preferred to have more control over widget customization to allow for finer filtering of content. We suggest that users of uCern and other business collaborative spaces be given sufficient rights to bypass default security settings and be able to customize widgets to fit their awareness needs. Secondly, before making adjustments to awareness widgets or system functionality features, we propose that system administrators endeavor to put into account user opinion on proposed changes. Lastly, we propose a number of directions for future research that will allow for completion of this preliminary study and obtaining a fuller picture about the use of widgets in uCern and other social business collaborative spaces.

An issue that came up strongly from study participants is that uCern is a complex application and that some of its features such as discussions and posts are organized in a random manner making it difficult for a user to easily get relevant content. Further research is necessary to establish whether or not there are any usability issues that could affect use of awareness widgets on the application.

Although the sample size for this study was small, users differed in their opinion on how important they considered activity awareness to be, and on the activity awareness elements they viewed as most important for teamwork. Further research is necessary to establish whether or not individual characteristics and job roles of collaborators determine the widgets they choose.

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REFERENCES


