

BEACON: A CSCW Tool for Enhancing Co-Located Meetings Through Temporal and Activity Awareness

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INTRODUCTION

Meetings are important to achieve a cooperative goal

49,5% of meetings are rated as poor

- Loose track of context of topics.
- Agendas important role for structure of meetings.

Context-based workplace awareness

- The awareness of the workplace and its activities.
- We explored how the subtypes, temporal awareness and activity awareness of Context-based workplace awareness, affect meeting efficiency and/or effectiveness.



CONCEPTUAL GROUNDING

Computer Supported Cooperative Work

- "the field which aims to understand the nature and characteristics of cooperative work with the objective of designing adequate computer-based technologies" (Schmidt and Bannon, 1992).

Meeting Effectiveness and Efficiency

- Garcia et al. (2003)
 - Time wasted (low efficiency) or lasting longer than expected (low effectiveness).
- Nixon and Littlepage (1992): Important effectiveness-related processes
 - Open communication, focus on tasks, exploration of options, analysis of decision consequences, temporal integrity, and agenda integrity might be important effectiveness-related processes.
 - Specific aspects for efficient meetings: Discussion of options before final decisions, agendas followed with well defined and clear goals, and being prepared for the meetings with access to relevant information such as agendas.
- Davison (1997) method for measurement of efficient meetings
 - Emphasis on, e.g., communication, discussion quality and how result-oriented and time-efficient the meeting was.

CONCEPTUAL GROUNDING

Context-Based Workplace Awareness (Bardram and Hansen, 2010)

- Defined the term as «establishing an awareness of the workplace and the activities occurring within it, regardless of distance in space and time”.
- Includes Temporal Awareness and Activity Awareness, among other types of awareness.

Temporal Awareness

- Defined as an awareness of the progress of activities over time in terms of past, present, and future.
- The importance of schedules for coordination.
 - Meeting Agendas.

Activity Awareness

- Defined as an awareness of specific activities and their surrounding context, irrespective of who is performing them.
 - Time limits/deadlines as methods of enhancing Activity Awareness.

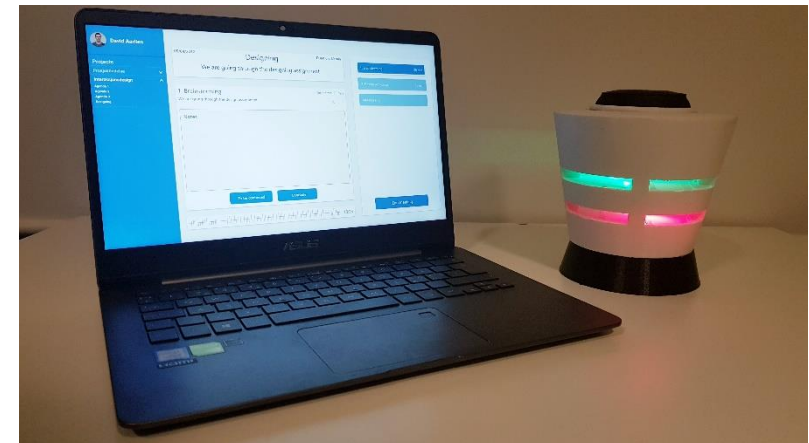
METHODS

Informing and visioning

- Collection of data from observation of group meetings by students and individual interviews with two students and one expert separate from the group observation.
- Findings: lack of consistent flow, no documentation of decisions made, more active members when the group utilized a common platform to collaborate on.

Prototype

- The prototype consist a combination of two components, a dashboard interface, and a tangible artifact.
- **Dashboard interface:** Includes the creation of agenda, a presentation of it's structure and ability to write notes for each of the agenda topics.
- **Tangible artifact:** Two light sources ranging from green, yellow, red based on time used in the meeting. Light source on top represent the time spent on the meeting, while the bottom represent the ongoing time for the current topic. On top is a built in speaker for audible notifications.



METHODS

Evaluation

- A controlled setting involving users (A small group of 6 people)
- Task enactment
 - The participants were given instructions for how the prototype worked, and given tasks to complete with the prototype.
- Observing users' reaction:
 - Throughout the experiment, the research members took notes of how the participants reacted and used the prototype.
- User satisfaction structured interview:
 - Interview with 9 open-ended questions for each of the participants to answer.
 - Questions related to temporal- and activity awareness regarding their experience with the prototype.

FINDINGS AND DISCUSSION

Related to the Dashboard Interface:

- Agenda
 - Positive for forming ideas/opinions and staying on track in the meeting (effectiveness and efficiency).
- Noting tool
 - Used by the group to systematically reach a consensus on decisions (effectiveness).
- Meeting Review
 - Used by the group to summarise the meeting and ensure that everything had been discussed (effectiveness).

Related to the Artifact:

- Colors of the Artifact
 - Expressed by the participants to make the discussions more focused on reaching decisions within the time limits (effectiveness and efficiency).
 - Observed to dictate the pace of the discussions (efficiency).
 - Green: Relaxed.
 - Yellow: Focused.
 - Red: Stressed.
- Sound Notifications
 - Largely overlooked by the participants.

CONCLUSION AND FUTURE WORK

- Results indicated positive effects on decision making in group meetings when temporal and activity awareness were enhanced
 - A central focus for increasing the awareness of the meeting structure was the agenda.
 - The most impactful observation for the awareness of discussion was the use of the noting tool.
 - The status-based artifact seemed to be dictating the pace of the meeting.
- While the findings of the study seem promising, the prototype was only tested in one meeting
 - In order to gain more insight into its true effects on group meeting efficiency and effectiveness, the prototype would have to be tested in several meetings of different settings, as well as with different participants.
 - Such as organizational meeting settings.