
Collocated Interaction: Supported Networking for Collaboration



Figure 1. A meeting with facilitated networking. Attendees were tasked with identifying a meeting group other than their own that they were interested in, seeking out someone from that group and discussing overlap in ideas. Attendees noted connections on networking record cards.



Figure 2. Prior to the networking session, here a group raconteur gives an elevator pitch presentation about that group's area. During presentations attendees were deciding which group outside their own interested them.

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Abstract

Academic networking is usually a "same time, same place" activity and its role in forming effective collaborations makes it a prime candidate for enhancement by collocated interaction technology. Our work on research strategy generation has involved us in facilitating many meetings of academic and industry leaders. We have developed successful meeting tools for including attendees in the creation of meeting agendas through remote idea submission and grouping before meetings. We have recently built upon this work by adding structured networking sessions to the meetings. A new prototype tool allows the sessions to be visualized as attendees report their networking conversations. The visualization, when projected during a meeting, can motivate further networking through group awareness and provides an interactive record of the event.

Author Keywords

Interdisciplinary Collaboration; Group Awareness; Visualization; Meeting Tools; Facilitation.

ACM Classification Keywords

H.5.m. Information interfaces and presentation: Miscellaneous.



Figure 3. Example of a meeting group structure with one of the groups enlarged.

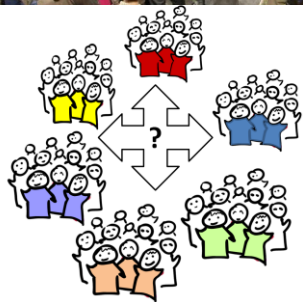


Figure 4. During networking (Top) attendees find and discuss cross-group connections (Bottom).

Introduction

In this workshop position paper we explain our interest in collocated interaction by describing our recent work on research strategy generation through computer supported meeting facilitation. The narrative of that work culminates in our current project on motivating and recording effective networking through facilitation and visualization of networking sessions. We think that one fruitful direction for our work may be in the incorporation of ubiquitous computing, perhaps including wearables or interactive table-top or wall projection, into the networking sessions that we facilitate. We have reached a point in our work where we find we need to adopt new practical methods and research methodology. We bring with us experience in building trust at meetings through the use of technology and hope to connect with potential collaborators in collocated interaction. We hope that sharing our experience and finding out about that of others' will contribute to progress.

In the rest of this paper we first provide the context of our interest in collocated interaction by describing our work in meeting and networking facilitation. We go on to discuss possible future directions our work may take and how research methods for studying collocated interaction could be applied to the challenges faced in charting and measuring the impact of new work.

Design Ethos

We have developed two tools and associated methods for facilitating innovation and research strategy development. *Well Sorted* is an in-browser application that uses remote card-sorting to enable attendees to both generate and democratically structure ideation spaces [6]. It is most commonly used immediately prior

to meetings to structure meeting activities, and has been used by five national research directorates and over thirty universities to date. The second tool, *Well-Connected* [8], is an in-meeting tool that exploits the structured ideation space produced by *Well Sorted*. Whereas *Well Sorted* is designed to allow rapid formation of, and focused exploration within breakout groups, *Well Connected* has been designed to facilitate the formation and convenient recording of cross-group ideation and discussion.

What we have repeatedly observed in the use of *Well Sorted* is that its open and democratic nature produces a remarkable change in the social dynamic of the meeting, producing a highly collegiate rather than competitive ethos. We were therefore motivated to design a tool for stimulating cross-group connections that exploits similar principles, i.e. that is seen to provide both equal opportunity and easily understandable visual feedback.

Design and Method

In this section we first describe how the structure generated by the attendees pre-meeting is used to form collegiate groups at meetings. Then we describe how we developed *Well-Connected*, a method and assistive technology that promotes, visualizes and records cross-group connections at these meetings. *Well-Connected* makes use of the meeting group and ideas structure to provide a context for the networking.

Use of the remote card-sorting tool for meeting organization produces groups of ideas with which meeting attendees can identify. When attendees arrive at a meeting they have already been involved in providing and grouping the meeting ideas. Posters

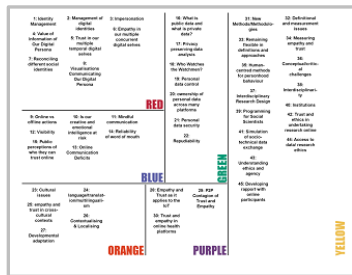


Figure 5. Poster showing groups of meeting ideas. Meeting attendees select a group on arrival at the meeting.

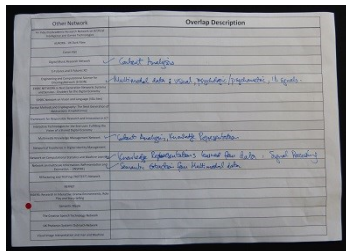


Figure 6. One attendee's networking record detailing five conversations from the meeting in which the paper prototype (c.f. Figure 7) was piloted. The attendee identified with one idea and marked it with a colored dot. For each conversation the attendee noted a short description of the overlap between their idea and another.

showing the meeting's group structures allow easy selection of a group with which an attendee can identify (Figures 3 and 5). Early in the meeting attendees form breakout groups based on the structure and get down to discussing and developing the ideas of their group. A group raconteur presents a summary of their discussion to a plenary session (Figure 2).

Traditionally an important component of academic meetings is the networking which occurs. Networking is an important activity from the point of view of research funding bodies as it can lead to collaboration and better research [5]. Naturally, meetings organized using the Well Sorted tools also included networking activities. Initially, aside from the within-group ties that would result from group discussions these networking activities were informal and unstructured. However, we decided to stimulate the formation of cross-group connections through facilitated networking based simply on tasking attendees with identifying a group outside their own whose ideas interested them (based on group presentations in plenary) and then seeking out a member of their target group (identified by badges) (Figure 1). This worked well and was taken further with a paper prototype at a meeting with several rounds of time limited inter-group networking. We asked attendees to keep a note of their conversation topics aided by a form printed with the meeting structure (Figure 6). Facilitators then collected the forms and collated the information onto a pen and paper chart based on the meeting structure (Figure 7). This paper visualization (A0 in size) was shared in plenary at the meeting and stimulated discussion of the interconnectedness of the meeting ideas.

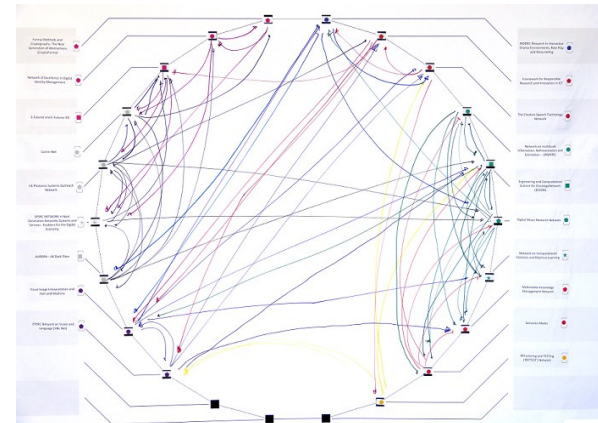


Figure 7: A networking visualization collated on paper from networking record forms. The meeting ideas are arranged in meeting structure order around a circle. Lines represent conversations between attendees identifying with particular ideas. Due to the methods used to generate the structure (from attendees card sorting), ideas more similar to each other tend to be adjacent in the order and those dissimilar are further apart. Thus connections which reach across the chart stand out as connections between quite separate ideas.

To further support the networking sessions a software prototype visualization tool was built which allowed attendees and facilitators to enter networking connections and have these build up during successive rounds of the time-limited networking conversations (Figures 8-10). Initial feedback indicated that combining structured networking tasks and the visualizations had initiated more purposeful networking in comparison to traditional unstructured sessions. During the first deployment of the prototype, despite our suggestion that we only expected attendees to include their first names on the networking record, many chose to attach their full name when entering the data. From our initial feedback we believe that

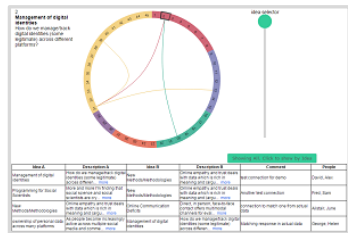


Figure 8. The connections visualization fills up during the meeting. The full record forms part of the meeting documentation post-meeting.

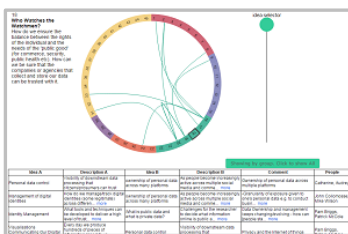
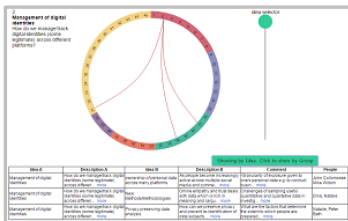


Figure 10. Interactivity allows connections to be viewed a) by individual idea (**Top**) b) by group (**Bottom**) as well as in overview (Figure 9). Tabulated connection details below the graph change dynamically with the view.

attributing the networking conversations by attaching the names of those involved is seen as both useful and rewarding by attendees.

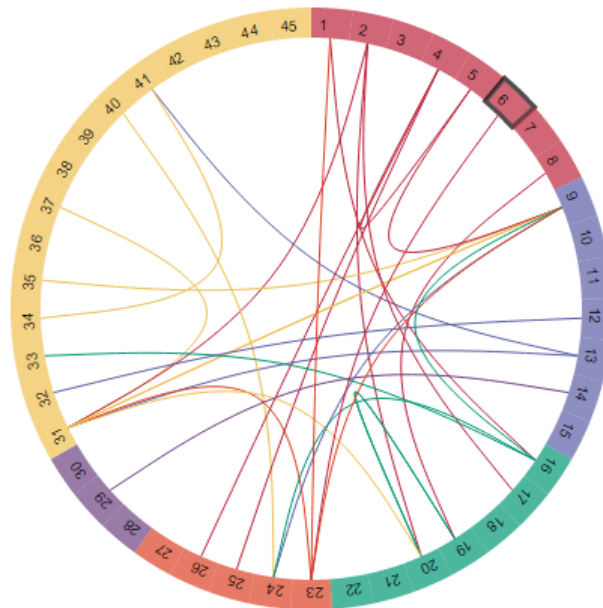


Figure 9: Prototype networking visualization. The numbers link to meetings ideas. Each line represents a conversation. The attendees involved each identified with one of the meeting ideas. A conversation connects two ideas and has attached the names of the interlocutors and a comment summarizing what they talked about.

In addition to aiding facilitation during meetings, the tools help in documentation after meetings. The meeting ideas, structure, records of the group presentations and networking produce a useful record with little effort following a meeting (for example [4]). This adds to trust in the meeting process and outputs

as transparency lets attendees see that their ideas, input and activity are part of the record and that their contributions have not been overlooked.

Future Possibilities

Application of Collocated Interaction Technologies

We hope to explore alternative ways of capturing the networking activity. At the moment we use fairly conventional methods, asking attendees to enter the details of their networking onto a paper card then either asking a facilitator to enter this into the visualization, or for attendees to do so themselves using any web enabled device. We have started this way as it keeps the attendees in full control of the information. However, less obtrusive ways of gathering this information would be desirable. Wearables or perhaps other sensing technologies could be part of alternative solutions [1]. Another solution might be to enable networking attendees to enter the connection representing their conversation directly onto projections of the visualization perhaps on a wall or on a table/surface [2].

Research Methods

While we are confident our meeting tools and facilitation practices are effective, investigating exactly why and how these practices work without intruding on and spoiling real meetings by the act of observation is a challenge for us. The group dynamics of attendees both remotely, pre-meeting, and particularly when collocated in-meeting, need to be understood to allow us to build on our successful meeting formats and to disseminate our practice. To date we have used questionnaires and post-event stimulated recall interviews in our research. However there is interesting behavior which is not captured by these methods. It is

not possible to simulate these meetings because attendees are stakeholders in their agendas and ideas and often have much to gain from successful networking. Therefore we need to explore in-the-wild methods for our research [3, 7]. We hope to meet with and share experiences and viewpoints about these issues with others at the workshop.

Conclusion

Our interest in collocated interaction stems from our experience in facilitating research strategy meetings and networking events. Our facilitation practices make use of computer supported cooperative working for pre-meeting agenda structuring and network session visualization. Our design ethos uses near real-time networking displays to increase the credibility among attendees that their activities will be attributed, recognized and used after the meetings. We hope to meet with other researchers in the field to share experiences of practice and research methods.

Acknowledgements

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