

User-Centered Design of the Magic Lounge

Masood Masoodian, Niels Ole Bernsen

Natural Interactive Systems Group, Odense University

Science Park, DK-5230 Odense M, Denmark

masood@mip.ou.dk, nob@mip.ou.dk

Abstract

This position paper describes some of the lessons learned from User-Centered Design of a computer-based virtual meeting environment, called Magic Lounge. Magic Lounge is a virtual environment in which ordinary people can meet to communicate with one another, or work collaboratively on professional and non-professional group tasks. The majority of the intended users of the Magic Lounge will be non-expert computer users, who will require an intuitive and easy-to-learn software interface. The user group involved in the development process consists of inhabitants of small Danish isles.

1. Introduction

Magic Lounge (<http://www.dfki.de/imedia/mlounge/>) is one of thirteen Esprit Long-Term Research projects funded as part of the European Intelligent Information Interfaces (i³) initiative. The aim of the Magic Lounge project is to design and implement a virtual meeting environment which provides the necessary tools for communication and interaction needs of geographically separated individuals who want to get acquainted or collaborate with one another. Magic Lounge will be offering services

such as: intelligent multi-party communication management allowing recording and retrieving of communication history in a multi-media fashion, speech-operated information retrieval for embedding third-party information services, content-based media conversion techniques, such as speech-to-text, text-to-speech, and analogue graphics-to-text, coping with heterogeneous communication devices (PC, PDA and telephone), and speech and gesture-based interrogation and navigation of information spaces.

Magic Lounge will be used by people who may just want to chat or make new acquaintances. However, they may also want to carry out goal-directed group activities which may be fully virtual or combine physical meetings and virtual meetings. These activities may be hobby-related or work-related, involving tasks such as visiting and searching other information spaces (WWW, local databases), planning, joint problem solving and so on.

The intended users of the Magic Lounge are ordinary people who are distributed geographically. In particular, the Magic Lounge development process focuses on the inhabitants of the smaller Danish isles. At this stage, eight of these islanders have volunteered to participate in the iterative design and testing process of the Magic Lounge software. These initial users of the Magic Lounge have different professional backgrounds but share an interest in the use of computer technology for creating novel means of interaction between the general populations in the remote islands, as well as connecting these to the outside world.

2. User involvement

User involvement is an integral part of the Magic Lounge research. The users are involved with the process of iterative design, development, and testing of the Magic Lounge. This process began at the first Magic Lounge project meeting in which some of the users were present. Since then, the users have received and responded to a design questionnaire, the results of which have been integrated into

the design of the first Magic Lounge software prototype. The users have also been visited and interviewed individually by a socio-anthropologist. These interviews were all videotaped, and some parts of them are currently being put together to create a video presentation of the users' vision of the Magic Lounge. At the time of writing, the first Magic Lounge prototype is being installed in the users' homes.

The rest of this position paper describes the process of user involvement in more detail, so that some of the practical problems associated with user-centered design can be identified. It should be noted that Magic Lounge is also a research project. Therefore some of the issues discussed here are also relevant to those who are interested in involving general user populations in scientific research projects with the aim of developing software products.

3. Issues

As with any other user-centered design and development project, one of the main concerns of the Magic Lounge project has been the selection of the "right" user population. Although Magic Lounge is being developed for use by the inhabitants of the smaller Danish isles, this does not mean, of course, that other potential user groups should be ignored. The important thing is to identify the specific needs of the intended user community, and then compare these against the requirements of other communities to see whether any of the needs are specific to the intended group. If focusing on the specific needs of the intended user community forces the Magic Lounge to become less useful for other user groups, then a decision has to be made regarding whether those needs should be supported or not.

So far the design of the Magic Lounge, to a large extent, has been shaped by the suggestions of the Danish isles user group. The users' design ideas were collected using a questionnaire consisting of 24 questions. In this questionnaire the users were asked to identify their needs by describing a use

case scenario and answering the questions of the questionnaire in relation to their selected scenario. This method of gathering user ideas was very constructive and allowed a wealth of information to be collected. No initial use cases were given to the users, so that their ideas would not be influenced by the preconceived design ideas of the Magic Lounge research and development team.

However, the use of this method for gathering user ideas is limited by the type of the selected user group. Different users have their own characteristics and requirements. When a product is going to be used within a particular type of organisation or environment then the targeted user group can be identified to some extent. It is however, much more difficult to choose a suitable user group when a software product is intended to be used by the general population rather than a selected group within an organisation. This is an important issue which Magic Lounge research team is constantly dealing with.

Another type of problem which projects such as Magic Lounge have to address, is that even when a user group has been identified, it is not always easy to select the representative sample users. The sample users of the Magic Lounge have all volunteered to participate in the project, and so they all have some motivation and enthusiasm. But they are also very different in terms of their computer skills, their needs, and their overall vision of an ideal virtual collaborative work environment. These differences in their characteristics influence their vision of a useful system. For instance, those user group members who are advanced computer users want the Magic Lounge to include “everything” without worrying too much about the way the components of such system are presented or associated with one another. The less advanced users, on the other hand, want only a few functionalities, without having a vision for what else is possible.

In user-centered design, the type of end product that is being created can also be affected by the personalities of the selected users. For instance, there is a big difference between the requirements of

people who are introverts and those who are extroverts. In environments such as the Magic Lounge certain users want to be able to interact with the others, while some are only interested in receiving information without contributing much themselves. Tailoring the system to the needs of both of these user groups may not always be possible.

Even when the targeted users have been identified and their design ideas collected, it is not always that easy to convince the development team that those ideas are useful, or that they can be implemented using a particular technology. This is even more challenging when user-centered design concepts are being applied to a scientific research project in which new research ideas have to be tested even if the users aren't really interested in using them. Research ideas can in fact sometimes be against the ideas of the users, and if they are implemented they can create a negative attitude in the users who were against them.

A final factor that plays an important role in the effectiveness of the user-centered design process when applied to general product development, is the degree to which the members of the sample user group are committed to the project. Unlike the case of product development for an organisation in which users are paid to work, in general product development the users are not usually paid for their services. For instance, in the Magic Lounge project all of the users are professional people who work full time. The free time which they can devote to the project is therefore limited. Some of the users are prepared to spend a large portion of their free time on the Magic Lounge, whereas the others are less committed. This means that certain users like to be involved in all the aspects of design, development, and testing, whereas some of the others want to be involved in only some parts of the process. People who are more committed are also more likely to feel happy about using and testing a prototype that is not perfect. They are also less likely to ask for support for installing and testing prototypes. People with less time or skills, on the other hand, are more likely to require support, and they are generally less likely to use prototypes that have bugs.

4. Conclusions

The paper has pointed out to some of challenges that have been identified during the early stages of the user-centered design of the Magic Lounge. Identifying the practical problems that are associated with user-centered design does not mean that this type of design is not useful, or that it is too difficult to put into practice. However it implies that, if possible, measures should be taken to avoid such problems. User-centered design has also many positive aspects when compared to other design methodologies. The authors hope that both the negative and the positive aspects of user-centered design will be discussed during the workshop.

Authors

Masood Masoodian is currently working as an assistant professor at the Natural Interactive Systems Group, Odense University, Denmark. He has a PhD in the area of CSCW from the University of Waikato, New Zealand. Over the past few years, Masood has been working on design and development of collaborative work environments. He has also carried out many empirical studies of human-to-human communication in computer supported collaborative work environments.

Niels Ole Bernsen is professor, dr.phil., and head of the Natural Interactive Systems Group, Odense University, Denmark. His work focuses on the development of prototypes, theory, development support tools, evaluation metrics, and standards for next-generation natural interactive systems, such as advanced spoken language dialogue systems, web-based meeting environments, web-based corpus annotation systems, wearable systems, etc. He is the originator of a theory, Modality Theory, for the understanding of unimodal and multimodal interaction.