Magic Lounge

i3 Project No. 25458

Deliverable: Magic Lounge Final User Evaluation

Deliverable No.: Type of Deliverable: Status: Date of Delivery: Reporting Period: Responsible Partner: Contributing Partner(s): Authors: D6-Y3 Report Draft 25.8.2000 June-August 2000 NISLab NISLab Bernsen, N. O., Dybkjær, L. and Luz, S.

Magic Lounge Project Partners

DFKI German Research Center for Artificial Intelligence GmbH;

NISLab, Natural Interactive Systems Laboratory, University of Southern Denmark, Odense, Denmark;

LIMSI, Laboratoire d'Informatique pour la Mécanique et les Sciences de l'Ingénieur of the CNRS (French National Agency for Scientific Research), Paris, France;

Siemens AG, München, Germany;

The Danish Isles - User Community (Subcontractor), Denmark

Gradient - Université de Compiègne (Subcontractor), France

Contents

Contents	
Executive Summary	
1. Introduction	
1.1 Objective of the user tests	5
1.2 Test conditions	
2. Overview of the Final Magic Lounge System	
2.1 Communication tools	9
2.1.1 The audio tool and meeting browser	9
2.1.2 The message composer	9
2.2 Memory Access	
2.2.1 The message viewer	
2.2.2 The topic viewer	
2.2.3 The tree inspector	
2.3 Other functionality	
3. Evaluation by Magic Lounge Developers at NISLab	
3.1 Introduction to the Magic Lounge System	
3.2 Trial Session 1: Evaluating the Magic Lounge Software	
3.2.1 Observations from the chat log	
3.2.2 Observations from the audio track	
3.3 Trial Session 2: Website Review Task	
3.3.1 Observations from the chat log	
3.3.2 Observations from the audio track	
3.4 Conclusion	
4. Evaluation by NISLab Staff	
4.1 Introduction to the Magic Lounge System	
4.2 Trial Session: The Party Task	
4.2.1 Observations from the chat log	
4.2.2 Observations from the audio track	
4.2.3 Observations from the video	
4.3 Analysis	
5. Evaluation by Users from the Danish Isles	
5.1 Introduction to the Magic Lounge System	
5.2 User Trial Session 1: Web Browsing Task	
5.2.1 Observations from the chat log	
5.2.2 Observations from the audio track	
5.2.3 Observations from the video	
5.2.4 Analysis	

5.3 User Trial Session 2: Evaluation Task	41
5.3.1 Observations from the chat log	41
5.3.2 Observations from the audio track	
5.3.3 Observations from the video	
5.3.4 Analysis	
5.4 Observations from the Debriefing (both Tasks)	49
5.5 Conclusion	49
6. Discussion of Findings	51
6.1 Technical quality	51
6.2 Observed usability and functionality problems	52
6.3 User satisfaction	55
6.4 The Magic Lounge toolbox	55
6.5 The Magic Lounge manual	56
6.6 Meeting structure	56
6.7 Use of audio vs. use of chat for different tasks	57
7. Conclusion	60
References	61
Appendix 1. Scenarios	62
Scenario to solve in the Magic Lounge user test 23.6.2000	62
Scenario to solve in the Magic Lounge user test 7.7.2000	62
Scenario to solve in the Magic Lounge user test 28.7.2000	62
Scenario 1	62
Scenario 2: Questionnaire	62
Appendix 2. Text Log Files from the User Trials	64
Appendix 2.1. Developers' Tests, Trial Session 1: Discussing the Magic Lounge	Software 64
Appendix 2.2. Developers' Tests, Trial Session 2: Website Review Task	67
Appendix 2.3. Secretaries' Test, Trial Session 1: The Party Task	
Appendix 2.4. Islanders' Test, Trial Session 1: Web Browsing Task	
Appendix 2.5. Islanders' Test, Trial Session 2: Evaluation Task	
Appendix 3. Audio profiles from the evaluation sessions	
Task 1: NIS (ML Evaluation)	
Task 2: NIS Web pages	89
Task 3: NIS Admininstrative (party planning)	
Task 4: Danish Isles (summer house)	
Task 5: Danish Isles (Magic Lounge evaluation)	

Executive Summary

This report describes a series of five user tests of the Magic Lounge which were carried out at NISLab in the summer of 2000. The trial sessions involve three different user populations in terms of computer literacy, gender and familiarity with the Magic Lounge software. The trial sessions also address different tasks, ranging from web design and web browsing tasks to event planning and Magic Lounge assessments using different methodologies. The introductory chapter which presents the methodologies adopted in the trials is followed by an introduction to the recent Magic Lounge version which was used throughout. Then follows three chapters on the trials with the three user populations, describing the proceedings of the trials and analysing the observations made on the comprehensive text, audio and video logs and records collected during the trials. Chapter 6 reviews and discusses the observations made and the conclusions reached on a series of major issues in Magic Lounge evaluation, including the technical quality of the software, the usability problems encountered during the trials, user satisfaction with the system, and draft contributions to the theory of using combined audio and chat for virtual meetings. The final chapter highlights some of the key findings made and lists a series of topics of investigation which we would like to pursue in future work, partly using the rich data collected during the trials reported and partly using new data to be collected in future Magic Lounge sessions. The appendixes present the scenarios including the questionnaire used in the trials, the complete chat records of the trial sessions, and audio history profiles of the trial sessions.

1. Introduction

This report describes the user tests of the final version of Magic Lounge which were carried out in the summer of 2000. The user tests involved three different groups of users, as follows. The first test involved Magic Lounge developers (Chapter 3), the second involved NISLab administrative staff (Chapter 4), and the third test involved the Magic Lounge user group from the Danish Isles (Chapter 5). Before presenting the gathered data and its analysis, this introduction presents the methodologies and setups used in the user trials followed by an introduction to the version of Magic Lounge which formed the subject of evaluation throughout (Chapter 2). Chapter 6 presents a generalised view of the findings made from analysing the trial sessions. Chapter 7 concludes by highlighting some key findings and listing issues to be addressed in future work. The appendixes present the scenarios and the questionnaire used in the trials, the complete chat records of the trial sessions, and audio history profiles of the trial sessions.

1.1 Objective of the user tests

The objective of the user tests were to evaluate the Magic Lounge system with respect to the following parameters:

technical quality;

observed usability and functionality problems;

user satisfaction;

the Magic Lounge toolbox;

the Magic Lounge manual;

meeting structure;

use of audio vs. use of chat for different tasks.

Given the comprehensive data collected during the trials, the complexity of the interaction in Magic Lounge, and the scientific interest in looking into the data from many different viewpoints, it is clear that the above parameters are only a subset of the perspectives from which the data could usefully be analysed. In Chapter 7, we list a number of additional perspectives on the data which we would like to adopt but which we have not yet had the opportunity to look into.

1.2 Test conditions

All tests were carried out at NISLab. All tests involved a setup in which all users used workstations or similarly equipped portables, thus making available the full functionality of the Magic Lounge (cf. Chapter 2). PDAs or WAP phones were not used.

Carrying out the tests at NISLab, obviously, was natural for the developers (1st test) and the NISLab staff (2nd test) even if not all of the NISLab users did the tests at their own machines, primarily because some of these users do their daily work on MacIntoshes which cannot as yet run the Magic Lounge software. This shift from MacIntoshes to PCs caused a couple of user problems which, however, will not be further discussed in this report as they are not relevant to judging the Magic Lounge as such. Carrying out the tests at NISLab, however, was less natural for our external user group, the islanders, who, on the other hand, had used different versions of the Magic Lounge software on many earlier occasions and therefore had considerable familiarity with the system from the start of the trials to be reported below. The

reason why the islanders could not do the test from their homes is that we have not succeeded in establishing acceptable Internet audio connections with the Danish isles. The story of our failed attempts to enable the islanders to establish audio connections with the NISLab server from their homes is a saga, excerpts from which follow.

The fact that the audio component of Magic Lounge is based on IP multicast and the MBone posed a problem to *in situ* testing of speech-enabled meetings among our external user group. The Danish Isles User Group accesses the Internet (and the Magic Lounge server) through dial-up connections supplied by Danish commercial ISPs. Unfortunately, none of these ISPs currently provides either multicast or MBone connectivity. Several alternatives have been pursued in the attempt to provide multicast audio to this user group. Two major Internet Service Providers and UNI-C, the managing node of Denmark's academic MBone, have been contacted. Although both providers assured us that they would be providing IP multicast capabilities in the near future, neither was able to give us a precise date or commit themselves to running pilot tests with our users. UNI-C was unable to provide multicast connectivity over a dial-up connection. In addition to contacting third-party providers, we have tried to supply the Danish Isles User Group with multicast audio by setting up a dial-in service at the NIS Laboratory. This approach has not succeeded so far due to technical limitations of the remote access service. Tunnelling and reflector techniques for uni-multicast connectivity over serial lines have also been tested. However, the available software proved incapable of delivering acceptable audio quality – the delays were simply too long to allow any real communication to take place.

In the face of these – so far - interminable difficulties, we extended our user group to local university employees placed in environments with reasonably fast and multicast-enabled network connections, and organised a series of user workshops for the Danish Isles User Group at NISLab, the latest of which is reported below. Extension of the Magic Lounge user group was also proposed by reviewers of the project at the 1999 review. In particular, the reviewers wished that female users became involved in addition to the all-male islanders group. This has now been done.

The evaluation setups included, in various combinations, all or most of the following components:

An introduction to the system was provided at the start of all three trial sessions.

The *audio tracks* of all meetings were recorded using the RTP recording component (Magic Lounge Deliverable D8-Y3). A total of about 5 hours of audio gathered during the meetings was then converted to a standard audio format and written onto a CD-ROM in order to facilitate data analysis and make the data more generally available. Part of the analysis was performed directly on RTP, which enabled us to play back the whole session and observe the patterns of audio exchange in the Meeting Browser [3].

The *logging of text* contents was done directly in the Magic Lounge memory. A total of 205 messages (5780 words) was stored over 5 meetings (see Appendix 2).

Two of the three user trials (with NISLab staff and the islanders, respectively) were recorded on *video*, as follows. During each of those two trials, an assistant graduate student of Interactive Media, Mia Casparij, recorded each user's behaviour using a professional analogue video camera. Having recorded from a fixed perspective approx. one third of a particular trial at one of the users' workstations, she moved on to record the next user located in a different office, etc. The video recordings clearly show the user's face, hands and posture, the screen in front of the user, the user's own audio contributions and in some cases all the audio contributions made in the trial session during the recording of that user. The latter happened when the user was not using a headset but a desktop microphone and desktop loudspeakers. At each of the two recorded trials, approx. one hour of video was recorded. The video data was later streamed and put on two CD-ROMs, one per trial, each comprising 3-400 Mbs of data, in order to facilitate data analysis and make the data more generally available.

Number of scenarios per test: the developers' test included two scenarios, i.e. an on-line evaluation of the Magic Lounge and a website review task. The NISLab administrative staff test included one scenario specifying a party organising task. The islanders' test included two scenarios, a web browsing task and a questionnaire-based Magic Lounge evaluation task. Thus, two tasks done by two different user groups (islanders and developers, respectively) involved joint web browsing throughout, something which, on the one hand, is an obvious undertaking for people gathered in the Magic Lounge, and, on the other, posed potential "screen real estate" problems for users because the Magic Lounge itself includes a series of different screens for use during meetings. Two tasks dealt directly with Magic Lounge evaluation. Both were done by users who were already familiar with the software but who had otherwise rather different educational and professional backgrounds. The islanders had amongst them a banker, an educator and consultant, and a garbage collector who is not in IT training. Two of the developers have participated in the Magic Lounge project from its beginning, and one developer has worked on the project for two years. Finally, the user group the least familiar with Magic Lounge, the NISLab administrative staff, was given a task which did not require use of the web in addition to the Magic Lounge, but simply asked them to carry out an event-planning process.

User skills: the developers were skilled users of computer systems and of previous versions of the Magic Lounge but two of them were less familiar with the current (most recent) system release. The NISLab administrative staff were standard office computer users and generally novice users of the Magic Lounge although one of the secretaries had tried a much earlier version of the system. The islanders were computer literates familiar with earlier versions of the Magic Lounge.

User gender: the participants were one female and two male developers, two female and one male NISLab administrative staff, three male islanders, i.e. a total of three female and six male users.

Language: the developers' trial was conducted in English. The NISLab administrative staff and islanders' trials were conducted in the Danish. In the analysis of the data in Chapters 3, 4 and 5 below, we have included summaries of all chat and audio trial records, which may be particularly useful for non-Danish speaking readers in the case of the user trials conducted in the Danish. These readers are likely to find the Danish chat records attached to this report less helpful.

Assistants: the three NISLab developers were on standby as assistants to the users during the trials involving NISLab administrative staff and islanders. Users could call on a developer at any time when facing difficulties which could not be resolved by simply asking their fellow users in the trial. The assistants were called upon to help on a number of occasions.

Data availability: the text data collected during the trials is shown *in extenso* in Appendix 2. For access to the three CD-ROMs containing the audio and video data from the trials, please contact the authors of the present report. To assist Magic Lounge commercialisation, we are presently streaming our Magic Lounge video which presents the vision behind the system. To the same end, we are producing a short version of the video from the islanders' trial session because this data appear particularly apt to generate a quick impression of the actual operation of the software. Both of these streamed videos will be made available on NISLab's web pages shortly (http://www.nis.sdu.dk).

2. Overview of the Final Magic Lounge System

The Magic Lounge consists of modules which enable users to exchange labelled textual messages, communicate via synchronous multi-party audio, and review previous and ongoing meetings through a structured memory. The functionality available varies according to the device on which the system is running. The desktop version of the system, running on a PC with a standard full-duplex audio card enables all the above functionality. A PDA or a WAP phone will enable only textual messages and (limited) access to the memory. The user evaluation sessions described below assume a setup where the full functionality of the Magic Lounge is enabled.

The memory and log facilities of the Magic Lounge are server-based. In order to join a section, users need to start the client and log on to the server. Although test servers have been running regularly at LIMSI, DFKI and NISLab, users were asked to always choose the NISLab server. Users are asked to choose a password the first time they log in. Once a user is registered with a server, a toolbox pops up which allows the user to choose among a number of tools. The Magic Lounge Toolbox is shown in Figure 1.



Figure 1. The Magic Lounge Toolbox and Login Screen.

The toolbox contains audio and text communication tools, memory access tools and a preference setting tool. Each of these tools is described below.

2.1 Communication tools

2.1.1 The audio tool and meeting browser

The audio tool runs fairly independently from the text-based ones. Audio communication is supported in the Magic lounge by the real-time protocol (RTP) on top of IP multicast [2,4], while the text part relies mainly on CORBA. At the moment, the connection between audio events and text messages in the memory is handled by a meeting browser [3]. This tool, identified in the toolbox as ``Timeline viewer", is shown in Figure 2. The meeting browser provides the user with feedback as to who is logged in (and for how long), and the distribution of *communicative turns*, in terms of textual messages sent (per participant) over time, and audio events.

Timelii	ne for Today			X
User +	+++++ <u>+++++++</u>) 18:30 18:	++++++ ++++++ ++++++ +++++ 40 18:50 19:00 19:10	19:20 19:30 19:40 19:50	20:00 20:
amaral		L I		-
nino				
•			19999999999	▶
- Informa	ntion — — — — — — — — — — — — — — — — — — —			
Dav	shown: 8/14/00	Show Logins 🗹	Update Browse View Mode	[
Day	Snown. 0/14/00	Show Voice Events	Set Real Time View Mode]
Ma	gic Loun	10		

Figure 2. The Magic Lounge Meeting Browser.

With the audio tool, medium size user groups are able to communicate simultaneously in fullduplex mode, while performing other activities in the Magic Lounge or using other tools on their desktops. Clicking on the "Audio Tool" button automatically starts an audio session with a pre-defined multicast address.

2.1.2 The message composer

The message composer enables users to write, label, address and send text messages to other users logged on to the same server. In order to contribute a message, the user selects a group of users to which the message should be addressed and sends it by clicking on one of the buttons at the bottom of the message composer window. Figure 3 shows the message composer. The top frame shows the text of the message to which the message being composed will refer. The box labelled "Conversation" shows the subject of the selected message. The lower text box is used for editing the message.

The distinctive feature of the Magic Lounge message composer is that, by sending a message, and in order to do so, the user is also choosing to label it with a *speech act*. (or communicative act). This and other features of the message composer are described in detail elsewhere (see Magic Lounge deliverable D5-Y3). Here we simply point out that users are able to specify the kind of communicative act they believe to be performing when they send a message. The set of speech acts available depends on the nature of the message to which the message being composed refers. A new message can be labelled as: 'suggest', 'inform', 'offer' or 'request'. A message referring to a message of type 'inform' can be labelled as 'report', 'inform', 'suggest', 'negotiate', 'reject', 'promise' and 'accept'.

Message Composer	X
Selected Message:	
I amaral inform about "New topic. Functionality description" to all	8/14/00 7:14 PM
fsdf sdfsdflsd;lf;l df lsd ;f;sd lf;l sdf	
sdf	
Conversation: New topic. Functionality description	Selected
The message composer enables the user to write and send messages	Accipients: amaral David erik Karsten Kurt laila Id Magic Mor merete namo nino V
-Send as Report Inform Suggest Request Negociate Reject Report Suggest Request Reject R	t
Magic Lounge	

Figure 3. The Message Composer.

Selecting recipients is also a way of adding a meta-tag to a message. Although all logged users receive all messages sent to the server, specifying a recipient might help with *floor control* of ongoing meetings (who among the recipients is being addressed in particular by a certain message), and *message retrieval* of past meetings from the memory module.

2.2 Memory Access

Memory access plays two main roles: review and retrieval of information from past meetings, and structuring of ongoing meetings. The latter takes place when a user selects a message to be labelled in his message composer as the message to which the text being written refers. The former is described below.

2.2.1 The message viewer

The message viewer offers an overview of the messages exchanged in list, tree and HTML formats. The list format shows a sequence of messages sorted by time. The tree format shows a hierarchy of messages grouped by subject (via the reference selection process described above). The HTML format presents the full text produced during a meeting.

2.2.2 The topic viewer

The topic viewer is capable of displaying a conversation in all the above mentioned formats. The difference is that, in the topic viewer, the user is able to ``zoom" into specific topics and inspect them in detail. This might be useful in situations where messages are deeply embedded in a topic, making them difficult to locate on a full sequential viewer and hard to read in the tree viewer. The topic and message viewers are shown in Figure 4. The window labelled "Messages" shows a list of messages sent in an HTML-like format. The window labelled "Conversations" shows a bird's eye view of topics on the top frame, along with the sequence of messages pertaining to a selected topic on the bottom one.

Messages				
Messages since 1/7/00				
List Tree HTML	Conversations	X		
7128100 3:56 FIVE KURT INform about Testz to erik	Svend og nanett	A		
Kommunikation med elever på VUC omkring Isn af matiedb opgaver - [merete, namo] (2) start at: 7/7/00 2:27 PM end at: 7/7/00 2:33 PM				
	svend Isuanell (1) start at: 7/7/00-2-29 RM			
- 187 -	NERETE			
7/28/00 3:57 PM Karsten report about "Test2" to e	[namo] (1) start at: 7/7/00 2:29 PM			
leg er nit arheidsloes og kan derfor ikke umiddelbart se ihvad ieg skulle	merete og nanett	221		
IT-branchen, hvor jeg kan se det som et nyttigt værktoej i forbindelse r	svend, merete, namoj (14) start at: 7/7/00 2:31 PM end at: 7/7/00 2:50 PM			
- 188 -	[namo] (1) start at: 7/7/00 2:47 PM			
7/28/00 3:58 PM erik report about "Test2" to erik	List Tree HTML			
svar erik 16 . Til at kunne kommunikeredirekte med andre mennesker, sor	S svend suggest about "merete og nanett" to all	7/7/00 2:31 PM		
en direkte kommunikation med. eks. Møde i diskussionsforaet i orlogsmu: tilinternettakst!!In reply to	nu har jeg faaet skrevet jeres navne naa men vi skal i gang med opgaven: hvem vil laege hus til?			
	S svend suggest about "merete og nanett" to all	7/7/00 2:33 PM		
- 189 -	jeg synes vi skal holde festen hos merete, fordi hun bor taettest paa havet, er du med paa den, Merete?			
7/28/00 3:58 PM erik inform about "Test2" to erik	ut of the question	7/7/00 2:34 PM		
spg 17. Hvad kan du lide ved Magic Lounge: In reply to	I namo inform about "merete og nanett" to svend	7/7/00 2:36 PM		
- 190 -	1. VENUE: OLE BOPÆL I NYBORG			
	I namo inform about "merete og nanett" to namo	7/7/00 2:39 PM		
	HVAD TID SKAL VI AFTALE FESTEN BEGYNDER	7/7/144 5 55 514		
Madic Lounge	I merete inform about "merete og nanett" to namo	7/7/00 2:39 PM		
mas				
	Magic Lounge			

Figure 4. The Message and Topic Viewers.

2.2.3 The tree inspector

This viewer provides users with the ability to browse through large numbers of messages organised according to a hierarchy of topics dynamically defined during the meeting. Two viewing modes are supported: full meeting and restricted view matching certain search criteria. The user can browse quickly through the messages by using the scroll bar on the main frame and see a message in more detail by clicking on its header (which will cause its full content to be displayed on the bottom frame. The tree inspector is shown is Figure 5. The pull-down menu allows filtering the messages shown on the top frame according to: performatives, sender, receiver, conversation (topic) and thread initiator.



Figure 5. The Tree Inspector.

2.3 Other functionality

In addition to the tools described above, Magic Lounge also supports a limited set of preference settings through the ``Preference Tool" (cf. Figure 1). These settings are, at the moment, mainly restricted to factors that affect performance, such as whether the views must be synchronised.

An RTP audio recorder (see Magic Lounge deliverable D8-Y3) was also used in the user evaluation sessions. Although the recorder was not included in the current release of the Magic Lounge, and therefore was not available to the users at the time of the evaluation, it has been used as a tool for logging and analysis of the user tests.

3. Evaluation by Magic Lounge Developers at NISLab

Made over three days from 15 to 23 June, 2000, the first round of user evaluation activities at NISLab consisted of two tests involving two scenarios: one directly focusing on the Magic Lounge software and one addressing an in-house web task.

3.1 Introduction to the Magic Lounge System

For the first task which was carried out on 15 June 2000, two of the subjects (Laila and Ole) were unfamiliar with the current release of the software and needed to be introduced to it by the third participant, Nino. Before they embarked on the task, a 10 minutes long introduction to the software was given by Nino, covering the basics of how to start the system and log in to the NISLab server. Introductory documentation, "The Magic Lounge Discovery Guide" (see Magic Lounge deliverable D5-Y3) was also handed out to the participants who had the chance of quickly browsing through it.

3.2 Trial Session 1: Evaluating the Magic Lounge Software

The scenario was to jointly explore the system, discussing the software as the users went along and getting as far as the timeframe allowed.

The trial consisted in an hour-long meeting between three developers in the Magic Lounge.

3.2.1 Observations from the chat log

The chat conversation comprised 31 entries, see entries 3 to 33 in Appendix 2.1.

Judged from their contents, seven of the early chat contributions (i.e. 3-4, 6, 9, 10, 12 and 15) were spent on establishing contact among the participants.

Two contributions concerned meeting organisation. In those contributions, Nino (Amaral) proposed and created a thread called "ML usability report" in order to collect all comments on Magic Lounge functionality and usability under one header with a view to make it easier to produce a chat log report afterwards. This worked most of the time but sometimes (twice) the participants would create a new header about the current topic of evaluation for no obvious reason. Temporarily, they would seem to have forgotten about the thread (cf. Appendix 2.1).

Only a few contributions demonstrate problems in actually using the software. Thus, in (5) Ole has a problem with the windows which he invited the others to come and look at. The audio record (minute 8) shows that the problem had to do with everything jumping to the left in his window, something which Laila believed was a Java "feature". In (11) Nino tells Ole how to send a message or, rather, perhaps, expresses his view that sending a message is overly complex by listing what it takes. The latter interpretation is probably the right one because the developers had been sending lots of messages to one another already. The audio track contains no evidence one way or the other. And both Laila and Nino managed to send a contribution twice (21-22 and 24-25). Otherwise, the developers managed to use the chat part of Magic Lounge without incident.

The rest of the chat log (20 messages) is uniquely dedicated to evaluating the chat part of the system, producing a rather comprehensive list of issues for discussion ahead of future system releases. At the end of the meeting, the Memory Viewers were used in reviewing and commenting the points discussed. A catalogue of the problems noted follows in alphabetical order.

Inadequate visibility of functionality

Some functions should be made more visible: (a) how to select 'all', (b) how to start a new 'thread', (c) where do you go when you want to see the who text of a message?

Lack of feedback

There is no immediate feedback in the Message Composer that a message has been sent.

Memory viewers: too many different views of messages?

It is not obvious that all the different views are necessary. In fact, this multiplicity creates problems of its own: (a) It is annoying that messages are shown in two different windows but you have to select the one in the messages window to see it in the message composer. If you select the one in the conversations window nothing will happen. (b) if you highlight a message in the message viewer, the message doesn't automatically get highlighted in, say, the tree viewer. (c) If the tree viewer is 'collapsed', then it's possible that you'll see a message in the message viewer which apparently has no counterpart in the tree viewer

Misleading menu keywords

'Conversation' is more misleading than, e.g. 'subject'.

Non-obvious functions

(a) What is the difference between the tree-based message inspector and the tree version in the message viewer? (b) What can I use "export messages" for under File in the tree-based message inspector? (c) What will print? (d) What is the "open derivations tree" meant for under Tree? (e) It is not obvious how to clear a message field in the Message Composer. (f) In the Conversations window one has to select a subject and then select List before selecting Tree or html. Why is this? (g) In the Messages window, hyperlinks (or rather what looks like hyperlinks) don't work.

Selected Recipients function

The Selected Recipients function seems unintuitive and misleading. The primary interpretation of this function is that it is to be used for selecting to whom among the logged on participants one wants to send a contribution. As this is a false interpretation (see 2.1.2), a consequence is that:

No private chat is possible between a subset of those logged on.

Sending messages is too complicated

Simply sending a message is too complicated in terms of the mouse clicks needed. In order to send a single message the user needs to: select a message, select a recipient, type in the message, choose a speech act, and activate the button that actually dispatches the message.

Speech acts

It is not obvious why not always the same number of speech acts are available. The users were puzzled by the changes in the affordance of speech acts for selection as they moved from starting a new thread to responding to an existing one. The logic behind the change was not immediately apparent to them.

Selecting an appropriate speech act is too hard to do during chat conversation. It is not obvious what is the utility and meaning of labelling messages with speech acts. Although the labelling potentially contributes structure to the memory module, it is not clear that the additional costs involved in labelling each message really pays off.

The actual use of speech acts by the developers during this trial shows a broad distribution among the available options but with 'report' being used 150% as often as the other six options used taken together:

- inform: 6
- negotiate: 1
- offer: 1
- promise: 1
- reject: 1
- report: 19
- request: 2

It should be remarked here that all of the developers are rather familiar with speech acts theory and the state-of-the-art in speech acts coding schemes. Two of the authors co-authored the MATE project report on the state of the art in coding schemes for annotating spoken language dialogue [1]. The developers know how difficult it is to label speech acts, even given a state-of-the-art coding scheme and the particular type of task-oriented dialogue for which the coding scheme has been developed. For instance, from the Magic Lounge speech acts menu, most if not all users would be hard put to tell when they choose to label a particular contribution 'report' rather than 'inform'. Moreover, in Magic Lounge there is no state-of-the-art speech acts coding scheme which has been painstakingly developed to work reasonably well for a particular type of task-oriented dialogue. Rather, the Magic Lounge collection of (eight) speech acts is merely an ensemble of speech acts options to select from, created without regard to the difficulty of the subject. In the Magic Lounge, users can chat about anything, but for the time being, no scientifically based speech acts coding scheme is able to cover text dialogue in general. Finally, the Magic Lounge speech acts menu is technically flawed because it rests on the assumption that users will only make one speech act per turn. Even if the Magic Lounge speech acts menu did contain all the speech acts needed in any kind of chat, which it is far from doing, users would have no chance of correctly labelling turns which contain more than one speech act from the Magic Lounge menu. It is, of course, an empirical question how often users would be likely to make several different speech acts from the Magic Lounge menu in any one turn, but the fact is that they sometimes do this (cf. the examples in Chapter 5) and that it would be imposing a rather unreasonable additional load on their working memory to require them to only make one speech act per turn. Note also that 'report' was used much more often than the other speech acts available. This is no doubt due to the fact that, at Nino's request, everybody was working on an "ML usability report" and there found it apt to label most of their contributions 'report'.

A rough evaluation made by one chat record analyser-only yields 21 correct speech act choices, 5 false ones and 5 questionable ones. This means some 70% speech acts identification correctness. However, given the difficulty of classifying speech acts in practice, it is quite likely the an inter-coder agreement analysis would show very considerable disagreement with respect to the correctness evaluation just reported. Supposing an optimistic inter-coder agreement of 80%, we are down to some 56% reliability. And supposing furthermore that speech acts novices do the classification, we are probably down in the 30-40% range. Who would want a meeting history classification tool which offers 30-40% likelihood of finding what one is looking for? We might accept, perhaps, a few percentage-points uncertainty at most but this is far worse. Even assuming the correctness of the above evaluation made by one analyser, it would seem pretty clear that skilled speech acts analysts have great difficulty labelling their chat contributions correctly at the spur of the moment when their thoughts are occupied by message composition, listening to the audio, and

thinking about the task. From the point of view of usability, it would seem unlikely that a meeting history classification according to speech acts could have any meaningful use.

Finally, as to chat activity, the chat log shows that Laila was the most active participant followed by Nino and with Ole as the least active. It would seem that Laila undertook to report Magic Lounge software usability issues even if this was never discussed in the chat part of the conversation.

3.2.2 Observations from the audio track

Compared to the chat record, the audio track provides a significantly different picture of the trial session. First, Ole is speaking the most followed by Nino. Laila is speaking the least but writing the most as shown in the chat record. Secondly, the audio track is task-oriented and to the point from the first second onwards, and jokes are being exchanged only at the very end of the dialogue. The audio track demonstrates that the participants were deeply into discussing Magic Lounge functionality throughout, which means that the early, slightly pointless chat exchanges noted above were made more as "finger exercises" during the audio exchanges than because of usability problems with the software or problems in establishing contact among the users. Thus, already in minute 1 into the audio track, Ole notes that everybody is "reporting like crazy", which is also evidenced by the fact that the beginning of the audio track is full of silences. Thirdly, the audio record does not cover all the Magic Lounge functionality and usability issues noted in the problems catalogue in 3.2.1. As the chat was being used throughout, this suggest that the developers managed a "dual-task" approach to the evaluation of Magic Lounge. As long as they were in agreement with what was in the growing chat record, they did not comment on it but chose to discuss other issues instead. Or they commented on the chat track as Ole did in minute 6: "You are really criticising the thing, Laila, wow!" We shall profit from the dual-tasking in the summary of the audio record below. Thus, we will emphasise the audio contributions which concern issues other than those shown in the chat record, noting as well when an audio contribution corresponds to a chat exchange.

A. Summary of the English conversation

The audio track has a duration of approx. 30 minutes. In the following, the digits indicate in which minute(s) after the start of the recording a certain utterance or exchange happened. The technical quality of the sound track was generally mediocre. In several cases, it is not possible to interpret the comments made because of noise. Part of the reason was that one of the users (Ole) used what later turned out to be a less-than-optimal desk-mounted microphone.

0: Ole puzzles why everybody gets the message when only some of them have been selected as recipients. (This is also in the chat record).

0-1: Lots of silence because people write instead, "reporting like crazy" (Ole).

2: Ole: what's the advantage of the chat over speech? It seems to be that we can report in writing on our evaluation!

2-3: Nino: is uncomfortable using the speech acts menu. He finds that speech acts don't add useful structure to the history. He also finds that it is too much trouble to send messages. (These comments are also in the chat record).

4: Ole asks difficult some what-ifs which are not being discussed, possibly because nobody knows what to say to them in the spur of the moment.

4: Nino: It's difficult to select a topic to respond to and select a speech act on top of everything else. (These comments expand the chat record just a bit).

4-5: Still lots of silences and "uhms" etc. So much so, in fact, that Ole asks:

5: Ole: what are you doing, Laila?

5: Laila: writing.

6: Ole [looking at the chat record]: you are really criticising the thing, Laila, wow!

6: Laila: yep!

7: Laila: what's the difference between the tree in the Tree Inspector and the tree in the Message Viewer? [see later in the audio record]

8: Ole: everything jumps to the left in the window.

8: Laila: I think it's a Java feature.

10: Ole speaks while he interprets the speech acts report abbreviations.

10: Ole addresses an earlier spoken question made in minute 7, i.e.: Laila: what's the difference between the tree based message inspector and the tree in the message viewer?

11: Ole: there is no difference!

11: Nino: believes there is a difference but is uncertain (noise).

12: Ole: what is a derivation tree?

12: Nino: it seems useless.

13: Everybody is trying to show and select performatives (bad sound quality around here).

13: Ole: one has to write the performatives in full to get a return, no abbreviations are allowed.

14: Nino: there is too much redundancy in the viewers. (This is also in the chat record).

15: Nino: suppose they had just the Message Viewer. You could eliminate windows.

15: Ole: either drop the Message Viewer or the Tree Inspector. (Details the chat record).

16: Nino: also the Topic Viewer. (Details the chat record).

17: Laila: it is difficult to chose how to respond to a message. I tend to go to 'conversation' first but that is wrong.

17-18: Ole: would it be better to have a joint editing window? It would be completely without structure. What we have here is slightly better. It's easier to comment on the right topic, such as 'usability report'.

19: Nino: but it is cumbersome and inflexible. I prefer no structure at all.

19: Ole: maybe the right thing is in the middle, between no structure and too much structure.

20: Nino: given what we have, I prefer no structure at all!

21-22: Ole: what is the difference between chat without speech and chat with speech? Proposes an experiment with two similar tasks, one with speech and chat and one with only chat.

22-23: Laila: the chat is useful for taking notes. If speech is there, we will still use chat for notes. Or for showing an agenda. The chat would be more messy without speech.

23-24: Ole: agrees. But we might get interesting data because the issue is scientifically interesting. He continues to expand on the above idea, wanting to do just a small experiment.

24: Laila: agrees.

25: Noise.

25-26: Nino: sorry, I missed the latest discussions.

26: Noise. Ole seems to re-explain the idea of making an experiment to Nino.

27: Nino: OK.

Noise.

28: Nino: let's try different combinations of the same functionality later and find the most cumbersome one!

29-30: Jokes. End.

B. Audio task record vs. chat task record

Comparison of the audio task record with the chat task record provides evidence for the following five points:

(1) As could be expected, the audio record reflects a number of the main points made in the chat record, i.e. the selected recipients issue, the speech acts issue, the complexity of sending messages, and the suspected redundancy among functionalities and chat memory record windows.

(2) The audio record contains more detailed discussions of the main points stored in the chat record. In particular, the apparent functionality redundancy between the Tree Inspector and the tree in the Message Viewer. It is hardly surprising that not all of the fine points of the audio discussion are reflected in the chat record. Rather, the surprising thing is the comprehensiveness of the chat record compared to the audio track, which is probably due to the "dual-tasking" approach taken by the developers (cf. above).

(3) The audio record contains a small number of points which are not reflected in the chat report. These include Ole's observation that everything jumps to the left in the window and Laila's attempted explanation; Ole's observation that one has to write the performatives in full to get a return, no abbreviations are allowed; and Laila's remark about the unintuitiveness of choosing how to respond to a message.

(4) The audio record reflects several inconclusive discussions which, probably because of their inconclusiveness, were not included in the chat report even if some of them concern important interface issues. Thus, the discussion of the apparent redundancy of functionality between the Tree Inspector and the tree in the Message Viewer is inconclusive as is the discussion of the utility of the derivation tree. Another inconclusive discussion concerns which chat memory record windows could be merged. Proposals include the Message Viewer, the Tree Inspector and the Topic Viewer. The same is true of the very important discussion of whether to prefer having a joint editing window without structure to having the structured Magic Lounge chat.

(5) Finally, the developers discuss one of the really big issues raised by the Magic Lounge virtual meeting system. They discuss the relative advantages of chat-only, speech-only and chat-cum-speech. They all agree that, given the speech, chat is useful for making meeting notes in real-time, such as the Magic Lounge evaluation report, and for presenting an agenda to the meeting participants. Laila suspects that the chat record will become messy if speech is not being used in parallel. They agree to perform an experiment later in which the same type of task is being addressed in chat-only and in chat-cum-speech. The reason why the discussion is not reported in the chat log probably is that the evaluation was focused throughout on evaluating the chat part of Magic Lounge.

3.3 Trial Session 2: Website Review Task

The scenario was to review and discuss NISLab's own website.

For the authors, the task specified in the scenario constituted a unique opportunity to combine systems testing with getting a desperately needed in-house task done, namely that of updating NISLab's own, useful but rather basic web pages (see http://www.nis.sdu.dk). NISLab's web

pages had been in need of a major overhaul for more than a year, the many other, projectrelated web pages for which NISLab is responsible having taken precedent over the home pages. NISLab's web pages have an introduction to NISLab on the front page, linking to other pages on 'staff', 'research', 'projects', 'education', and 'publications', respectively. At the end of the session, two more sets of pages had been decided upon, one on 'jobs' and one on 'software and demos'. The logo policy was altered and the aesthetics of the - otherwise still pretty minimalist – pages were slightly embellished.

The task described in the scenario was in fact carried out over two sessions, one on 21 June 2000 and one on 23 June 2000. There is hardly any redundancy between the two sessions and they will be treated as one session in what follows. David only participated in the first half of the first session, Laila, Nino and Ole participated throughout. The first meeting about the web pages was preceded by a half-hour test of the Magic Lounge *activity viewer* (see deliverable D8-Y3) which uses animated characters to display the activity in the lounge by announcing the arrival of new messages and reading them out through a speech synthesiser. During the session proper, the activity monitor was deactivated.

3.3.1 Observations from the chat log

The chat conversation comprised 31 entries, see entries 34 to 64 in Appendix 2.2.

The chat record presents a rather straightforward meeting record structure having two consecutive and non-overlapping parts, a testing and contact-establishing part followed by a task-oriented part.

On the face of it, the first many early chat contributions (no less than 14 messages) were spent on establishing contact among the participants. The turning-point is Laila's message (48) "Did you get this?" which, the audio record shows, is an unspecified task contribution. The chat record does not provide any explanation of the remarkably many contact-establishing messages. The audio record shows that the messages accompany a series of technical problems and usability problems which were only discussed on the audio channel.

In 49, Laila creates and inaugurates the task minutes thread "Minutes of discussion of the NIS web pages" to which the participants adhere for most of the remaining discussion (13 messages). Ten of these task-oriented messages are produced by Laila while Nino produces three messages. To an outsider who is familiar with web design and web updating, these messages are likely to look very familiar in general albeit unintelligible in some of their details. Their detailed contents, being concerned with NISLab's web pages, are not important for present purposes. What these contents do is to list changes to be made and often who commits to making those changes to the NISLab website.

In 51, Nino creates a second thread "About the system itself" to reflect problems etc. related to the Magic Lounge text and audio functionality. This thread is used only once later when Nino asks (63) "Do new messages automatically appear expanded when the tree has been expanded once?" In the final message of the chat record (64), Ole creates a thread called "new topic" the purpose of which is neither revealed in the chat record nor in the audio record.

No chat contributions concerned meeting organisation. No chat contributions demonstrate problems in actually using the software. Speech acts were used with no particular expectation to the possibility or usefulness of building a meaningful task history based on speech acts (cf. 3.2.1). For this reason, we shall refrain from a detailed analysis of how speech acts were used during the session. The frequency of contributions shows that Laila wrote the most, then Nino, then Ole and then David. The chat record shows a highly disciplined use of threads once the participants launched on the task (from 49 onwards to the end without interruptions other than the creation of two parallel threads, one (51) for a second task and the other (64)

for an unspecified purpose). The audio record shows that the first two threads were explicitly agreed upon by the time of their introduction.



Figure 6. Task 2 textual interaction sample.

Text was mainly used for recording the decisions taken (e.g. who volunteered to do what, which web pages should have priority, etc.) and exchanging references (e.g. URL's, fragments of text to appear on pages, etc.). The user in charge of recording the meeting (Laila) produced about 62% of the total of textual messages exchanged with reference to ``Minutes of discussion of the NIS web pages", while one of the users only used the message composer twice in connection to this topic. There was hardly any additional structure to those messages (cf. Figure 6), and the users felt no need for it.

3.3.2 Observations from the audio track

The audio track is where most of the interaction in this session took place, sometimes oblivious to the fact that a parallel activity (i.e. minute writing) was taking place in the chat part of the Magic Lounge. The uneven distribution of text messages among the participants noted above is in sharp contrast with the profile of spoken turn-taking. Figure 7 illustrates this point. The horizontal bars correspond to audio events stretching over time, as represented on the screen of the meeting browser [3].



Figure 7. Task 2 textual interaction sample.

This 67 minutes long audio trial session shows a very productive joint revision of NISLab's web pages in which new page entries are being defined, jobs assumed to be done later, the aesthetics of the pages discussed, the logo policy discussed, and a couple of key Magic Lounge functionality issues debated. Comparison with the chat record in the appendix shows that many of these issues are poorly reflected in the chat record, if at all. At the same time, the session, particularly in its first quarter, is characterised by a significant amount of technical problems and problems of usability which, again, are absent from the chat record. Noise problems occurred several times. In almost all cases, it is possible from the audio record to get the contents of the messages exchanged, however. The cases in which this was not fully possible are noted in the audio summary below.

The audio track of the session consists of seven audio files which will be labelled 1-7 in what follows, each referenced contribution or set of contributions in the summary below being labelled with the minute in which it was made within the duration of a particular sound file. The summary of each audio file is headed by a description of the main topics addressed.

A. Summary of the English conversation

Audio file 1. Themes: jobs, technical problems, usability problems

0: Ole suggests to add 'jobs' as a 6th home page entry.

0: Nino wants to do first things first and asks wrt. the meeting organisation if anybody is writing up what is happening.

1: Laila: yes, I am writing. Do you want me to continuously send the messages I produce?

1: they conclude the meeting organisation part of the session by adopting a thread called "Minutes of discussion of the NIS web pages" for everything Laila takes down on the task of the session (cf. turn 49 in the chat record of the session). This message (chat turn 49), incidentally, is the only mention there is in the entire audio and chat records of the 'publications' part of the website. The reason for this perfunctory discussion of the 'publications' page is that work was already underway to update this page at the time of the Magic Lounge trial.

2-11: at this point, technical and usability problems begin which last for the remaining 10 minutes of this first audio file. The problems include:

- David's mouse stops working [irrelevant technical problem];

- they spend minutes waiting for Laila's message (chat turn 49) which acts as a test message [technical problem];

- David has protracted problems finding out how to get logged in [usability problem];

- there is noise and incomprehensible talk [technical or usability problem];

- Ole interrupts the link to the server, not being aware that this window must stay on the screen [usability problem];

- the server goes down after which a 3-minute long silence follows [technical problem]. The track ends by everybody re-establishing audio contact.

Audio file 2. Themes: jobs, front page, usability problems

0: Ole: Laila, if I don't want to hear you speaking, can I shut you down somewhere? [usability problem];

0: Laila and Nino refuse to tell him, of course;

0: they resume the meeting by mentioning chat record turn 49;

1: everybody re-establish audio contact;

2: everybody reset their audio levels;

2: - and resume the meeting, returning to 'jobs';

3: Laila: we discussed to add a new entry called 'jobs'. Ole please send the two announcements;

4-6: they agree that the front page is OK with a minor revision;

5: noise;

Audio file 3. Theme: education

0: Laila: points out that, by contrast with the front page, many of the other web pages are outdated, mentioning 'education', 'research' and 'projects';

1: Ole: could we discuss 'education' since everybody doing education is here?

1-8: they discuss the education page, issues of linking to pages elsewhere dealing with the education, retrieve links needed, decide to add descriptions in English, what to put on NISLab's pages and what to have represented elsewhere, who maintains the non-NISLab pages on the education, etc., at some point getting lost in following links and reading what is there, until Nino brings the meeting back to order;

5: they have difficulty hearing David;

Audio file 4. Theme: education, usability problems with speech acts

0-4: the discussion on what to write on NISLab's own web pages about the Interactive Media education continues;

2: David: has to go home at five and promises to read the minutes of the session;

3-4: Nino: volunteers to write something in English about the education for NISLab's web pages. He wants to [speech act] 'offer' to do this but cannot find the 'offer' button! Only the 'promise' button is available at this time and this one he considers "too heavy" for what he has in mind;

5: they all puzzle over why there are sometimes only four speech acts buttons available and sometimes more than four;

Audio file 5: Themes: jobs (again), staff, projects

0-1: Ole: let's announce jobs for PhDs in general? Laila: OK;

2-4: they decide on various updatings on the 'staff' page;

4-12: they decide to do some serious updating on the overview of NISLab's ongoing research projects, adding some new projects (CLASS, EFS, DARPA Communicator, ISLE, SIGdial), keeping some just-finished projects DISC, MATE) because of continued in-house and external interest in those projects, moving a finished project to 'past projects' (ELSE), and relocalising the 'past projects' page;

7: Ole: explains 'EFS' to Nino (a Danish acronym abbreviating 'Erhvervsfremme Styrelsen', an agency under the Ministry for Trade and Industry). [laughter];

8: Ole leaves the machine to check on a project on his own machine, consults a projects list and comes back after a 2-minutes silence on the audio track;

Audio file 6: Themes: projects, research, software and demos, logos

0-6: they continue discussing the 'projects' page, now addressing particular phrases, deciding to add a one- or two-liner on each project on the list for overview, what information these one- or two-liners should contain, and agreeing that updating is needed *pronto;*

6: Laila: the only one left is the 'Research' button;

7: Ole: it's horrible, blah-blah!

7: Laila: agrees, this has to go;

7-9: they discuss how to revise the pages and Ole promises to write something to replace what's left after the massacre just done to the existing text;

9-10: Ole: we have now taken care of the whole NIS website!

Now they turn inventive, first creating a new page and then revising NISLab's logo policy:

10: Laila: couldn't we add something exiting? We always talk about showcases etc. but we never demonstrated what we mean;

10: Ole: wonderful! What about adding a 7th point on the home page, calling it NIS software?

11: Nino: what do we have?

11: Ole: the Yellow Notes!

11-12: they discuss and add [noise] the Magic Lounge, the MATE workbench [noise], SMALTO, CO-DIAL;

12: Nino: how about adding the NISLab logo to the SDU logo on the pages? NISLab's logo is only on the NISLab front page;

12-13: all agree to replace the university logo with the NISLab logo;

14: Laila: I have sent you a list of what I have so far. Can you see it?

Audio file 7: Themes: software and demos (again), aesthetics, a web link problem, text vs. audio

- 0: Ole: more software to mention?
- 0: Laila: I have sent you a list of what we have so far (see chat log in Appendix 2, turn 61);
- 1: Ole: what message? [usability problem];
- 1: Laila: it starts with ... Do you have it?
- 2: Ole: finally finds the message;
- 2: Ole: how do I read the whole message? [usability problem];
- 2: Laila: explains (Ole seems to have expected a longer message);
- 2: Ole: I get lost all the time [usability problem];
- 3: Ole: summarises what is in the message;
- 3: Ole: what about the boring aesthetics. Can we do something about it, Nino?
- 3: Nino: I don't know ...
- 3: Laila: we can add the project logos and the logos for the software;

After this decision, a technical problem arises with the web pages to which nobody manages to an explanation and which causes some disarray in the meeting. Thus, Nino and Laila leave their workstations to go and have a look for themselves.

4: Ole: we use green for visited links, right?

4: Laila: yes;

- 4: Ole: finds an inconsistency because some visited links stay blue;
- 4: Laila: not in mine. Nino?
- 4: Nino: not in mine either;
- 5: Ole: look at mine!
- 5: they all look and agree with Ole;

5: Nino: suggests an explanation: a wrong slash at the end? He is not sure;

6: they all discuss. The problem is not Netscape vs. Explorer;

6: Ole: understanding what goes wrong might lead to a new theory of the universe;

7: Laila: are you talking outside my door now? Are we finished? Is something missing in the minutes?

The meeting is called back to order and Nino raises an issue for discussion which is at the core of Magic Lounge use and functionality.

7: Nino: in the next test we should use the Magic Lounge chat part a bit more;

7: Laila: laughs, yes, but we have the minutes!

7: Ole: no, this seems to have been a prototypical meeting with somebody doing the minutes and all, isn't it? [noise]

8: Nino: suggests that a shared text editor would be better;

8: Ole: but would that allow people to speak?

9: Nino: no. But we are just speaking and we haven't used the Magic Lounge text support functionality a lot. Laila's use of speech acts is mainly 'inform';

9: Laila: but ... [incomprehensible, noise];

10: END.

3.4 Conclusion

Although audio was still the predominant communication medium in this session, the text component performed a much more active role than it did in Trial Session 1. The users generally felt that the text component enabled them to bridge some gaps created by the predominant reliance on the audio, e.g. when the users referred to a particular URL, or when a future task (a speech act of the type "promise") was assigned. The fact that the minute taking role of the chat component was assigned from the outset is probably the reason why this session made more effective use of that component. In contrast, the less focused use which was made of the chat when it was simply presented as a tool to be used freely (perhaps in competition with the audio tool) should be noticed.

4. Evaluation by NISLab Staff

The second user trial session was carried out on 7 July 2000. Two secretaries (both female) and one academic manager (male) participated. One of the users (Merete) had tried a much earlier version of the Magic Lounge system whereas the two others were novice users of the system. All three users were native Danish speakers which is why the discussion among them in the Magic Lounge was in Danish.

4.1 Introduction to the Magic Lounge System

The introduction covered the basics of how to start the system, log in to the NIS server, message composer, sending messages, message viewer, selecting a message to respond to by using 'inform', topic viewer, tree inspector, audio tool and a few hints on how to achieve acceptable audio quality by activating silence suppression an controlling the volume levels. The "selected recipients" functionality was not presented (see Figure 3). The introductory documentation, "The Magic Lounge Discovery Guide" (see Magic Lounge deliverable D5-Y3) was handed out to the participants for use as reference. In the end, none of them used the documentation during the session even when they had problems. Instead, they asked the others or the assistants for help.



Figure 8. A Magic Lounge developer (Nino) is introducing the system to the users.

4.2 Trial Session: The Party Task

All three users received a copy of the following scenario on paper: You have volunteered to be one of the organisers of a summer party for your department. Together with the other organisers you must make a detailed planning of the event, including where to party, when to party, what to eat and drink, who will do what, costs, entertainment, etc.

4.2.1 Observations from the chat log

A. Summary of the Danish conversation

The chat conversation comprised 30 entries, cf. Entries 65 to 94 in Appendix 2.3.

- 65-76: text mode contact gets established between the three participants
- 75: Svend comes on-line

77-78: Svend starts on the task; party at Merete's!

79: noise

- 80: Merete: no!
- 81: Namo: at Ole's!
- 82: Namo: when?
- 83: Merete: at Ole's OK!
- 84: Svend: grilled food, fish?
- 85: Namo: 1 pm on a day with sunshine!
- 86: Merete: or grilled meat?
- 87: Svend: will bring sausages, a loaf of bread and a six-pack
- 88: Svend: OK, let's party at [mentions some of the best restaurants around]
- 89: Namo: I will call the cook and get a rebate
- 90-91: Merete: I understood that Ole will spend a good dinner and invite us home afterwards

92: Svend: the date?

- 93: Namo: Friday 21 July at 7 pm but where?
- 94: Namo: Nanett will call [excellent fish restaurant]

B. Establishing contact

The first 35-40% of the chat record consists of variations of "hello" and "are your there?", i.e. of establishing chat contacts among the three participants. Relative to the following task discussion, this is a lot of turns spent just to make sure that everybody is on-line in the chat conversation. The large amount of greetings is partly explained by the fact that one participant, Svend, had problems with the audio at the beginning of the session and hence stayed off-line in the chat as well while he was trying to get on-line helped by an assistant developer. More importantly, however, as the audio track shows, many of the chat greetings are not really greetings at all but test messages used by Namo and Merete in their exploration of how to use the system in the first place. One user, in particular, (Namo) had great difficulty getting used to the system.

C. The users' discussion of the task

The chat track shows a flat-structured discussion of the task, with nobody in particular structuring the discussion and no scribe agreed upon to pencil in what was agreed on. In fact, one user (Namo) did try to assume that role as shown by the audio data below.

However, once the participants had embarked on the task, the chat track indicates that they stuck to it whilst having a good time together as well as shown by several humorous turns of phrase. As shown by the audio track, this is only partly true, however, as one of the users (Namo) had difficulties using the system almost throughout.

No firm conclusion on the task was arrived at. It would seem that the participants only slowly began to realise that the scenario text they had been given was lacking in some important parameters, such as the style and financing of the party. The department has no tradition for summer parties, so the participants could not resort to institutional memory on how to do the planning. In the end, as shown by the audio track, the users decided to postpone the solution of the task until they had gathered some necessary information.

The chat track shows clear effects of overlapping-and-diverging contributions, with one participant proposing one topic whilst a second participant simultaneously broadcasts views on a different topic. This is in the nature of multi-party chat especially when done without a

common whiteboard, and shows why a "toastmaster" may be useful even in the handling of the most informal of tasks, such as the present one.

D. Use of speech acts

The participants' use of different speech acts in order to send their written messages only appears to show one pattern, i.e. that each of them mostly stuck to one particular speech acts button independently of the semantic contents of the contribution. Thus, Svend stuck to 'suggest' (5 times) and used 'inform' twice; Merete stuck to 'inform' (8 times) and used 'suggest' once; and Namo stuck to 'inform' (13 times), using 'offer' only once. This appears to demonstrate that the speech acts functionality of Magic Lounge was not being used as intended by the designers. Rather, as shown on the video capture of the introduction to the system, the developer who did the introduction used the 'inform' button when exemplifying the sending of a message. One need not be Sherlock Holmes to guess that this random choice accounts for the prevalence of the use of the 'inform' button in the data: 'inform' was used 23 times in total, whereas 'suggest' and 'offer' were only used six times and once, respectively. None of the other speech acts buttons were used. The audio track shows that at one point, one of the users (Merete) explicitly said that she believed that 'inform' should be used for sending messages. It seems probable that the users never realised the intended use of the speech acts buttons.

E. Mention of Magic Lounge functionality

Except for Svend's remark on problems with getting the audio running, no single chat contribution concerns the Magic Lounge system itself, its functionality, difficulties in using it, etc. The participants kept to addressing (1) the "meta-task" of establishing mutual chat contact followed by (2) trying to solve the task itself.

4.2.2 Observations from the audio track

Coming from the chat record, the audio record provides a very different perspective on the conversation, full of usability problems and struggle with Magic Lounge functionality, and vastly more verbose than the textual part.

A. Summary of the Danish conversation

The audio track (stored as a two audio files) has a duration of approx. 40 minutes. In the following, the digits indicate in which minute(s) after the start of the recording a certain utterance or exchange happened.

0- : From the start and during the first 17 minutes of the conversation there are lengthy discussions between Namo and Merete on the functionality of different windows and on how to compose and send text messages. Trying to help Merete, Namo repeatedly tries to infer by analogy from a chat program that she is familiar with, believing that the Magic Lounge text message exchange system works the same way. Namo fails several times in her reasoning and becomes frustrated as a result. Thus, 8: "We are spending the whole time trying to get this thing to work!" and 13: "We will never get started on the task." In this summary, we have censured her swearings.

5: Merete who is used to MacIntoshes and not to basic PC windows management is helped by one of the developers who are on standby as assistants to the users.

6: Namo finds the Message Viewer window. She has occlusion problems with having to use many open windows at the same time.

6-14: Namo has difficulties selecting several recipients to send to from the menu, spending more than seven minutes on that problem until an assistant tells her that everybody who are logged on will receive her messages whatever she does. This point was not made in the

introduction to the system (cf. 4.1, see also 2.1.2) and does seem to be a highly ambiguous feature of the current Magic Lounge interface. It is very tempting, but false, to assume that if you select particular participants from the menu showing who is logged on, then the message which you subsequently send will be sent to the selected participants only.

After 10 minutes Svend joins the oral conversation.

After 12 minutes Svend joins the text message exchanges.

15: Namo cannot find the messages from the other users on her screen. After 16 minutes the assistant joins her and shows her what to do.

16: Namo asks the assistant about the difference between 'inform' and 'report' but quickly drops the subject. It takes long for her to realise that there is no common whiteboard.

17: After 17 minutes the users finally start on the task, cf. the chat track in Section 4.2.2.

18: Nanett adopts the scribe task. She later (23 ff.) looses this role again during her worsening problems with the system.

20-22: Merete and Namo continue to have problems with composing and sending messages. They try to instruct one another orally.

22: Merete: "To send a message one just clicks on 'inform', right?"

23-30: Namo gets into deep trouble and is helped by an assistant. "I am completely out of it! I can't see anything", Namo exclaims. Meanwhile, Svend and Merete continue with the task whilst being disrupted from time to time by Namo who speaks to the assistant about her problems on the sound track.

28: Merete realises that she has to leave in about 10 minutes.

31: Svend summarises the restaurant discussion for Namo who has been absent from the discussion for some time.

33: End of first audio file.

34-40: The second audio file is relatively short (6-7 minutes) and almost completely task oriented. Namo is now back in the role as scribe, having finally got the knack of the system. 39-40: They discuss when to meet again to complete the task.

B. Functionality and usability

It seems a fair estimate that well over half of the audio record deals with Magic Lounge functionality which causes usability problems for some of the users. Judging from the audio record, Svend hardly seems to have usability problems at all. Merete has some problems early on after which she basically seems to manage. And some of her problems appear to have to do with differences between the MacIntosh and the PC rather than with the Magic Lounge as such. Namo, on the other hand, keeps having problems during three quarters of the trial. It should be noted here that Merete has used an earlier version of the Magic Lounge. Even if this was a long time ago, she may have kept a basic understanding of main elements of the system's basic functionality. Namo, on the other hand, is a real novice with the system. In addition, she is using the computer with the smallest screen (15"), which merely adds to the problems of multiple windows so easily generated by the present version of the system. She is also a regular user of an Internet chat system and repeatedly tries to transfer what she knows about that system to Magic Lounge. This is why she has difficulty understanding the various meeting history browsing facilities offered by the Magic Lounge, and why she keeps returning to the assumption that there must be a common whiteboard somewhere. This may also be a contributing factor to her eight minutes long struggle with the "Selected recipients" function.

It would seem probable that, by the end of the session, Namo and Merete had just learned enough to conduct elementary message exchange in the Magic Lounge.

C. The users' discussion of the task

In the summary of the audio record above, we have made little mention of the task proceedings. The reason is interesting. It appears that the users' joint work on the task was centered on their text contributions throughout. Thus, they would discuss the chat task contributions as these arrived over the net, mostly in the form of proposals for sub-task resolutions (cf. 4.2.1). Moreover, they would tell the others that they were in the process of composing a contribution to solving some specified sub-task. This had the double effect of assuring the others that they were keeping to the tacit agenda of focusing on one, or at most two, sub-tasks at any one time, and of explaining to the others why they were not speaking at that particular point in time, being absorbed in message composition. The result is that the chat record is close to being an exhaustive record of the seriously meant sub-task contributions that were made during the trial. The audio record is replete with jokes about, and the putting forward of, less seriously made sub-task contributions, such as to have the party in the horse stable where Merete keeps her horse or bring tents along for camping after dining in an expensive far-away restaurant, but these contributions never made their way into the chat record.

4.2.3 Observations from the video

A. Summary of the Danish conversation

The video record has a duration of approx. 49 minutes. By contrast with the audio record, the video track includes the introduction to the system presented by one of the developers acting as a trial assistant (cf. 4.1). Having made the introduction, this developer went to his office to launch the audio recording of the session. In the following, the digits indicate in which minute(s) after the start of the recording a certain utterance or exchange happened. The summary below has been deliberately reduced in order to avoid too much overlapping with the audio record summary in 4.2.3 above.

0-31: In Namo's office.

0-14: Shows the introduction to the system given by one of the developers to all three users gathered in Namo's office: login, message composer, sending messages, message viewer, selecting a message to respond to by using 'inform', topic viewer, tree inspector, audio tool and audio settings. The "selected recipients" functionality is not presented (see Figure 3).

14: The scenario is handed out to the users who study it.

15: Namo starts on the task. Only Namo's voice is being heard.

15: Namo says that she feels lost wrt. how to start even after having heard the introduction.

16: Namo compares the audio functionality to a telephone conference.

17: Namo starts writing.

18: Namo compares the chat functionality to a chat program she is familiar with and expresses her confidence in being able to manage.

20: Namo's problem with recipient selection starts.

21: Namo expects the message composer to act as a whiteboard.

22: Namo has difficulty viewing the necessary windows at the same time. She is using a portable with a screen smaller than those used by the other users.

23-30: Namo's difficulties continue, cf. the audio track.

31: Namo swears.

31-40: In Merete's office. Only Merete's voice is being heard.

34: Merete believes that 'inform' must be used for sending a message.

38: Advises Namo to call upon a developer for help.

39: Namo swears again and Merete warns her that everything is being recorded (laughing).

40: Merete notices that they are late, she has to leave in ten minutes.

41-49: In Svend's office. Only Svend's voice is being heard. The task discussion is now well underway.



Figure 9. One of the users (Merete) in action.

4.3 Analysis

A. What chat was (not) used for

The chat record shows a clear structure and suggests the following two hypotheses: (1) Chat is being used for (a) establishing mutual chat contact and (b) trying to solve the task itself. (2) Chat is not being used for discussing problems of how to operate the software. When augmented by the audio and video tracks, this picture expands into the following three hypotheses. In a combined audio/text context in which users have to solve a common task, chat is being used for:

(1) exchanging initial greetings;

(2) sending test messages to make sure that the system works and/or that one has understood how to use the system properly;

(3) solving the task.

On the other hand, chat is not being used for:

- (4) discussing problems of how to operate the software;
- (5) discussing sub-task contributions made in chat; and
- (6) joking together about the task (see below).

As to (3), solving the task, the chat record clearly shows that chat is being used rather parsimoniously to produce proposals for solving the sub-tasks composing the task described in the scenario. These proposals were then discussed orally. In one case, the chat was used to veto a proposal (see utterance 80 in Section 4.2.1), and in one case the chat was used to introduce a new sub-task (see utterance 82 in Section 4.2.1). At the end of the day, the task-oriented main part of the chat record faithfully minutes the progress made in solving the task. Interestingly, this was never discussed during the trial but seems to have happened through tacit consent among the participants. In fact, Namo observes the possibility of using the chat part of the system for minuting the meeting very early on (minute 17 on the video track) but at that point Svend is not yet in the loop and Merete is just about to set herself up for the task.

B. What audio was (not) used for

Compared to the chat record, the audio record provides a very different picture of the conversation between the users, being full of usability problem discussions and vastly more verbose. As we have not transcribed the audio track, we cannot quantify with any precision the difference in size of the two tracks as measured in, e.g., number of words or number of utterances or turns. It is clear, however, that such measurements would show the audio track to have a far larger volume than the chat record. The users spoke together almost without any long pauses. It is possible for three people to produce several hundreds of turns in 40 minutes.

The audio was mainly used for four purposes, i.e. to:

(1) exchange initial greetings and farewells at the end of the session;

(2) discuss usability problems and Magic Lounge functionality issues, including advice on when to call in an assistant;

(3) discuss the (seriously meant) sub-task contributions distributed as text messages; and

(4) make jokes and frivolous remarks about the task domain and the task options.

Type (1) utterances only constituted a minor fraction of the exchanges. Type (2) utterances constituted an estimated +50%. Types (3) and (4) were closely intertwined and constituted the rest.

C. The roles of text and audio

The chat text has a central role throughout on the sound track, first as a cause and subject of problem-solving and then as a vehicle for exchanging task contributions. The oral track follows the chat track closely although, as noted in 4.2.1 above, the real reason why so many chat greetings were exchanged at the start of the session only became apparent during the analysis of the audio record.

Compared to face-to-face meetings on a similar topic (task), it would appear that the chat record has a role comparable to meeting minutes notes. The difference, however, is that in the Magic Lounge the users jointly produced these minutes notes as they went along using the Magic Lounge text history as a kind of whiteboard, and using the hand-out scenario text as their meeting agenda. A second difference is that a chat track record is likely to contain contact-establishing text of the "Hi Svend, are you there"-type. Such utterances will never find their way into meeting minutes notes but are frequent in the early phase of text conversation in virtual space.

And compared to face-to-face meetings on a similar topic (task), the Magic Lounge audio track discussed here is probably closely similar to an audio track from a face-to-face meeting as regards greetings, serious task discussion and exchange of jokes. A minor difference is, again, the contact-establishing remarks of the "Hi Merete, can you hear me?"-type. The main difference is the large fraction of oral exchanges on Magic Lounge functionality which of course does not have any correspondence with low-tech face-to-face meetings. However, this

fraction of the trial audio record was large primarily because of the struggles of one of the novice users. With expert users of the system, that fraction is likely to be much smaller. It is not likely to be entirely absent in the present version of the system, however, because this version does raise a number of usability issues which should be addressed in later versions of the system. In the next section, we list the usability issues which were highlighted in the trial session.

D. Identified interface problems

Magic Lounge is not a base-functionality communication system but includes a series of text meeting records and other functionality which is not generally found in other chat systems or, if found, is different in various respects from that of Magic Lounge. This means that even experienced users must train themselves in using the Magic Lounge. There is nothing wrong about that but it implies that real novice users may encounter plenty of first-time problems which cannot be said to reflect infelicitous design solutions. Rather, such problems are first-time-only and once users have mastered them they can use the system without further difficulty. Below, we summarise the users problems identified in the present trial which might be symptoms of design issues which merit further consideration by the Magic Lounge developers.

Before going into those issues, it is perhaps appropriate to point put that the system as a whole worked quite well during the trial. Except for Svend's remark on problems with getting the audio running, the system worked as intended. The software has improved significantly since our 1999 trials. The usability issues encountered were:

the – for the time being – moot question whether Magic lounge should include a common whiteboard. This issue comes up in several sessions;

• it seems probable that the users never realised the intended use of the speech acts buttons;

there were lengthy discussions between Namo and Merete on the functionality of different windows. Namo had difficulty understanding the various meeting history browsing facilities offered by the Magic Lounge. Clearly, the different functionalities are not obvious to first-time users;

Namo had occlusion problems with having to use many open windows at the same time;

Namo had difficulties selecting several recipients to send to from the menu. This point was not made in the introduction to the system (cf. 4.1, see also 2.1.2) and does seem to be a highly ambiguous feature of the current Magic Lounge interface. It is very tempting, but false, to assume that if you select particular participants from the menu showing who is logged on, then the message which you subsequently send will be sent to the selected participants only;

Merete and Namo continued to have problems with composing and sending messages.

5. Evaluation by Users from the Danish Isles

On 28 July 2000 the third and last user trial was carried out. This time three users from the Danish isles participated. All three users had tried several previous versions of the Magic Lounge and participated in Magic Lounge workshops at NISLab on four earlier occasions. All three users were native Danish speakers which is why the discussion among them in the Magic Lounge was in Danish.

The test involved two scenarios. The first scenario was a brief task description in English much like the scenarios used in the earlier trials. Since all users who have been involved in the Magic Lounge user tests speak English fairly well, this posed no problem.

The users discussed both the first and the second scenario in Danish. The second scenario was an evaluation questionnaire in Danish. It contained far more text than the first scenario. We wanted all details in the questionnaire to be entirely clear and comprehensive to the users and we therefore decided to write it in Danish. An English translation is presented in Section 5.3.

5.1 Introduction to the Magic Lounge System

In view of the users' familiarity with the Magic Lounge, they only received a brief introduction to the system. The introduction was made in Danish by one of the Magic Lounge developers. The three users were standing around a computer while the developer first showed how to start the Magic Lounge (cf. Figure 1) and then opened the available tools one by one, explaining their functionality. The users were encouraged to ask questions whenever they wanted more details about the functionality. The questions asked were mainly related to the new functionalities which they had not tried before. The users also asked questions about whether something was or was not possible, such as to make copy and paste operations.

5.2 User Trial Session 1: Web Browsing Task

All three users received a copy of the following scenario on paper: Some friends (a family consisting of two adults and three children aged 4, 10 and 15) have asked you to find a Danish summer house for them. They want to stay for a week in July or August. It is a priority that the house is very close to a beach with good swimming opportunities. The price must be reasonable. Please check up on offers and best-buys and discuss what you would propose to them and why.

5.2.1 Observations from the chat log

A. Establishing contact

The chat log contains 22 contributions, cf. utterances 97-118 in Appendix 2.4 (utterances 95-96 are test messages which were sent during the introduction to the system). 11 of these are messages meant to check if the others are connected both via voice and chat. As mentioned below under observations from the audio track, there was a problem with the Magic Lounge server which meant that Magic Lounge had to be restarted on all machines. This probably explains the period of 11 minutes during which no messages are being exchanged.

B. Summary of the Danish conversation according to the chat log

The chat log only contains little information. There are several long periods during which no messages are being exchanged at all. The longest period is 13 minutes, but there is also a period of 11 minutes and one of 7. During the first quarter of an hour, the users exchange a few messages which serve the purpose of checking whether the others can hear them, see the

messages which were sent, and whether the others have read the scenario. Then they all manage to become connected also via audio, and they start discussing the task. They visit the web page www.bornholm.dk and find a house which they like and for which they exchange the address in the chat log. Then they discuss another Danish island, Ærø. Karsten sends price and contact information for a promising place for renting a summer house. They find a house which they seem to like better than the one on Bornholm and which they agree to take. Finally, it is suggested that they go to lunch.



Figure 10. Messages exchanged during the first scenario.

C. The user's discussions of the task

Of the 11 remaining messages, only 9 concern the task. One concerns the task plus is an exclamation from Karsten who discovers that he has an English keyboard. The last contribution is a suggestion for going to lunch.

The discussion of the task is to some extent structured around threads for the discussion of houses on Bornholm and houses on Ærø with replies/comments to questions/proposals.

The users solve the scenario and end up deciding on a certain house.

D. Use of speech acts

The chat log shows that the speech act most frequently used is 'inform' (16 times). 'Report' is used twice, 'negotiate' once, 'request' once, 'suggest' once, and 'promise' once.

The correctness in the use of speech acts is fairly low, not least because it is unclear which speech act to use in a number of situations. In four of the 16 cases of 'inform', 'inform' should have been 'request'. In one case 'inform' should have been 'accept'. The remaining 11 cases are perhaps correct. However, it is not clear why 'report' could not just as well have been used instead of 'inform'.

The two occurrences of 'report' could just as well have been 'inform'. Moreover, in one of the 'report' exchanges there is an additional speech act (perhaps a 'suggest'), but it is only possible to select one speech act when sending a message.

The 'negotiate' could just as well have been a 'suggest'. Moreover, that message contains an 'inform' or 'report' speech act as well.

The 'request' is okay.

The 'suggest' could just as well have been a 'negotiate'.

The 'promise' is okay for the last part of the message but the first part is an 'accept'.

E. Mention of Magic Lounge functionality

There is no chat contribution which concerns the Magic Lounge system itself, its functionality, difficulties in using it, etc. In the chat track, the users stuck to solving the two main tasks of establishing contact and solving the task given in the scenario.

5.2.2 Observations from the audio track

A. Summary of the Danish conversation

The audio track has a total duration of 39.25 minutes. To begin with, the users spend quite some time checking whether the others can hear them and adjusting the audio volume. It turned out to be necessary to restart the server which meant that it was also necessary to restart the Magic Lounge on the clients. This took a while. After this incident, Karsten sends a message (good luck) to check if the others receive it. This seems to be the case and they start discussing the scenario.

Erik tells the others that he starts a conversation on "ferie" [holidays]. Kurt has a slight problem in finding the message and asks if it will appear in the message viewer. The answer is ves and he finds it. It is then suggested that since each of them come from a different island, they could discuss possibilities for each island in turn. They start with Bornholm. Kurt sends a message with the URL for Bornholm (www.bornholm.dk). The others apparently don't receive it to begin with and they discuss a bit where to view it and which thread has been used. But then the message arrives with some delay in the message viewer where they expected to find it. They all open either Netscape or Explorer, look up the exchanged URL and discuss where to click. Karsten gets a bit behind but then the others guide him to the page they are on. They discuss how much time the family in the scenario need and surf a little bit around to look at different possibilities. They look at "packed travels", agreeing that the northern part of rocky Bornholm is most different from the rest of Denmark. Then they look at "holiday houses", comment on them and are dissatisfied with not finding any prices. They try "reservations and queries" but find out that this only allows them to send an email. They go back and try a new entry making sure that Kurt has also found the page. They find something called "Ferien" in German. Kurt is behind again and the others guide him to the page. The houses they look at are of a price up to 1000 Deutschmarks. Karsten asks where to find a good beach since this is one of the constraints in the scenario, and Kurt (who is from Bornholm) replies that one should go to Dueodde. Erik suggests Snogebæk. They look at houses near Snogebæk and Dueodde one by one, commenting on how they look and on the price. Finally, they find one close to the beach at Dueodde which they agree is a good option.

Erik wonders if it is possible to print but Karsten answers that they had better keep away from trying such things.

Kurt asks how to get to the remote island of Anholt. Karsten (who is from Anholt) provides the URL (www.anholt.net) for a page which he himself has set up. Unfortunately, this page is somewhat outdated. Instead they go to the home page of the tourist information centre (www.anholt.dk). Immediately they remark that the map is poor and Karsten mentions that they probably used Front Page to produce it. They don't find the kind of information they are looking for at the web site, so they leave Anholt alone very soon.

Kurt remarks that they only talk together. Erik says that this is just like last time. Moreover, they use the full screen for the browser. Kurt says that it has also got something to do with the task.

After Anholt they proceed to Ærø. Erik (who is from Ærø) produces the URL (www.aeroe.dk). Karsten finds something on summer houses and informs the others. Erik says that he knows a couple of the places (Gammelgaard and Bregninge) which he likes. They look at Gammelgaard. It is cheap (2500 DKK for a week) and they like it. The page has plenty of information. The beach is about 10 minutes away. Erik finds that it looks better than Dueodde, and Kurt mentions that it is actually somewhat expensive to travel to Bornholm. They check out one other place which Erik knows of but agree that the red house (Gammelgaard) is the best buy and decide to send the scenario family to Ærø. Then they declare lunch and close down the Magic Lounge.

The four figures below show the four web sites the users visited during their search for a nice summer house.



Figure 11. www.bornholm.dk
🚰 Anholt - Microsoft Internet Explorer 📃 🖂 🖂				
Eile Edit View Favorites Iools Help				
🖕 Back 🔹 🤿 🖌 🖉 🖓 Search 📓 Favorites 🛛 History 🖏 📲 📰 🖛 📃				
Address 🛃 http://www.anholt.net			▼ 🖉 Go 🛛 Links ≫	
Om Anholt	Velkommer	r til	Forsamlings huset	
Anholt Færgen	Anho	DET Info		
A	nholt Havn	Turist kontoret		
På denne og de følgende sider vil vi gerne give et billede af Anholt, som vi der bor på øen selv oplever den.		Samtidig være en s være en s dem der k sig at besø øen.	Samtidig vil siderne være en service for dem der kunne tænke sig at besøge os på øen.	
Ai	nholts eninger	Copenhagen Airtaxi		
Nyttige numre		Købe, spis & sove	2	
Ø & Land Idébank			Det sker	
Kildemateriale:	Kort: Kort og Matrikelstyrelsen Foto: Morten Abildstrøm 8939		<u>Mail</u>	
Done			🕐 Internet	

Figure 12. www.anholt.net



Figure 13. www.anholt.dk



Figure 14. www.aeroe.dk

B. The users' discussion of the task

It takes the users about half an hour to solve the first scenario. They seem to work very disciplined together and without any particular problems after they have all established contact. The task discussion is nicely structured. At the beginning of the task they decide to visit the islands they come from one by one to find a summer house for the scenario family in one of those three places. They approach the information-seeking task by opening a browser and then visiting the web sites for the three islands one by one. They make sure that all three of them are looking at the same pages. For each island they decide on a house which they agree on as the best option (apart from Anholt where no information on summer houses was found on the web site). Finally they choose between the two houses they have selected on Bornholm and $\mathcal{E}r\phi$, respectively, and agree to propose the one on $\mathcal{E}r\phi$.

C. Functionality and usability

The initial problems in getting connected were due to the Magic Lounge server crashing. After all three users got connected via audio as well as chat they spent a little time adjusting the audio to get a reasonable sound quality. Then they started discussing the task. No severe problems were observed. Kurt was to begin with not entirely sure where to look for the messages which had been sent. He asks the others if the messages should appear in the message viewer and they confirm this. Then there seems to be a problem with a message where they wonder why it does not appear, and they start discussing where to view it and which thread has been used. Apparently the message is delayed.

During task discussion while using a browser it happens a couple of times that one of the users gets behind and the others have to guide him to the right place. However, speech turned out to be very efficient both for telling that one is lost and for guiding this person back on track.

Kurt remarks that they only talk together and it is true that there is not much data in the chat log. Erik says that this is just like last time. Moreover, they use the full screen for the browser. Kurt says that it has also got something to do with the task. All this is probably correct. The users don't like to jump around among several windows and the task is most well-suited for oral discussion with written notes on suggestions and choices.

5.2.3 Observations from the video

The video track has a duration of 23.55 minutes. The first part of the interaction is not on the video, i.e. the part reflecting the start-up problems due the Magic Lounge server crashing and the Magic Lounge clients having to be restarted. Thus the video starts when the three users are connected and begin to discuss the holiday scenario.

Throughout the video the users are sitting concentrated in front of their screens, talking, surfing on the web, typing from time to time and once in a while glancing at the piece of paper with the scenario description which they have next to them. None of them seem to have any other problems than those already mentioned under observations from the audio track.

After the users have exited the Magic Lounge to go for lunch, the video shows a brief sequence with Karsten and one of the developers. This part is not on the audio track because it is not part of the Magic Lounge session. Karsten has observed a problem in viewing long messages on the Meeting Browser. He explains that when he places the cursor over the horizontal bar that corresponds to a message on the Meeting Browser window, the message appears on the bottom frame. However, if the message is too long o fit in the bottom frame and needs to be scrolled down, the text disappears as soon as he moves the cursor off the horizontal bar. The problem is due to a bug in the software but he is being told how he can – sort-of - avoid it. Also, Karsten would like to have access to an overview of voice events but is being told that this is not part of the present version of the system. Karsten would like to be able to see the voice events so that he can select some of them and listen to them, e.g. if he is late.



Figure 15. One of the users (Erik) in action.

5.2.4 Analysis

A. What chat was (not) used for

The chat record shows that chat is being used very little in this trial. Chat is basically used for establishing chat contact and checking whether audio contact has been established, noting down important issues in task solving, such as a URL to visit, the houses they choose, and a final check on whether they agree on the same house. Apart from the contact and task issues there are only a couple of brief chat comments. One is on the English keyboard which Karsten discovers that he is using. The other is a suggestion for going to lunch.

During task solving chat is only being used parsimonously. Roughly speaking, the chat presents a couple of details on the houses under consideration and the final agreement, so the function of the chat board is as a kind of notebook or decision record. For example, it does not show a full record of the web sites they visited or that they didn't find anything on Anholt.

Chat is not being used for discussing the software or guiding a user when he has problems in finding a web page, and chat is not being used for discussions. These exchanges are carried out orally as also remarked by Kurt in the audio log.

B. What audio was (not) used for

Compared to the chat record, the audio record provides a much more detailed picture of the conversation between the users.

The audio was mainly used for

checking the audio connection and adjusting the volume

discussing where to see messages (at the very beginning)

agreeing on how to approach the task

discussing what is available on the web sites they have decided to visit

discussing for and against the summer houses they look at

making a decision on which house to select

guiding a user to the right web page if he got behind

Since we haven't made a transcription it is hard to say which percentage of the utterances were used for what. However, when they first got started after the server problems had been fixed, the users spent nearly all the time on task solving.

C. The roles of text and audio

Audio is clearly the preferred form of communication. As one of the users remarks, this has something to do with the nature of the task. Apart for being used for establishing contact, chat was almost only used for keeping a record of important choices and decisions, i.e. as a kind of meeting minutes.

D. Identified interface problems

Apart from the initial server problems, the Magic Lounge software worked well and without any problems during the session. Also, the users all of whom had tried previous versions of the system, had no real problems in using it and didn't discuss any problems. The only sign of a problem is in the beginning where Kurt is not entirely sure where a message is supposed to appear. However, he is right in his assumption on where to find it and is quickly reassured by the others.

The use of speech acts does not seem to have been viewed as problematic by the users. They click a button and the message is being sent. They probably also try to select a speech act which they find appropriate. However, as the above analysis shows, the correctness of the use

of speech acts is not high. Moreover, their use is made problematic by some of them being more or less impossible to distinguish ('inform' and 'report', 'negotiate' and 'suggest').

5.3 User Trial Session 2: Evaluation Task

All three users received a copy of the following scenario on paper and one of them (Erik) also received an electronic version as a Word document. The scenario was a questionnaire for the users' evaluation of the Magic Lounge. By giving one of the users an electronic version of the questionnaire, they had the possibility of easily copying the next question to the chat board if they wanted to. The scenario was given to them in Danish but we have translated it to English below.

Questionnaire on the Magic Lounge

This is the second scenario you are going to solve with the Magic Lounge. It simply concerns your evaluation of the system. All you have to do is to answer the following questions and add whatever you might think of.

Had you been sufficiently prepared to use the system on your own:

How much did you use chat (written text) compared to speech in the first scenario and in the present one, respectively:

What did you use chat for:

What did you use speech for:

How much was collaboration and how much was individual work (you may distinguish between the different tasks and sub-tasks if you like):

How was the collaboration (smooth, difficult, etc.), and why:

Which problems with the system did you observe:

How was it to solve a task using the Magic Lounge:

What do you think of the Magic Lounge interface:

What do you think of the functionalities of the Magic Lounge:

What do you think of having speech available during collaboration:

What do you think of the quality of the sound connection:

What do you think of being asked to use speech acts when you send a message:

Did you have a need for other programs in combination with the Magic Lounge? If yes, which one(s):

Which functionalities did you find were missing (partly or entirely) in the Magic Lounge:

What would you like to use the Magic Lounge for in your daily life:

What do you like about the Magic Lounge:

What would you like to see improved about the Magic Lounge:

How were your expectations to the Magic Lounge compared to your actual experiences: Other comments:

5.3.1 Observations from the chat log

A. Summary of the Danish conversation

The chat log from this scenario contains much more information than the one from the first scenario with the islanders. Erik, who had the electronic version of the questionnaire, chaired

the session and copied a new question to the message composer (see Figure 3), and sent the question to make it available to all of the three users whenever they had finished discussing the previous question. Thus, the chat log contains all 20 questions from the questionnaire. Each question is followed by an answer from each user. The answers were written down either after or before discussion of the question In the following, we provide details from the chat log by going through the questions and the answers from the chat log one by one.

1. Had you been sufficiently prepared to use the system on your own:

Karsten: Yes.

Erik: Yes, I think so - it should be possible to use the system with brief instructions or without any instructions at all.

Kurt: Yes, since it seems to be self-explanatory - but there should only be one window.

2. How much did you use chat (written text) compared to speech in the first scenario and in the present one, respectively:

Karsten: Very little.

Kurt: It was very sound-oriented - text was used VERY little.

Erik: Scenario 1 was very sound-oriented.

3. What did you use chat for:

Karsten: For exchange of Internet addresses, and as a personal notebook.

Kurt: Start/end and for information exchange when things had to be written entirely correctly. Erik: For exchange of information which is not allowed to be misunderstood.

4. What did you use speech for:

Karsten: The supportive factor in communication.

Erik: Speech carries the communication.

Kurt: Speech supported the communication so that it became more "live".

5. How much was collaboration and how much was individual work (you may distinguish between the different tasks and sub-tasks if you like):

Kurt: Ensured that we worked synchronously.

Karsten: We acted synchronously.

Erik: We acted more and more synchronously – which must be seen as a high degree of collaboration as a result of using the Magic Lounge. You can then - if required by the current situation - fall back to more individual work.

6. How was the collaboration (smooth, difficult, etc.), and why:

Erik: Much smoother than last time – Magic Lounge is much better now!!!

Karsten: Smooth - the system worked.

Kurt: We could work in a simple way not interrupted by frequent hangups.

7. Which problems with the system did you observe:

Erik: There are no "real" problems – a detail is a small echo problem.

Kurt: Detail: Echo effect with head phones.

Karsten: Echo – probably due to loud-speakers.

8. How was it to solve a task using the Magic Lounge:

Karsten: Exciting – user friendly.

Kurt: It was a pleasantly efficient way to solve tasks - and confirm agreements in writing.

Erik: As it is now you can in Magic Lounge communicate, solve a task, find a common solution with an individual touch and be sure that all agree on the common solution and its consequences.

9. What do you think of the Magic Lounge interface:

Erik: The layout can be improved so that it achieves a common user interface instead of separate windows – but it works as it is now.

Kurt: Message Composer/Messages/RAT should all be in one window where further details on the individual functionality may appear when clicking on an icon in a tool bar.

Karsten: It should be collapsed into one window or at least some of the functionalities should be joined in a common window. In the timeline mode it should be possible to use the scroll bar. Autoscroll in message viewer.

10. What do you think of the functionalities of the Magic Lounge:

Karsten: They are still too rigid.

Erik: I miss the whiteboard – the common window.

Kurt: Too "jumping" in use among windows – it would be nice with a common window.

11. What do you think of having speech available during collaboration:

Kurt: Great - it makes communication among us much easier.

Erik: This is what supports the common communication – and in the last end it makes way for the telephones.

Karsten: Once again: the leading element.

12. What do you think of the quality of the sound connection:

Karsten: Not too good but the best until now.

Kurt: Spacious sound which makes it fluent to communicate.

Erik: It is not HIFI – but it works.

13. What do you think of being asked to use speech acts when you send a message:

Erik: We don't send messages - we communicate!!!

Karsten: It makes the message understandable.

Kurt: It creates a faster and better basis for communication.

14. Did you have a need for other programs in combination with the Magic Lounge? If yes, which one(s):

Kurt: We used a browser Erik: A browser, text editor. Karsten: Browser, text editor.

15. Which functionalities did you find were missing (partly or entirely) in the Magic Lounge:

Karsten: Whiteboard, identification of who is speaking.

Erik: We miss a whiteboard, the common window, video, and an identification of who is speaking.

Kurt: Common window, video camera on PC.

16. What would you like to use the Magic Lounge for in your daily life:

Kurt: Communication with pupils at VUC [education for adults] about solving mathematics and EDP tasks.

Karsten: I'm unemployed for the moment and therefore cannot immediately see what I should use it for. I expect to get a job in IT where I can see it as a useful tool in connection with distance work.

Erik: For communicating directly with other people with whom I would otherwise not be able to communicate for geographical reasons. For example, meeting in the discussion forum at the naval museum, talking to my friends in Greenland and New Zealand at Internet price!!!

17. What do you like about the Magic Lounge:

Karsten: They have nice food. Magic Lounge can fill the social dimension in case of distance work.

Kurt: The active way of communication which enables me to be in contact with other people - it is as if they are right beside me.

Erik: The direct communication - it makes our communication more "human".

18. What would you like to see improved about the Magic Lounge:

Kurt: See question 14.

Erik: See answer to question 15. Karsten: See 15.

19. How were your expectations to the Magic Lounge compared to your actual experiences:

Kurt: Kurt corrects answer to question 15.

Karsten: Positively surprised.

Erik: I'm incredibly positively surprised. A nice piece of work has been done in the meantime.

Kurt: It has been a positive experience to collaborate about the tasks using the system today also as regards functionality.

20. Other comments:

Karsten: I look forward to a test version which we can try at home.

Kurt: It works fine now. I look forward to being able to meet from home. I wish Niels and Laila a nice summer holiday during which they can relax with respect to this project.

Erik: I would like to continue working with the Magic lounge. It seems very much as if we now have something which really has a potential. When it becomes ordinary to have fast connections – perhaps in a year – then Magic Lounge is the program which fits this – and it is really important that we in Europe have a common tool for this.



Figure 15. Part of the messages exchanged by the users in the second session.

A. Establishing contact

The chat log contains 87 contributions, cf. utterances 119-205 in Appendix 2.5. Only the first five of these are used to check if the others are ready or if they are still drinking coffee. Then there is one turn used to ensure that the procedure is that Erik will copy the questions into messages. All the remaining 81 turns are strictly task-oriented contributions.

B. The user's discussions of the task

The users adopt a very efficient approach to solving the task. Erik copies a question into a message, broadcasts the message and then each user provides an answer to the question. This is repeated for all 20 questions. In one case Kurt makes a correction. This is why there are 81 and not only 80 contributions to the task. In some cases, the users write their answers as soon as they have read the questions and then subsequently discuss the answers. In other cases they first discuss and then type their answers.

The message viewer shows that the users have started a thread on "Test2" which they use throughout the task-related discussion.

C. Use of speech acts

The chat log shows that the speech act most frequently used is 'inform' (42 times) followed by 'report' (39 times). 'Request' and 'offer' are both used twice while 'accept' and 'suggest' are both used once. No other speech acts were used. 'Inform' and 'report' are the only speech acts used during problem solving. Kurt always uses 'inform', Karsten always uses 'report', and Erik uses 'inform' when he sends a question except for the first time where he uses 'suggest'. He uses 'report' when he provides an answer except for the first time where he uses 'inform'. It is not obvious that there is any difference between 'inform' and 'report', so both these two speech acts must be acceptable when answering a question. However, asking a question should rather have been a 'request'. This means that 19 occurrences of 'inform' and one occurrence of 'suggest' are incorrect and should have been 'request'.

The two occurrences of 'request' are correct and so is the occurrence of 'accept'. The two occurrences of 'offer' should have been 'suggest' or 'request' instead.

Thus, 22 in 87 speech act labels are wrong and all the 'inform'/'request' labels are undecidable because it is not clear what the difference is.

D. Mention of Magic Lounge functionality

Apart from answers to the questionnaire on this subject, there is no mentioning of the Magic Lounge functionality. When asked directly about the functionalities the users answer that these are still too rigid and that there are too many windows to navigate among. The main functionalities should be merged into one window. The Message Composer/Messages/RAT should all be in one window in which further details on the individual functionality could appear when clicking on an icon in a tool bar. In timeline mode it should be possible to use the scroll bar. There should be autoscroll in the message viewer. They miss a whiteboard, a better identification of who is speaking (a picture), and a video camera on the PC. Apart from the issues just mentioned, the users found the system efficient and nice to use, and they liked the direct way of communication enabled via speech while they still had the possibility of a "common memory" of what had been agreed upon in the chat part of the system.

5.3.2 Observations from the audio track

The total duration of the audio log is 61.13 minutes. The audio track does not add much to the chat log in this particular trial session. The chat log actually contains the essentials and the audio track merely adds a bit of information on how the users decided to approach the task. In a few cases, comments which are not in the chat log seem worth noticing (see below). Also, in a couple of cases it was not entirely clear what a user meant by his written reply. This became clearer from listening to the oral discussion. In the following, we describe these additional observations from the audio track.

Apparently, Kurt had a problem with the sound connection at the very beginning. When he joins the session, Erik informs him that he and Karsten already agreed that Erik will copy the

questions to the message composer one by one and send a new question whenever they have answered the preceding one. Each of the three users will answer the questions individually. Kurt agrees. Thus, in the beginning each user answers the question, possibly followed by a brief oral discussion of the answer. After the first few questions, however, they start by discussing what they think the response should be and only then write a reply. This change is also noticed by one of the users but they agree that the approach is OK. Actually, it varies throughout whether they first discuss and then write, or vice versa. This seems to some extent to depend on how "personal", in some sense, they find the question.

The users spend quite some time on writing in this scenario. There are sometimes long pauses during which one can hear the noise from a keyboard from time to time. Sometimes one of the users gets impatient and starts speaking to find out what the others are doing. During one of the pauses, Karsten says that it is fun once in a while to take a look at the timeline which shows who has sent written contributions when. However, the three windows which they use all the time are the message composer, the message viewer and the RAT window.

In a couple of cases, the audio track reveals that the users were not sure whether a certain question was only related to the first scenario or was meant to cover both scenarios. An example is Question 2 which in the chat log is mostly related to scenario one. As regards scenario two, they say that they use chat in Scenario 2 much more than in Scenario 1 due to the nature of the task.

In some cases, there were comments in the audio track which the users had not written down but which deserve being mentioned. These comments are listed in the following.

Question 6: Collaboration was as smooth as when you use a telephone and a browser but in Magic Lounge you get the collective memory in addition.

Question 7: We have to jump too much from one window to another.

Question 10: I miss a whiteboard, e.g. for sharing pictures.

Question 11: Erik's reply to question 11 in the chat log is a bit confusing. However, from the audio track it seems that what he means is that the functionality of the (mobile) telephone will eventually be incorporated into the system although one will not be able to send SMS messages. He adds that they would never have achieved the same using chat only.

Question 13: It is not clear that the users have understood what a speech act is. Kurt asks and the others try to explain it. However, the explanations are somewhat obscure, such as "this is what makes the message understandable" and "it adds quality to the message during communication".

Question 15: The users seem to find out that the RAT tool allows them to see who is speaking. However, it takes them a while to find out and they would still like to have pictures of the participants instead.

A. The users' discussion of the task

It takes the users about an hour to solve the second scenario. They seem to work in a very disciplined manner and without having any problems after they have all become re-connected. The task discussion is nicely structured. Erik is acting as the chair person. He copies a question to the others via a message, they all three provide a written answer to the question by sending messages, and then they discuss the answers made, or they discuss before they answer the question.

B. Functionality and usability

Although Kurt was connected via audio a bit later than Erik and Karsten, this created no serious problem. Also, the video log reveals no discussion of functionality and usability apart

from what is mentioned in relation to answering the relevant questions in the questionnaire. However, the essentials are already captured in the chat log and the audio log basically only adds a few details and alternative formulations of the statements reported above. The users seem to agree very much in their evaluation of the Magic Lounge.

The users are aware that they talked much more relative to the use of chat in the first session compared to the second session. This is ascribed to the nature of the task, which is probably correct. To capture the essentials in scenario two, all the answers to the questions are needed whereas the essentials in scenario one are the house selected for each place they look at and the final choice of a particular house among these.

5.3.3 Observations from the video

The total duration of the video track is 35.40 minutes. The video adds little information. One can see that none of the users are skilled typists. It takes quite some time for them to write a message. Karsten and Kurt, who only have a paper version of the scenario plus the one-at-atime question which Erik sends electronically, seem to look a the paper from time to time – probably to get an overview or quickly look up the formulation of a previous question. Erik only appears to use the screen for reading the scenario.

5.3.4 Analysis

A. What chat was (not) used for

The chat record shows that chat was used relatively more in scenario two. Chat is being used for establishing contact and making sure that all three of them are connected via audio and chat.

During task solving, chat is simply being used for keeping a record of the questions from the questionnaire and the answers provided by each user to each question. Chat is not being used for discussions. These are carried out orally.

B. What audio was (not) used for

The audio record complements the chat log by providing the discussion among the users of the questions and their answers to the questions, i.e. by providing more context for solving the task. The conclusions themselves are captured in the chat log.

The audio was mainly used for:

checking that they are all connected;

agreeing on how to approach the task;

discussing questions and answers.

Since we haven't made a transcription of the audio track it is hard to say which percentage of the utterances were used for what. However, the major part by far was spent on the last point, i.e. on solving the task.

C. The roles of text and audio

Even if chat is used much more in this session than in the first session, audio is clearly the preferred way of communicating when it comes to discussion. Apart for being used for establishing contact, chat is only used for keeping a record of answers to questions in the questionnaire, i.e. as a kind of common minutes.

D. Identified interface problems

The Magic Lounge software also worked well and without any problems during the second session. The users had no real problems in using it and didn't discuss any problems, apart from what was triggered by the questions in the questionnaire.

The users appear to use the speech acts quite happily and they also seem to try to choose the correct ones. However, as the above analysis shows, the correctness of their use of speech acts is not high and the speech acts coding scheme is also inherently problematic due to the lack of clarity in the difference between some of the speech acts. However, the latter is a design problem and not a question of whether the users are able to label utterances with speech acts at all. Our estimation is that as long as messages are sent and appear as expected, the users to not care much about whether they use one speech act rather than another. The effect is the same anyway.

5.4 Observations from the Debriefing (both Tasks)

After the two sessions in which the users solved scenarios 1 and 2, the Magic Lounge developers at NISLab met with the three users in a meeting room to discuss their impressions of the Magic Lounge system. The users comments are listed below:

- The system runs. There were no crashes.
- The system is well on its way to becoming user-friendly.
- The functionalities should be merged to avoid the many windows. If possible, it would be nice, at least, if one can control where they pop up.
- A whiteboard with drag-and-drop functionality is desirable.
- The system is well-suited for structuring common answers.
- The common memory is a good thing.
- Speech recognition would be desirable for creating a transcription of what is being said since it is easier to browse text than to browse speech.

Apart from the latter remark, all other comments were repetitions or summaries, more or less, of what the users had already said during the two scenario-based sessions. Thus, the debriefing comments reflect in their brevity quite well the essentials of the impressions (positive as well as negative) which the users expressed in the two trial sessions.

5.5 Conclusion

A. What chat was (not) used for

Chat was used much more frequently in the second session than in the first session. This seems to be an effect of the nature of the two tasks because the functions which chat was used for seem to be more or less the same in the two sessions. Chat was used for establishing contact and making sure that all three users were connected via audio and chat. During task solving, chat is used for keeping a record of decision points and other similarly important points, such as the answers to questions in the questionnaire. In this way, chat is used to capture the key points of the discussion during task solving.

B. What audio was (not) used for

The audio record reflects the task discussions which took place among the users, as well as other remarks which mainly served to establish contact and checking up on what the others were doing in the long pauses during which some of them were writing.

The audio was mainly used for:

checking that they are all connected;

checking the audio connection and adjusting it;

discussing where to see messages (at the very beginning);

guiding a user to the right web page if he got behind;

agreeing on how to approach the task;

discussing the task.

Since we haven't made a transcription it is hard to say which percentage of the utterances were used for what. However, the major part by far was spent on the last point, i.e. on solving the task.

C. The roles of text and audio

Audio is clearly the preferred form of communication when it comes to discussion. Apart for being used for establishing contact, chat was almost only used for keeping a record of important choices and decisions, i.e. as a kind of meeting minutes.

D. Identified interface problems

Apart from the initial server problems, the Magic Lounge software worked well and without any problems during the two sessions. The users who had all tried previous versions of the system had no real problems in using it and didn't discuss any problems, apart from what was triggered by questions in the questionnaire. The only sign of a problem is in the beginning where Kurt is not entirely sure where a message is supposed to appear. However, he is right in his assumption about where to find it and is quickly reassured by the others.

The use of speech acts does not seem to have been viewed as problematic by the users. They click a button and the message is being sent. This is what is important to them. It has no consequences which speech act they use. The analysis shows that the correctness of the use of speech acts is not high. The use of different speech acts is made even more questionable by some of them being more or less impossible to distinguish, such as 'inform' and 'report', 'negotiate' and 'suggest'.

6. Discussion of Findings

This section first summarises observations from the evaluation sessions. These observations include technical quality, usability and functionality issues, user satisfaction, the Magic Lounge toolbox, and the Magic Lounge manual, cf. sub-sections 6.1 through 6.5. Sub-sections 6.6 and 6.7 analyse more theoretical issues concerning meeting structure and audio versus chat.

6.1 Technical quality

A characteristic of the trials is that the participants encounter a number of technical problems during the sessions, such as that the server goes down, the audio refuses to work for a particular participant, a bad microphone causes noise, or the system causes noise. *Technical problems* are such which would temporarily impede, or severely hamper, use of the system by anyone, including people with perfect mastery of how to operate the system. Thus, the amount of technical problems encountered during the trials provide a good indication of the basic technical quality of the system including hardware, software, computers, peripherals and the network. In this report, of course, we are primarily interested in the technical problems encountered with the Magic Lounge software itself: which problems, how often, how bad, etc.

Technical problems noted in the chat and audio records:

Everything jumps to the left in chat windows.

The technical quality of the sound track was mediocre. In several cases, it is not possible to interpret the comments made because of noise. Part of the reason was that one of the users (Ole) used what later turned out to be a less-than-optimal desk-mounted microphone.

Although several problems were encountered while using the multicast audio tool, none of them impaired audio communication completely. Most of the noise in the first trials was due to the use of inappropriate equipment by at least one of the users (who used a low-quality microphone, as opposed to the head-mounted, noise-cancelling headsets used by the other participants). Part of the problems was due to problems with the audio hardware on one of the machines used in the trials. Since the machine in question was also running the Magic Lounge server, it was not possible to fix the problem without disrupting the activities of the whole group.

The server goes down after which a 3-minute long silence follows.

They spend minutes waiting for Laila's message (chat turn 49) which acts as a test message.

Svend had problems with the audio at the beginning of the session and hence stayed off-line in the chat as well while he was trying to get on-line helped by an assistant developer.

Before going into those issues, it is perhaps appropriate to point out that the system as a whole worked quite well during the trial. Except for Svend's remark on problems with getting the audio running, the system worked as intended. The software has improved significantly since our 1999 trials.

There was a problem with the Magic Lounge server which meant that Magic Lounge had to be restarted on all machines in the first session with users from the Danish Isles.

Kurt sends a message with the URL for Bornholm (www.bornholm.dk). The others apparently do not receive it to begin with, and they discuss where to view it and which thread has been used. But then the message arrives with some delay in the message viewer where they expected to find it.

Karsten observed a problem in viewing long messages, cf. the analysis in section 5.2. The problem is due to a bug in the software.

Apparently, Kurt had a problem with the sound connection at the very beginning of the second session with the users from the Danish Isles.

The questionnaire in Section 5.3 (the second session with the users from the Danish Isles) includes no direct question on technical problems, the assumption being that technical problems are quite easy to spot in the data when they occur. When asked in general about problems observed, the users only mention an echo-effect which perhaps was due to one of the users having a microphone and a loud-speaker rather than head-phones.

6.2 Observed usability and functionality problems

It is characteristic of the trials that participants encounter a number of usability problems during the session. Some are due simply to lack of basic knowledge about the system or to standard generic factors, such as the occasional failure to keep one's attention focused where it should have been. A possible example of the latter is when a developer sends the same message twice for no obvious reason. Other usability problem patterns reflect the general computer skills and possibly the personality of an individual user. Arguably, however, some user difficulties are due to usability problems generated by the software, which merit consideration in future revisions of the system. Typically, the usability problems are most frequent during the earlier phases of a meeting. Later on, the participants would usually have learned what they need to do in order to avoid problems operating the system. Problem avoidance is very different from mastery of the system, however. As the chat, audio and video records illustrate, problem avoidance often just means that a participant manages to reduce system operation to the bare minimum for the task, sometimes by means which were not exactly intended by the designers. An example is when a user sticks to using one particular speech acts button whatever the nature of the message to be sent, or uses threads randomly. In this report, we are of course primarily interested in the usability problems generated by the software rather than in those problems which merely reflect a user's temporary lack of familiarity with the system and which might be called *novice usability problems*. As for the former, system usability problems, we want to know: which problems, how often, how bad, etc.

We structure the list of identified system usability problems according to the alphabetically ordered problems catalogue developed in Section 3.2. We have added additional system usability problems to the catalogue when these were found in the other trial sessions. However, the usability problems listed in the catalogue appear to represent most of the actually observed usability problems in the data. In particular, most of the many usability problems which arose in the administrative staff meeting are represented in the usability problems catalogue below.

Inadequate visibility of functionality

Some functions should be made more visible: (a) how to select [all], (b) how to start a new 'thread', (c) where do you go when you want to see the full text of a message?

Lack of feedback

There is no immediate feedback in the Message Composer that a message has been sent.

Memory viewers: too many different views of messages?

It is not obvious that all the different views are necessary. In fact, this multiplicity creates problems of its own: (a) It is annoying that messages are shown in two different windows but

you have to select the one in the messages window to see it in the message composer. If you select the one in the conversations window nothing will happen. (b) if you highlight a message in the message viewer, the message doesn't automatically get highlighted in, say, the tree viewer. (c) If the tree viewer is 'collapsed', then it's possible that you'll see a message in the message viewer which apparently has no counterpart in the tree viewer.

Misleading menu keywords

'Conversation' is more misleading than, e.g. 'subject' which people are familiar with from email systems.

Non-obvious functions

(a) What is the difference between the tree-based message inspector and the tree version in the message viewer? (b) What can I use "export messages" for under File in the tree-based message inspector? (c) What will print? (d) What is the "open derivations tree" meant for under Tree? (e) It is not obvious how to clear a message field in the Message Composer. (f) In the Conversations window one has to select a subject and then select List before selecting Tree or html. Why is this? (g) In the Messages window, hyperlinks (or rather what looks like hyperlinks) don't work.

Selected Recipients function

The Selected Recipients function seems unintuitive and misleading. The primary interpretation of this function is that it is to be used for selecting to whom among the logged on participants one wants to send a contribution. As this is a false interpretation (see 2.1.2), a consequence is that:

No private chat is possible between a subset of those logged on.

Sending messages is too complicated

Simply sending a message is too complicated in terms of the mouse clicks needed. In order to send a single message the user needs to: select a message, in principle select a recipient, type in the message, choose a speech act, and activate the button that actually dispatches the message.

Speech acts

It is not obvious why not always the same number of speech acts are available. The users were puzzled by the changes in the affordance of speech acts for selection as they moved from starting a new thread to responding to an existing one. The logic behind the change was not immediately apparent to them.

Selecting an appropriate speech act is too hard to do during chat conversation. It is not obvious what is the utility and meaning of labelling messages with speech acts. Although the labelling potentially contributes structure to the memory module, it is not clear that the additional costs involved in labelling each message really pays off.

The developers did not manage to use the speech acts functionality correctly by far, nor did the other user groups observed in the trials. The administrative staff participants never understood the speech acts functionality in the first place. The reason why they used 'inform' most of the time was that 'inform' had been used to send a message in the introduction to the system given by an assistant. As discussed in 3.2.1, using the speech acts functionality correctly is not even theoretically possible to do because of (a) the arbitrary nature of the Magic Lounge speech acts coding scheme and (b) the fact that there are sometimes more than one speech act in a particular chat turn.

The system usability problems noted in the chat and/or audio records include:

- Ole's observation that one has to write the speech act labels in full to get a return when trying to structure the chat record in terms of speech acts no abbreviations are allowed; and Laila's remark about the unintuitiveness of choosing how to respond to a message (Section 3.2).
- The discussion of the apparent functionality redundancy between the Tree Inspector and the tree in the Message Viewer is inconclusive as is the discussion of the utility of the derivation tree (Section 3.2).
- Another inconclusive discussion concerns which chat memory record windows could be merged. Proposals include the Message Viewer, the Tree Inspector and the Topic Viewer. The same is true of the very important discussion of whether to prefer having a joint editing window without structure to having the structured Magic Lounge chat (Section 3.2).
- Ole interrupts the link to the server, not being aware that this window must stay on the screen (Section 3.3).
- Ole: Laila, if I don't want to hear you speaking, can I shut you down somewhere? (Section 3.3).

0: Laila: I have sent you a list of what we have so far (see chat log in Appendix 2, turn 61); 1: Ole: what message?

- 1: Laila: it starts with ... Do you have it?
- 2: Ole: finally finds the message;
- 2: Ole: how do I read the whole message?
- 2: Laila: explains (Ole seems to have expected a longer message);
- 2: Ole: I get lost all the time; (Section 3.3).

The – for the time being – moot question whether Magic lounge should include a common whiteboard. This issue comes up in several sessions.

• It seems probable that the NISLab administrative staff users never realised the intended use of the speech acts buttons.

There were lengthy discussions between Namo and Merete on the functionality of different windows. Namo had difficulty understanding the various meeting history browsing facilities offered by the Magic Lounge. Clearly, the different functionalities are not obvious to first-time users.

Namo had occlusion problems with having too use many open windows at the same time;

Namo had difficulties selecting several recipients to send to from the menu. This point was not made in the introduction to the system (cf. 4.1, see also 2.1.2) and does seem to be a highly ambiguous feature of the current Magic Lounge interface. It is very tempting, but false, to assume that if you select particular participants from the menu showing who is logged on, then the message which you subsequently send will be sent to the selected participants only;

- Merete and Namo continued to have problems with composing and sending messages.
- The users from the Danish Isles all of whom had tried previous versions of the system, had no real problems in using it and did not discuss any problems. The only sign of a problem is in the beginning where Kurt is not entirely sure where a message is supposed to appear. However, he is right in his assumption on where to find it and is quickly reassured by the others. (Section 5.2).
- When asked directly about the Magic Lounge functionalities, the users from the Danish Isles answer that these are still too rigid and that there are too many windows to navigate among. The main functionalities should be merged into one window. The Message

Composer/ Messages/RAT should all be in one window where further details on functionality may appear when clicking on an icon in a tool bar. In the timeline mode it should be possible to use the scroll bar. There should be autoscroll in the message viewer. The islanders miss the whiteboard, a better identification of who is speaking (a picture), and a video camera on the PC (Section 5.3).

6.3 User satisfaction

Our primary source as regards user satisfaction are the comments made by the users from the Danish Isles. As mentioned in Section 6.2, they still have a number of wishes to the Magic Lounge functionality and usability. However, their overall evaluation was quite positive as shown by the following comments from the questionnaire and from the debriefing sessions:

From the questionnaire (comments from one or more users under each point):

How was the collaboration (smooth, difficult, etc.), and why: Much smoother than last time – Magic Lounge is much better now!!! We could work in a simple way not interrupted by frequent hangups.

How were your expectations to the Magic Lounge compared to your actual experiences: I'm incredibly positively surprised. A nice piece of work has been done in the meantime. It has been a positive experience to collaborate about the tasks using the system today also as regards functionality.

Other comments: It works fine now. I look forward to being able to meet from home. I would like to continue working with the Magic lounge. It seems very much as if we now have something which really has potential. When it becomes common to have fast connections – perhaps in a year from now – then Magic Lounge is the program which fits this – and it is really important that we in Europe have a common tool for this.

Comments from the debriefing include:

- The system runs. There were no crashes.
- It is well on its way to becoming user-friendly.
- The system is well-suited for structuring common answers.
- The common memory is a good thing.

In conclusion, the users who have followed the Magic Lounge system from Year 1 are now fairly satisfied with the system and would like to see further developments to solve remaining usability and functionality issues, such as being audio connected and not only chat connected from their homes.

6.4 The Magic Lounge toolbox

Originally, we had planned to make a walkthrough of each tool in the Magic Lounge toolbox, commenting on observations made during the evaluation sessions. The Magic Lounge comprises the following tools:

audio tool and meeting browser

message composer

message viewer

topic viewer

tree inspector

preferences tool

However, the individual tools were never really evaluated one by one. They were rather seen in combination with each other to provide the functionalities of Magic Lounge.

The actual discussions turned out to focus on overlapping functionalities and how easy it is for users to get lost in a myriad of open windows. There seems to be general agreement on this point across all user groups in the trials. It seems fair to say in conclusion on the user test that before discussing the functionality of the individual windows, an attempt should be made to merge the windows in order to remove redundancy between windows as well as between some of the individual functionalities within the windows.

The problems related to having many windows open at a time are being reinforced by the fact that, in some sessions, it was necessary to have a web browser open or to refer to a text editor.

6.5 The Magic Lounge manual

A manual on how to use the Magic Lounge was provided by the French team. However, the manual was hardly ever used. Arguably, the system should be usable without consulting a manual and we wanted to test to which extent this is true. Thus, we only provided a brief oral introduction to our users as explained in Sections 4 and 5 above. The users were given the manual as well but were not encouraged to study it prior to the trial sessions.

The users' answers to the questionnaire in Section 5.3 confirm that they want a walk-up-anduse system. They don't want to read long instructions in order to get started.

6.6 Meeting structure

Establishing contact

Establishing contact is typical during the early phase of meetings among the participants on the chat and audio channels. This was done in all the observed meetings. Contact-establishing turns were of two types. The first type was the simple greeting used more or less as in face-toface meetings, such as "Hi, Merete". The second type is crucial to virtual meetings. It may be phrased as "Hi, Merete" but its primary purpose is to test whether Merete is on-line and not to be polite to Merete. This testing function is often made explicit as in "Merete, are you there?" or "Kurt, can you hear anything?". The start of most meetings shows a considerable number of contact-building messages, which indicates that one or more participants had trouble making sure that the others were on-line because some of them often had problems with the chat or with the audio, or both, at the beginning of the meeting. The problems were either usability problems or technical problems or both (cf. above). In most cases, problems were caused by the Magic Lounge server or the audio connection. The presence of a problem often gave rise to audio discussions of the problem – if these were not prohibited by a severe audio problem. There are few chat exchanges about technical problems and usability problems in the data with the exception of the developers' session on the Magic Lounge software in which such problems were part of the meeting agenda.

Meeting organisation

Meeting organisation exchanges are typical during the early phase of meetings These often include putting one of the participants in charge of creating the meeting minutes or distributing the meeting note writing task, and creating a central chat thread which will serve as meeting notes repository as the minutes are being created on-line. Meeting organisation turns are found in all the meetings observed. In the administrative staff meeting, however, organisation fails because the person proposing to do the meeting minutes has major usability problems most of the time. In the absence of meeting organisation, as illustrated by the administrative staff meeting, there seems to be a tendency to cross-talk proliferation, one participant writing about one sub-task whilst a second participant is producing text on a different sub-task. Chat cross-talk was virtually absent from the organised meetings in the data. However, the fact that both chat and audio are being used appears to help keeping the potential negative effects of chat cross-talk at bay.

Task solving

Task solving typically takes place during the middle and later phases of meetings The participants settle down to perform the common task specified in the scenario. Contacts have been established, the meeting has been organised either explicitly or implicitly, individual patterns of use have been established, and the task is in focus most or all of the time, interrupted only – in some cases - by occasional usability problems or technical problems. There are exceptions to this pattern as in the second session with the users from the Danish Isles. In this session, by far the most phrases are related to task solving and there are very few introductory utterances.

Meeting patterns

During meetings there are typically different patterns and frequencies of participation among the participants on the chat and audio records. One general pattern is that, if a participant has accepted to do the meeting minutes, that participant is less active than the others on the audio track.

6.7 Use of audio vs. use of chat for different tasks

Chat vs. audio

The data consistently shows that it is impossible from the chat track alone to obtain a full overview of the topics discussed on the audio track and hence in the meeting as a whole. The audio record generally contains substantial discussions of topics which are completely absent from the chat record, providing, therefore, a very different perspective on the meeting from the one shown in the chat record. This is probably in part due to the meeting organisation decisions made on what to use the chat for, such as to minute task decisions. If some subject is outside of the task proper, it is often not reflected in the chat record at all, independently of whether this subject is the making of a joke, negotiation of how to organise the meeting, the occurrence of a technical problem or usability problem, a meta-comment on a chat message, comments during joint web browsing, new ideas to be explored later on after the session, or an important but inconclusive discussion of the MagicLounge software. Also, if a spoken remark or exchange adds a finer point to the discussion, such points are often not found in the chat record, presumably because of the difficulties of keeping up with discussion when doing on-line chat meeting minutes. Even major points made on the task may sometimes be absent from the chat record for the same reason. This is similar to written minutes from face-to-face meetings. Finally, lengthy audio discussions often only generate a single brief chat message summarising the conclusion.

Moreover, substantial points may be in the chat record although they are hardly mentioned in the audio record at all, presumably because everybody saw what was in a particular chat message and simply agreed with it. The result sometimes is sophisticated "dual-tasking" as illustrated in Section 3.2.2. Thus, both the audio and the chat records tend to be used economically, just in different ways. The difference is that, in task-oriented dialogues, the chat record tends to be goal-oriented and parsimonious: if an audio exchange is not within the agreed scope of meeting minuting, it does not get reflected in the chat record. The audio record, on the other hand, is where to find the unplanned contributions and topics which may sometimes be just as important than the planned ones.

The different roles of chat and audio would seem to provide part of the explanation why the audio tracks in our data invariably contain vastly more turns and words than the corresponding chat tracks.

The following list includes observations from the evaluation sessions and supports the conclusions made in this section:

- People active on the chat record are often less active on the audio record, and vice versa (cf. above).
- Audio helps to quickly unravel the confusion generated by cross-purpose chat messages.
- Kurt remarks that they only talk together. Erik says that this is just like last time. Moreover, they use the full screen for the browser. [chat is in trouble during joint web browsing] (Section 5.2).
- Chat is used for exchange of information which has to be correct and which should not be misunderstood. Speech was the supportive element leading the communication and making it "live" (Section 5.3).

The conclusion seems to be that a proper meeting record needs to include both the audio and the chat records. The chat record tends to be narrow and focused on the essentials of establishing contact and creating meeting minutes. The audio track tends to be where most of the activity takes place, including many activities which are absent from the chat record. For this reason, the chat record is a poor indicator of the activity of individual participants. To gauge that, both records are needed.

Chat and audio combined

Chat and audio have different and complementary roles. Audio is used the most by far and generally appears to be the preferred modality of communication between the meeting participants. In a combined audio/text context in which users have to solve a common task, chat is being used for:

exchanging initial greetings;

sending test messages to make sure that the system works and/or that one has understood how to use the system properly;

• solving the task, in particular keeping a record of decision points and other important issues.

On the other hand, chat is not being used for:

- discussing problems of how to operate the software;
- guiding a user when he has problems e.g. in finding a web page;

discussing sub-task contributions made in chat;

discussions in general;

• joking together about the task.

The audio was mainly used for the following purposes, to:

- check the audio connection and adjust the volume
- exchange initial greetings and farewells at the end of the session;
- discuss usability problems and Magic Lounge functionality issues, including advice on when to call in an assistant, guidance of one of the other users, and discussion of where to see messages (at the very beginning);
- agree on how to approach the task;

- task-related discussions, such as web sites to visit, and which summer house to select;
- discuss the (seriously meant) sub-task contributions distributed as text messages; and
- make jokes and frivolous remarks about the task domain and the task options.

The following paragraphs extracted from the test analyses provide more details on these findings:

The Magic Lounge developers discuss one of the really big issues raised by the Magic Lounge virtual meeting system (Section 3.2). They discuss the relative advantages of chatonly, speech-only and chat-cum-speech. They all agree that, given the speech, chat is useful for making meeting notes in real-time, such as the Magic Lounge evaluation report, and for presenting an agenda to the meeting participants. Laila suspects that the chat record will become messy if speech is not being used in parallel.

Although audio was still the predominant communication medium in the second session with the Magic Lounge developers (cf. Section 3.3), the text component performed a much more active role than it did in Trial Session 1. The users generally felt that the text component enabled them to bridge some gaps created by the predominant reliance on the audio, e.g. when the users referred to a particular URL, or when a future task (a speech act of the type "promise") was assigned. The fact that the minute taking role of the chat component was assigned from the outset is probably the reason why this session made more effective use of that component.

In the test with the administrative people as users (Section 4) the chat text has a central role throughout on the sound track, first as a cause and subject of problem-solving and then as a vehicle for exchanging task contributions. The oral track follows the chat track closely. This was not generally true of the other sessions. Chat appears to potentially pose significant usability problems for users who are already familiar with traditional chat systems, cf. Section 4.

The users in Section 4 would tell the others that they were in the process of composing a contribution to solving some specified sub-task. This had the double effect of assuring the others that they were keeping to the tacit agenda of focusing on one, or at most two, sub-tasks at any one time, and of explaining to the others why they were not speaking at that particular point in time, being absorbed in message composition.

A similar thing could be observed in particular in Section 5.3, i.e. in the second session with the users from the Danish Isles. They spent quite some time on writing and it happened a few times that one of them – becoming impatient - checked whether the others were just still writing.

7. Conclusion

This section briefly summarises the major findings of the user trial sessions described in this report and proposes future work.

Major findings

As a running system prototype, the Magic Lounge software works so well that it can be used for practical purposes, such as its planned use in the new European HLT CLASS project which is lead by NISLab and has DFKI, LIMSI and IRST, Trento, as partners. More generally speaking, the technical quality of the software is now an important asset for the consortium.

The system still raises major problems of usability. For one thing, it appears apt to cause significant start-up problems with first-time users. For another, the some consistent messages across the different trial sessions reported above suggest that the speech acts functionality is a meaningless, but also pretty harmless, gadget to the users, and that the interface has a grossly over-inflated use of different windows. This calls for a simplification of the interface but not, as such, for dropping any particular interface functionality. An important, but moot interface issue is whether the present chat on-line text communication system is better than, equal to, or inferior to using a joint editor window. Given the nature of the main usability problems just described, it is perhaps understandable that our most seasoned users, the islanders, are now quite happy with the system and cannot wait to get copies of the software for use in their daily lives.

We believe that the present version of Magic Lounge proves that there are major, or even enormous, advantages to using chat combined with speech rather than using chat-only, at least of a large number of purposes which could benefit millions of people every day. The data above has provided us with exciting insights into the interplay between chat and audio in "real virtual" meetings, and we are certainly going to investigate these things more deeply during the coming months.

Future work

In addition to building a more mature understanding of chat and audio, and of the structures of chat-and-audio meetings, than has been possible in this report, other future topics of investigation which we would like to address in the collected data and in additional test data include:

individual patterns of use and non-use of the system's functionality. Investigation of such patterns requires full screen logging in addition to the types of log we already made in the trial sessions reported above;

timeline-based correlations between the audio and chat records. In the user trial chat and audio records reported above there was no correlation between the audio and the chat. The two logs were completely separated. However, correlation is desirable in order to get a better idea of when what happens and how what seems to be pauses in one log perhaps is filled in by activities recorded in the other log.

general comparison with face-to-face meetings. Some of the activities observed seem to correspond very well with what one would expect to find in face-to-face meetings whereas others do not. We would very much like to map out in detail what the differences and commonalities are. The findings from such a study are likely to affect development issues.

the task-relatedness of results. More analysis of our data is necessary in order to understand to which extent they are task-related and which consequences this may have.

References

1. Klein, M., Bernsen, N.O., Davies, S., Dybkjær, L., Garrido, J., Kasch, H., Mengel, A., Pirrelli, V., Poesio, M., Quazza, S. and Soria, S.: Supported Coding Schemes. MATE Deliverable D1.1, July 1998.

2. Luz, S and Gromov.: A. Multicast audio conferencing and recording. Technical report, NIS Laboratory, Odense, Denmark, September 1999.

3. Roy, D.M. and Luz, S.: Audio meeting history tool: Interactive graphical user-support for virtual audio meetings. In *Proceedings of the ESCA workshop: Accessing information in spoken audio*, pages 107-110. Cambridge University, April 1999. http://www-svr.eng.cam.ac.uk/~ajr/esca99/ http://www-svr.eng.cam.ac.uk/ ajr/esca99/.

4. Schulzrine, H, Casner, S., Frederick, R., and Jacobson, V.: RTP: A transport protocol for real-time applications. IETF Internet Draft draft-ietf-avt-rtp-new-04, February 1999.

Appendix 1. Scenarios

In each of the first two trials only one scenario was used. In the third trial two scenarios were used the second of which was a questionnaire on the Magic Lounge System. In the following the scenario texts given to users are shown.

Scenario to solve in the Magic Lounge user test 23.6.2000

Visit the NISLab web site at www.nis.sdu.dk. Discuss and propose how it can be improved.

Scenario to solve in the Magic Lounge user test 7.7.2000

You have volunteered to be one of the organisers of a summer party for your department. Together with the other organisers you must make a detailed planning of the event, including where to party, when to party, what to eat and drink, who will do what, costs, entertainment, etc.

Scenario to solve in the Magic Lounge user test 28.7.2000

The last user test of the Magic Lounge involved two scenarios. The first scenario was a brief task description in English much like the scenarios used in the earlier trials. The users discussed in Danish. The second scenario was an evaluation questionnaire in Danish. All participants were Danish and we found that it would be easier for them to read and discuss the questionnaire in their native language.

Scenario 1

Some friends (a family consisting of two adults and three children aged 4, 10 and 15) have asked you to find a Danish summer house for them. They want to stay for a week in July or August. It is a priority that the house is very close to a beach with good swimming possibilities. The price must be reasonable. Check up on offers and best-buys and discuss what you would propose to them and why.

Scenario 2: Questionnaire

Dette er det andet scenarie I skal løse med Magic Lounge. Det går ganske enkelt ud på at evaluere systemet ved at svare på de følgende spørgsmål og tilføje hvad der ellers falder jer ind.

Var du blevet tilstrækkeligt forberedt til at bruge systemet på egen hånd:

Hvor meget brugte du/I chat (skreven tekst) i forhold til tale i det første scenarie og i dette:

Hvad brugte du/I chat til?

Hvad brugte du/I tale til:

Hvor meget var samarbejde og hvor meget foregik på egen hånd (evt. skelnes mellem de forskellige opgaver og delopgaver):

Hvordan gik samarbejdet (glat, besværligt, etc.), og hvorfor gik det sådan?

Hvilke problemer med systemet observerede du:

Hvordan var det at løse en opgave via Magic Lounge:

Hvad mener du om Magic Lounge grænsefladen:

Hvad mener du om funktionaliteterne i Magic Lounge:

Hvad mener du om at have lyd til rådighed under samarbejdet:

Hvad mener du om kvaliteten af lydforbindelsen:

Hvad mener du om at skulle bruge talehandlinger, når du sender en besked:

Havde du brug for andre programmer i kombination med Magic Lounge? Hvis ja, hvilke:

Hvilke funktionaliteter synes du manglede helt eller delvist i Magic Lounge:

Hvad vil du gerne kunne bruge Magic Lounge til i din dagligdag:

Hvad kan du lide ved Magic Lounge:

Hvad ser du gerne forbedret ved Magic Lounge:

Hvordan var dine forventninger til Magic Lounge sammenlignet med dine faktiske erfaringer: Andre kommentarer:

Appendix 2. Text Log Files from the User Trials

Appendix 2.1. Developers' Tests, Trial Session 1: Discussing the Magic Lounge Software

Task contributions and the selected speech acts are in boldface.

```
- 3 -
```

6/15/00 4:43 PM laila **request** about "Hi Ole. How are you. And what about you Nino." to all Are you there Nino?

- 4 -

6/15/00 4:50 PM nob **inform** about "gossiping." to laila hi, laila, i don't know In reply to...

- 5 -

6/15/00 4:56 PM laila **inform** about "Ole has a problem" to laila

Ole seems to have a problem with his windows. He invites us to come and see it. In reply to...

- 6 -6/15/00 4:59 PM nob **inform** about " to all talk talk

- 7 6/15/00 4:59 PM laila request about "Speech acts" to all
I wonder how we get more speech acts

- 8 6/15/00 5:01 PM amaral negotiate about "Speech acts" to laila
I don't know In reply to...

- 9 6/15/00 5:03 PM nob reject about "speak" to laila speak speak In reply to...

- 10 - 6/15/00 5:05 PM nob **inform** about "hej" to all

hej hej

- 11 -

6/15/00 5:14 PM amaral report about "hej" to nob

In order to send 1 message you need to: 1 - select a message 2 - select a recipient 3 - type in the message 4 - choose a speech act 5 - send the message In reply to...

- 12 -

6/15/00 5:14 PM laila **report** about "hej" to nob This is a reply. In reply to...

- 13 -

6/15/00 5:17 PM amaral **promise** about "hej" to amaral **This chat tool is driving me mad!** In reply to...

- 14 -

6/15/00 5:18 PM laila **inform** about "hej" to amaral, laila, nino, nob This is a test on sending to selected people. In reply to...

- 15 -

6/15/00 5:19 PM nob **report** about "Speech acts" to laila buh In reply to...

- 16 -

6/15/00 5:21 PM amaral **report** about "ML (un)usability report" to amaral, laila, nino, nob why don't you start a thread on this? In reply to...

- 17 -

6/15/00 5:24 PM amaral **offer** about "ML usability report" to all OK. That should start a new thread

- 18 -

6/15/00 5:27 PM nob **report** about "ML usability report" to amaral **seems too difficult to indicate that a message should be sent to all** In reply to...

- 19 -

6/15/00 5:30 PM nob **report** about "ML usability report" to amaral menu: topic viewer, window itself: conversations In reply to...

- 20 -

6/15/00 5:31 PM amaral report about "ML usability report" to nob

I find it hard to make sense of all the different views. (e.g. if you highlight a message on the message viewer, the message doesn't automatically get highlighted on, say, the tree viewer. If the tree viewer is 'collapsed', then it's possible that you'll see a message in the message viewer which apparently has no counterpart on the tree viewer In reply to...

- 21 -

6/15/00 5:32 PM laila inform about "Speech acts" to amaral, laila, nino, nob

The conversation line should rather be called "subject" (cf. emails). I really don't like that I have to select a speech act in order to send a message. I tend to just select some rubbish. It is not clear how to reply to a message. We figured out that clicking the topmost frame of this window will clear the selected message field. There is no immediate feedback in this window that a message has been sent. In reply to...

- 22 -

6/15/00 5:33 PM laila report about "ML usability report" to amaral, laila, nino, nob

The conversation line should rather be called "subject" (cf. emails). I really don't like that I have to select a speech act in order to send a message. I tend to just select some rubbish. It is not clear how to reply to a message. We figured out that clicking the topmost frame of this window will clear the selected message field. There is no immediate feedback in this window that a message has been sent. In reply to...

- 23 -

6/15/00 5:34 PM nob **report** about "ML usability report" to nob reply to does not seem to have any function In reply to...

- 24 -

6/15/00 5:35 PM amaral report about "hej" to amaral

One needs too many clicks (each preceded by some decision making) in order to ("simply") send a message: 1 - select a message 2 - select a recipient 3 - type in the message 4 - choose a speech act 5 - send the message In reply to...

- 25 -

6/15/00 5:35 PM amaral report about "ML usability report" to amaral, laila, nino, nob

One needs too many clicks (each preceded by some decision making) in order to ("simply") send a message: 1 - select a message 2 - select a recipient 3 - type in the message 4 - choose a speech act 5 - send the message In reply to...

- 26 -

6/15/00 5:36 PM nob report about "ML usability report" to amaral

it does not matter to whom i address a chat act - everybody logged in will get the message In reply to...

- 27 -

6/15/00 5:36 PM laila report about "ML usability report" to amaral, laila, nino, nob

It is not clear why we only start with four speech acts but get eight when a message has been sent. Why cannot we start to promise something for example? There is no privacy. Everybody will get the message you send independent on "selected recipients". In reply to...

- 28 -

6/15/00 5:38 PM laila report about "ML usability report" to amaral

In the conversations window one has to select a subject and then select list before selecting tree or html. Why is this so? Hyperlinks (or rather what looks like hyperlinks) don't work. In reply to...

- 29 -

6/15/00 5:40 PM laila report about "ML usability report" to amaral

There are too many windows showing more or less the same. It must be possible to show things in a simpler way. In reply to...

- 30 -

6/15/00 5:44 PM laila report about "ML usability report" to amaral, laila, nino, nob

What is the difference between the tree-based message inspector and the tree version in the message viewer? In reply to...

- 31 -

6/15/00 5:45 PM amaral report about "Visibility of components" to laila

some functions should be made more visible: 1- how to select [all] 2 - how to start a new 'thread' 3- where do you go when you want to see the who text of a message? In reply to...

- 32 -

6/15/00 5:50 PM laila report about "ML usability report" to amaral

What can I use "export messages" for under File in the tree-based message inspector? What will print print? What is the "open derivations tree" meant for under Tree? In reply to...

- 33 -

6/15/00 5:53 PM laila report about "ML usability report" to amaral

It is annoying that messages are shown in two different windows but you have to select the one in the messages window to see it here in the message composer. If you select the one in the conversations window nothing will happen. In reply to...

Appendix 2.2. Developers' Tests, Trial Session 2: Website Review Task

Task contributions and the selected speech acts are in boldface.

- 34 -

6/21/00 4:23 PM nino offer about "hi Magic Monitor" to Magic Monitor howdy!

- 35 -

6/21/00 4:24 PM nino inform about "new message." to amaral, laila, Magic Monitor, nino, nob

I'm now testing the magic lounge activity monitor

- 36 -

6/21/00 4:26 PM amaral **inform** about "hello" to amaral, laila, Magic Monitor, nino, nob that's another test

- 37 -

6/21/00 4:36 PM amaral **inform** about "sdsjdksajdkasjdkasjd" to all dsadsadj ahg fhgfdklhgfdih78rfdbmvcb,mb

- 38 -

6/21/00 4:40 PM nino **inform** about "hi" to all this is yet another test message

- 39 -

6/21/00 4:44 PM ronaldo **inform** about "fsdyfuasdyfuisdyf" to all hi there

- 40 -6/21/00 4:58 PM nino **report** about "hej" to laila a test In reply to...

- 41 -

6/23/00 2:41 PM amaral **inform** about "another test message" to all hi reviewers! here's the wonderful system we've come up with

- 42 -6/23/00 2:44 PM nino inform about "test" to all testing again

- 43 -

Deliverable D6-Y3

6/23/00 3:24 PM ld **request** about "Hello" to all Is anybody here?

- 44 -

6/23/00 3:25 PM nob **inform** about "objection" to all I think it is an outrage that I am represented as Claude, or something, a stupid ugly bear. Ole

- 45 -

6/23/00 3:27 PM ld **inform** about "objection" to nob I'd really like to see that :-))) In reply to...

- 46 -

6/23/00 3:28 PM ld inform about "Talk" to all

I think you are cheating - just talking to one another because you are in the same room. It's pretty boring in here just talking to oneself.

- 47 -

6/23/00 4:13 PM nob **request** about "juhu" to all Laila, er du der?

- 48 -6/23/00 4:17 PM ld **request** about "Hi Ole" to all Do you get this?

- 49 -

6/23/00 4:39 PM ld **inform** about "Minutes of discussion of the NIS web pages" to all **Ask Anne to update publications. Add new entry at www.nis.sdu.dk called Jobs.**

- 50 -

6/23/00 4:44 PM ld inform about "Minutes of discussion of the NIS web pages" to ld

Ole will send Laila the two new job advertisements when they are ready. www.nis.sdu.dk: Change Leader of NISLab gets prize to NISLab gets prize. In reply to...

- 51 -

6/23/00 4:47 PM nino **offer** about "About the system itself" to all I'm starting a new thread for problems etc related to the ML and audio

- 52 -

6/23/00 4:48 PM nino **report** about "Minutes of discussion of the NIS web pages" to ld **Education www.it-uni.sdu.dk** In reply to...

- 53 -

6/23/00 4:56 PM ld **inform** about "Minutes of discussion of the NIS web pages" to ld Ole will ask Lise Lotte to update the IT-vest web pages. In reply to...

- 54 -

6/23/00 4:59 PM ld **inform** about "Minutes of discussion of the NIS web pages" to ld www.it-uni.sdu.dk should be updated. Describe NIS contributions to the education, the lines we are following and a description of courses. Include links to the IT-vest pages. Nino will look into this. In reply to...

- 55 -

6/23/00 5:00 PM nino **promise** about "Minutes of discussion of the NIS web pages" to ld Nino offers to write about our contribution to IT West (in the education web page) In reply to...

- 56 -

6/23/00 5:01 PM ld **inform** about "Minutes of discussion of the NIS web pages" to ld Under jobs add that people who might want to do a PhD here could write to us at any time and we may then help them. In reply to...

- 57 -

6/23/00 5:04 PM ld **inform** about "Minutes of discussion of the NIS web pages" to ld Svend and Nanett should be moved to the alphabetically correct places. In reply to...

- 58 -

6/23/00 5:07 PM ld **inform** about "Minutes of discussion of the NIS web pages" to ld http://www.nis.sdu.dk/projects/: Move ELSE, add logos, add full extensions of acronyms, add CLASS, add EFS, add DARPA Communicator, add ISLE. In reply to...

- 59 -

6/23/00 5:11 PM ld **inform** about "Minutes of discussion of the NIS web pages" to ld Add SIGdial to list of projects. In reply to...

- 60 -

6/23/00 5:16 PM ld inform about "Minutes of discussion of the NIS web pages" to ld

http://www.nis.sdu.dk/projects/: Move You may also see a list of our past projects. to the bottom of the page. Change the headline from Projects to Research projects. The projects listed -] The research projects listed for the time being. -] for the time being. Most of the

projects are funded by European research programmes. Ole will send Laila a one-liner about each project. In reply to...

- 61 -

6/23/00 5:25 PM ld inform about "Minutes of discussion of the NIS web pages" to ld

http://www.nis.sdu.dk/research/: Maybe use information from the penultimate paragraph for the description on the projects page. The past NIS projects paragraph should go or be moved as well. Send electronic version of the three remaining paragraphs to Ole. Add a 7th point on the front page called Software. Include here pointers to MATE, Magic Lounge, Y-notes, SMALTO, CODIAL Replace the SDU logo with the NIS logo. Make a link to the university on the front page. In reply to...

- 62 -

6/23/00 5:27 PM nino **suggest** about "Minutes of discussion of the NIS web pages" to ld perhaps we should have a NIS logo at the top of each page (instead of the SDU logo) In reply to...

- 63 -

6/23/00 5:29 PM nino request about "About the system itself" to nino

do new messages automatically appear expanded when the tree has been expanded once In reply to...

- 64 -

6/23/00 6:01 PM nob suggest about "new topic" to laila

f In reply to...

Appendix 2.3. Secretaries' Test, Trial Session 1: The Party Task

Task contributions and the selected speech acts are in boldface.

- 65 -

7/7/00 2:05 PM namo offer about "ml test (merete et al)" to all welcome to the ML

- 66 -

7/7/00 2:06 PM namo **inform** about "ml test (merete et al)" to namo hey I'm here In reply to...

- 67 -

7/7/00 2:17 PM namo **inform** about "ml test (merete et al)" to namo hej er i der - kan i høre mig In reply to... - 68 -

7/7/00 2:18 PM namo **inform** about "merete" to all hej merete

- 69 -

7/7/00 2:19 PM merete **inform** about "nanett" to all hej nanett

- 70 -

7/7/00 2:20 PM namo **inform** about "hejsa" to merete hej merete

- 71 -

7/7/00 2:24 PM namo **inform** about "nanett" to merete KAN DU SE HVAD JEG SKRIVER In reply to...

- 72 -7/7/00 2:25 PM namo **inform** about " to merete KAN DU STADIG IKKE LÆSE HVAD JEG SKRIVER

- 73 7/7/00 2:26 PM merete inform about "
to namo
jo jeg kan godt læse din mail In reply to...

- 74 7/7/00 2:27 PM merete inform about "Svend og nanett" to all Er I begge på nu

- 75 7/7/00 2:28 PM svend inform about "svend" to all hej med jer, saa er jeg paa, men kun paa tekst

- 76 -7/7/00 2:29 PM namo **inform** about "MERETE" to all KAN I SE HVAD JEG SKRIVER

- 77 -
7/7/00 2:31 PM svend suggest about "merete og nanett" to all

nu har jeg faaet skrevet jeres navne naa men vi skal i gang med opgaven: hvem vil laege hus til?

- 78 -

7/7/00 2:33 PM svend suggest about "merete og nanett" to all

jeg synes vi skal holde festen hos merete, fordi hun bor taettest paa havet, er du med paa den, Merete?

- 79 -

7/7/00 2:33 PM namo **inform** about "Svend og nanett" to merete JA..NU KAN JEG SE JER In reply to...

- 80 -

7/7/00 2:34 PM merete inform about "merete og nanett" to svend out of the question In reply to...

- 81 -

7/7/00 2:36 PM namo inform about "merete og nanett" to svend 1. VENUE: OLE BOPÆL I NYBORG In reply to...

- 82 -

7/7/00 2:39 PM namo **inform** about "merete og nanett" to namo HVAD TID SKAL VI AFTALE FESTEN BEGYNDER In reply to...

- 83 -

7/7/00 2:39 PM merete inform about "merete og nanett" to namo

Oles hus ligger ved vandet og der er en lille græsplæne, som aldrig bliver slået!!!!!!! In reply to...

- 84 -

7/7/00 2:39 PM svend **suggest** about "merete og nanett" to all **jeg synes at vi skal have grillmad, evt. fisk - hvad synes i om det?**

- 85 -

7/7/00 2:40 PM merete **inform** about "merete og nanett" to namo **Hvad med kl 13 en solskinsdag In reply to...**

- 86 -

7/7/00 2:42 PM merete inform about "merete og nanett" to svend

eller kød grillet In reply to...

- 87 -

7/7/00 2:43 PM svend **suggest** about "merete og nanett" to all **jeg tager grillpoelser med, og broed og en 6-pack - ok?**

- 88 -

7/7/00 2:47 PM svend **inform** about "merete og nanett" to all godt lad os holde det paa falsled kro, rudolf mathis eller hesselet

- 89 -

7/7/00 2:47 PM namo **inform** about "merete to all nanett skal ringe til kokken i morgen og få en rabatpris

- 90 -

7/7/00 2:48 PM merete suggest about "merete og nanett" to svend

jeg forstod på ole at han godt ville spendere en god middag og evt give et glad vin i haven inden eller efter In reply to...

- 91 -

7/7/00 2:49 PM merete inform about "merete og nanett" to svend det synes jeg er ok In reply to...

- 92 -

7/7/00 2:50 PM svend **suggest** about "merete og nanett" to all fast dato?

- 93 -

7/7/00 2:53 PM namo inform about "merete" to all

holdes fredag den 21 july kl 19 , venue er stadig åben svend foretrækker rudolf mathies ligesom merete

- 94 -

7/7/00 2:54 PM namo **inform** about "merete" to all nanett ringer til rudolf mathies

Appendix 2.4. Islanders' Test, Trial Session 1: Web Browsing Task

Deliverable D6-Y3

7/28/00 11:54 AM ld **inform** about "hej" to all dfkal dskfajædjg

- 96 - ???????????

7/28/00 11:55 AM ld **promise** about "hej" to ld test ytest test In reply to...

- 97 -

7/28/00 12:19 PM Kurt **inform** about "Scenario Ferie" to all Hi Karsten og Erik - har I læst scenariet ?

- 98 -

7/28/00 12:20 PM erik **inform** about "test" to all er der nogen hjemme

- 99 -

7/28/00 12:21 PM erik **inform** about "Scenario Ferie" to Kurt Hej Kurt jeg har læst det - det ser bekendt ud In reply to...

- 100 -

7/28/00 12:22 PM erik **inform** about "Scenario Ferie" to Kurt kurt - kan du høre noget på audioen??? In reply to...

- 101 -

7/28/00 12:22 PM Kurt **inform** about "Scenario Ferie" to Kurt Erik har du hørt min røst ? In reply to...

- 102 -

7/28/00 12:23 PM Kurt **inform** about "Scenario Ferie" to Kurt Jeg kan høre dig Erik (svagt) In reply to...

- 103 -

7/28/00 12:24 PM erik **report** about "Scenario Ferie" to Kurt Nej det har jeg ikke - min højttaler fungerer nok ikke In reply to...

- 104 -

7/28/00 12:24 PM Kurt **inform** about "Scenario Ferie" to Kurt Ja...aaaaaaaa In reply to...

- 105 7/28/00 12:35 PM Karsten inform about "Hips" to all Hej

- 106 -

7/28/00 12:35 PM Karsten **inform** about "held og lykke" to erik Held og lykke

- 107 -

7/28/00 12:35 PM erik **report** about "held og lykke" to Karsten erik er på hurrahhhh In reply to...

- 108 -

7/28/00 12:37 PM erik **inform** about "ferie" to Karsten starter In reply to...

- 109 -

7/28/00 12:37 PM erik **inform** about "ferie" to all ferie

- 110 -

7/28/00 12:38 PM Karsten **negociate** about "ferie" to erik Ska vi gaa i gang? Jeg opdager lige det er et engelsk tastatur In reply to...

- 111 -

7/28/00 12:39 PM Kurt **inform** about "ferie" to erik www.bornholm.dk In reply to...

- 112 -

7/28/00 12:41 PM Karsten **inform** about "ferie" to Kurt Fra drøm til virkelighed Tilflytterguide websted for bornholmere - og deres gæster In reply to...

- 113 7/28/00 12:54 PM Karsten inform about "ferie" to Kurt
Ferienhaus Nr. 525 " Kjerhuset" Klitvej 4 , Dueodde / 4 Pers. In reply to...

- 114 -

7/28/00 1:01 PM Karsten inform about "Aeroe" to Kurt

PRISER PR UGE EXCL. EL OG BRÆNDE 2000 kr. 1000 kr. 1.500 kr. 2.000 kr. 2.500 kr. 800 1/1-25/3 25/3-8/4 24/6-1/7 1/7-19/8 weekend 8/4-27/5 27/5-24/6 19/8-26/8 9/9-23/12 26/8-9/9 23/12-30/12

Depositum Dkr 500 betales ved tilmelding og refunderes ved afregning. Rengøring kr. 300 kan bestilles. Henvendelse til: Collette Havsteen-Mikkelsen Gammelgård 5970 Ærøskøbing Tel: 62 581215 eller fax: 62 581630 e-mail: havsteenmikkelsen@teliamail.dk

- 115 7/28/00 1:02 PM Karsten request about "Tar vi den?" to erik, Kurt Det roede hus?

- 116 -7/28/00 1:04 PM Karsten suggest about "Frokost?" to all Frokost?

- 117 7/28/00 1:05 PM Kurt inform about "Tar vi den?" to Karsten Ja - det gør vi Kurt In reply to...

- 118 -

7/28/00 1:05 PM erik promise about "Tar vi den?" to Karsten

Ja jeg synes vi skal sende dem til \mathcal{E} rø - så skal jeg nok lave "to do" liste så de ser de godde ting på ærø - evt kan de få en enkelt lille glas rødvin hvis de kigger forbi mig In reply to...

Appendix 2.5. Islanders' Test, Trial Session 2: Evaluation Task

- 119 7/28/00 2:54 PM Karsten request about "Klar?" to all Er I paa pladserne?

- 120 7/28/00 2:56 PM Karsten request about "Kaffe" to all
Sidder I og drikker kaffe?

121 7/28/00 2:58 PM erik offer about "Test2" to all
Start på test2

- 122 7/28/00 2:59 PM Karsten accept about "Test2" to erik
Ok! In reply to...

- 123 -

7/28/00 2:59 PM erik **inform** about "Kaffe" to Karsten Ja det gjorde vi In reply to...

- 124 -

7/28/00 3:01 PM Karsten offer about "Test2" to all

Saa vidt jeg kan forstaa, saa skal du Erik, klistre svarene ind i den elektroniske formular, som kun du er i besiddelse af

- 125 -

7/28/00 3:06 PM erik suggest about "Test2" to Karsten

spg 1. Var du blevet tilstrækkeligt forberedt til at bruge systemet på egen hånd: In reply to...

- 126 -

7/28/00 3:07 PM Karsten **report** about "Test2" to erik Ja In reply to...

- 127 -

7/28/00 3:08 PM erik inform about "Test2" to erik

 ${\rm Erik}$: Ja det mener jeg - systemet bør kunne bruges ved en let instruktion eller uden instruktion In reply to...

- 128 -

7/28/00 3:11 PM Kurt **inform** about "Test2" to erik Ja da det egentligt er selvforklarende - men burde være under et vindue In reply to...

- 129 -

7/28/00 3:12 PM erik inform about "Test2" to erik

spg 2 2. Hvor meget brugte du/I chat (skreven tekst) i forhold til tale i det første scenarie og i dette: In reply to...

- 130 -

7/28/00 3:12 PM Karsten **report** about "Test2" to erik Meget lidt In reply to...

- 131 -

Deliverable D6-Y3

7/28/00 3:13 PM Kurt **inform** about "Test2" to erik Det var meget lydorienteret - text blev brugt MEGET lidt In reply to...

- 132 -

7/28/00 3:14 PM erik **report** about "Test2" to erik Svar erik 2: scenario 1 var meget lydorienteret In reply to...

- 133 -

7/28/00 3:15 PM erik **inform** about "Test2" to erik spg 3. Hvad brugte du/I chat til? In reply to...

- 134 -

7/28/00 3:15 PM Karsten **report** about "Test2" to erik Til udvexling af internetadresser, og som personlig notesblok In reply to...

- 135 -

7/28/00 3:16 PM Kurt **inform** about "Test2" to erik Start/slut og udveksle informationer, hvor ting skulle være skrevet helt korrekt. In reply to...

- 136 -

7/28/00 3:16 PM erik **report** about "Test2" to erik svar erik 3: til at udveksle informationer der ikke må misforstås In reply to...

- 137 -

7/28/00 3:16 PM erik **inform** about "Test2" to erik spg 4. Hvad brugte du/I tale til: In reply to...

- 138 7/28/00 3:17 PM Karsten report about "Test2" to erik
Den baerende faktor i kommunikationen In reply to...

- 139 7/28/00 3:17 PM erik report about "Test2" to erik
svar erik 4 - talen bærer kommunikationen In reply to...

- 140 -

7/28/00 3:17 PM Kurt **inform** about "Test2" to erik Talen bar kommunikationen så den var mere levende In reply to... - 141 -

7/28/00 3:18 PM erik inform about "Test2" to erik

spg 5. Hvor meget var samarbejde og hvor meget foregik på egen hånd (evt. skelnes mellem de forskellige opgaver og delopgaver) In reply to...

- 142 -

7/28/00 3:19 PM Kurt inform about "Test2" to erik

Sikrede at vi arbejdede synkront In reply to ...

- 143 -

7/28/00 3:19 PM Karsten **report** about "Test2" to erik Vi handlede synkront In reply to...

- 144 -

7/28/00 3:21 PM erik report about "Test2" to erik

svar erik 5 - vi handler mere og mere synkront - hvilket må tages som en høj grad af samarbejde der kommer af at anvende magic lounge - man kan så hvis situationen kræver dette gå tilbage til den mere individuelle måde In reply to...

- 145 -

7/28/00 3:23 PM erik inform about "Test2" to erik

spg 6. Hvordan gik samarbejdet (glat, besværligt, etc.), og hvorfor gik det sådan? In reply to...

- 146 -

7/28/00 3:24 PM erik report about "Test2" to erik

svar erik 6 - Meeeget glattere end sidste gang - Magic Lounge er meget bedre nu!! In reply to...

- 147 -

7/28/00 3:25 PM Karsten **report** about "Test2" to erik Glat - systemet virkerde In reply to...

- 148 -

7/28/00 3:25 PM Kurt inform about "Test2" to erik

Vi fik arbejdet lavet på en enkel måde ikke afbudt af hyppige hang UPs In reply to ...

- 149 -

7/28/00 3:25 PM erik inform about "Test2" to erik

spg. 7. Hvilke problemer med systemet observerede du: In reply to...

- 150 -

7/28/00 3:29 PM erik report about "Test2" to erik

svar erik 7: der er ingen "virkelige" problemer - en detalje er et mindre ekko problem In reply to...

- 151 -

7/28/00 3:29 PM Kurt **inform** about "Test2" to erik Detalje EKKOeffekten med høretelefon In reply to...

- 152 -

7/28/00 3:30 PM Karsten **report** about "Test2" to erik Ekko - antageligvis p.g.a. hoejtalerne In reply to...

- 153 -

7/28/00 3:30 PM erik **inform** about "Test2" to erik spg 8. Hvordan var det at løse en opgave via Magic Lounge: In reply to...

- 154 -

7/28/00 3:31 PM Karsten **report** about "Test2" to erik Spaendende - brugervenligt In reply to...

- 155 -

7/28/00 3:32 PM Kurt inform about "Test2" to erik

Det var en behagelig effektiv måde at løse den stillede opgave på - samt at konfirmere aftalen skriftligt In reply to...

- 156 -

7/28/00 3:33 PM erik report about "Test2" to erik

svar erik 8 - man kan i magic lounge - som den er nu kommunikere - løse en opgave - finde en fælles løsning med et individuelt præg og være sikker på at alle er enige om den fælles løsning og hvad den indebær. In reply to...

- 157 -

7/28/00 3:33 PM erik inform about "Test2" to erik

spg 9. Hvad mener du om Magic Lounge grænsefladen In reply to...

- 158 -

7/28/00 3:36 PM erik report about "Test2" to erik

svar erik 9 - den kan forbedres i layout - så at den optræder med en fælles brugergrænseflade i stedet for som nu med separate vinduer - men den fungerer som den er nu! In reply to...

- 159 -

7/28/00 3:36 PM Kurt inform about "Test2" to erik

Message Composer / Messages / RAT bør være indeholdt i et vindue, hvor yderligere detaljer om den enkelte funktionsdel kan fremkomme ved tryk på et icon i en "værktøjslinie" In reply to...

- 160 -

7/28/00 3:38 PM Karsten report about "Test2" to erik

Den skal samles til eet vindue, eller idet mindste skal nogle af funktionerne samles. I timeline moden, skal scrollbar kunne bruges. Autoscroll i message viewer. In reply to...

- 161 -

7/28/00 3:38 PM erik inform about "Test2" to erik

spg 10. Hvad mener du om funktionaliteterne i Magic Lounge: In reply to...

- 162 -

7/28/00 3:40 PM Karsten **report** about "Test2" to erik De er endnu for 'firkantede' In reply to...

- 163 -

7/28/00 3:41 PM erik report about "Test2" to erik

svar erik 10 - Jeg mangler Whiteboardet - det fælles vindue . In reply to...

- 164 -

7/28/00 3:42 PM Kurt inform about "Test2" to erik

For "hoppende" i betjeningsforløbet mellem vinduer - det ville være rart med et "fællesvindue In reply to...

- 165 -

7/28/00 3:42 PM erik inform about "Test2" to erik

spg 11. Hvad mener du om at have lyd til rådighed under samarbejdet In reply to...

- 166 -

7/28/00 3:43 PM Kurt inform about "Test2" to erik

Herligt - det gør kommunikationen meget lettere mellem os In reply

to...

- 167 -

7/28/00 3:44 PM erik report about "Test2" to erik

svar erik 11 - Det er det der bærer den fælles kommunikation - og det giver i sidste instans plads til telefonerne. In reply to...

- 168 -

7/28/00 3:44 PM Karsten **report** about "Test2" to erik Endnu en gang: Det baerende element In reply to...

- 169 -

7/28/00 3:44 PM erik **inform** about "Test2" to erik spg 12. Hvad mener du om kvaliteten af lydforbindelsen: In reply to...

- 170 -

7/28/00 3:45 PM Karsten **report** about "Test2" to erik Ikke for god, men det bedste til dato In reply to...

- 171 -

7/28/00 3:46 PM Kurt **inform** about "Test2" to erik Rummelig lyd der gør det flydende at kommunikere In reply to...

- 172 -

7/28/00 3:46 PM erik **report** about "Test2" to erik svar erik 12 - den er ikke HIFI - men der virker In reply to...

- 173 -

7/28/00 3:46 PM erik **inform** about "Test2" to erik spg 13. Hvad mener du om at skulle bruge talehandlinger, når du sender en besked: In reply to...

- 174 -

7/28/00 3:47 PM erik **report** about "Test2" to erik svar erik 13 - vi sender ikke beskeder - vi kommunikerer!!!!! In reply to...

- 175 -

7/28/00 3:47 PM Karsten report about "Test2" to erik

Det goer beskeden forstaaelig In reply to ...

- 176 -

7/28/00 3:48 PM Kurt **inform** about "Test2" to erik Det giver et hurtigere og bedre samtalegrundlag In reply to...

- 177 -

7/28/00 3:49 PM erik inform about "Test2" to erik

spg 14. Havde du brug for andre programmer i kombination med Magic Lounge? Hvis ja, hvilke: In reply to...

- 178 -

7/28/00 3:50 PM Kurt **inform** about "Test2" to erik Vi benyttede www browser In reply to...

- 179 -

7/28/00 3:50 PM erik **report** about "Test2" to erik svar erik 14 - en browser - tekstbeh In reply to...

- 180 -

7/28/00 3:50 PM Karsten **report** about "Test2" to erik Browser - tekstbehandling In reply to...

- 181 -

7/28/00 3:50 PM erik inform about "Test2" to erik

spg 15. Hvilke funktionaliteter synes du manglede helt eller delvist i Magic Lounge: In reply to...

- 182 7/28/00 3:52 PM Karsten report about "Test2" to erik
Whiteboard Identifikation af hvem der taler In reply to...

- 183 -

7/28/00 3:53 PM erik report about "Test2" to erik

svar erik 15 - Vi mangler whiteboard - det fælles vindue - gerne video - og en indikation af hvem der taler. In reply to...

- 184 7/28/00 3:54 PM Kurt inform about "Test2" to erik
Fælles vindue - video camera på PC In reply to...

- 185 -

7/28/00 3:54 PM erik inform about "Test2" to erik

spg 16. Hvad vil du gerne kunne bruge Magic Lounge til i din dagligdag: In reply to...

- 186 -

7/28/00 3:56 PM Kurt inform about "Test2" to erik

Kommunikation med elever på VUC omkring lsn af mat/edb opgaver - In reply to ...

- 187 -

7/28/00 3:57 PM Karsten report about "Test2" to erik

Jeg er p.t. arbejdsloes og kan derfor ikke umiddelbart se, hvad jeg skulle kunne bruge det til. Jeg forventere at faa et arbejde inden for IT-branchen, hvor jeg kan se det som et nyttigt vaerktoej i forbindelse med hjemmearbejde. In reply to...

- 188 -

7/28/00 3:58 PM erik report about "Test2" to erik

svar erik 16 . Til at kunne kommunikeredirekte med andre mennesker, som jeg på grund af geografiske forhold ellers ville være afskåret fra at have en direkte kommunikation med. eks. Møde i diskussionsforaet i orlogsmuseet - samtale med mine venner på Grønland og New Zealand tilinternettakst!!. In reply to...

- 189 -

7/28/00 3:58 PM erik inform about "Test2" to erik

spg 17. Hvad kan du lide ved Magic Lounge: In reply to ...

- 190 -

7/28/00 4:00 PM Karsten report about "Test2" to erik

De har noget godt smoerrebroed - ML kan udfylde den sociale dimension fra en arbejdsplads ved hjemmearbejde In reply to...

- 191 -

7/28/00 4:00 PM Kurt inform about "Test2" to erik

Den aktive kommunikationsform som jeg kan være i kontakt med andre mennesker på - det er som de er lige ved siden af mig In reply to...

- 192 -

7/28/00 4:00 PM erik report about "Test2" to erik

svar erik 17 - den direkte kommunikation - der gør vores kommunikation mere "menneskelig" In reply to...

- 193 -

7/28/00 4:00 PM erik inform about "Test2" to erik

Deliverable D6-Y3

spg 18. Hvad ser du gerne forbedret ved Magic Lounge: In reply to ...

- 194 -7/28/00 4:01 PM Kurt inform about "Test2" to erikSe spørgsmål 14 In reply to...

- 195 -

7/28/00 4:01 PM erik **report** about "Test2" to erik svar erik 18 - se svar på spg. 15 In reply to...

- 196 -

7/28/00 4:01 PM Karsten **report** about "Test2" to erik Se 15 In reply to...

- 197 -

7/28/00 4:01 PM erik inform about "Test2" to erik

19. Hvordan var dine forventninger til Magic Lounge sammenlignet med dine faktiske erfaringer In reply to...

- 198 -

7/28/00 4:02 PM Kurt **inform** about "Test2" to erik Kurt retter svar til spgsml 15 In reply to...

- 199 -

7/28/00 4:02 PM Karsten **report** about "Test2" to erik Positivt overrasket In reply to...

- 200 -

7/28/00 4:03 PM erik report about "Test2" to erik

svar erik 19 - Jeg er utroligt positivt overrasket - der er gjort et godt stykke arbejde i mellemtiden. In reply to...

- 201 -

7/28/00 4:03 PM Kurt inform about "Test2" to erik

Det har været en positiv oplevelse at arbejde sammen om opgaverne på systemet dag også rent funktionsmæssigt voila In reply to...

- 202 -

7/28/00 4:03 PM erik inform about "Test2" to erik

spg 20. Andre kommentarer: In reply to ...

- 203 -

7/28/00 4:04 PM Karsten report about "Test2" to erik

Jeg ser frem til at der bliver udviklet en testversion, som vi kan afproeve fra vores bopael. In reply to...

- 204 -

7/28/00 4:05 PM Kurt inform about "Test2" to erik

Det virker fint nu jeg ser frem til at vi kan mødes "hjemmefra" Niels og Laila ønskes en god sommerferie, som de kan tage på med ro for dette delprojekts vedkommende kurt \o/ In reply to...

- 205 -

7/28/00 4:06 PM erik report about "Test2" to erik

svar erik 20 - Jeg vil gerne arbejde videre med ML - det ligner meget at vi nu har noget der virkelig er noget i - den dag det er alment at have hurtige forbindelser - om et år vel - så er magic lounge programmet der passer til dette - og det er virkeligt vigtigt at vi i Europa har et fælles værktøj til dette.!!!! In reply to...

Appendix 3. Audio profiles from the evaluation sessions

Task 1: NIS (ML Evaluation)





NIS Developers, 15 Jun (2)



NIS Developers, 15 Jun (3)



NIS Developers, 15 Jun (4)

	§ 49:37	50:09	50:41	51:13	51:45	52:17	52:49	53:21	53:53	54:
										1000
Amaral						1 111		11		
Guest										
mlguest	<mark> </mark>									
	•						333			• • •

NIS Developers, 15 Jun (5)



NIS Developers, 15 Jun (6)



NIS Developers, 15 Jun, (sample, zoom-in)

Task 2: NIS Web pages



NIS web, 23 Jun (1)



NIS web, 23 Jun (2)



NIS web, 23 Jun (3)







NIS web, 23 Jun (5)



NIS web, 23 Jun (6)



NIS web, 23 Jun (7)



NIS web, 23 Jun (8)



NIS web, 23 Jun (9)



NIS web, 23 Jun (10)



NIS web, 23 Jun (11)

	D3	14:35	15:07	15:39	16:11	16:43	17:15	17:47	18:19	18:51	19:23	19:55	i 2	-
														333
Amaral														
David														
Ole	11						11 1	10		1111			1111	
mlguest											11			
nino				1			11	111	i ii i					
	•										3553	00000000	•	-

NIS web, 23 Jun (12)

	32:43	32:51	32:59	33:07	33:15	33:23	33:31	33:3 🔺
Amaral								
David								
Ole								
mlguest –			i 🗌				1	
nino								
	•) -

NIS web, 23 Jun, (sample, zoom-in)

Task 3: NIS Admininstrative (party planning)

	5	44:18	44:50	45:22	45:54	46:26	46:58	47:30	48:02	48:34	49
											32
merete											
namo											
nino											
sven											
	•	393									► ► -

NIS administrative, 07 Jul (1)

	06	49:38	50:10	50:42	51:14	51:46	52:18	52:50	53:22	53:54	
											333
merete											
namo											
nino											
sven											
	4		393393							•	-

NIS administrative, 07 Jul (2)

merete							
namo							
nino		 		101101	41		
sven							
	•		35355555				

NIS administrative, 07 Jul (3)

	59:46 00:18 00:50 01:22 01:54 02:26 02:58 03:30 04:02	04
merete	ביינוס אות מסומנים מסוג מור נסבט ביינים מסר מרכים ויינים אות מסו ביינים את מרכים את מסומבים את מתורם רמור ורו נו	
namo		
nino		
sven		

NIS administrative, 07 Jul (4)



NIS administrative, 07 Jul (5)

	09:54	4 1	0:26	10:	58	11	:30	1	2:0	2	12:	34	13	:06	13	:38	14	4:10) 1	L 4 :	42	
merete	1 1 1																	111	111111		1111	
									11										יינעענע 11 הוה ו	- "	1 1	
namo																						
nino																						
	-	110.0					-		-	1 11 111					_	ri mimi						
sven																						
	•													1004		88888						•
NIS adminis	trative	- 07	' In1 <i>(</i>	6)																		

NIS administrative, 0/ Jul (6)

	15:14	15:46	16:18	16:50	17:22	17:54	18:26	18:58	19:30	2 0:
										22
merete										
namo						01 11 1 11 1				
nino										
sven			0 0	1 111]]]]]]]]]]]]]]]]]]]]]]]]]]]]]]]]]]]]]]]]]			
								199999		

NIS administrative, 07 Jul (7)

17:54 18:26 18:58 19:30 20:02 20:34 21:06 21:38 22:10 22:42 merete
17:54 18:26 18:58 19:30 20:02 20:34 21:06 21:38 22:10 22:42 merete merete mamo mamo
17:54 18:26 18:58 19:30 20:02 20:34 21:06 21:38 22:10 22:42 merete namo
17:54 18:26 18:58 19:30 20:02 20:34 21:06 21:38 22:10 22:42
17:54 18:26 18:58 19:30 20:02 20:34 21:06 21:38 22:10 22:42
17:54 18:26 18:58 19:30 20:02 20:34 21:06 21:38 22:10 22:42

NIS administrative, 07 Jul (8)



NIS administrative, 07 Jul (sample, zoom-in)

Task 4: Danish Isles (summer house)



Danish Isles, 28 Jul, (part1, 1)

	11:18	11:50	12:22	12:54	13:26	13:58	14:30	15:02	15:34	16:06	-
											999
Karsten											
Kurt											
erik											
	4				100000000	8					-

Danish Isles, 28 Jul, (part 1, 2)



Danish Isles, 28 Jul, (part 1, 3)

	6 21:58	22:30 23:0)2 23:34	24:06 2	2 4:3 8 2	25:10 25:42	26:14 2	6
								333
Karsten	011 1000 11 1100 110							1
Kurt								
erik								
	•				100000000			<u>ب</u> ا

Danish Isles, 28 Jul, (part 1, 4)

	:46	27:18	27:50	28:22	28:54	29:26	29:58	30:30	31:02	31:34	3
											222
Karsten											
Kurt											
erik											
	•							335555555			┓╼

Danish Isles, 28 Jul, (part 1, 5)

	2:06	32:38	33:10	33:42	34:14	34:46	35:18	35:50	36:22	36:54	
											100
Karsten							00	📃			
Kurt											
erik											
	4							333	000000)	• -

Danish Isles, 28 Jul, (part 1, 6)

	37:26	37:58	38:30	39:02	39:34	40:06	40:38	41:10	41:42	42:14
Karsten										
Kurt]
erik	101010101									
	•								3355555	

Danish Isles, 28 Jul, (part 1, 7)

	40:38	41:10	41:42	42:14	42:46	43:18	43:50	44:22	44:54	45:2
Karsten	116 011	111	11.1	A N				1		
Kurt erik		11		1						11
	•								222	888888 •

Danish Isles, 28 Jul, (part 1, 8)

	21:54	21:58	22:02	22:06	22:10	22:14	22:18	22:22
								100
Karsten								
Kurt								
erik								
	•				8			

Danish Isles, 28 Jul, (part 1, sample, zoom-in)

Task 5: Danish Isles (Magic Lounge evaluation)

ırt <mark> </mark>					
rsten					

Danish Isles, 28 Jul, (part 2, 1)

	•		33335	00000000						•
erik										
Curt									011 000 000	
Carsten								XIII 0 1110		
	01:19	01:51	02:23	02:55	03:27	03:59	04:31	05:03	05:35	06:0

Danish Isles, 28 Jul, (part 2, 2)

	7	06:3	9 (07:11	. 07	7:43	08	:15	08:4	47 (09:19	09):51	10	:23	10	:55	1	-
																			99
Karsten															10100				
Kurt																			
erik																			
							100											_	
							3		9999										•

Danish Isles, 28 Jul, (part 2, 3)

	1:27	11:59	12:31	13:03	13:35	14:07	14:39	15:11	15:43	16:15	-
											199
Karsten											
Kurt										011 010 11 0 🗖	
erik											
	•					3333333333333333					T

Danish Isles, 28 Jul, (part 2, 4)

16:47	17:19	17:51	18:23	18:55	19:27	19:59	20:31	21:03	21:3	-
										999
10 🔲 101		0 01 0 0101								
			0 1 0 0 0 1 1 <mark>-</mark> 0 1					00110=11001		
4					19999					Ļ
	16:47	16:47 17:19	16:47 17:19 17:51	16:47 17:19 17:51 18:23	16:47 17:19 17:51 18:23 18:55	16:47 17:19 17:51 18:23 18:55 19:27	16:47 17:19 17:51 18:23 18:55 19:27 19:59	16:47 17:19 17:51 18:23 18:55 19:27 19:59 20:31	16:47 17:19 17:51 18:23 18:55 19:27 19:59 20:31 21:03	16:47 17:19 17:51 18:23 18:55 19:27 19:59 20:31 21:03 21:3

Danish Isles, 28 Jul, (part 2, 5)

	5 22:07	22:39	23:11	23:43	24:15	24:47	25:19	25:51	26:23	26
Varston					1 1101 101 1001 10	11 10 min 110		1 1 1 111	i deen 1eil 11	101
Karsten										
KUT										
erik										
	•						3555555	88888		•

Danish Isles, 28 Jul, (part 2, 6)

	(55	27:27	27:59	28:31	29:03	29:35	30:07	30:39	31:11	31:43	8
Karsten		1									
Kurt											
erik				11 10 🖬 🖬							
	•								888888888888888888888888888888888888888	8	

Danish Isles, 28 Jul, (part 2, 7)

	9 31:11	31:43	32:15	32:47	33:19	33:51	34:23	34:55	3 5:2 7	3 !
										1000
Karsten										
Kurt]							
erik										
	4								0000000000	

Danish Isles, 28 Jul, (part 2, 8)



Danish Isles, 28 Jul, (part 2, sample, zoom-in)