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AMI
AUGMENTED MULTI–PARTY INTERACTION
http://www.amiproject.org/

Integrated Project
Information Society Technologies

D.1.3 ENHANCED SCENARIO DEFINITION

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PU	Public	✔
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

D.1.3 ENHANCED SCENARIO DEFINITION

Wilfried Post, Erwin Elling

Abstract:

This report specifies a meeting scenario required for the experimental evaluation of the AMI multi-modal meeting browser. The scenario is an enhancement of a meeting scenario that has been developed and used previously for collecting a large set of meeting data that was necessary for the research and development of meeting browser. The concept behind the scenario is described and the extended scenario elements and questionnaires are extensively specified.

Content

1 Introduction

The work reported here is carried out in the context of AMI. AMI is a 6th framework European integrated project aiming at enhancing meetings by developing tools for capturing, processing, searching and browsing multi-modal meeting information. This report specifies the enhancement of a meeting scenario that has already been specified and used for recording the AMI meeting corpus. This scenario is enhanced to use it for the experimental evaluation of the meeting browser that results from the AMI project. The application of the scenario is described in Cremers, Post, Elling et al. (2007).

2 Extended scenario concept

Extended scenario requirements

The evaluation of a tool concerns the determination of its (relative) effectiveness, efficiency and user satisfaction. Further, evaluating a meeting browser is more meaningful when it is studied in the context of a series of meetings with a clear and measurable end result, such as in a project (Post, Cremers & Blanson Henkemans, 2005). For this reason, the AMI corpus is, for a large extent, collected in the context of such a series – a design project carried out in four meetings.

For an experimental, comparative evaluation of the AMI meeting browser, a large number of projects with browsing tasks need to be carried out - about 10 projects in each condition (e.g., a basic condition without a meeting browser, and one or more variants of the meeting browser). For all these projects carried out, all material should be captured to make it browsable during the experiment. This includes the audio/video recordings and slide captures as well as side material such as documents, emails, website information - in fact all material that was used for preparing meetings and that was produced after meetings. It would be an enormous undertaking, with an important disadvantage that the different projects may not be carried out in a comparable way, introducing experimental noise. For pragmatic as well as methodological reasons, it has been decided to use only one set of material, and use this material by different subjects, in different conditions. This decision has been made while aware of the fact that the subjects do not browse using their own experience. They can't use personal cues from their memory as index for retrieval. The material to use for the experimental evaluation comes from the recorded projects available in the AMI corpus. From this set, a project has been chosen that has been annotated as completely as possible, and that shows natural meeting behavior.

The extended scenario is meant for evaluating two typical ways of using a meeting browser. The first one is *getting a gist* of a meeting, or the project – a quick, general impression required for an assessment. The second one is *role-specific meeting preparation* – getting the specific information for performing a particular task. Other use cases are left out of the current evaluation. The idea is to let the subject replace participants at the start of the final phase of the project, and providing them the material of the earlier phases. In the next section, we describe what the project meetings look like.

Original scenario

The original meeting scenario focuses on design project meetings. Four participants, acting as employees of a consumer electronics company, join a project on designing an innovative TV remote control. The project roles are: project manager (PM), marketing expert (MA), user interface designer (UID) and industrial designer (ID). The overall project method that has to be followed has four phases: project start-up, functional design, conceptual design, and detailed design. Each phase is ended with a meeting.

The first phase starts with preparing each role individually, after which the participants meet. They get acquainted, and the project manager starts the project officially by providing the project plan and the division of work until it is clear to everyone. After the meeting, individual work is carried out, including the preparation of the next meeting.

During the preparation of the second meeting, PM gets e-mails on how to manage the functional design phase, MA receives a marketing report with user requirements and desires, UID devises the remote control functions, based on examples found on the (simulated) web, and the ID devises the functionalities of the remote control, also inspired by the web. They all prepare (pre-structured) PowerPoint presentations. During the next meeting they exchange their findings and ideas, and come to an agreement on the functional design.

They then split up again, to carry out individual work. Now PM gets e-mails about how to manage the conceptual design phase, MA gathers market changes and evaluation criteria on the web, UID finds examples of old and new RC interfaces, and the ID on components, properties and materials. During the meeting that follows, they present their PowerPoint slides, and try to reach agreement on the conceptual design, also dealing with the changing project constraints and market.

The last phase starts with individual work again. PM gets financial information, MA develops an evaluation scheme, and UID and ID work together on a prototype. They present their prototype, which is assessed according to the criteria of MA. Together, they decide on the definite design. Finally, PM produces a product specification document.

Extended scenario

In the extended scenario, the subjects are asked only to prepare and carry out the last meeting, while using the material from the previous project phases. First, they will be asked to get a gist, and then, they have to finish the project. Different to the original scenario, the UID and the ID work on the prototype during the final meeting, not in the preparatory phase. During this phase, they need all time to gather the necessary information. As a result, everyone can share information immediately during prototype development in that meeting.

The procedure is as follows (see also appendix 1).

- The subjects are welcomed, and the experiment is explained;
- They fill out informed consent AMI subject statement, and possibly local subject forms;
- The four roles are divided among the team members;
- They all have to open their e-mail browser and follow the instructions sent to them;
- The first instruction is to perform a memory test, a questionnaire on background and experience, and a spatial orientation test;
- The next email is a training instruction to familiarize their software environment (such as the meeting browser);
- The following e-mail instruction contains a link to a mental effort rating scale;
- Then they start to carry out project work. They receive an e-mail from an account manager, who explains that they have to take over the project and that they first have to form a general impression of the project, the team they have to replace, and what remains to be done. They have to carry this out and report on this individually;
- After a fixed time, they receive an e-mail to finish this part and to fill out a second mental effort rating scale and a tool assessment questionnaire;
- Then they are instructed to prepare individually the project meeting in 45 minutes for which they receive role-specific instructions;
- After 45 minutes, they are asked to fill out a third mental effort rating scale and a second tool assessment questionnaire;
- Then they are instructed to start the meeting, including some focus points;

- After 45 minutes, they are instructed to end the meeting and to fill out a fourth mental effort rating scale, a third tool assessment questionnaire, and questionnaires on dominance, team factors, and an after-questionnaire. PM needs also to write a product specification document.

3 Measurements

The scenario specification incorporates evaluation measurements. The measurements are based on an evaluation framework, developed by Post, Huis In't Veld & van der Boogaard, 2007). They are extended with a spatial orientation test and a memory test. These are described below. An overview of the measurements is presented in Table 1.

Table 1 – Measurements set. See also appendix 2: Questionnaires

When	What	How
Individual characteristics		
Beginning	Background, experience	Questionnaire "Before"
	Spatial orientation	Test "Spatial Orientation"
	Memory	Test "Memory"
Performance measures		
Before getting a gist	Mental effort	150 pt Rating Scale "Mental Effort"
Before meeting preparation	Mental effort	150 pt Rating Scale "Mental Effort"
After meeting preparation	Mental effort	150 pt Rating Scale "Mental Effort"
After meeting	Mental effort	150 pt Rating Scale "Mental Effort"
	Product quality	Multiple Expert Product Assessment
	Duration meeting	Sec.
Team measures		
After meeting	Dominance	Questionnaire "Dominance"
	Info processing	4 items in questionnaire "Team factors"
	Leadership	4 items in questionnaire "Team factors"
	Process satisfaction	3 items in questionnaire "Team factors"
	Cohesiveness	5 items in questionnaire "Team factors"
	Work pace	4 items in questionnaire "Team factors"
	Communication	4 items in questionnaire "Team factors"
	Supporting behaviour	8 items in questionnaire "Team factors"
	Effectiveness	4 items in questionnaire "Team factors"
	Efficiency	7 items in questionnaire "Team factors"
	Outcome satisfaction	5 items in questionnaire "Team factors"
	Team satisfaction	2 items in questionnaire "Team factors"
Afterwards	Information transfer	# sharing of essential information (see table 2)
	Information outcome	# correctly applied essential info (see table 2)
Usability measures		
After getting a gist	Usability browser	Questionnaire "Tool assessment"
After meeting preparation	Usability browser	Questionnaire "Tool assessment"
After meeting	Usability browser	Questionnaire "Tool assessment"

Information transfer and outcome

During the individual preparation all subjects have their own task, of which they will report in a PowerPoint presentation. For comparability a template will be provided. During the teamwork all the individual work will be merged. The outcomes of the teamwork will be a final prototype and a report for which – again – the amount of information that has been used can be scored. The information transfer that should be scored in all these products can be found in Table 2.

Table 2 - Information transfer and outcome criteria

Individual preparation:

PM presentation:	Project constraints: • Budget • Costs
ME presentation:	Evaluation criteria: • Fancy look and feel • Innovative technology • Easy to use • Easy to learn • Easy to find • Low RSI sensitive • Company recognition • Fashion (Young: fruit and vegetables & spongy; Old: dark colours, simple recognizable shapes & familiar material, wood is popular)
ID presentation:	Case: • Form • Material • Colour
UID presentation:	Interface elements: • Function • Position • Form • Material • Colour
Teamwork:	
Prototype and final report:	• Budget • Evaluation • Form • Function

4   Testing the scenario

To ascertain that the scenario works well during the evaluation, four test runs have been carried out. The first one was with informed researchers and colleagues. This run was meant to detect missing or unclear instructions, completeness of task information, and the existence of technical problems. The remaining three one was carried out with subject for the same population as the experimental subjects. These test runs was meant to get the subjects behave as was meant: acting as a real design team in a company, not to do all the work over of the team they had to replace, but to reuse their work as much as possible, and to produce the right output. After each run, if necessary, the scenario was slightly changed, in terms of the timing of instructions, the length of the meeting and preparatory work, and the exact text of the instructions. Appendix 1 shows the resulting scenario elements.

References

Cremers, A.H.M.,Post, Elling, H.W., van Dijk, B., van der Wal, B., Carletta, J., Flynn, M., Wellner, P., Tucker, S. (2007). Meeting Browser Evaluation Report. AMI Project Deliverable D6.4.

Post, W.M., Blanson Henkemans, O., van den Boogaard, S.A.A. & van Verseveld, O.H. (2005). Scenario Definition. AMI Project Deliverable D1.2.

Post, W.M., Cremers, A,H.M. and Blanson Henkemans, O.   (2004). A research environment for meeting behavior. In: A. Nijholt & T. Nishida (Eds.). Proceedings of Social Intelligence Design 2004, p. 159-165.

Post, W.M., Elling, E., Cremers, A, & Kraaij, W. (2007). Experimental comparison of multimodal meeting browsers. Accepted for presentation at HCII 2007, Beijing, July 22-27.

Post, W.M., Huis In't Veld, M.A.A. and van den Boogaard, S.A.A. (2007). Evaluation Meeting Support Tools. In: Personal and Ubiquitous Computing. In Press.

Appendix 1: E-mails

Time:	0:15
Role:	All
From:	Experimenter
Subject:	Questionnaires 1
Body Text:	

Please carry out the following tests and fill out the following questionnaires.

It is very important that you do this in the right order!

1. Memory test (set 1)
In the memory test you are presented with three sets of images. In between the sets you will be doing other tasks.

Both set 1 and set 2 present images one after the other. Your task is just to view the images and to try to remember them.

Set 3 again presents images. For every image in this set you will be asked whether it was also part of set 1 or not.

You will start with set 1.
Please open the folder 'Test' on the Desktop and then open shortcut 'Memory test' to start the test. Only view set 1, do not close the window when you're finished, proceed with the pretest.

2. Pretest
http://tmquest.tm.tno.nl/nq.cfm?q=0e456904-f1f6-4485-ecd6-81f6e37be32d

3. Memory test (set 2)
Continue the memory test with set 2. Only view set 2, do not close the window when you're finished, proceed with the block test.

4. Block test
In the block test you are presented several "blocks". Your task is to find the block that is similar to the one in the middle (but rotated) and select it. If none of the images is similar, select "None".
The time you have to figure this out is fixed to 17 seconds. You can change your choice as many times as you like during this time.

Please open the folder 'Test' on the Desktop and then open shortcut 'Blocks Practice' to start the practice. (Please fill out your subject number + practice here, i.e. 11011practice).

After this, please open shortcut 'Blocks Test' to start the actual test. (Just use your subject number here).

5. Memory test (set 3)
Finish set 3 of the memory test and wait for further instructions.

Thanks, Your Experimenter

Attachment: n.a.

Time:	0:40
Role:	All
From:	Experimenter
Subject:	Training
Body Text:	

During the training you will have to look for some information in the project environment so you can get familiar with the environment and the software.

Use the instructions you received on paper, to perform these tasks:
1. Open the website of the company Real Reaction and describe the company logo and color.
2. Find out who sent the email with the subject "Project Announcement".
3. Find out the name of the folder where the Project Announcement document was saved.
4. Find the name of the previous Project Manager in her first presentation.
5. Find the color of shirt of the Project Manager in the video of the Kick-Off meeting.

Reply to this message with your answers when you're done with your training.
Whenever you experience technical problems during the rest of the experiment, you can also reply to this email to contact me.

Your Experimenter

Attachment: n.a.

Time:	0:55
Role:	All
From:	Experimenter
Subject:	Questionnaires 2
Body Text:	

Please fill out all of the following questionnaires:

```
AMI mental effort 1:
```
http://tmquest.tm.tno.nl/nq.cfm?q=187bcee8-f1f6-4485-e10a-5d0dd02eddc0

Thanks,
Your Experimenter

Attachment:	n.a.

Time:	1:00
Role:	All
From:	Account Manager
Subject:	New project team
Body Text:	

Dear   colleagues,

As you already know, the management board of Real Reaction © electronics company is dissatisfied with the progress of the remote control development team. We have therefore decided to replace this team with a fresh team and ask you to take part in this team. The team consists of a project manager (PM), industrial designer (ID), User interface designer (UID) and a marketing expert (ME). Before this team comes together in a meeting you all work individually on the project.

Before we provide you with more information, we ask of you to form a general impression of:
- The project
- The functioning of the previous team (eg, atmosphere, cooperation, personalities)
- What remains to be done by your team

All the information the previous team has produced, is available somewhere in the project environment. Don't focus on your personal role yet.

We recommend that you start with reading the Project Announcement. Please note your findings in a Word document and send it to me within 15 minutes by replying to this message and attaching the document.

Regards,
Your account manager

Attachment:	n.a.

Time:	1:12
Role:	All
From:	Account Manager
Subject:	Send your impressions now!
Body Text:	

Dear colleagues,

If you have not sent them yet, reply to this message and attach your impressions immediately. Also, save these files in the shared project folder and wait for further instructions.

Regards,
Your account manager

Attachment:	n.a.

Time:	1:15
Role:	All
From:	Experimenter
Subject:	Questionnaires 3
Body Text:	

Please fill out all of the following questionnaires:

AMI mental effort 2:
http://tmquest.tm.tno.nl/nq.cfm?q=1896b225-f1f6-4485-eb72-f120ba1147eb

AMI tool assessment 1:
http://tmquest.tm.tno.nl/nq.cfm?q=18aee277-f1f6-4485-e1d9-db9e3a659606

Thanks,
Your Experimenter

Attachment: n.a.

Time:	1:40
Role:	All
From:	Account Manager
Subject:	Remarks on previous team
Body Text:	

Dear colleagues,

Now you know the goal of the project and what remains to be done, we ask you to prepare for the project meeting and specifically focus on your own role.

Due to time constraints, you have to finish this project as quickly as possible, so:
- Do not attempt to start all over again.
- Use as much of the good parts of the previous work as possible.

You can use 45 minutes to individually prepare yourself. After this time you will meet up with the rest of the team to finish the project during the detailed design meeting. More detailed information will be send to you by your Personal Coach.

Regards,
Your account manager

Attachment:	n.a.

Time:	1:41
Role:	User Interface Designer
From:	Personal Coach
Subject:	[UID] Meeting preparation
Body Text:	

Below, you find information for the task you have to perform in the detailed design meeting. Use the available information of the previous team to prepare for the meeting.

Feel free to use the attached file for your presentation.

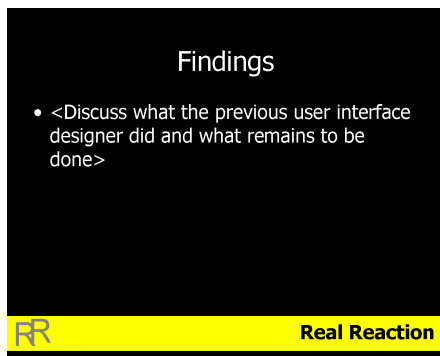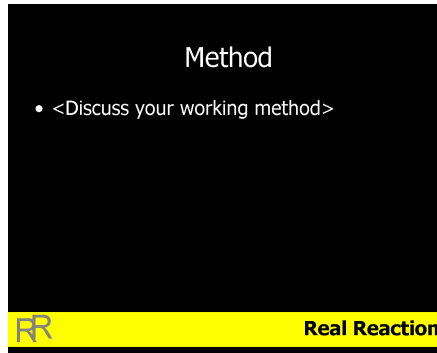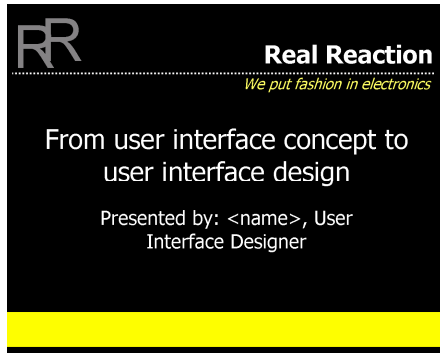Your personal coach

Detailed Design

How to design the user interface

In this third and final design phase: the detailed design, you, as user-interface designer, has to come up with the user-interface design: how can the user operate the apparatus.

You are asked to:

1. Specify the interface elements (button, scroll wheel, etc.), including:
   - i. Function
   - ii. Position
   - iii. Form
   - iv. Material
   - v. Color

2. Prepare your presentation for the next and final meeting.

Attachment:

Time:	1:41
Role:	Interaction Designer
From:	Personal Coach
Subject:	[ID] Meeting preparation
Body Text:	

Below, you find information for the task you have to perform in the detailed design meeting. Use the available information of the previous team to prepare for the meeting.

Feel free to use the attached file for your presentation.

Your personal coach

Detailed Design

How to design the look-and-feel

In this third and final design phase: the detailed design, you, as industrial designer, has to come up with the look-and-feel design: how does the apparatus look like and feel like.

You are asked to:

1. Specify the case:
   i. Form
   ii. Material
   iii. Color

2. Prepare your presentation for the next and final meeting.

Attachment:

Time:	1:41
Role:	Marketing Expert
From:	Personal Coach
Subject:	[ME] Meeting preparation
Body Text:	

Below, you find information for the task you have to perform in the detailed design meeting. Use the available information of the previous team to prepare for the meeting.

Feel free to use the attached file for your presentation.

Your personal coach

Detailed Design

How to evaluate the prototype

In the detailed design phase meeting your role is to prepare the evaluation of the new design. Evaluate with a seven-point scale as following:

1. *The remote control is according criteria X.*

True						False
1	2	3	4	5	6	7

You should base the collection of criteria on the user requirements and trends found in the marketing reports and the marketing strategy of the Real Reaction © electronics company.

Present your scale and decide as a team on the rating. At the end, calculate the average score.

Attachment:

Findings

- <Discuss what the previous marketing expert did and what remains to be done>
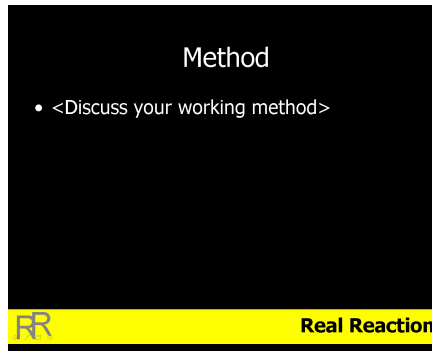
Real Reaction

Personal preferences

Real Reaction

Evaluation

- Criteria rating with seven-point scale

Real Reaction

<Criterion 1>

True						False
1	2	3	4	5	6	7

Real Reaction

<Criterion 2>

True						False
1	2	3	4	5	6	7

Real Reaction

Time:	1:41
Role:	Project Manager
From:	Personal Coach
Subject:	[PM] Meeting preparation
Body Text:	

Your role is to head the detailed design meeting. Make sure that the following topics are discussed during the meeting:

1. Let the team members present their findings (first the industrial designer, then user interface designer, last the marketing expert)
2. Let the team members develop a prototype during the meeting, using modeling clay.
3. Calculate the production costs using the attached excel sheet. Note: You may exceed the given budget within reason, as long as you can show that your extra costs result in extra quality.
4. Evaluate the prototype according to the criteria the marketing expert named in his/her presentation.
5. Be sure to document the final design your team has come up with during the meeting in the attached word template. This detailed specification is needed by our factory for production. Before the meeting, you can already start thinking about how to fill in this template.

Use the attached PowerPoint template to present these topics to your team. To ensure project archiving save all the documents and slides in the shared project folder on your desktop.
Stimulate teamwork!

Your personal coach

Attachment:

Real Reaction
We put fashion in electronics

Detailed Design meeting

Presented by: <name>, Project Manager

Agenda

- Opening (introduction of team members)
- Industrial Designer presentation
- User Interface Designer presentation
- Marketing Expert presentation
- Prototype development
- Finance
- Prototype evaluation
- Product specification
- Closing (we have 45 minutes!)

Real Reaction

xx	Price	#	Sum		
Energy source					Fill in the number of components you plan to use in your device
hand dynamo	1		0		and the total cost will be automatically calculated.
battery	2		0		
kinetic	3		0		
solar cells	4		0		
Electronics			0		
simple chip on print	1		0		
regular chip on print	2		0		
advanced chip on print	3		0		
sample sensor / sample speaker	4		0		
Case			0		
uncurved/flat	1		0		
single curved	2		0		
double curved	3		0		
case material supplements			0		
plastic	0		0		
wood	1		0		
rubber	2		0		
titanium	3		0		
special colour	0,5		0		
Interface			0		
push button	0,5		0		
scroll wheel	1,3		0		
integrated scroll wheel/ pushbutton	2,5		0		
LC display	3		0		
button supplements					
special colour	0,2		0		
special form	0,4		0		
special material (rubber, wood, titanium)	0,6		0		
Total			0		

Product specification document outline

Introduction
[Give the product a name and describe the general idea here.]

Functions and working
[Describe what the product does.]
[Specify how it works.]
[Provide argumentation for the decisions that have been made.]

Components and look-and-feel
[Specify all components, properties and materials here.]
[Describe the form, material and color of the case here.]
[Provide argumentation for the decisions that have been made.]

User interface
[Describe the function, position, form, material and color of the interface elements here.]
[Provide argumentation for the decisions that have been made.]

Costs
[Specify the composition of the production costs here.]
[Provide argumentation for the decisions that have been made.]

The market
[Specify what the target group of this product is and how their requirements are fulfilled.]
[Describe the results of the product evaluation here.]
[Provide argumentation for the decisions that have been made.]

Time:	2:23
Role:	All
From:	Account Manager
Subject:	Training
Body Text:	

Dear colleagues,

If you have not sent them yet, reply to this message and attach your presentations immediately (for the project manager, also the product specification document so far). Also, save these files in the shared project folder and wait for further instructions. When you are not finished, you can continue your work during the meeting.

You will meet up with your team soon.

Regards,
Your account manager

Attachment: n.a.

Time:	2:25
Role:	All
From:	Experimenter
Subject:	Questionnaires 4
Body Text:	

Please fill out all of the following questionnaires:

AMI mental effort 3:
http://tmquest.tm.tno.nl/nq.cfm?q=1897932e-f1f6-4485-ebd7-3a0f1835de88

AMI tool assessment 2:
http://tmquest.tm.tno.nl/nq.cfm?q=317edfe7-f1f6-4485-e767-902c75e1c2a5

Thanks,
Your Experimenter

Attachment: n.a.

Time:	2:40
Role:	All
From:	Account Manager
Subject:	Start your meeting now!
Body Text:	

Dear colleagues,

While you were preparing, we have been investigating the previous remote control development team further and have some remarks you should use in your meeting.

We are very fond of a number of original, innovative ideas that the previous team has come up with during their meetings. Unfortunately, not all of these ideas have been used. We are interested in applying speech technology. Check whether the ideas of the previous team on speech technology are useful.

Furthermore, the previous team didn't take firm decisions and thus left a lot of open issues. The decisions that they did take, lack clear argumentation. Especially, we would like a well considered decision on the target group. Find out about the argumentation of the previous team on this matter and see if you can use this.

Meet up with your team and start your meeting now!

Regards,
Your Account Manager

Attachment:	n.a.

Time:	3:18
Role:	All
From:	Account Manager
Subject:	5 minutes left for your meeting
Body Text:	

Dear colleagues,

You've got only 5 minutes left to finish your meeting (and your design).

Regards,
Your Account Manager

| **Attachment:** | n.a. |

Time:	3:23
Role:	All
From:	Account Manager
Subject:	End your meeting now!
Body Text:	

Dear colleagues,

Due to time restrictions, you have to finish your meeting now!
Please save any additional files you've created in the shared project folder and save your clay model.
Project manager, please finish the product specification within 10 minutes, reply to this message and attach the product specification and save it in the shared project folder.

Regards,
Your account manager

Attachment:	n.a.

Time:	3:25
Role:	All
From:	Account Manager
Subject:	Questionnaires 5
Body Text:	

Please fill out all of the following questionnaires:

```
AMI mental effort 4:
```
http://tmquest.tm.tno.nl/nq.cfm?q=1897f728-f1f6-4485-ed27-9b71a2712839

```
AMI tool assessment 3:
```
http://tmquest.tm.tno.nl/nq.cfm?q=31805c27-f1f6-4485-e766-9e34e676efdf

```
AMI dominance:
```
http://tmquest.tm.tno.nl/nq.cfm?q=3bd64443-f1f6-4485-e1f0-ed90be2a3aa0

```
AMI team:
```
http://tmquest.tm.tno.nl/nq.cfm?q=3182d777-f1f6-4485-e07a-df848275860b

```
AMI after:
```
http://tmquest.tm.tno.nl/nq.cfm?q=325661d3-f1f6-4485-efd8-224cf2ba189c

Thanks,
Your Experimenter

Attachment:	n.a.

Appendix 2: Questionnaires

<u>QUESTIONNAIRE: BEFORE</u>

Background information

2   *What is your gender?*
○   Male
○   Female

3   *What is your age?*
     …

4   *What is your current profession / study:*
     …

Technology experience

5   *How often do you use a computer?*
○   Never
○   Monthly
○   Weekly
○   Daily

6   *How often do you use the Internet for browsing webpages?*
○   Never
○   Monthly
○   Weekly
○   Daily – less than 1 hour
○   Daily – 1 – 3 hours
○   Daily – more than 3 hours

7   *How often do you use the Internet for email?*
○   Never
○   Monthly
○   Weekly
○   Daily – less than 1 hour
○   Daily – 1 – 3 hours
○   Daily – more than 3 hours

8   How often do you use the Internet for chatting?
○ Never
○ Monthly
○ Weekly
○ Daily – less than 1 hour
○ Daily – 1 – 3 hours
○ Daily – more than 3 hours

9   How often do you search for multi-media content (audio (e.g. music) or video (e.g., movies)) on the computer?
○ Never
○ Monthly
○ Weekly
○ Daily – less than 1 hour
○ Daily – 1 – 3 hours
○ Daily – more than 3 hours

10   Which of the following devices do you own or use regularly?
☐ Laptop
☐ GSM
☐ PDA
☐ MP3-player

Meeting experience

11   How often do you participate in meetings?
○ Never
○ Monthly
○ Weekly
○ Daily – once
○ Daily – more than once

12   What is the typical size of your meetings (number of participants)?
…

13   What is the typical length of your meetings (in minutes)?
…

14   How would you characterize your typical meetings (e.g. subject matter, objective, atmosphere)?
…

15   What role(s) do you typically perform in meetings?
☐ Chairman
☐ Draw up the minutes
☐ Participant
☐ Other: …

16   Do you feel that the objectives for your meetings are generally attained?
○   Never
○   Hardly ever
○   Sometimes
○   Most of the times
○   Always

17   Do you feel that the time for your meetings are generally well-spent?
○   Never
○   Hardly ever
○   Sometimes
○   Most of the times
○   Always

18   Do you generally like to participate in your meetings?
○   Never
○   Hardly ever
○   Sometimes
○   Most of the times
○   Always

19   Which of the following means do you use BEFORE a meeting (to prepare for the meeting)?
▢   Minutes of the previous meeting(s)
▢   Related documents
▢   Agenda
▢   Personal recollection
▢   Contact other participants
▢   Personal notes of the previous meeting(s)
▢   Means to prepare a presentation
▢   Pictures of previous meeting(s)
▢   Audio recording of previous meeting(s)
▢   Video recording of previous meeting(s)
▢   Consult external information sources (e.g. internet)
▢   Contact external people (face-to-face, e-mail, telephone)
▢   Other: …

20   Which of the following means do you use DURING a typical meeting?
▢   Minutes of the previous meeting(s)
▢   Use and annotate related documents
▢   Agenda
▢   Personal recollection
▢   Make personal notes
▢   Make discuss shared notes (e.g., on blackboard, whiteboard, flip-over)
▢   Give/discuss a presentation
▢   Make pictures
▢   Make Audio recording

▢ Make Video recording
▢ Consult external information sources (e.g. internet)
▢ Contact external people (face-to-face, e-mail, telephone)
▢ Audio conferencing tools
▢ Video conferencing tools
▢ Other: …

21 Which of the following means do you typically use AFTER a meeting (to process the results)?
▢ Minutes of the previous meeting(s)
▢ Related documents
▢ Agenda
▢ Personal recollection
▢ Contact other participants
▢ Personal notes of the previous meeting(s)
▢ Means to prepare a presentation
▢ Pictures of previous meeting(s)
▢ Audio recording of previous meeting(s)
▢ Video recording of previous meeting(s)
▢ Consult external information sources (e.g. internet)
▢ Contact external people (face-to-face, e-mail, telephone)
▢ Other: …

22 What types of information do you typically include in your personal notes?
▢ Decisions taken
▢ Things to do
▢ Things you want to tell others
▢ Reminders
▢ Reference materials (names, phone number, webpages)
▢ "Doodles" (absent-minded scribbles)
▢ Other: …

23 When you have missed a meeting, how do you catch up?
▢ Read meeting minutes
▢ Ask other participants
▢ Consult notes of other participants
▢ Consult audio recording
▢ Consult video recording
▢ Other: …

Design projects

24 Do you have experience with working in project teams?
○ No
○ Hardly any
○ Average
○ A lot

25 Do you have knowledge of or experience in product or service development?

○ No
○ Hardly any
○ Average
○ A lot

QUESTIONNAIRE: MENTAL EFFORT

Please indicate, by filling in a number between 0 and 150, how much effort it took for you to complete the task you have just finished.

```
150 ─
140 ─
130 ─
120 ─
            ─────────── Extreme effort
110 ─
100 ─  ─────────── Very great effort
 90 ─
        ─────────── Great effort
 80 ─
        ─────────── Considerable effort
 70 ─
 60 ─  ─────────── Rather much effort
 50 ─
 40 ─  ─────────── Some effort
 30 ─  ─────────── A little effort
 20 ─
 10 ─  ─────────── Almost no effort
  0 ─  ─────────── Absolutely no effort
```
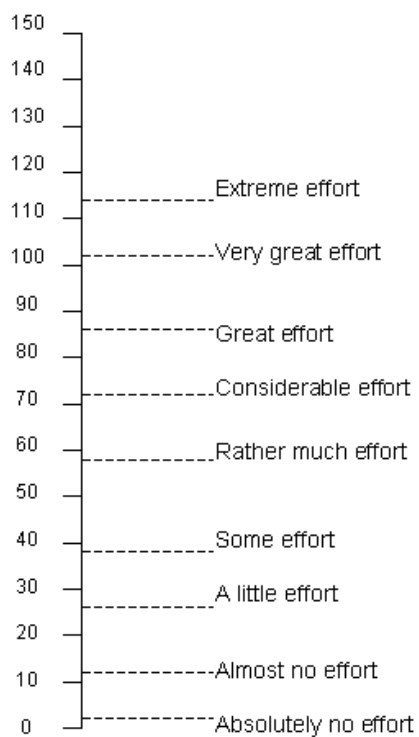
QUESTIONNAIRE: TOOL ASSESSMENT

2   **It is possible to quickly find the information.**

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

3   **The result of finding information is worth the effort.**

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

4   **Looking for information leads to the right results.**

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

5   **There are no better ways of finding the information.**

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

6   **It is enjoyable to look for information.**

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

7   **I prefer this way over other ways of looking for information.**

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

8   **All necessary information can be found.**

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

9   I think that no useful information was left unfound.

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

10   It is easy to find the information.

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

11   It is always possible to find the information needed.

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

12   All in all, looking for information is satisfactory.

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

13   It doesn't take many steps to find the information.

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

QUESTIONNAIRE: DOMINANCE

2 *Rank the group members (including you) in order of influence on the group decisions. Give the less influential person a 1, the more influential persons a 2 and 3, and the most influential person a 4. Please give all members a number and use a certain number just once.*

	Rank
Project Manager	..
Industrial Designer	..
User interface Designer	..
Marketing Expert	..

			1	2	3	4	5	6	7	
3	*On a 7 pt scale, how dominant was the Project Manager?*	Not dominant at al	1	2	3	4	5	6	7	Very dominant
4	*On a 7 pt scale, how dominant was the Industrial Designer?*	Not dominant at al	1	2	3	4	5	6	7	Very dominant
5	*On a 7 pt scale, how dominant was the User Interface Designer?*	Not dominant at al	1	2	3	4	5	6	7	Very dominant
6	*On a 7 pt scale, how dominant was the Marketing Expert?*	Not dominant at al	1	2	3	4	5	6	7	Very dominant

QUESTIONNAIRE: TEAM FACTORS

This questionnaire is not a test for measuring you own performance, but asks your opinion about the meeting you just participated in. The data from this questionnaire are treated anonymously. This means that de data never can be traced back to one person. After completing this list, you can submit it. It is not possible to look back on a questionnaire you already completed.

Please read the following statements. Tick the box that you think is the most applicable. You can vary the extent to which the statement is applicable by ticking a box that is more to the left or to the right. The middle box means "neutral".

You can only tick one box per question. Don't miss any questions. Approach each question separately; the questions are in arbitrary order. There are no good or wrong answers. Don't think about your answer for too long. Most of the time, the answer that comes to your mind first is the best.

2   I could easily have solved the problem on my own.

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

3   The team performed better than everyone on his own.

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

4   Together we found more solutions than I did on my own.

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

5   I find the members of the group trustful.

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

6   Putting together all individual information worked well.

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

7   *Everyone tried to contribute to the solution of the problem.*

| Not applicable at al | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Very much applicable |

8   *Annoying events took place between me and my coworkers.*

| Not applicable at al | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Very much applicable |

9   *The meeting was directed in a good manner..*

| Not applicable at al | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Very much applicable |

10   *We shared the necessary information well.*

| Not applicable at al | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Very much applicable |

11   *All team members received sufficient attention.*

| Not applicable at al | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Very much applicable |

12   *Whenever I needed help I could ask my coworkers.*

| Not applicable at al | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Very much applicable |

13   *The job could have been done in less time.*

| Not applicable at al | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Very much applicable |

14   *I made use of every moment.*

| Not applicable at al | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Very much applicable |

15   *I find my work of good quality.*

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

16 *I had to work extra hard to finish a task.*

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

17 *I find the members of the group helpful.*

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

18 *Had I been working just by myself, I would have solved the problem better.*

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

19 *The job could have been done with fewer people.*

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

20 *I am satisfied with the process by which the group made its decision.*

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

21 *I find the members of the group kind.*

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

22 *Every team member had sufficient opportunity to make his contribution.*

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

23 *All individual contributions affected the design process.*

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

24 *I am satisfied with the prize of the design solution.*

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

25 *I am satisfied with the result of the effort we put in as a team.*

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

26 *I had difficulty with expressing myself.*

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

27 *I felt appreciated by my coworkers.*

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

28 *We spent the available time efficiently.*

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

29 *I had too much work to do.*

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

30 *I am satisfied with the group's discussion.*

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

31 *I am satisfied with completeness of the design solution.*

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

32 *I am satisfied with the precision of the design solution.*

| Not applicable at al | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Very much applicable |

33 *We helped each other with tool problems.*

| Not applicable at al | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Very much applicable |

34 *I had to work under time pressure.*

| Not applicable at al | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Very much applicable |

35 *Had I been working just by myself, I would have solved the problem faster.*

| Not applicable at al | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Very much applicable |

36 *I find the members of the group pleasant to be with.*

| Not applicable at al | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Very much applicable |

37 *On my own I had never been able to find such a good solution.*

| Not applicable at al | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Very much applicable |

38 *I was on good terms with my coworkers.*

| Not applicable at al | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Very much applicable |

39 *There is a good atmosphere among me and my coworkers.*

| Not applicable at al | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Very much applicable |

40 *I had to work very fast.*

| Not applicable at al | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Very much applicable |

41 *I am satisfied with correctness of the design solution.*

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

42 *I had difficulty with understanding my coworkers.*

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

43 *In all, I am satisfied with the solution for the design.*

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

44 *We corrected each others mistakes.*

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

45 *All in all, I am very satisfied.*

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

46 *Decisions were made in a democratic way.*

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

47 *Because each participant provided a part of the puzzle, we could do the job.*

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

48 *The presentations of my coworkers were understandable.*

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

49 *I am satisfied with the way we worked together.*

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

50   *The presentations of mu coworkers were complete.*

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

51   *I find the members of the group irritating.*

Not applicable at al	1	2	3	4	5	6	7	Very much applicable

QUESTIONNAIRE: AFTER

Condition 0

1 **Check the cells to indicate which information sources you used during the project and the means you used for this.**

	Minutes	Presentations	Emails/messages	Internet	Room view videos videos	Close up videos
File system (Explorer)	□	□	□	□	□	□
Email (Outlook)	□	□	□	□	□	□
Internet	□	□	□	□	□	□

2	*How useful did you find the minutes?*	Not usefull at al	1	2	3	4	5	6	7	Very much useful
3	*How useful did you find the presentations?*	Not usefull at al	1	2	3	4	5	6	7	Very much useful
4	*How useful did you find the e-mail / messages?*	Not usefull at al	1	2	3	4	5	6	7	Very much useful
5	*How useful did you find the internet?*	Not usefull at al	1	2	3	4	5	6	7	Very much useful
6	*How useful did you find the room view videos?*	Not usefull at al	1	2	3	4	5	6	7	Very much useful
7	*How useful did you find the close-up videos?*	Not usefull at al	1	2	3	4	5	6	7	Very much useful

8	*How usable did you find the file system (Explorer) to search for information?*	Not usable at al	1	2	3	4	5	6	7	Very much usable
9	*How usable did you find e-mail (Outlook) to search for information?*	Not usable at al	1	2	3	4	5	6	7	Very much usable
10	*How usable did you find Internet to search for information?*	Not usable at al	1	2	3	4	5	6	7	Very much usable

Condition 1

1 *Check the cells to indicate which information sources you used during the project and the means you used for this.*

	Minutes	Presentations	Emails/messages	Internet	Room view videos	Close up videos	Speaker activity log	Meeting transcripts
File system (Explorer)	□	□	□	□	□	□	□	□
Email (Outlook)	□	□	□	□	□	□	□	□
Internet	□	□	□	□	□	□	□	□
Meeting browser	□	□	□	□	□	□	□	□

2	*How useful did you find the minutes?*	Not usefull at al	1	2	3	4	5	6	7	Very much useful
3	*How useful did you find the presentations?*	Not usefull at al	1	2	3	4	5	6	7	Very much useful
4	*How useful did you find the e-mail / messages?*	Not usefull at al	1	2	3	4	5	6	7	Very much useful
5	*How useful did you find the internet?*	Not usefull at al	1	2	3	4	5	6	7	Very much useful

6	*How useful did you find the room view videos?*	Not usefull at al	1	2	3	4	5	6	7	Very much useful
7	*How useful did you find the close-up videos?*	Not usefull at al	1	2	3	4	5	6	7	Very much useful
8	*How useful did you find the speaker activity log?*	Not usefull at al	1	2	3	4	5	6	7	Very much useful
9	*How useful did you find the meeting transcripts?*	Not usefull at al	1	2	3	4	5	6	7	Very much useful
10	*How usable did you find the file system (Explorer) to search for information?*	Not usable at al	1	2	3	4	5	6	7	Very much usable
11	*How usable did you find e-mail (Outlook) to search for information?*	Not usable at al	1	2	3	4	5	6	7	Very much usable
12	*How usable did you find Internet to search for information?*	Not usable at al	1	2	3	4	5	6	7	Very much usable
13	*How usable did you find the meeting browser to search for information?*	Not usable at al	1	2	3	4	5	6	7	Very much usable

Condition 2

1 **Check the cells to indicate which information sources you used during the project and the means you used for this.**

	Presentations	Emails/messages	Internet	Room view videos	Close up videos	Speaker activity log	Meeting transcripts	Abstracts	Actions	Decions	Problems
File system (Explorer)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Email (Outlook)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Internet	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Meeting browser	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

2	*How useful did you find the presentations?*	Not usefull at al	1	2	3	4	5	6	7	Very much useful
3	*How useful did you find the e-mail / messages?*	Not usefull at al	1	2	3	4	5	6	7	Very much useful
4	*How useful did you find the internet?*	Not usefull at al	1	2	3	4	5	6	7	Very much useful
5	*How useful did you find the room view videos?*	Not usefull at al	1	2	3	4	5	6	7	Very much useful
6	*How useful did you find the close-up videos?*	Not usefull at al	1	2	3	4	5	6	7	Very much useful
7	*How useful did you find the speaker activity log?*	Not usefull at al	1	2	3	4	5	6	7	Very much useful
8	*How useful did you find the meeting transcripts?*	Not usefull at al	1	2	3	4	5	6	7	Very much useful
9	*How useful did you find the Abstracts?*	Not usefull at al	1	2	3	4	5	6	7	Very much useful
10	*How useful did you find the Actions?*	Not usefull at al	1	2	3	4	5	6	7	Very much useful
11	*How useful did you find the Decisions?*	Not usefull at al	1	2	3	4	5	6	7	Very much useful
12	*How useful did you find the Problems?*	Not usefull at al	1	2	3	4	5	6	7	Very much useful
13	*How usable did you find the file system (Explorer) to search for information?*	Not usable at al	1	2	3	4	5	6	7	Very much usable

14	*How usable did you find e-mail (Outlook) to search for information?*	Not usable at al	1	2	3	4	5	6	7	Very much usable
15	*How usable did you find Internet to search for information?*	Not usable at al	1	2	3	4	5	6	7	Very much usable
16	*How usable did you find the meeting browser to search for information?*	Not usable at al	1	2	3	4	5	6	7	Very much usable

<u>*Condition 3*</u>

1   *Check the cells to indicate which information sources you used during the project and the means you used for this.*

	Minutes	Presentations	Emails/messages	Internet	Room view vvideos	Close up videos	Speaker activity log	Meeting transcripts	To do's	Decisions
Project	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
To do's	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Decisions	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Documents	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Messages	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Meetings	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

2	*How useful did you find the minutes?*	Not usefull at al	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	Very much useful
3	*How useful did you find the presentations?*	Not usefull at al	1	2	3	4	5	6	7	Very much useful

4	*How useful did you find the e-mail / messages?*	Not usefull at al	1	2	3	4	5	6	7	Very much useful
5	*How useful did you find the internet?*	Not usefull at al	1	2	3	4	5	6	7	Very much useful
6	*How useful did you find the room view videos?*	Not usefull at al	1	2	3	4	5	6	7	Very much useful
7	*How useful did you find the close-up videos?*	Not usefull at al	1	2	3	4	5	6	7	Very much useful
8	*How useful did you find the speaker activity log?*	Not usefull at al	1	2	3	4	5	6	7	Very much useful
9	*How useful did you find the meeting transcripts?*	Not usefull at al	1	2	3	4	5	6	7	Very much useful
10	*How useful did you find the To do's?*	Not usefull at al	1	2	3	4	5	6	7	Very much useful
11	*How useful did you find the Decisions?*	Not usefull at al	1	2	3	4	5	6	7	Very much useful
12	*How usable did you find the Project tab to search for information?*	Not usable at al	1	2	3	4	5	6	7	Very much usable
13	*How usable did you find the To do's tab to search for information?*	Not usable at al	1	2	3	4	5	6	7	Very much usable
14	*How usable did you find the Decisions tab to search for information?*	Not usable at al	1	2	3	4	5	6	7	Very much usable
15	*How usable did you find the Documents tab to search for information?*	Not usable at al	1	2	3	4	5	6	7	Very much usable
16	*How usable did you find the Messages tab to search for information?*	Not usable at al	1	2	3	4	5	6	7	Very much usable

17	*How usable did you find the Meetings tab to search for information?*	Not usable at al		1	2	3	4	5	6	7	Very much usable

Condition 0,1,2,3

2 *Do you feel that the objectives for today's project were generally attained?*
○ never
○ hardly ever
○ sometimes
○ most of the times
○ always

3 *Do you feel that the time for today's project was generally well-spent?*
○ never
○ hardly ever
○ sometimes
○ most of the times
○ always

4 *Did you generally like to participate in today's project?*
○ never
○ hardly ever
○ sometimes
○ most of the times
○ always

5 *What type of information did you miss in the information on the computer?*
…

6 *What types of search options did you miss in the information on the computer?*
…

7 *Do you trust the information on the computer to provide an accurate and adequate representation of the project?*
Yes, because …
Yes, but …
No, because …

8 *Would you like to participate in meetings that take place in a 'smart meeting room' in which all communication is logged (in real life)?*
Yes, because …
Yes, but …
No, because …

9 *Would meeting in a 'smart meeting room' affect your behaviour during meetings?*
Yes, because …
Yes, but …
No, because …