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Abstract: The training course on MERCI dealt with learning to use the computer-supported co-operative work system as a prerequisite for computer-mediated collaboration. The conceptual model for the training course builds on experiental learning. The course-work was based on real cases from the target group's daily research work. The training course produced experiences and knowledge about usin MERCI for collaboration and preliminiary user-requirements.

* Type: PU = public, LI = limited, RP = restricted

** Nature: PR = prototype, RE = report, SP = specification, TO = tool, OT = other.

Table of Content

Training course on the MERCI Toolset
Deliverable no. 03.4: Training Course in Collaboration
The MANICORAL-project. Multimedia and Network in Co-operative Research and Learning.

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[1] This report is the result of extensive discussions in the HCCC group, which includes Oluf Danielsen, Janni Nielsen, Marianne Georgsen, Morten Vendelø. Their ideas and sharing of insights from training studies have been essential for the work.

Training Course on the MERCI Toolset

The training course is one of our formal learning activities. During the lifetime of MANICORAL phase one (Multimedia and Network in co-operative Research and Learning), we are going to have different training activities. This training course provides a basic introduction to the computer supported collaborative work system, the MERCI Toolset[2], to ensure that the entire MANICORAL-group becomes ready to use the toolset for collaboration and communication. The succeding training course will concentrate on the communicative protocols to be used as well as give a basic introduction to communication and collaboration in a distributed community.

The object of the training course was to learn how to use the MERCI Toolset and to acquire enough knowledge of the local research communities (both the HCCC-group[3] and AFRICAR[4]) to continue using the toolset in the daily MANICORAL work. A sub goal was to continue the process of qualifying the user requirements.

The conceptual model for the training course

The conceptual model for the training course has its starting point in the experiental and action oriented learning cycle.

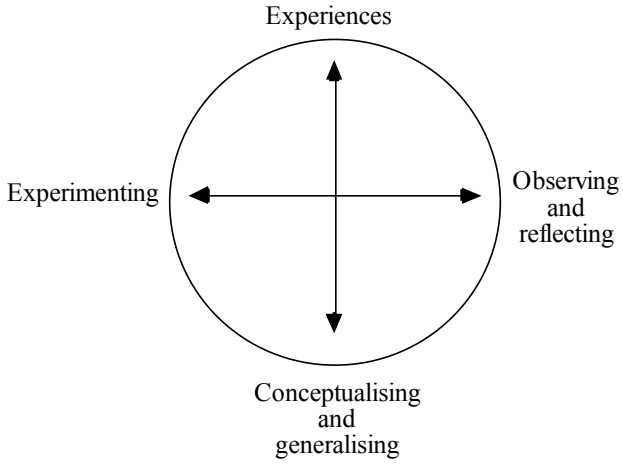

Fig. 1. Inspired by the Lewinian Experiential Learning Model (Kolb, 1984)

[2] The MERCI Toolset includes Audio Tools: vat and rat, Whiteboards: wb, nt and Session Tools: sdr. The toolset has been developed in the frame of the MERCI (Multimedia European Research Conferencing Integration) project (the former MICE project).
[3] HCCC-group (Human-Communication, Collaborative and Cognitive group)
[4] AFRICAR (Altimetry for Research in Climate and Resourses)

We take for granted that the learners are in possession of certain experiences when they enter the training course. Therefore, the training course has to relate to these experiences as well as to give room for new experiences, reflections and generalisations, or at least for enough knowledge to ensure that he learners are able to go on experimenting, reflecting and conceptualising when they return to their daily activities.

Dealing with a mixed target group (divided sessions)

There were two main target groups in the training course, the HCCC-group and the AFRICAR-group. They have similar backgrounds as they are all university graduates and participants in the MANICORAL project, however, they are also different in terms of expectations to the training course and in terms of former experiences. In particular, the differences in regards to the knowledge of UNIX and in regards to the concept of work stations are rather varied for the two groups. The AFRICAR people are experts capable of writing programmes while the HCCC people are novices within the world of work stations. However, they are experienced users of MACS/PCs.

To deal with the differences within the target group, the training course was, in some of the sessions, split up in order to reflect the different needs of the two target groups. In other sessions the group remained intact. This was partly for practical reasons (room, machines and preparation) and partly a result of the assumption that the group as such would benefit from a common, basic introduction to the MERCI Toolset.On that basis, the different groups would be able to bring up their perspective.

Organising the training course

On a preliminary level, the training course was organised in order to deal with the different elements in the experiental learning cycle (see the program, supplement 1) in order to make the participants ready for continuing the work on their own.

The course began with a session providing the participants with a shared conceptual understanding of the MERCI Toolset. (The conceptual element in the learning circle). Humans have a need of establishing a pattern and a structure to which they may link new knowledge during the process of learning (the gestalt principle). Furthermore humans will construct a mental model of the new phenomenon from the system image from which they will organise the action and operation to carry out. In order to learn how to handle and operate the system in an effective manner as necessary, so that the participants and the designers share the conceptual model. One way to obtain this is to introduce the conceptual design model and the master metaphor of the system in the training course.

The presentation of the conceptual design model was followed by a structured walk-through session, which ensured that everybody was introduced to the functionalities of the MERCI Toolset so they had a vision and understanding of the possibilities within the toolset. This also gave an overview of the commands to use. After this, the group was divided into the AFRICAR North and the HCCC-group. The groups had to experiment with the MERCI toolset in real case work. The case work was planned by the target-group themselves based on the instruction of the HCCC-group. The case work should ensure a test of different meeting situations as well as types of communications and collaborations. To base the training course on real case-work means that the groups become able to perform real tasks, while they are being trained. This is important, when a target group is very goal oriented in terms of their rational time consumption. At the same time, it makes it possible to continue the process of formulating user requirements.

The final element in the experiential learning cycle,- the reflection took place in the last session - formulating the user requirements, - where all the participants shared experiences. However, reflections also took place during the training seminar, sometimes individually and sometimes as common reflections when some one posed a question or a comment to the others or to the trainers.

Do we need structured hands-on sessions?

Prior to the training course, someone asked the question whether we really needed structured hands-on sessions. The argument was that the interfaces are getting more and more intuitive, so it is only a question of getting started and of exploreing the interface and the functionality on your own.

It is true that the interfaces have changed and are getting more intuitive as well as there are rather fixed conventions for how to do this, which is why the overall concept for a training seminar has to adjust to that fact. In addition, different people (and target groups) have different learning styles (Kolb, 1984). Some people prefer the learning cycle to start by making experiments, while others prefer to start with the presentation of concepts and going through instructions. One hypothesis would be, that the AFRICAR-group prefers an experimental practice and the HCCC-group a conceptual practice. In this specific case, hands-on was a possibility to give the group as such a shared background as well as it was a means to secure that everybody was familiar withthe "corners" of the MERCI Toolset.

The learning environment

The training course was planned as a “face-to-face” seminar. We found it

important that the participants were able to learn from each other as well as we

found it more easy for the trainers to give proper support to the groups. Added to this was that a “face-to-face” seminar gave better possibilities of continuing the informal communication between the different groups within MANICORAL. Furthermore, the training course served as a milestone for the different groups to try to either install the Silicon Graphic workstation and the MERCI Toolset before the training sessions or to be so educated and motivated that they were able to go home and make the final installations.

To minimise the travel expenses, the MANICORAL group was divided into two groups: Seminar 1, AFRICAR North and the HCCC-group, and Seminar 2, the AFRICAR South. Seminar 1 took place in Copenhagen at the Department of Geophysics, Copenhagen University. Seminar 2 took place at the Technical University of Graz a few days later.

Physical set-up and experiences from the training course in Copenhagen

A larger meeting room was used for plenary group meetings.

One room was used with 1 SGI Workstation and with SGI projection facilities to show the screen on a large white board. This was where the demonstration was made. The work station was used independently to modify a number of processes.

The case work was made using 4 SGI Workstations. The AFRICAR - North participants used the computers in two different rooms, about 30 m apart. This was useful, because one was able to run to the other room to check what was going on. The main physical problem was that one of the work-stations was placed in a cabinet to limit noise - and then it was of course difficult to listen to the voice communication.

The HCCC group used one room with two SGI Workstations side by side. This was a good idea because the HCCC group was not used to work with a UNIX-based workstationand so they were able to learn from each other.

In general, there were 3 persons sharing one workstation. This was too many. In the future there must be a maximum of 2 , a large screen projector must be used, and voice communication must be amplified.

Experiences

The MERCI Toolset was introduced (see supplement 2 and 3). The differences between using *vat* - which seems best for M-bone, and *rat*, which seems to cope with package loss and gives better audio quality was pointed out. MANICORAL will use VAT.

The White Board (WB) was questioned, and it was pointed out, that the WB was developed from the point of view of a networking tool, not as a CSCW tool, and this may create some problems. We should be aware of this and ensure feedback of the experiences we encounter with the limitations of the WB.

The case work took place in parallel sessions.

Case work in HCCC:

The case reflected a normal face-to-face research meeting in the HCCC-group dealing with practical planning stuff and more or less formal research discussions. The case work dealt with the different research meeting tasks (see supplement 1). The HCCC-group focused on communication and collaboration, and how the MERCI tools supported that communication. In order to do that, the HCCC-group

played with all the tools within the MERCI Toolset, video, audio, session announcement, the white board, and the text-processing system on the WB.

Case work in Africar North

During the Manicoral training course, several cases were presented by Marc Naeije, Roger Haagmans and Ejo Schrama, all from the DEOS institute at the Delft University of Technology. Marc prepared some colour images to be discussed via the whiteboard, but was unsuccessful in doing so because of a memory limitation in the WB. A patch version of the WB created by Ian Johnson was also unable to help us out. Roger had similar problems in presenting his cases. Ejo managed to get some smaller black and white images to work, in particular excerpts from the multipaged document containing his Como summerschool lecture transparencies. The group had a discussion about the first few pages over the whiteboard, later they discussed a black and white picture of the dynamic ocean topography which occurred later in the notes.

Working with the entire system they got the feeling that a little bit of preparation would be helpful. This appliesto everybody. Hardware and software must work during a meeting and must be tested in advance. Ad hoc solutions during a meeting is not the way to go and a lot of trouble can usually be prevented by preparing people inside an organisation and give notice to them in advance that certain activities will take place at certain agreed upon dates/hours and locations. But to the participants as well it means that certain side-conditions are made known prior to the meeting. Unfortunately, they didn't get the impression that this strategy was optimally applied in the casework.

Experiences and physical set-up for the training course in Graz

Reported by Werner Fuerst

Participants:

Due to really catastrophic weather conditions and their resulting landslides, the Milan group was not able to come (the Austrian-Italian border was closed in these days), so, from outside Graz, only Professor Arabelos Dimitri as domain (AFRICAR) expert, and Chris Seelig and Daniela Giorgetti from RAL attended.

Case Work:

The case work experimented with some of the technical problems which were identified during the Copenhagen seminar.

They did some experiments with the audio equipment which Chris Seelig brought to Graz. This containedsome high quality microphones, and a devise which triggered the signal only if some level of input signal was available, so one could speak freely and was not forced to concentrate on the right mouse button to switch on the microphone.

They also had a look on the BSCW server which Werner Fuerst had installed in Graz(http://fmgeosg01.tu-graz.ac.at:8888/). In the Architecture Report by David Duce (under preparation) there are some comments on the BSCW and similar tools.

Finally, they tried out different tools to announce sessions on the MBone, and tested the white board with different types of postscript files.

Physical set-up:

They had two workstations in two separate rooms. In one of the rooms, Werner Fuerst installed a sort of video beam, this is a device which enables one to project everything that is on the computer screen to a large screen on the wall, with the same resolution and high luminance. Unfortunately, the number ofparticipants were too small so they could not see the full advantage of such a system, but it was clear that in a large meeting such a device would be a huge improvement.

As pointed out above, Chris Seelig brought in some high quality microphones with this input-level-trigger.

They also installed one additional high quality camera and, from time to time, used the second video input to transmit images which were superior to the camera which came with the Indy. With a macro objective, such an additional camera could be used as a document camera.

Final remarks

The training sessions went quite well. All the participants got enough first-hand experiences that they could return home and use the MERCI Toolset. The HCCC-group hasn't started yet (June 1996), however they believe that they will be able to do it when the technical set-up is ready. The AFRICAR group has started to use the MERCI tools. During the summer (1996) they did several experiments with the tools.

At the training course, various user requirements were formulated.

Experiences and user requirements

(reported by Janni Nielsen and Marianne Georgsen)

Two main objects for the use of the system were put forward in the case work: To observe whether the tools hindered collaboration and to make suggestions as to how the tools can be combined. After the session, a number of points of critique were formulated by the participants. In the following, these have been divided into three groups, 1: Functionality, 2: Accessories, and 3: Philosophy of design.

1: Functionality

A dynamic/movable cursor that can be seen by everyone is necessary.

A status on the loading-process of postscript files is needed (a "percentage indicator")

There is a limitation on the size of files that can be imported into the WB.

There is a need for handling larger files, both text and graphics.

A status information line on the WB is needed. Error messages are currently shown in the x-window.

An on-line "quick help" is needed.

A better text-editor is required. At least the possibility of cut-and-paste, and a selection of different fonts and sizes. The word-processing system on the WB and also the system which is included in the MERCI Toolset are far too crude. Reasonable text processing systems are wanted..

It is necessary to be able to display more than PS-files on the WB. There is a need for the tool to handle other formats.

There is a need for the WB-tool to handle video.

Finer lines in the drawing tool is needed (the current ones are too bold).

There is a need for a possibility to talk more freely (a handsoff mode). When discussing e.g. an image on the screen, the hand and the mouse must be free to point and annotate while talking.

2: Accessories

One solution for the hands-off talk-mode could be headsets or high quality microphones with input-level-trigger.

There is a request for more than one set of headsets and microphone for each machine (in case of several users on the same machine).

An electronic pen that allows writing of e.g. equations is needed.

Difficulties with the video cameras were experienced as there was no wide-angle lens. Furthermore, the video doesn't follow the speaker, e.g. the speaker has to remember to regulate the video.

A user manual is missing. Screen pictures and functionality should be introduced here.

3: Philosophy of design

There is a need for different templates to choose from (different meeting-modes).

In connection with the audio tool you need to remove tics in the "Receive only"-box. This is reverse logic.

The tools are badly integrated, one might see this as serial multimedia, not parallel and certainly not simultaneous use of the different tools.

The system is designed as a network-system, not a CSCW-tool.

References

Duce, D (in preparation): Architecture report, Rutherford Appleton Laboratory.

Kolb, D (1984): The experiential Learning Cycle, Prentice-Hall, Englewood Cliffs.

Supplement 1

Program for the training course on the MERCI Toolset the 17th of June in Copenhagen and the 24th of June in Graz

Program:

10.00 Welcome, by Christian

10.05 The idea behind the training session, by Lone

10.15 Intro to the MERCI Toolset, by Ian
The underlying design model, the master metaphor and basic functionality

10.45 Coffee

11.00 Hands on, guided by Ian and Chris Seelig
Walking through the basic functionality
User guide/handouts to support the trainees

12.00 Case work 1 (Task 1 - 4, see below) supported by Ian/Chris
(AFRICAR and HCCC work with different cases)

13.00 Lunch

14.00 Case work 2 (Task 5 - 8, see below) supported by Ian /Chris
(AFRICAR and HCCC work with different cases)

16.00 Coffee

16.15 Sharing experiences and closing the seminar

Participants in the training course in Copenhagen:

National Survey and Cadastre
Per Knudsen
Ole Andersen
Thomas Knudsen

Aalborg University:
Lone Dirckinck-Holmfeld
Marianne Georgsen

Delft University of Technology
Roger Haagmans
Marc Naeije
Ejo Schrama

Copenhagen Business School:
Janni Nielsen
Morten Vendelø
Carsten Yssing

Roskilde University
Marianne Pedersen
Oluf Danielsen

University of Copenhagen
Keld Kirkegaard
Ulrik Serges
Carl Christian Tscherning

Rutherford Appleton Laboratory
Ian Johnson
Chris Seelig

Participants in the training seminar in Graz

Rutherford Appleton Laboratory
Chris Seelig
Daniela Giorgetti

University of Thessaloniki
Prof. Dimitris Arabelos

Technical University Graz
Werner Fuerst
Manfred Wieser
Walter Hausleitner
Eduard Hoeck

Cases:

1. Are You there? Turning on the MERCI Toolset. (all)

Type of task: Establishing contact; many-to-many /focus on the start up procedures and how to get in contact

2. Welcome to Marianne Pedersen (RUC), new research assistant in the HCCC-group. Presentations round the "table" (all).

Type of task: socialising; many-to-many / focus on the video

3. Approving the minutes from last meeting /reports on action items. (Marianne/all)

Type of task, administrative/following up on decisions; many-to-one / focus on how the MERCI Toolset import files - postscript files

4. News (all)

Type of task: information. One-to-many

5. "Scientific presentation" by Morten: Establishing an overview of research on communication and co-operation.

Type of task: Intellective task / shared referential background; one-to-many /Using the white board.

6. Theory-discussion initiated by Oluf. Establishing a shared understanding of the theoretical and methodological framework for the HCCC-group (WT 03.1)

Type of task: Intellective task / conflicting viewpoints; many to many

7. Planning the production of WT 3.1, and the programme for the next meeting on WT 3.1, initiated by Oluf.

Type of task: Planning task and decision-making; many to many / using the text processing system

8. Closing case-work (Lone)

Chair person: Will shift during the meeting / Morten is master-chair (the facilitator role/how to manage turn taking)

Referent: Marianne G (task 1 - 5), Janni (task 6 - 8) (the log-function).

Supplement 2: Hand outs

By Ian Johnson

Slide 1:

Now: provide audio and whiteboard tools from the MERCI toolset (media types are audio text and static graphics).

Future: provide the DCV (Distributed Collaborative Visualisation) tool/toolkit, the main deliverable of the MANICORAL project.

Video may be useful (yet to be determined)

Slide 2:

MANICORAL

CSCW Support for AFRICAR

Slide 3:

Audio and whiteboard should not affect the researchers' normal computer use.

The productivity of AFRICAR researchers should not be decreased by altering their way of working.

Tools should become part of the MANICORAL environment and their usage should be "second nature".

Slide 4:

The MERCI tools deliver various types of media across the MBone (q.v.). A collection of media is called a "session".

The tools provide a mechanism for collaboration, but do not impose a specific way of working.

Tools can be used independently or grouped together in a session.

Slide 5:

The MBone is a “virtual network” which allows efficient transmission of data to multiple recipients - this data is most often multimedia.

MBone links can be made from ISDN, ATM or “ordinary” Internet connections.

Slide 6:

The MERCI Toolset includes:

Audio Tools: vat (LBL), rat (UCL)

Whiteboards: wb (LBL), nt (UCL)

Session Tools: sdr (UCL)

LBL= Lawrence Berkely Laboratory

UCL= University College London

Slide 7:

The *vat* program:

- is widely used on the MBone.

- supports a variety of audio encoding schemes.

Slide 8:

The *rat* program:

- is designed to cope with packet loss.

- should provide better audio quality.

Slide 9:

The *sdr* tool is used to create and join sessions. One can provide a description of a session, including a Web URL.

Slide 10:

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RAL Position Statement

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The MERCI Tool Concepts

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Slide 11:

The Multicast Backbone

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The MERCI Toolset Components

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The MERCI Audio Tools

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Slide 12:

The vat User Interface

The sdr Session Tool

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Th sdr User Interface

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