



OULUN YLIOPISTO  
UNIVERSITY of OULU

**Usability Testing (812671S)**  
**Test report**  
**Gimp 2.8.20**

University of Oulu  
Information Processing  
Science  
Mikko Yliniemi  
Fanny Vainionpää  
Kirubel Abebe  
Arun Sojan  
Ganesh Boominathan  
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## Abstract

The need for conducting this usability test is to find how the GIMP can be used by users with different background of expertise. This test helps the designers to know if their initial assumption about the use of the software is as intended as it should be. Therefore, in order to find out how tasks can be executed by different users, a testing process may be conducted and results of the process can be collected to identify how much of the intended assumption has been achieved. It could be challenging and difficult to know which tools of GIMP must be used for a specific task by any user. and this why testing of a GIMP needs to be carried out to observe how different users handles it. This process will help to collect data from the users how they use GIMP for their editing purpose, which in turn can provide solutions for redesigning. The design solutions are usually implemented to improve the software after analyzing the collected data from the testing processes as improved version.

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## 1.1 Introduction

The participants for testing process can be selected by taking actual test case or by creating a scenario to help the intention. This test cases can provide results that can be used as improvement for the software development after analyzing the results thoroughly. Furthermore, the data and analysis can be used for the development of similar or different product developments. The test process needs to be recorded carefully and patiently to get as important output and observation as possible.

The evaluation type and method process for the testing was done by giving the participants certain types of tasks and allowing them to do the tasks in a given time, from 20min-40min per participants. The time was divided as 5min to familiarize themselves with the software interface, 5min to browse and download an image from the internet for their editing purpose and the rest of the minutes were assigned for their actual task on the image to modify it. Similarly, the image editing has been divided into subtasks that includes; adding text, resizing, making the image as black and white, changing font sizes, font color changing.

The testing process can be taken care in the laboratory or with a field testing method. The test individuals can be given certain task to develop in a computer machine from their end and recording their process and steps as a video and audio recording for later analysis use, the observers, on the other hand can watch and follow every-steps of the testers from the other end with a duplicated screen monitor taking notes of their own. This investigation is later used to analyze the overall testing process that can lead to a helpful design solution. The testing process is controlled by limiting the time for a task to be completed by the testers, depending on their previous experience on the product software or similar, the results can vary from testers to testers.

## 1.2 Description of object of usability testing

This usability test is intended to examine the GIMP software menus and potential problems associated with them. The main focus to be studied lies on the menus, in particular their content and structure, which is measured on the basis of their impact on the usability of the software. The content of the study is to observe from the information menus, functionality and the context are used correctly. Structurally, the attention is whether the menus are logically arranged, and how the layout affects the interpretation of objects. The aim of the test is to make findings of the current state of the software, which act as a usability problems. Depending on the findings it is expected to identify how they affect the different levels of users and their abilities to use the software. Finally founding of the problems, forming them and justifying a suggested solutions will follow, which may potentially be possible to fix these problems.

The technology used for this usability test is a software known as GIMP, which is a free and open source image editor software. Installed in the computer machines at usability

testing laboratory of Oulu university. The laboratory consists of three monitor screens one is for the tester participant and the other two are for the observants to record every movement of the tester as an audio and video recording for a later analysis as a document. The machines are installed with the GIMP version of 2.8.20 for the testing purpose.

The typical user features has been selected in such a way that, by considering the individual age, their experience with GIMP or any other similar software use in their background and the purpose for which they are using it.

The typical user tasks have been identified as three types;

1. Creating a poster (for the band a 14 year old boy is playing as a drummer)
2. Editing photo images for a blog (for the photos taken in particular location to include texts and descriptions)
3. Relatively complex graphical design for a party event. (For the upcoming party the GS3D students of Oulu University has organized)

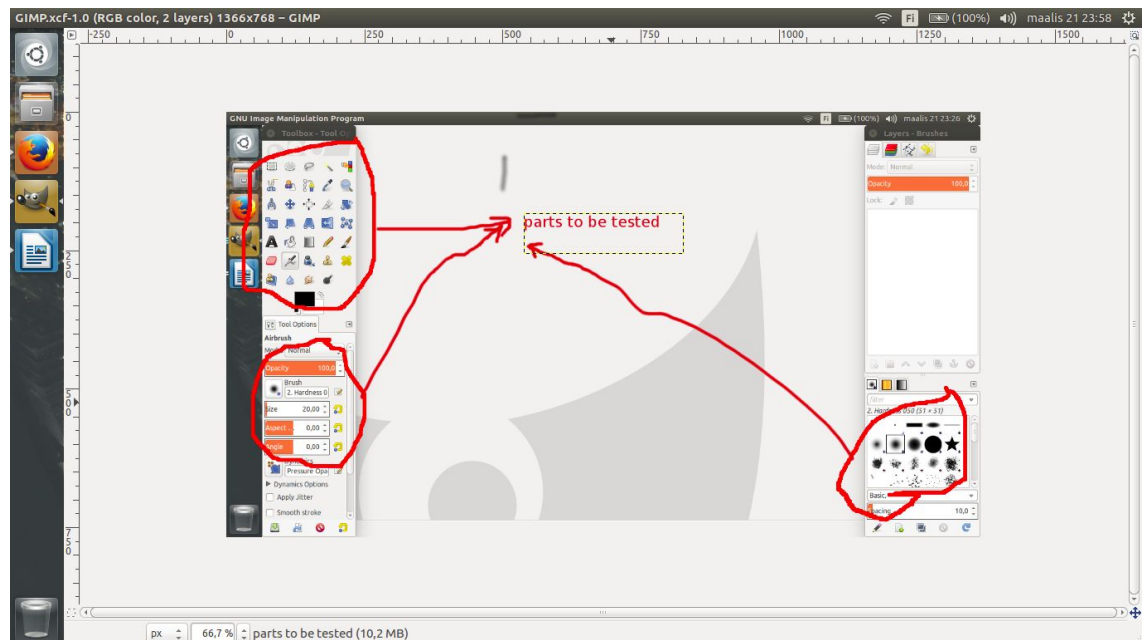


Figure 1. screenshot of GIMP 2.8.20, tools to be tested.

### 1.3 Goals of usability testing

The aim of the usability testing is to explore GIMP software's menus and the possible problems in them. The focus is on the contents and structure of the menus, and the information will be used to assess their impact on the usability of the software product. The contents of the menus are assessed in terms of the information they contain, their

functionality, and whether they are found within the right contexts. The structure aspect of the menus will be inspected regarding their logical arrangement and how their visual representations affect how they are interpreted. The goal is to gain up-to-date information on the usability of the software, revealing the issues from the perspective of three different types of users defined by the commissioner. The findings will be used to assess their impact on different types of end users and the users' readiness to use the product. Finally, the aim is to provide suggestions to the issues found, and to improve GIMP software.

The three user groups are from different age groups, with differing levels of experience using image editing software. These user profiles were given by the commissioner, giving the general description of what type of tasks they would probably need to complete. The different profiles have different levels of difficulty, but in order to compare the usability, they will be given similar tasks (using the text tool, editing the size of the image, etc.). This will show how people with different backgrounds find what they are looking for, how fast they can do it, and where they expect to find it.

1. The first user profile is a 14-year-old boy from Rovaniemi who needs to make a band poster for his band to advertise and create contents for social media, he has no experience using any image editing software. Being this young, the user would have grown up using a lot of computer programs, which may help him in knowing how to use to program, as an older non-experienced user may be more lost.
2. The second user profile is a 21-year-old girl, a biology student in the university of Oulu who likes to take photos with a systems camera and edit them with photoshop for her blog. This means that she has some experience in using image editing software, and because she doesn't want to pay for photoshop anymore, she tries to use GIMP.
3. The last user profile is an experienced user; a 34-year-old graphic designer from Tampere. He works in an advertisement company, where he has been since graduating nine years ago. From his education and experience he has a deep understanding of the image editing softwares and their operating principles, and as a user requires high level personalisation possibilities enabling fast working pace to make advertisements.

The usability test type is assessment; a user from a specific user group completes planned tasks which are either critical, typical for the user, or real. The assessment usability tests answer questions of whether the user able to complete the task, how much time it took, and how many errors occurred. The tests reveal specific usability problems, which can then be addressed.

The usability testing will have three different test scenarios, with different usability assessment criteria.

1. The first test scenario is meant to assess the ability to complete tasks, aiming to reveal whether the program has the necessary functions for each of the users, and whether they are able to complete their tasks in a satisfactory manner and end result.
2. The second test scenario explores the possibilities of personalising the program to fit the different users' needs and preferences. The task is to find a functionality necessary to the user, then edit the program by adding or deleting

- an object to suit the functional needs and aesthetic preferences of the user.
3. The third test scenario focuses on the users' navigation within the program, aiming to find out how the users search for the functions they need and where they expect to find them. The main focus is on the possible problems, where the user cannot find the function they need or end up in situation where they do not know how to proceed.

## 1.4 Test methods

Three users were involved in testing sessions. Testing was done in the usability testing laboratory of University of Oulu. One of the testing sessions was done as field testing. During testing sessions users were given tasks to use specific tools with Gimp. Their comments were recorded and their actions were captured with screen recording software.

Before testing session pre-questionnaire was performed and after testing session user was given a post-questionnaire. Each testing sessions lasted 30 minutes in maximum and free meal was offered to test subjects after sessions. Cognitive walkthrough was used in this testing.

## 1.5 Choosing and recruiting test persons

The following profiles were given by the commissioner:

4. The first profile: a 14-year-old boy, makes a band poster for his band to advertise and create contents for social media, he has no experience using any image editing software.
5. The second profile: a 21-year-old girl, a university student who likes to take photos with a systems camera and edit them with photoshop for her blog. She has some experience in using image editing software.
6. The third profile: a 34-year-old graphic designer from Tampere, an expert user who works in an advertisement company. He requires high level personalisation possibilities.

The usability testing team members had to consider whether they know anyone who fits the criteria. As the task was given with very short notice, there is no time to look for many participants, or to do many usability tests in the university laboratory. Two tests are to be done in the university laboratory and one through skype and a screen recording software.

The team found a person who could be considered the first or second profile; Natalia is a 25-year-old bachelor of business administration who has taken one course in using Photoshop and tried to use GIMP a few times during her studies. She does not use image editing software regularly, which means that she may not be sure what to look for in the menus. Because of this novice level of experience, she would not be considered to fit the second profile completely, but neither the first. Natalia has mainly been working as a cleaner and in the kitchen of a restaurant. Natalia was asked to find a photo she would publish in a blog, edit it with some specific tools, and lastly to personalise the GIMP software is she can.

The second user fits the third profile almost perfectly; he is a 31-year-old graphic designer who has over 10 years of experience from using image editing software, and has finished a bachelor's education in the field in OUAS (Oulu University of Applied Sciences). Ilkka is an expert user, he mainly uses Adobe Photoshop and other graphic tools of the same product family daily in his work as a graphic designer in a small Oulu based advertising company. Ilkka was asked to edit an image to fit the requirements of a banner advertisement and to use specific tools for editing the photo, and lastly to personalise the GIMP software.

Due to the lateness of receiving the task the team was unable to recruit any more participants for the tests. Both of the testers mentioned above were found from the immediate group of friends of one of the team members, no one else found any participants. One of the team members (Mikko) did the test as well to give more research data. He is 30 year old student who has experience with computer in general but not so much with image processing tools. All of the participants confirmed their participation orally, and they were offered coffee as a thank you for taking part.

## 1.6 Definition of test scenarios and test tasks

First task is familiarizing user with Gimp. After that the test participant will be asked to download an image from Internet and open it with Gimp. After that the participant will be asked to add text to image with Gimp. After adding the text the participant is asked to change text size and font type and to color the text.

Second task is to scale image and change color contrast. If the participant can't find the necessary tools he/she could be helped a bit.

Third task is to customize Gimp. User is asked to customize Gimp menus so that he/she finds most used tools easily.

## 1.7 Test sessions, pre- and post interviews

Testing was performed in the laboratory of University of Oulu. One testing was also performed as a field test because of test participants' schedule.

Test environment consists of a computer in which Gimp is installed. After testing user was given a sheet of questions about the software. Before testing pre-questions sheet was given to user.

Screen will be recorded and audio was captured with microphone.

Testing consisted of five persons. One of them was a moderator who encouraged test participant to think aloud and asks questions if the participant is quiet. One participant was responsible for video camera and audio recording. One participant was a test leader.

Moderator did not help the participant to use the software but in case of unexpected situations he can help the participant.

Test participant was welcomed to testing session and he/she should be told that we are not testing him/her but we are testing the software. After testing session we thank the participant for helping us.



## 1.8 Execution of a pilot test

Pilot testing was performed in usability testing laboratory. The tasks for pilot testing were same used for normal testing. Pilot tester was member of our testing team.

Environment for pilot testing was usability testing laboratory of University of Oulu. Screen and audio recording were used.

Same pre- and post questionnaire was used in pilot testing that was used with actual test subjects.

## 1.9 Execution timetable

Testng was done in two weeks including testing sessions, test planning and recruiting test participants. Testing in usability testing lab was performed 24.3. The field testing was performed 28.3. Pilot testing was performed same day as the actual testing in testing laboratory.

# Execution of usability testing

User testing was done in the usability testing laboratory in University of Oulu. Also one testing session was done as a field testing. Screen was recorded in testing sessions and also video and audio of test subjects were recorded. Evaluators have recorded whole sessions of each participant's task execution by taking notes from own observation. It was also clear from the test observation that, locating the right tool has in general taken some time by the tester participants. Another reason that could be mention is also the participants prior experience in using GIMP.

## 1.10 Test sessions

Test sessions went as planned and within the time frame given for executing the tasks. Each test sessions started by providing the participants a pre-interview questionnaire and task description. The test participants seem to have understood about the tasks they were doing during the test session. Nevertheless, there has been a frustration in locating the right tool for their task execution, often observed selecting a wrong tool and trying it if it was the right one or not. This test sessions has given for the usability findings and result to have similar characteristics in terms of challenges. The participants have medium to high expertise in image editing softwares, but has less experience in GIMP, a 31 years old with a 10 years of experience in other image editing software and an IT-professional, a 25 year old a business administrator in Bsc and has used GIMP few times are among the participants.

## 1.11 Test recordings

The test recordings were recorded in Oulu University Usability testing laboratory and as a field test outside of the laboratory. The audio and video recording was made with in the lab and for the field testing purpose, a Skype video was recorded. The video and audio qualities has been checked before the session started and after completing the session. In general, the qualities for both the audio and video could have been improved by using high quality microphones and video recording cameras, it was observed that, the audio qualities were not as good this could be due to the fact that the microphone used was from the internally integrated computer devices, in addition, there has been noise pollution that was picked up from the surrounding. On the other hand, the video recorded during the field test has only included the screen sharing while the participant was performing the task execution. This issue could have been resolved by adding extra camera to record the participant's movement and emotions. Nevertheless, from the audio recordings, it was possible to understand the participants feeling.

## Analysis and interpretation of findings

### 1.12 Analysis of the collected materials

We have collected the videos of the test session through screen capture. This screen capture is used for the interpretation of the results along with notes taken during the test session. The candidate was also requested to talk about the feelings about using the software at the time they are operating it, like a mind walk through. We have pre-selected candidates based on the prerequisite of the customer. These candidates are given tasks for basic navigation and the customisation of the menu based on their usage. The analysis of their usability is evaluated based on their ability to complete their ability to complete the tasks without external support and also based on the time constraint. If the user took more time than a benchmark time this will be given consideration. The benchmark time is calculated based on a user from the test group who is similar to the experience level to the test candidate. As this is not a foolproof system we have given additional weightage to the candidate's ability to complete the task without external support.

- Our goal was to find the usability of the GIMP software in regard to the navigation and the customisation of the menus. We have initially created the test scenarios for specific user type and given this test scenario during the test period. Then the testing was done and finally the results were interpreted. We have divided the testing groups personal for separate task. Basically one person would take the notes, the second person would be assisting the user in case of difficulty in using the software, third personal would be doing the benchmark calculation, fourth personal would be assigned to design the tasks for the

specific candidate and the benchmark personal and finally fifth person would do the recording session and other technical aspects of the test session along with the timekeeping.

### 1.13 Interpretation of usability findings

The GIMP Software seems to be very user-friendly and easy to use at first glance but then when the users started using the software it seems to be quite difficult. One of the main reason is the orientation of the toolsets in par with the similar software and the uniqueness of the menu style from the default applications they are using in the same platform. The buttons were arranged in a non standard format. Even though experienced user went through the things fastly he himself commented that it is not very user friendly. The software has a lot of options but most of them seemed to be hidden. We have mainly done the usability testing of the system in two main areas the navigation and customisability of the menus. The usability of the navigation section was tested based on the test case. We have assigned each candidate based on the experience level a test case which they are supposed to finish in fixed time constraint and also with minimal external intervention. In the second section we have asked the user to identify the most frequently used menu options and customise the software based on their needs and most frequently used options.

## Usability findings and recommendations

The goal of this research effort was to assess the overall usability by different profile users as mentioned in test execution above of the GIMP 2.8.20 software which is an open source tool. Specifically, the team was interested in learning whether users could gain a solid understanding of the usability of tool with how well as easily performs common tasks. To meet this goal, a usability test was conducted on the GIMP software.

**Navigation:** We tested to see if various elements and options in the software were easy to find, e.g.: options under right click. We also tested tabs that were designed as a way to change the layers.

**Task completion and flow:** We tested to see if the task creation and flows were easy for the user to follow or not. We particularly looked at process of creating editing new images with various menu options the user needs to access to complete the task.

### FINDINGS

Jacob Nielsen as defending the severity of usability rating is used for the case

**A new tool for learning but it needs exposure.** New users who come to the Gimp with strong expectations from other photo editing tools doesn't meet many of these expectations nor does it make a strong enough effort to educate themselves about their way of using it or learning it as result is the potential for deep confusion for the user. Rating 2 Minor usability problem: fixing this should be given low priority.

**The work flow through the tool is often unclear.** The flow new users go through when they first use GIMP needs to be rethought. initially users are unaware of the tools menu visibility as it is a bit difficult for them to navigate for the functions they wanted to do, as some options are inside submenus instead of placing in main menu options making workflow tool unclear.

Rating 1 Cosmetic problem only: need not be fixed unless extra time is available on project.

**The tutorial is a great start, but needs more content and more prominence.**

Tutorials are an excellent way to introduce new users to GIMP to help them build an accurate mental model. Tutorials are especially effective if they are fun and engaging. If done well, they can be an effective marketing tool as well. Minor usability problem: fixing this should be given low priority Rating 2 Minor usability problem: fixing this should be given low priority.

**More new user assistance is needed.** It was seen that new users receive little to no training on how to use the GIMP tool. Therefore, users should be provided with more on-screen instruction, more context-sensitive help, and a slightly expanded help area. These additions should only be a small amount of additional work, but will make a huge

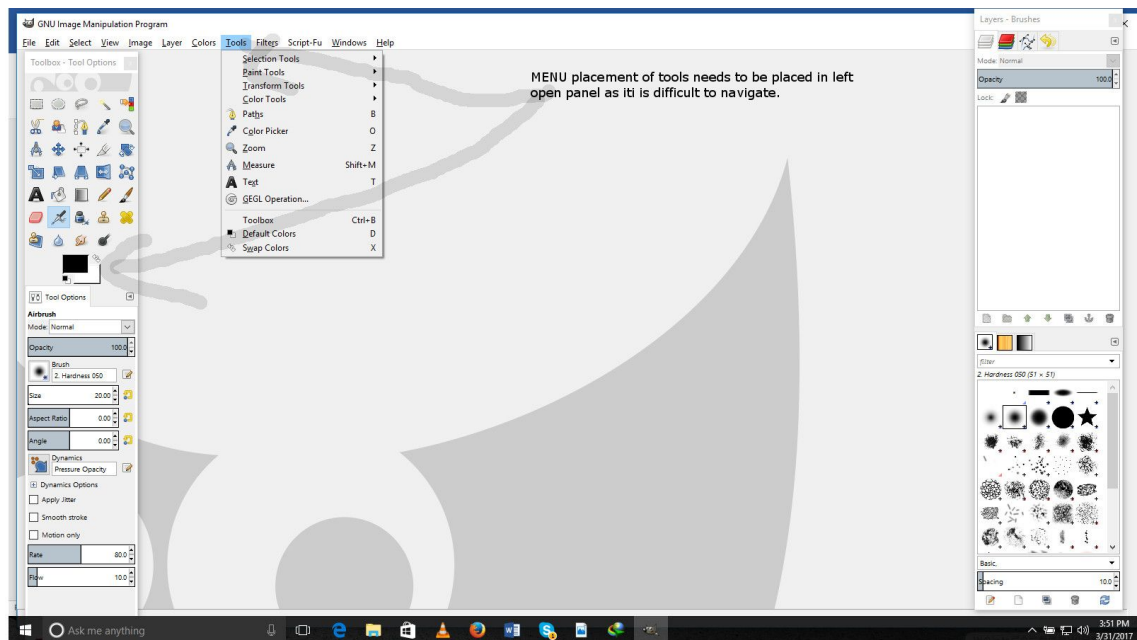
difference to new users. Rating 2 Minor usability problem: fixing this should be given low priority.

## 4.2 Usability recommendations

**Navigation:** We tested to see if various elements and options in the software were easy to find, e.g.: options under right click. We also tested tabs that were designed as a way to change the layers.

**Task completion and flow:** We tested to see if the task flows were easy for the user to follow or not. We particularly looked at process of creating editing new images with various menu options the user needs to access to complete the task. Help option is required.

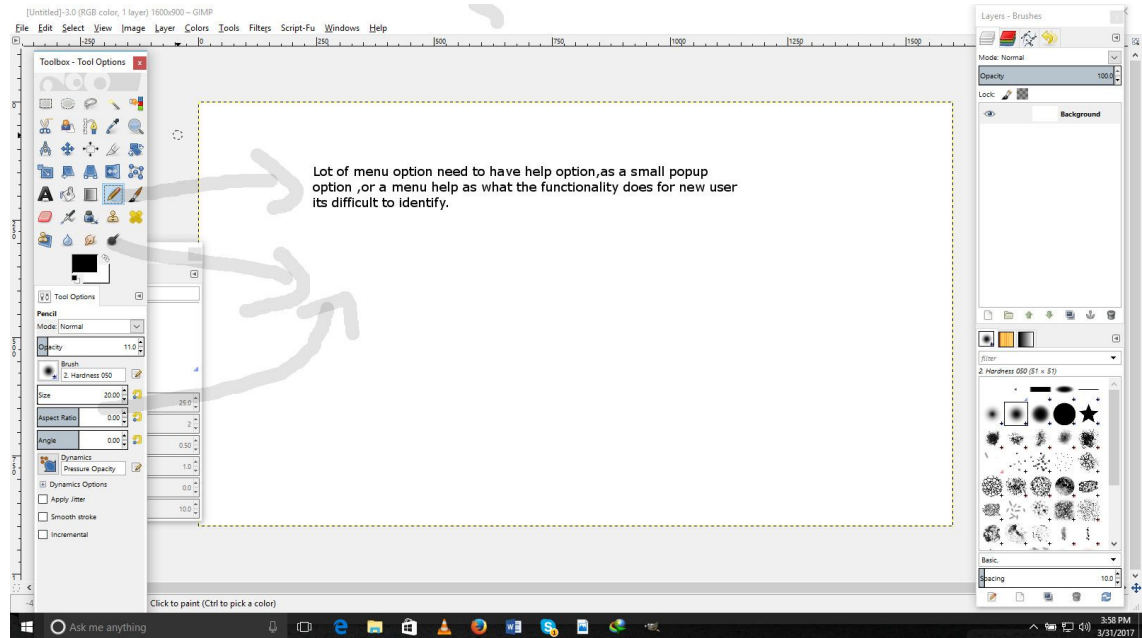
### GIMP navigation:



### Recommendation:

- Knowing that many users will find it difficult to find menu options for a general user it is important for the options to be placed on the left panel as it is more visible and quite comfortable to locate.

## GIMP task completion and flow help option or buttons required for tasks:



**Recommendations:** This field needs more on-screen instruction. Say something like a pop up box or help in pointer stating that what each icons and purpose of task is more clearly so that user is easily able to complete the task by understanding it more clearly without any delay or frustration to find the object icon to complete the task.

## Lessons learnt

In usability testing process we found that recruiting test participants takes quite a lot of work. Especially we could not find any young test participants with no experience in image editing tools. Seeing how test participants performed the actual testing was interesting. We didn't have very much time to recruit participants and do the testing so that had an impact to our testing.

Tasks were given to test subject by telling him what to do. Actually it could have been better if the tester would have received the task instructions also in paper form so the actual testing situation would have been easier.

## Recommended reading

- Dumas, J. S. and J. Redish (1994, 1999 revised) *A practical guide to usability testing*. Intellect, Exeter England.
- Jordan, P. W. (1998, reprinted 2001) *An introduction to usability*. Taylor Francis, London.
- Jordan, B. and Henderson, A. (1995) Interaction Analysis: Foundations and Practice. *The Journal of the Learning Sciences*, 4(1): 39-109.
- Nielsen, useit.com: [http://www.useit.com/papers/heuristic/heuristic\\_list.html](http://www.useit.com/papers/heuristic/heuristic_list.html)
- Nielsen, useit.com: <http://www.useit.com/papers/heuristic/severityrating.html>
- Rubin, J. (1994), *Handbook of usability testing. How to plan, design and conduct effective tests*. Wiley, New York.