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## **USABILITY AND USER EXPERIENCE OF AN ONLINE SERVICE**

Case PATIO

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Bachelor's thesis  
Autumn 2011  
Business Information Technology  
Oulu University of Applied Sciences

## **ABSTRACT**

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Title of Bachelor's thesis: Usability and user experience of an online service. Case PATIO

Supervisors: Leena Arhippainen, Liisa Auer

Term and year of completion: Autumn 2011    Number of pages: 59 + 8 appendices

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This is a study of usability and user experience of PATIO, a new web service that has been developed by the city of Oulu and OULLabs. PATIO is aimed to become an interaction tool and meeting point for researchers and developers of various products and users interested in testing such products.

The main objective of this thesis was to help the developers of PATIO with testing the website and obtaining users' feedback in order to improve usability and user experience of the service. The thesis consists of two main parts: a literature review of the concepts of Living Labs (on which PATIO is based on), Usability, User Experience and an empirical part. The latter is a case study in which the website was tested using several different approaches: heuristic evaluation, lab usability tests and user survey.

The heuristic evaluation was done by the author. For the usability tests and user survey, participants were recruited via various communication channels. The survey was based on two questionnaires and an open forum discussion and required the participants to test PATIO independently. Results of each parts of the study were reported to PATIO project members.

Among the methods used in this study, the heuristic evaluation discovered the largest number of problems in PATIO functionality and interface, many of which were confirmed by usability tests and user survey. However, the findings of all methods did not completely overlap, which proves that these methods complemented each other. Most of the found issues related to information architecture and interaction design and stemmed from violations of consistency and standards. The participants of the study expressed interest towards testing new products and the idea behind PATIO and demonstrated tolerance to many usability problems. However, the site's visual appearance, the visible information and the lack of clear rewarding system make it not attractive enough for an occasional visitor. Therefore, although there are good potentials for recruiting test users into PATIO projects, in the current state the website may not be able to fully utilize them. A number of specific points and general suggestions for improvements of usability and user experience were reported to the customer.

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Keywords: living labs, testing, usability, user experience, website

## **Foreword**

This thesis is about usability and user experience of PATIO, a new web service aimed to become a meeting point for researchers and developers of various products and users who are interested in testing new things. The idea of this study came from the thesis supervisor Leena Arhipainen, a User Experience researcher of Intel and Nokia Joint Innovation Center at the Center for Internet Excellence (CIE) at the University of Oulu, to whom I expressed my interest to do a thesis work in the area of usability. The latter has been a subject of my long-standing personal interest.

Prior to starting this work, I was already familiar with the concept of PATIO through my work practice at CIE in the summer 2010, when the site was just a number of slides. In the autumn of 2010 the site has started to be implemented, and I was glad to take part in this next step of its development. The discussions about the content of the thesis took place in September and October 2010. The most of empirical work had been done between November 2010 and April 2011 in the premises of CIE.

## **Acknowledgements**

First of all, I would like to express my gratitude to Leena Arhipainen for the idea of this study, for guiding and supporting me through its course and spending time for reading various versions of this thesis. She also made the Finnish versions of the questionnaires, which made them more accessible for Finnish respondents. I am also grateful to Liisa Auer, the thesis supervisor on the site of Oulu University of Applied Sciences, for comments to my texts and also for posting announcements for recruiting study participants. I would like to thank the research leader of the Chiru project of Intel and Nokia Joint Innovation Center, Seamus Hickey, for introducing me to Leena and for accommodating me in the Chiru's office space—providing me with a desk and a computer. The members of OULLab's PATIO project, Esa Posio, Johanna Niskanen, Anri Kivimäki, Marko Palola and others were

patient enough to watch my rather longer presentations and listen to my often unpleasant conclusions. Yrjö Nikunlassi introduced me to PATIO administration interface and Lotta Haukipuro was the remote observer of some of the usability tests and provided me with additional notes. I am also grateful to the staff of CIE and to Renata Sebö personally for assisting me in various matters and, of course, for a cup of fresh coffee every day. I thank Hannu Karvonen for distributing my recruiting announcement and Anu Niva for comments on the questionnaires. I am in debt to all participants of this study, to my friends as well as to those whom I never met, for your interest, moral support, spending your time for answering the long questionnaires and coming to the lab tests. My special thanks to Zdravka for being the pilot usability tester and the first respondent of the questionnaires. Morae, the software for usability tests, was provided free of charge by TechSmith Corporation. The movie tickets for the usability testers were provided by the Chiru project.

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# **1 Introduction**

## **1.1 Research aim and methods**

PATIO service aimed to become an interaction tool for companies, communities and individual users who are interested in developing, improving and testing existing and new products of any kind: online public and commercial services, electronic equipment, personal devices etc. In order to make such site efficient and attractive for users, it is important that it should be easy to use and provides positive user experience. In the terms of usability principles, it should be “useful, usable and desirable” (Kreitzberg & Little 2009). At the same time, it was important that the site would start to be used for real tasks as early as possible in order to find possible flows in its interface and functionality. This thesis was aimed help the developers of PATIO in both contexts: to study the site’s functionality, usability and experience it provides to its users and to contribute in the filling user database in order to make pilot projects possible to start.

The thesis project consisted of two main parts: a literature review about usability, user experience and Living Labs (the concept on which PATIO is based on) and an empirical part. The latter was done as a case study (Järvinen 2004, 73–79) that examined PATIO site in the context of usability and user experience. The case study was done using several methods for evaluating usability and user experience: heuristic evaluation of PATIO interface and functionality, lab usability tests and user survey that contained two questionnaires and required the participants to test PATIO independently.

## **1.2 The scope of the study and restrictions**

The work for this thesis included evaluation of PATIO usability and user experience and testing the site’s functionality. It did not concern planning, designing or development of the site at any stage, defining its target users or checking grammar of the site’s English or Finnish pages. A number of questions in

the user surveys were defined by L. Arhippainen for the aims of another research project and these questions were not related to the aims of this study.

### 1.3 The structure and content of the thesis work

The thesis consists of the introduction to the concepts of Living Lab environment, usability and user experience, research methods and description of the case study. The latter included the heuristic evaluation of PATIO website, recruitment and management of test users (invitations, email communications etc.), comparison of ZEF and Google Docs as platforms for online surveys, composition and

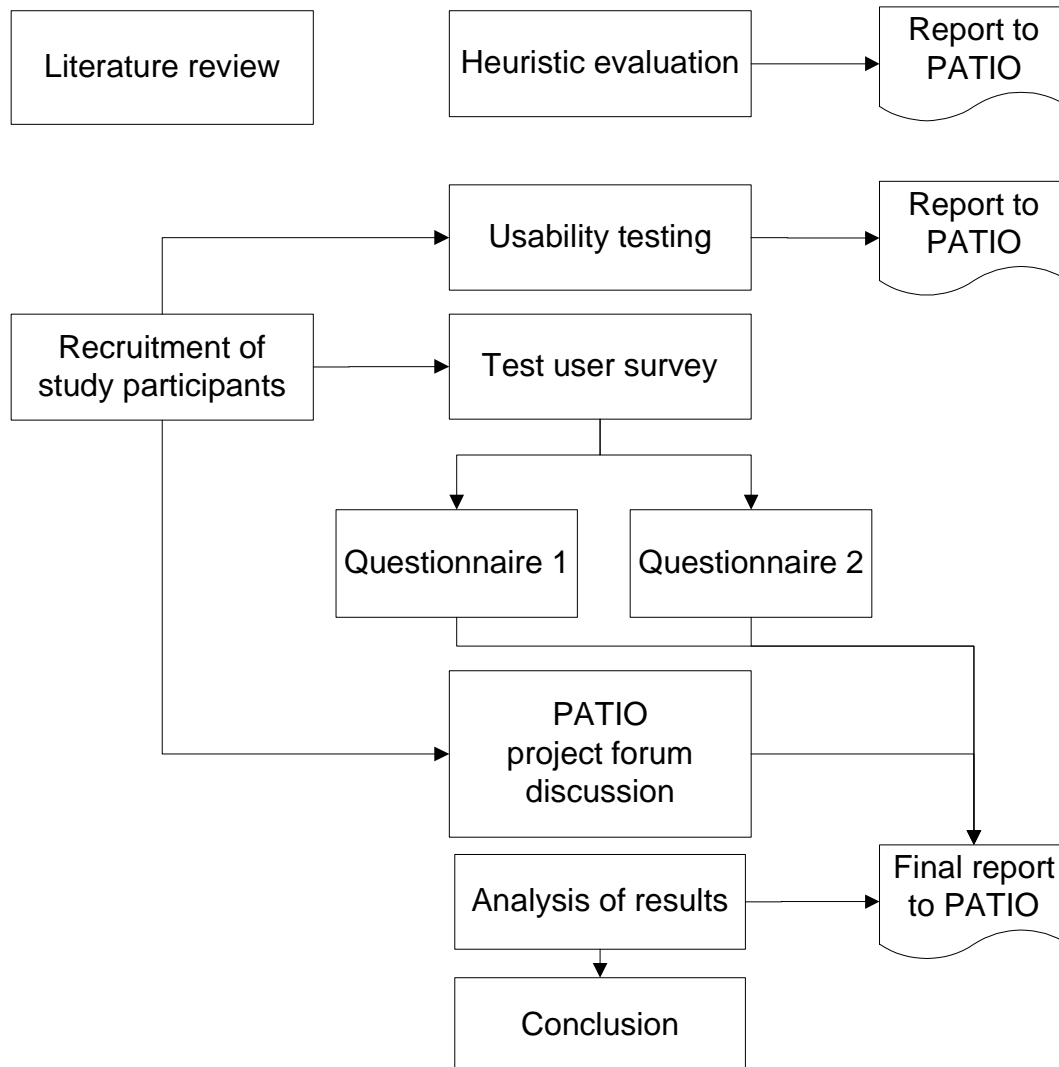


FIGURE 1. The main elements of the study. Connecting arrows indicate the use of data and results through various parts of the study.



implementation of two questionnaires, analysis of user responses, creation and administration of PATIO test project (project description, forum questions, accepting new project participants) and usability tests in a lab, which included the test planning, learning how to use Morae software, usability testing sessions with users, reviewing and analysing the recordings, extracting video clips for presentation and summarising the findings. The main elements of this study are represented in figure 1. The thesis text includes only the most essential results; the detailed reports, questionnaires and testing plan are attached as appendices.

#### **1.4 Communication of the results to the customer**

All parts of the work for this thesis had been done in a close contact with the customer. Communication of various results and plans to the customer was an important and time-consuming part of the whole process of working on the thesis. The results were presented at several stages.

First, the initial heuristic evaluation report was submitted to PATIO project group members in the middle of December 2010. Later, the most important findings from the heuristic evaluation were communicated during a PATIO project meeting at CIE 26.1.2011, at a weekly Chiru project research seminar 28.1.2011 and during another PATIO project meeting 3.2.2011 where representatives of the contractor company were also present. The presentations emphasised the main areas where the found problems could be assigned and were followed by common discussions. Later, an updated list of findings (including technical errors) was submitted to the customer.

Prior to the beginning of the lab tests, a detailed usability testing plan was created and submitted to the customer for comments. The results of the lab usability tests were presented to PATIO group 4.5.2011. The presentation highlighted the most important findings and was illustrated with video excerpts from recordings that were made during the testing sessions. Thereafter a complete usability test report was also delivered to PATIO group. Besides, as various technical problems were

arising during the using of the website, they were continuously reported to the developers of PATIO by email.

## **2 The concepts of Usability and User Experience**

### **2.1 Are the e-things around us easy to use?**

Web services are the reality of our everyday life. During the last ten years they have become so ubiquitous that, in the developed countries, it is difficult to imagine how we could manage without the Internet. We check online transport timetables, weather forecast, pay bills, buy goods and tickets, book hotels, renew library loans, etc. At the same time, the Internet is becoming the most important communication channel for millions. With the advent of Web 2.0, creation of the content does not require special skills anymore. Blogging, social networking, publishing videos or photos, and even making own web sites are just a matter of a few mouse clicks. Millions of Internet users are becoming also its creators. All these things make the Internet an essential part of our life. Today, a disruption in the Internet access has a much more severe consequence for our everyday life than e.g. a disruption in the phone network.

There is, however, one aspect of this progress that does not develop as fast as the technology itself: our ability to adapt to it, i.e. the human factors. And, unfortunately, the technology does not usually aid in this process. Most electronic consumer devices and software that we utilise daily are notoriously hard to use (even if we adapt to this situation and do not notice it). Although the human-computer interactions are gradually getting more attention from software and web developers, it is still quite common to see a person of any age and with computer skills of any level struggling with a web site or programme while trying to find a required tool or setting among piles of various options whose meanings remain obscure for a regular user.

Indeed, not many of us can instantly recall devices that are really easy to use, but everyone can list a dozen which are not. My favourite example from the latter group comes from personal experience of using a remote control unit for a DVD player. Even after a few years of regular (though not frequent) use of the unit, I still

cannot find relevant buttons without looking at it. However, movies are commonly watched in a shaded room. Therefore, in order to find a right button, I have sometimes even to turn the lights on. This example clearly illustrates that the developers of this unit have never tested it in the actual environment. (Interestingly, DVD players and VCRs are among the most common examples of poor usability: see e.g. Dumas & Redish 1999, 5; Cooper 2004, 1, 60–61; Dix, Finlay, Abowd & Beale 2004, 130; Sharp, Rogers & Preece 2007, 4–5).

And when it comes to web sites, the products of web designers and programmers that many of us use every day, the situation is not any better. We get used to reading miniature fonts, manage to click even the smallest buttons and find the right items in endless menus without noticing that the amount of superfluous information we face and mouse movements we do is overwhelming. Even a small software usability problem that cause just a few seconds delay in one's work may cost a lot of money if thousands of people have to overcome it every day. Furthermore, such problems may be dangerous and even fatal in some critical applications, e.g. aeronavigation (Cooper 2004, 3).

The most spectacular explanation of this odd situation was suggested by Alan Cooper (2004). He clearly demonstrates that usability and user experience (i.e. how easy and how pleasant usage of a product is) are not of high priority for software engineers and web designers (see also Rubin & Chisnell 2008, 6–12). A few other authors have drawn attention to such problems specifically in the web (e.g. Nielsen 2000, Nielsen & Tahir 2002, Krug 2006, Nielsen & Loranger 2006). However, despite of already quite long history of Internet services, there are still only a few examples of those that stand out by their simplicity, ease and pleasure of use. Such quality still cannot be taken for granted, and we all are nicely surprised when encounter it online or in our computers, gadgets or home appliances. There is a real need for more attention to the user in the process of development of (web) applications.

## 2.2 Living Labs

The answer to the challenge of creating easy to use products came in the form of user-centered, or human-centered (vs. technology-centered) design process. Its main idea is that products should not be just developed by engineers for abstract future users who are then forced to use the products in the way they were designed to be used. Potential future consumer of a product should be actively involved in the process of its creation, development and testing. International Organization for Standardization (2010) in the standard ISO 9241-210 lists the following features of human-centred design for interactive systems: explicit understanding of users, tasks and environments; users are involved throughout design and development; the design is iterative and driven and refined by user-centred evaluation and it addresses the whole user experience; the design team possesses multidisciplinary skills. Iterative design focused on users and their tasks and testing of early versions of a product (starting with design ideas, conceptual models and prototypes), while taking into account technology limitations, result in a more positive user experience from the final product (Rubin & Chisnell 2008, 12–14).

Living Labs is a modern concept of user-centered design process. The concept is rather new (started to develop in late 1990s) and still evolving, and there is no single established definition of a Living Lab. In general, it is an approach to innovation and development with potential users playing a key role from the early stages. In a Living Lab, the use of a product or its prototype is studied in the actual living or working environment and the users take part in its development. The natural real-life environment encourages users to communicate their needs and requirements on the basis of their everyday experiences. (Ståhlbröst 2008, 31–33.) Følstad, Brandtzæg, Gulliksen, Börjeson & Näkki (2009, 979) define Living Labs as “an approach to user-centred innovation and development, where the users are involved within a familiar context; preferably their every-day environment.” This approach assures that the final product is the most relevant to the user’s needs and expectations and, hence, it will be *used*.

An important element of the Living Labs concept is the co-creation process that implies creative collaboration between users, developers and stakeholders (Følstad et al. 2009, 979). The stakeholders typically include academia and research organisations, business industry and service, civic sector, information and communications technology (ICT) professionals, public partners and end users. They can be grouped as five key components of a Living Lab as follows:

1. End-users (citizens and workers): innovation co-creators and evaluators.
2. Application environment: the context in which those users interact and reflect on the real world's usage scenarios.
3. The technology and infrastructure.
4. Organisation and methods.
5. Partners: bring their own specific knowledge and expertise.

(Ståhlbröst 2008, 34–35.)

This approach has two important effects. On one hand, the real-world contexts (as opposed to constructed laboratory settings) together with early user's involvement help eliminating potential usability problems in the final product. On the other hand, Living Labs encourage the creative potential of the users. Besides the discovering of useful ideas that members of public may come up with, such approach has an important social aspect. Involvement of local community members in co-creation of the products they need may have a positive effect on their self-esteem, responsibility in using the final product (which is especially important in the case of public services) and give them a real feeling of community membership. Furthermore, introduction of advanced technologies in everyday life may enhance economic and demographic vitality and sustainable growth of sparsely populated regions, like northern Finland (NorthRULL 2011).

The first definition and implementation of Living Lab as a real-world context in which users were given the opportunity to use state-of-the-art technology date back in late 1990s (Ståhlbröst 2008, 30). Since then the concept become very popular and the number of Living Labs has been rapidly growing (Følstad 2008, 49). In 2006, The European Network of Living Labs (ENoLL) has been founded under the auspices of the Finnish European Presidency. Today, the total number of

members in various formal statuses (adherent, effective, associated) is over 250 across the globe (not only in Europe) and constantly growing. (ENoLL 2010.)

Since their appearance, Living Labs have mostly been used as R&D environments for ubiquitous computing, mobile information and communications technology, cognitive systems engineering and collaborative work-support systems. The current trend in the development of this method is the move from small scale, with relatively small numbers of users, to large-scale Living Labs that include geographic regions, e.g. cities, and large numbers of users (Følstad 2008, 51). A vivid example of such Living Lab is UbiOulu project that is going on in the city of Oulu: the interactive multimedia screens installed across the city centre provide various local information from bus timetables and weather forecast to guide map with tourist attractions, enable photo sharing, playing games and placing advertisements of local businesses (Ubiquitous Oulu 2010). In this context, the whole city of Oulu can be regarded as a living lab.

The Living Lab concept goes in hand with the advent of Web 2.0, where majority of Internet users are transforming from passive consumers of ready-made content to its active creators, e.g. via blogging, social networking, video and photo sharing etc. Online communities is the most important and fast growing element of present ICT services, and they may also benefit from the Living Lab approach. (Følstad 2008, 48, 51.)

The city of Oulu represented by Oulu Urban Living Labs (OULLabs) is among 16 Finnish participants of ENoLL. OULLabs is an Associated Member of ENoLL (Posio 3.1.2011, e-mail message). It is a network built for companies that “enables testing products always in authentic environments and with authentic user”. Its aim is promoting user-driven planning and development by connecting developers of product and services with potential users for obtaining their opinions. Among the projects that are coordinated by OULLabs are: Innoaula (testing of new visual and mobile technologies in school educational environment), TTKaakkuri (healthcare products tested in real healthcare environment), Octopus (wireless test

environment for mobile technologies) and PATIO, an online testing service, which is the object of our case study (see 3.1). (OULLabs 2010.)

## **2.3 Usability and user experience: definitions, importance, methods**

Usability and user experience are popular and presently widely used terms. Roughly, usability describes practical features of a product (“Is it easy to use?”), whereas user experience is subjective and relates to rather emotional issues (“Is it pleasant or interesting to use?”). In daily use, the term “usability” is often referred in the context of problems that users face with an electronic device or software. Not coincidentally, Rubin & Chisnell (2008, 6) noticed that usability is only an issue when it is lacking or absent: “True usability is invisible.” That is, when everything works well, we do not notice it, but problems instantly irritate. On the contrary, the term “user experience” is often used in a positive context and associated with “exciting” consumer products. However, both are quite broad and partly overlapping concepts.

### **2.3.1 Usability**

There are many definitions of usability. One of the most laconic one is contained in the international standard ISO 9241-11 that defines usability as “extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use” (International Organization for Standardization 1998). However, in order to be useful for product development, this definition still has to be deciphered. Rubin & Chisnell (2008, 4) define usability of a product or service as a set of the following features that can be evaluated or measured:

- Usefulness: reflects the degree to which a product enables a user to achieve his or her goals and it is the primary motivator for using the product.
- Efficiency: the quickness with which the user’s goal can be accomplished accurately and completely and is usually a measure of time.
- Effectiveness: refers to the extent to which the product behaves in the way that users expect it to and the ease with which users can use it to do what



they intend. This is usually measured quantitatively with error rate, e.g. percent of all users that were able to complete some task on the first attempt.

- Learnability: a part of effectiveness and reflects how fast the user learns to operate the system to some defined level of competence.
- Satisfaction: refers to the user's perceptions, feelings and opinions of the product, usually captured through questionnaires or interview.
- Accessibility: in ICT field, refers possibility of using it by people with disabilities. However, being accessible for such people almost always benefits people who do not have disabilities (*and may even prevent development of ones, e.g. large and clear type face may diminish sight fatigue – VR*).

A similar list of features with addition of “safety” (protecting the user from dangerous conditions and undesirable situations) was called “usability goals” by Sharp et al. (2007, 20–25).

### **2.3.2 User experience**

User experience can also be defined in quite many ways (Arhippainen 2009, 43–54; User experience definitions 2011). Recently, this concept has been clarified in the User Experience White Paper (Roto, Law, Vermeeren & Hoonhout 2011). User experience can be viewed as a particular case of an even broader term—experience, which can be loosely defined as feelings, knowledge and skills that a person acquires from his/her interactions with environment—natural, technological, social. One of the shortest definitions of user experience is, again, given by International Organization for Standardization (2010): “person's perceptions and responses resulting from the use and/or anticipated use of a product, system or service”. In the modern context it is most commonly used in connection with electronic devices and computer software, including web services.

Usability contributes to user experience. However, besides immediate technical factors, experience from using a product is affected by social context, user's physical and mental conditions, image of the product (e.g. created by advertisements and other users' opinions) and expectations towards using it. While it includes a momentary impression from an encounter with a system, user

experience is not just a 'snapshot' this impression. It includes also indirect experience before and after such encounter through prior expectation and consequent reflections. As it follows from the definitions of experience and user experience, these are very subjective and unique matters, which makes them particularly difficult to document: feelings cannot always be expressed explicitly even for ourselves. (Arhippainen 2009, 52; Roto et al. 2011, 8–10.)

At the same time, understanding of user experience is invaluable for creating successful products. Therefore, there should be a way for developers to design a product while keeping in mind the experience that *future* users will have while dealing with the product. Sharp et al. (2007, 26) list positive and negative user experience goals, e.g.: satisfying, enjoyable, engaging, exciting, entertaining, helpful, motivating, rewarding, fun, provocative, surprising, challenging, boring, frustrating, annoying. Depending on the context, these general guidelines can be broken into more detailed rules (see e.g. Arhippainen 2009, 61–81).

The importance of usability and user experience should not be underestimated: poor understanding of user needs can sink a prosperous company (Cooper 2004, 72–75), or, at least, waste lots of money spent on development and support of useless products (Kuniavsky 2003, 4–8; Cooper 2004, 45, 52). On the contrary, making users happy can bring customers' loyalty and help a company during hard times (Cooper 2004, 75–77). The latter is the case of Apple, previously a desktop computer and software manufacturer that was in decline by the end of 1990s but saved largely by its revolutionary player iPod. The player was phenomenally successful because of ease of use and fresh usage experience it was providing. Furthermore, iPod became a common name for all portable players; it became an item of fashion, created a new culture and even gave birth to some new words, like "podcast". And a consequent product, iPhone, instantly made Apple a leader of the mobile phone market, a completely new field for this company, and became an object for imitation by other (and even older) phone manufacturers.

User experience is in the core of this success story. Example of Apple's iPod Touch can illustrate the relations between usability and user experience. When used as an

audio player, device with a touch screen is actually less convenient than players with conventional buttons because it cannot be used without looking at it and the controls on a touch screen are easier to be pressed accidentally, which is quite irritable in many situations, for example cycling in harsh weather conditions. However, the possibility to download podcasts from the Internet directly without the need of a computer, as well as some other features, such as remembering the last listened place in all downloaded podcast makes iPod extremely convenient for regular listening to podcasts. In this example, positive general experience from using this player overweighs a number of usability shortcomings. A number of other features and functions that are both convenient and pleasant to use makes this device so popular.

### **2.3.3 The methods for studying usability and user experience**

There are a number of methods that can be used for evaluating usability and user experience of a product. Some of them that were used in this study are described in this chapter in general and the detailed procedures are given in chapter 3.

#### **Usability testing**

The objective of usability testing is to make real users try a new product or a prototype under detailed observation in order to reveal interaction problems. The classical (or strict) method for studying usability requires a substantial numbers of test users and controlled conditions of the test in order to enable statistical analysis of the obtained data. For example, such a test can clarify whether one version of an interface element would improve user's performance in certain task versus another version of the same element. However, less formal usability tests can also be used for certain tasks, for example, revealing interface problems or checking findings of heuristic evaluation. Such "discount" tests are much cheaper and easier to conduct because they require only a few testers. (Nielsen 1994a; Dumas & Redish 1999, 22–25; Rubin & Chisnell 2008, 23–25.)

The primary goal of usability testing is informing developers that their product is useful to and valued by the target audience, easy to learn, helps people be effective and efficient at what they want to do and satisfying (and possibly even delightful) to use. If results of usability tests are analysed and taken into account for further development of the product, they can potentially improve profitability by making sure that future products either improve on or at least maintain current usability standards, minimizing the cost of service and support calls and increasing sales through happy and faithful customers. (Dumas & Redish 1999, 14–17; Rubin & Chisnell 2008, 21–23.)

Usability testing process consists of several main steps common for most types of usability studies: test planning, setting up a testing environment, finding and selecting participants, preparation of test materials, conducting the test sessions, debriefing of the participants and observers, analysis of data and observations, report about findings and recommendations (Dumas & Redish 1999, 97–261; Rubin & Chisnell 2008, 63). All these steps took place in this study and are described in details in the chapter 3.5.

“Classical” usability studies often require a specially built test lab with audio and video recording equipment and often a two-way mirror (Kuniavsky 2003, 529–531). Certain studies may also require specific equipment. For example, user’s perception of web pages can be analysed with eye tracking equipment (Nielsen & Pernice 2010, 4–19). However, in many cases simple setting is enough for obtaining necessary information about product’s usability (Dumas & Redish 1999, 25). In our study, a computer with specialised software was used (see chapter 3.5 for details).

Because usability testing is a time-consuming and often expensive, it is mostly large producers that do such testing. Small developers often skip usability tests and for evaluating interface of their products orient at themselves only. This is commonly seen in web sites. However, developers may stay blind to many problems that can be obvious to outsiders. For example, developer might think that the purpose of some button is clear, but the users would fail to even recognize

the object as a button (Kuniavsky 2003, 261–263). Another common problem associated with usability testing is that it is often arranged too late when it is too expensive to make major changes (Cooper 2004, 205–206, Kuniavsky 2003, 4–7).

## **Heuristic evaluation**

The method of heuristic, or expert, evaluation was suggested by Jakob Nielsen (1994b) who argued that 75% of usability problems can be discovered by 3–5 independent evaluators looking how a number of simple recognized usability principles (the heuristics) are implemented in the design. The name “heuristic” comes from the Greek word for “find” or “discover” (“Heuristic” 2011). Nielsen (1994b) suggested the ten following heuristics:

1. Visibility of system status: users should be informed about what is going on.
2. Match between the system and the real world: the system should speak the human language rather than machine jargon.
3. User control and freedom: undo and redo functions, emergency exit.
4. Consistency and standards: user should be sure that words, situations or actions mean the same thing in different context.
5. Error prevention: they should be difficult to make.
6. Recognition rather than recall: objects, actions and options should be visible, and the user should not have to remember information from one part of the dialog to another. Instructions for use of the system should be visible or easily retrievable whenever appropriate.
7. Flexibility and efficiency of use: experienced users should be able to tailor frequent action via accelerator.
8. Aesthetic and minimalist design: only relevant and needed information should be displayed.
9. Help users recognize, diagnose and recover from errors: error messages should be expressed in plain language (no codes), precisely indicate the problem and suggest a solution.
10. Help and documentation: instructions should be easy to find and they should be precise and simple.

Similarly, in order to assist designing for user experience, Arhippainen (2009, 222–224) developed the User Experience heuristics.

The advantages of heuristic evaluation are that it is cheap, flexible and can be performed not only on a complete system, but even during early stages of development, e.g. design specifications and early prototypes, when a product might not be suitable for tests with real users (Dix et al. 2004, 324). For specific targets, a more detailed heuristics can be used. For example, Chisnell, Redish, & Lee (2006) developed heuristics for evaluating sites designed for elderly web users. A heuristic evaluation of PATIO web site was conducted during this study (chapter 3.2).

### **User Surveys**

The situation when people are invited for usability tests, ordered what to do and all their actions are closely observed in many cases is far from real-life conditions when users face devices or software on their own. Therefore, results of lab usability testing are limited to the circle of tasks that are studied during such tests. Furthermore, the impression that users get from trying a product under observation and opinions they express during the test and subsequent debriefing may be quite different from what they really think. Unbiased (as much as it is possible at all) opinions can only be collected via user surveys.

If questions are formulated correctly, surveys can provide not only general background about users (age, education, technology use), but also answer specific questions about how they use the product, the problems they face and what they like or dislike in the product (Kuniavsky 2003, 304). There were two surveys conducted during this study; they are described in detail in chapter 3.4.

## **3 The case study: PATIO**

### **3.1 PATIO, a test user forum**

PATIO is an online service that is aimed to become a meeting place for product developers and potential users (City of Oulu 2011). The idea behind PATIO is to make it easy for companies to find test users and to get feedback to their products, on one hand, and to provide people who are interested in trying new things with such possibilities and encourage them to share their opinions, on the other. PATIO was launched in a test mode in the end of 2010 and its public promotion started in the beginning of 2011.

The main parts of PATIO web site are projects and user database. Projects contain forums one or more treads. The treads can be started by a moderator who can ask participants for their opinions about various issues related to the project. When users create an account at PATIO, they can enter various information about themselves, e.g. gender, age, education, hobbies, experience with computers, mobile devices, etc., which is, however, not required. Users can apply for participation in ongoing projects and they can be invited into future projects if their data match to those required by the project. In the projects, users are indicated by their nicknames and avatars that can be either default stylized male/female outline or any uploaded image. The site's interface is available in three languages—Finnish, English and Swedish, but projects can only have one language version.

### **3.2 Heuristic evaluation of PATIO**

The testing and heuristic evaluation of PATIO's user interface and functionality started soon after the site was launched in December 2010. As the general guidelines for the evaluation, Nielsen's (1994b) heuristics (see chapter 2.3) were taken as well as various issues of website design discussed by Krug (2006).

The evaluation was done in several stages. During the first visits to PATIO (creating an account, familiarizing with its environment, joining an ongoing project) all questions and notes that were arising were put in a file. Sometimes screenshots of the site's pages or their elements were taken and inserted in the notes. I was trying to note all unclear points, inconsistencies or software flaws that were encountered. The notes were being taken also during consequent visits of the site. Later, the notes were grouped into three large main areas: the front page of the site, navigation through the site and information. Based on these initial notes, the heuristic evaluation report (appendix 1) was produced and submitted to the customer.

After the first results were also reported at a few presentations (see 1.5), the need for a shorter and more clearly structured list of the problems, which would facilitate a faster action on the side of PATIO developers, became obvious. Therefore, based on the initial report, a simple list of found issues was created where the most important problems were emphasised (appendix 2). In the list, all found problems were assigned into several categories: urgent issues (to be fixed before test users can be invited), front page issues, language inconsistency (inappropriate terminology; only concerned the English version of the interface), navigation and information, communication (information messages and emails), links and menu items, privacy and personal information, technical problems (concern implementation or functionality), minor defects. Only a few screenshots were inserted in this document in order to keep it short and clear. When necessary, the original report was referred.

Since new issues were kept being noted and some problems had been fixed, the list had been constantly updated and edited during several weeks. It was put online (in Google Docs) with editing possibility for PATIO project group members to be able to mark items that had been corrected. The most complete list included 50 various issues (appendix 2).



## Results

The main problems of the front page concerned the use of space and arrangement of the links. The image in the centre of the page occupied most of the visible space and many navigation elements were not instantly visible because page scrolling required for accessing the links to most of the site's pages. A screenshot of the front page is shown in figure 2.

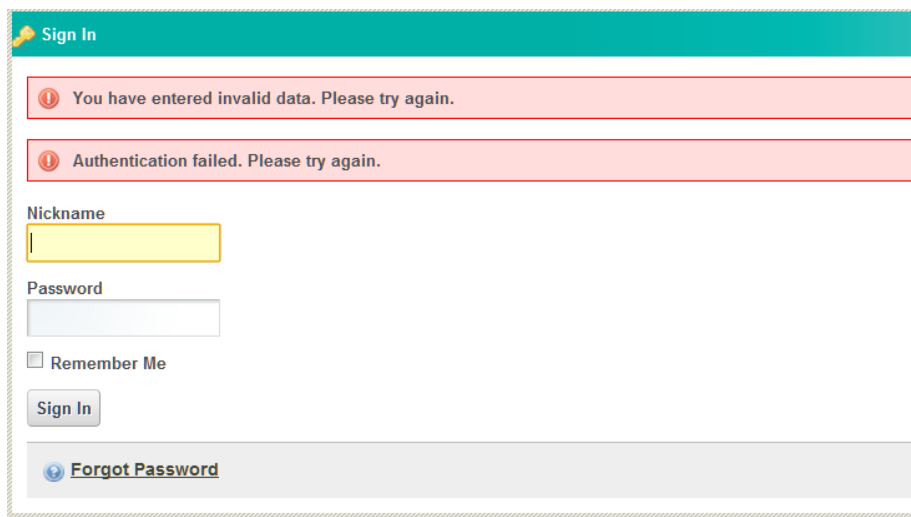


FIGURE 2. Screenshot of the English version of the front page of PATIO website (January 2011).

The language problems mostly related to the information architecture. Namely, inappropriate or confusing terminology was used at several instances, e.g. the link “PATIO news” was leading to the page called “Announcements”; the “Register description” title was not very clear and could be renamed to “Terms of use”. A mixture of Finnish and English texts within the same page was also noticed (figure 2).

Navigation and information problems included e.g. “Back” button being not present in every page or its location was not convenient (in the lower part of the page); the current location within the site could not be determined easily; user’s project membership status was not indicated and did not affect available interface elements. The current language of the pages was not indicated and, given the language mixture in certain pages, it might be not clear which language is currently selected.

The issues in the Communication category describe vagueness in the way the site informs its visitor about results of various actions (e.g. error messages) and confusing content of email messages that the site sends to users (e.g. password recovery message). A few examples where the system does not prevent the user from making an error were also included in this section (e.g. possibility of submitting an empty message to moderator). Figure 3 presents an example of an inappropriate error message that is displayed when wrong nickname or password entered. A correct way to inform users would be displaying a single and clear message, e.g.: “You have entered wrong nickname or password.”



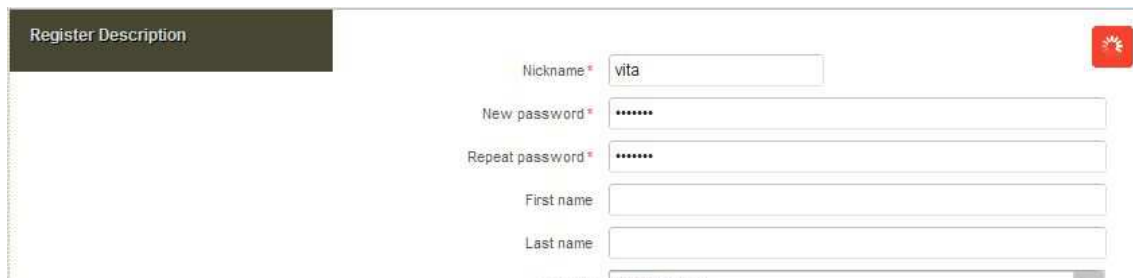
*FIGURE 3. Error message for wrong nickname or password.*

Confusing behaviour of links and menu items mostly concerned the menu in the forums of PATIO. For instance, the purpose of “New activities” section was not clear. Another example describes the situation when the “Contact us” link in

English and Swedish front pages led to the “PATIO overview” page, whereas in Finnish page it started a local email client. An expected action in this case would be opening a page with contact details or a contact form.

The issues about privacy and personal information described, for example, the situation when certain information from the user registration form is displayed as open public profile, but there was no indication about it in the form itself. Therefore, users cannot know in advance which of the information they enter will be public. Another example is the list of Top 10 users with their nicknames that is available for any visitor of PATIO site. The reason for this information to be openly visible is not clear.

The poor visibility of the system status, the lack of persistency in the indication of user’s location and inconsistency in following standards seemed to be the most common problem of the site. Figure 4 illustrates a vague indicator of the site’s status when a new account is being created. First, the background under the rotating circle is red, then it becomes yellow, and then the site’s home page is displayed without any notification of the process’s success.



*FIGURE 4. Obscure indication of the system’s status when a new account is being created.*

Our findings about PATIO site’s interface and functionality can illustrate deviations from all Nielsen’s heuristics. Table 1 presents the heuristics, examples of found issues and our suggested solutions.

TABLE 1. *Heuristics (from Nielsen 1994b; see chapter 2.3.3) with examples from our findings and suggested solutions.*

<b>Heuristic</b>	<b>Number of issues</b>	<b>Example of found problem</b>	<b>Suggestion</b>
1. Visibility of system status	6	No information about what is happening after the "Create Account" button is pressed.	A message about success of the action and suggestion to check user's email.
2. Match between system and the real world	2	Password recovery email contains many unnecessary technical details.	A clearly written simple message.
3. User control and freedom	2	When posing to a forum, the message is not previewed and cannot be corrected or removed. Forum threads created by moderator cannot be corrected.	Preview and correction functions for users and moderator should be added to the forum.
4. Consistency and standards	13	"Contact us" link in English and Swedish front pages results in "PATIO overview" page; in Finnish page it starts an email client.	An expected action from "Contact us" link would be opening of a contact form or a separate page with contact information.
5. Error prevention	3	"End participation in forum" link is at the top of the page can be clicked by mistake.	The link should be placed in the lower part of the page.
6. Recognition rather than recall; instructions should be visible	2	The menu item "New activities" is ambiguous and there is no information about it.	The purpose of this section should be described.
7. Flexibility and efficiency of use	1	Current front page layout does not allow instant access to most other pages of the site (no menu; useful links are at the bottom of the page).	A complete menu in the upper part of the front page.
8. Only relevant and needed information should be displayed	2	"My Info" section contains also project-related questions even if the project does not exist anymore.	Unnecessary parts should be removed.
9. Help users recognize, diagnose and recover from errors	1	Double and non-informative error messages are displayed when wrong nickname or password entered during signing in.	A clear error message should be displayed in such case, e.g. "You have entered wrong nickname or password."
10. Help and documentation	3	No information about what user stars are or how "Top 10 Users" list is formed.	Description on the relevant pages.

### **3.3 Recruitment of study participants**

One of the primary tasks of this thesis project was recruitment of test users who would try PATIO and participate in a survey. Because the service had been just opened, it was important to start filling its user database so that the recruited users could later be invited for real tests of products or services. Furthermore, testing the service with real users was important for revealing remaining problems and checking the findings of heuristic evaluation.

The recruitment of test participants had been done by public and personal invitations in December 2010 and January 2011. The public invitations in English and Finnish (Finnish translation done by L. Arhipainen) were sent to the mailing lists of all study groups of the School of Business and Information Management of Oulu University of Applied Sciences (OUAS), the mailing list of exchange students of the University of Oulu and the mailing list of a local hobby club. The same invitations were also posted by L. Auer on the notice board of OUAS student intranet site. Because of the low response rate to the first round of public invitations, a reward in the form of drawn movie tickets was mentioned in the second invitation. Personal invitations were sent to some of the author's own contacts (friends, family, colleagues). In order to obtain unbiased user opinions, only some general information about PATIO was included in the invitations and announcements.

In total, 42 persons responded to the invitations and indicated willingness to take part in the study. Of those, only 15 replied to the public invitations, the rest were invited personally. Fourteen of the responded persons were Finnish, the rest being various nationals living in Finland and other countries (USA, Canada, France, Norway and Russia). The final numbers of the study participants were still somewhat lower (table 2). Because of a relatively long time interval between the dates when initial recruitment was made and when the survey was completed and PATIO had been made ready for English users, the initial respondents' enthusiasm could have faded off. Besides, some of the foreign students may have already left Oulu by that time and, thus, lost interest in the study. However, none of the agreed

persons had formally withdrawn from the test when the updating information message was sent to all participants in the middle of February 2011.

TABLE 2. Numbers of participants in various parts of the study.

Stage of the study	Numbers of participants
Initially agreed to participate	42
Answered the questionnaire 1	35
Answered the questionnaire 2	25
Registered at PATIO ViTeSt project	27
Posted comments in the ViTeSt project forum	10
Lab usability tests	6*

\* This number of testers was planned.

### 3.4 User questionnaires

Two questionnaires were conducted during this study. The aim of these surveys was dual. First, it was the obtaining a background image of participants (demography, education level) and their expectations about PATIO before they visited the site and opinions about the site after they have tried to use it. Second, it was collection of data about user's preferences and habits in using various technology and services (see below) and music. Such questions were mostly for the aims of a separate research project by L. Arhippainen and they were not related to the aims of this study directly.

The questionnaires were composed by the author and L. Arhippainen together. The questions and the first invitation letter were made available in both English and Finnish. Finnish translations were done by L. Arhippainen; some of the questions were translated from Finnish into English by the author. While

composing the questions, the guidelines by Kuniavsky (2003, 303–366) were consulted.

The first version of the survey had only one questionnaire. However, based on initial tests and discussions with L. Arhipainen, it was defined that the time required for answering the questionnaire should not exceed 20 min. Because the first version of the survey could not be answered within this time limit, it was split into two questionnaires.

### **3.4.1 The content and types of the questions**

In the first questionnaire, some basic personal data, e.g. contact information, profession and education were collected, as well as respondents' expectations about PATIO, their attitude towards and experience with modern technology like computers, mobile phones and other devices, Internet, virtual worlds and 3D movies. In the second survey, respondents were asked about their experience of using PATIO as well as their music preferences and activities. The questions related to this study are listed in the appendices 3 and 4, examples of some other questions are presented in the table 3.

Most questions in the surveys could be assigned to three main categories: characteristic, behaviour and attitudinal (according to Kuniavsky 2003, 308; table 3). The majority of the questions fell into the latter two categories. Some of the questions had two types of reply options, e.g. multiple choice and a text field, enabling collection of information of two types—behaviour and attitudinal—at the same time. Efforts were made to compose non-directed questions to ensure that respondents do not feel that some of the answer options are more expected and to enable selection of the most appropriate option (Kuniavsky 2003, 120–122). At the same time, for practical reasons, the number of open-ended questions with free

TABLE 3. Categories and subcategories of the questions (according to Kuniavsky 2003, 308) with examples from the study surveys.

Categories	Subcategories
<p><b>Characteristic</b>  <i>about user's personality, physical and software environment</i></p>	<p><b>Demographic</b>  sex, year of birth, profession, education</p> <p><b>Technology</b>  Personal mobile phone.  Do you have a tablet computer?  Have you ever watched a 3D-movie?  Do you have any experience with virtual worlds?  How much do you listen to [various media]?</p>
<p><b>Behaviour</b>  <i>how people use things</i></p>	<p><b>Usage</b>  What kind of technology user are you?  For which purposes do you use computer?  How do you use a tablet computer?  Describe how you use the Internet.  How often do you use [various social media]?  Will you come to PATIO later on your own?</p>
<p><b>Attitudinal</b>  <i>thinking, feeling, believing</i></p>	<p><b>Satisfaction</b>  Did PATIO website fulfilled your expectations?  Did you find the site attractive?  Did you enjoy the 3D movie you watched?</p> <p><b>Preferences</b>  Which of the following possible avatar options would be important for you?</p> <p><b>Desire</b>  Would you like to acquire a tablet?</p>



text field was limited because such questions, while giving more freedom to respondents, significantly increase the work required for the survey analysis (ibid., 310). Open-ended questions return mostly qualitative data that need additional interpretation before they can be analysed statistically.

The first questionnaire contained totally 56 questions in 11 sets and the second questionnaire contained 60 questions in 7 sets. Not all questions, however, were presented to each respondent: some sets were displayed depending on the answers in a previous one. For instance, the questions about virtual worlds were presented to only those respondents who answered that they had such experience.

### **3.4.2 Technical implementation of the questionnaires**

The surveys were conducted by using ZEF Evaluation Engine (hereafter ZEF), an online service by ZEF Solutions (2011), for which Oulu University of Applied Sciences had an institutional license. Before the decision about using this software had been made, a small pilot survey (a short version of the questionnaire) was implemented in both ZEF and Google Docs (as forms). ZEF was eventually selected because of its attractive design and advanced options for management of respondents—invitations, monitoring and reporting. An additional argument for this decision was the author's experience with another ZEF product—Comparison Engine—obtained during the practical training in 2010 (when ZEF was also compared with few other online survey tools) and a positive impression about it.

First, the groups of questions were defined. Then the questions and answer options were formulated and written in a text file. Thereafter, the questions were implemented in ZEF. Further edition was done in ZEF only, but a backup copy was regularly downloaded as a text file. Each question was always immediately previewed in ZEF player in order to ensure its good appearance and readability.

The first questionnaire was ready by the end of February and the second questionnaire was completed by the end of March 2011. A number of tests was conducted in order to ensure that sending invitations, data collection and

reporting all function properly. Some answer options had to be modified after malfunctions were discovered in data collection by the ZEF software. Prior to inviting all respondents, each questionnaire was filled in by one of the respondents in author's presence. During these tests the time spent for answering was checked and unclear questions were noted. Some comments to the survey were also received from an OUAS teacher Anu Niva. Based on the pilot test and the comments, the survey was shortened and some changes to the questions had been made.

There are two types of evaluators (the term for respondents used in ZEF) can be used in ZEF surveys: anonymous and invited. Anonymous evaluators receive a public web link to the survey and their individual answers can be tracked only in the reports if they fill in personal information (in case such information is asked in the questionnaire). For anonymous evaluators, the system only displays number of respondents who answered survey. Using invited evaluators (like in this study) enables more effective individual monitoring of answering by every invited person. If necessary, a reminder can be sent to those who have not completed the survey. Furthermore, individual evaluators can be invited to fill the questionnaire in their preferred language, in this study—English or Finnish. (The answers given by invited evaluators can be tracked only if some personal information is given, i.e. the questionnaire remains anonymous.) A list of invited evaluators with their email addresses was imported into ZEF as a csv file created with MS Excel, where preferred language for each evaluator was marked.

The final invitation messages with a link to the first questionnaire were sent to 42 respondents 4.3.2011. After 10 days, the same invitations were sent as reminders to those who had not filled the questionnaire by that time. The data collection was closed two weeks after the invitations were sent. The invitations to the second questionnaire were sent 3.4.2011 and the data collection was closed 5.5.2011.

### 3.4.3 Results

#### General information

The mean age of the respondents who answered the first questionnaire was 35 years. The youngest respondent was 22 and the oldest was 56 years old. Most respondents (74%) had a university degree, 37% had a Ph.D. or Licentiate degree. Sixty-six percent of the respondents of the first questionnaire lived in Finland, mainly in Oulu.

#### Technology use

In relation to using technology, computer and the Internet, most popular self-descriptions (non-exclusive) were: “Use mostly when it is useful for me” (49%) and “Somehow resistant” (31%) (figure 5).

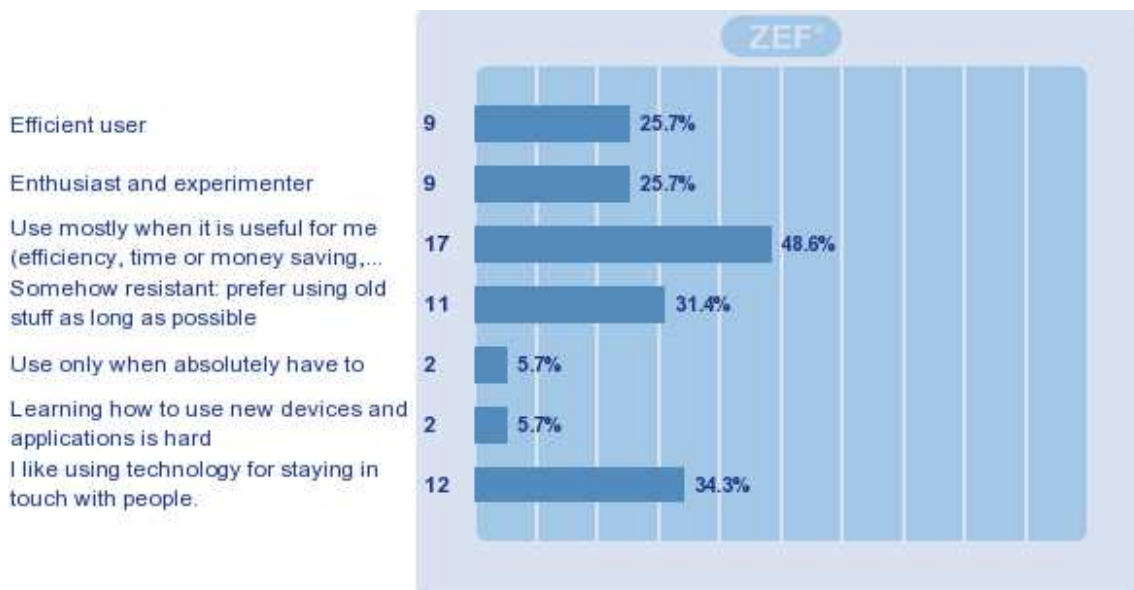


FIGURE 5. Respondents' relations to technology use (the answer options were non-exclusive).

Although 91% of respondents used computer for communication purpose, only 34% told that they “like using technology for staying in touch with people”. Eighty-

six percent of respondents used computers for accessing various services, the most common being banking. All respondents were daily Internet users, most accessing it from their laptop (91%) and/or desktop (63%) computers. Forty percent of the respondents used mobile phones for the Internet access.

### Expectations and motivation for using PATIO

Like in the previous part, the response options in this group of questions were not exclusive. About half of the respondents (54%) indicated that they agreed to test PATIO solely as a favour to the author; totally 77% marked this option as a reason. The next most popular reason was “curiosity” (31%). The other options like “influence development of public services” or “new products” and “trying new things” counted lower numbers (figure 6). One person commented that “a prize for participating” was the only reason.

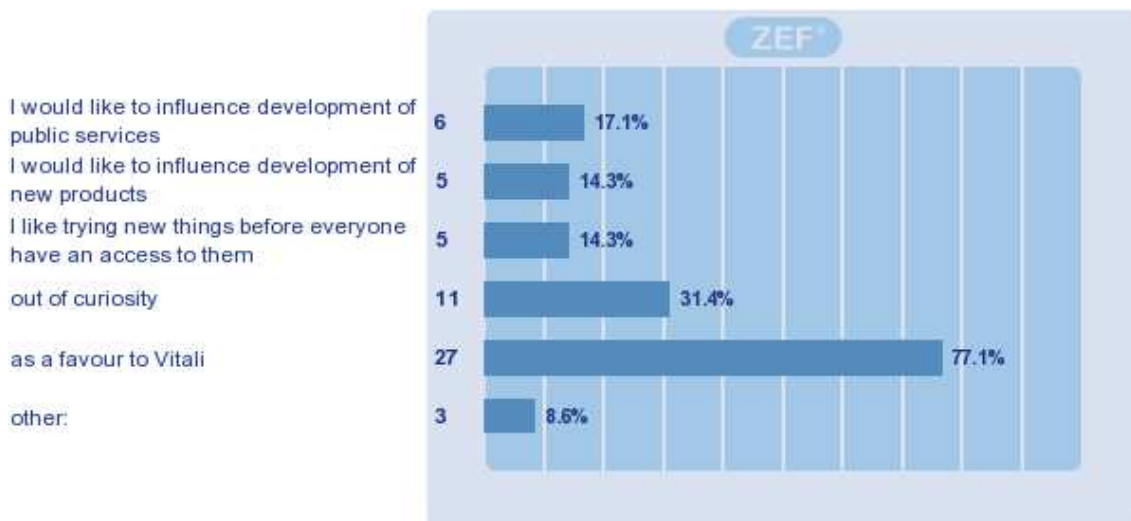


FIGURE 6. Motivation for using PATIO (the answer options were non-exclusive).

Based on very limited information about PATIO that was given to the participants in the beginning of the study, 56 % of the respondents expected PATIO to be easy to use; only one person was anticipated that it will be hard to use. Twelve percent thought that PATIO will be “fun to use” and 16% expected that the service will motivate them. Seventeen percent of respondents did not have any clear

expectations about PATIO. Most of the respondents did not have any idea about how often they would visit the site (56%) or expected to visit it only occasionally (30%). About half of the respondents (47%) indicated interest for participation of a lab usability test of PATIO.

### **Impressions about PATIO**

All but three users who participated in the second survey (87% of 25 participants) told that they understood the function of PATIO. The site fulfilled the expectations of 67% of the respondents; expectations of 9% of the users were exceeded and 24% were disappointed.

The opinions about the front page divided almost equally: 48% of the respondents liked it; the rest either did not like or could not tell anything about it. Similarly, only 48% of the “occasional” visitors of the front page would explore the site deeper. At the same time, 80% of the respondents marked that the navigation through the site was clear, and 60% found the site attractive.

Although only one respondent would create an account at PATIO independently of this study, 62% of the users told that they will keep their PATIO accounts and only 12% were not going to visit the site again. However, most respondents could not tell definitely how often they would visit PATIO in the future: only 3 persons marked the option “weekly” and 5 told that it would depend on the project they are taking part in.

At the same time, the comments that were given for some of the questions build the following picture. Despite the fact that most of the respondents liked the idea behind PATIO, most visitors obtained only approximate understanding about the site’s functionality. There were quite many comments about the interface revealing that the navigation was not very clear, even on the front page. It seems that the front page was not attractive enough to convince an occasional visitor to explore the rest of the site, and the whole site in general did not cause interest in creating

an account, partly because of its visual design and partly because it was not self-explanatory about its purpose and function (appendix 4).

### **3.5 Usability tests in the lab**

The moderated usability testing of PATIO website was arranged for revealing remaining problems with the site interface and confirming findings of heuristic evaluation. It was aimed to collect mostly qualitative data about user experience with the website, but also some quantitative data was collected, e.g. the time required for the site exploration after which users believe that they are familiar with its purpose, content and functionality.

For preparation, conducting and evaluation of the test results the guidelines by Kuniavsky (2003, 259–302) and Rubin & Chisnell (2008; including support materials available for download from the book's website) were widely used. The authors own experience of being a usability tester of mobile devices also helped in preparation and conducting the tests. Prior to testing, a usability testing plan has been created (appendix 6) and submitted to PATIO project members for comments.

Because of limited time resources, only a few lab tests were conducted in this study. This is a deviation from a classical usability testing approach because result of such tests cannot be analysed statistically (Rubin & Chisnell 2008, 126). However, such “discount” usability testing is also a valid method: conducting just a few tests provides the best benefits to costs ratio, because having more testers will require more work but the gains will not be much higher (Nielsen 1994a; Kuniavsky 2003, 267).

For the testing purposes, a special project under the title ViTeSt was created in PATIO by the site administrator. The author was given a moderator access to the project pages. For participation in a project in PATIO, users have to apply for the project enrolment and await an authorization that can only be done manually by

the site administrator or project moderator via a control panel. During the testing sessions, the authorization was done immediately by the moderator.

### **3.5.1 Selection of testers**

The first recruiting emails and announcements contained information about usability tests, and some respondents indicated their interest in participating them. In the first questionnaire respondents were asked explicitly: “Would you like to come for a usability test of PATIO website in a lab?” Two optional locations where the tests could be conducted were offered: School of Business and Information Management of OUAS and the CIE at the University of Oulu. Sixteen persons indicated their interest in taking part in the test.

In order to ensure diversity of participants' characteristics, background and experience, selection had been done based on the respondents' self-description as technology users (answers to the question “What kind of technology user are you?”) and experience of being a tester (“Have you ever been a tester of any product?”) (see appendix 3). Although the answer options for the former question were not exclusive, I tried to select the respondents with non-overlapping answers. Because PATIO site is aimed at people of various age and also at international audience, the age and nationality (Finnish and non-Finnish) of participants were also taken into account. The final set of testers was also defined by their availability during the two weeks assigned for the test.

Initially five persons were selected for the test. A group email invitation was sent to those persons. Kuniavsky (2003, 110) warns that about a quarter of any invited group will not show up for the test. Indeed, some persons who expressed their interest towards test in the questionnaire did not reply to the invitations. Personal repeating invitations were sent to those persons and, in the case of no-reply, replacement testers were selected and invited. Given the very small number of projected lab test, efforts were made to ensure that every invited person will come. In order to have a spare option, an additional tester was also selected, making the total amount of testers six.

Five females and one male of ages 26, 28, 30, 36, 49 and 55 years took part in the tests. Two testers were Finnish and four non-Finnish. In relation to technology use, two of the users described themselves as “Enthusiast and experimenter”, two used technologies “mostly when it is useful”, four told that they are “somehow resistant: prefer using old stuff as long as possible”, one liked “using technology for staying in touch with people”. None of the testers told that they are “efficient users”, “use [technology] only when absolutely have to” or “learning how to use new devices and applications is hard”. Two persons had been testers of some products before. Therefore, the selected testers can probably be described as “average” but enthusiastic (since they voluntary participated the study) users, which should fit well the target audience of PATIO.

### **3.5.2 Test setting and equipment**

The majority of respondents had chosen CIE as the test location. Therefore, all but one tests had been conducted in the premises of CIE in order to simplify the logistics and avoid dealing with various versions of Morae software. (There was a much older version of Morae installed in the computer lab at School of Business and Information Management of OUAS than the current version available from TechSmith as a trial.)

The tests had been conducted in a small room with a table and chairs (figure 7). A computer running Windows 7 operation system, a 24" wide monitor with resolution 1920\*1200 pixels and a web camera Logitech Webcam Pro 9000 with autofocus and face tracking function were used during the tests. Because it is not possible to control the image while recording is going on, the face tracking and autofocus functions of the web camera appeared to be quite useful: it compensated the tester's small movements in front of the monitor by turning the lens and kept the face always in focus. Morae software was used during five testing sessions and for reviewing and analysing the records.





*FIGURE 7. The setting of the usability tests.*

Morae is a set of extensive software tools that are designed for assisting usability tests (TechSmith 2011a). The software has many options that facilitate data capturing and analysis. Its components are Recorder, Observer and Manager. Morae Recorder enables video capture of the screen and recording a video from a camera and sound from a microphone and automatically logs screen changes, mouse clicks and keystrokes at the computer where it is installed. It also enables setting of markers during recording as well as making user surveys with questions that can be displayed during a test session. Morae Observer enables a remote observer connect to the computer where Recorder is running and see and hear everything that is being recorded in real time (with a few seconds delay). Remote observer can also create markers and write notes that are later merged into the recording that is being made at the test computer. Morae Manager enables arranging recordings into one or more studies, viewing and analysing recordings and user surveys.

A free trial version of Morae 3.2 (TechSmith 2011a) was requested, downloaded from TechSmith website and installed in the test computer. The trial version of

Morae Manager is fully functional during one month. Video tutorials and guides available at TechSmith online Morae Learning Center (TechSmith 2011b) were used for learning how to use the software.

During the testing sessions, the user's face was recorded along with the computer screen as picture in picture. The camera microphone recorded voices of the tester and the moderator. Two sessions were observed by a member of PATIO project group at another computer using Morae Observer. The observing person made notes during the sessions, which were later used for the test analysis. The moderator was taking notes on a paper during all sessions in order to have a hard and safe copy in case of a recording failure.

Before the first recorded testing session, a pilot testing of PATIO site with one participant had been conducted in order to check the time required for completing the test tasks and rehearsing the whole procedure. Apart from not being recorded, the pilot session did not differ from the other tests and its results were analysed along with the later sessions.

### **3.5.3 The moderator's role**

The moderation during the testing sessions was done by the author. Although by the time when the tests were conducted I was familiar with PATIO website very well and had an own opinion about it, I was trying to play the role of an independent and neutral moderator (Rubin & Chisnell 2008, 202–203). The moderator's functions during the test sessions were as the following: meeting the testers and introducing them to the test, starting and stopping Morae Recorder, displaying the survey questions, introducing the tasks and giving directions to the users, asking questions upon the task completion, providing assistance during the tasks if necessary, accepting user enrolment to the PATIO test project, conducting post-test debriefing interview, observing the user and taking notes during the sessions, concluding the sessions.

### 3.5.4 Procedure

The testing session consisted of introduction, studying user's first impression of the PATIO's front page, four tasks that users were asked to complete and post-test debriefing. The tasks consisted of site exploring, creation of an account, enrolling the test project and leaving a message in the forum (appendix 7).

In the beginning of each recorded test, a recording permission form was signed by the participant. The testers were allowed to use their preferred web browser; they were preliminary asked about their browser choice in order to ensure that it is installed in the test computer. The testing sessions were conducted in English and Russian (one session). However, Finnish speaking testers could use the Finnish version of PATIO.

Testers were introduced to the aims of the test, procedure and equipment. The testers were asked to think aloud during the whole session. Then Morae Recorder was started and user was asked to open PATIO front page with his/her preferred web browser. When the page was displayed, the users were asked about their impression about the page, its design, text, navigation elements and whether they would be interested to explore the site deeper if came across this page occasionally.

Then the testers were asked to explore the site during a few minutes and report when they feel familiar with the site. Upon completion they were asked a few questions aimed at revealing how well the user understood the purpose of the site and its functionality:

- What are the main parts of the site?
- What kind of information can be found there?
- What can one do on the site?
- How can you take part in the activities there?
- How can you join a project?
- Is the navigation through the site clear?
- Is there anything you are wondering about this site?

- If you came across this site occasionally, would you be interested to register (create an account) at PATIO?

During the next three tasks the users created accounts, enrolled the test project and left messages in the project's forum that contained several moderator's questions about the site (lab testers could select one of them to answer). After each of these tasks tester were asked if there was anything difficult or unclear during the task execution.

When the last task was completed, the testers were asked to fill in a standard ready-made System Usability Scale questionnaire available in Moraes. It consisted of ten questions with five grade answer options on the scale from “strongly disagree” to “strongly agree”:

1. I think that I would like to use this system frequently.
2. I found the system unnecessarily complex.
3. I thought that the system was easy to use.
4. I think that I would need the support of a technical person to be able to use this system.
5. I found the various functions in this system were well integrated.
6. I thought there was too much inconsistency in this system.
7. I would imagine that most people would learn to use this system very quickly.
8. I found the system very cumbersome to use.
9. I felt very confident using the system.
10. I needed to learn a lot of things before I could get going with this system.

In the end of the testing, a debriefing interview was conducted. The interview was a free-form discussion based on a number of questions about user's experience with PATIO website, opinion about its interface and general impression:

- What do you think about PATIO?
- What did you like about it? What was easy/attractive?
- What did you dislike about it? What was unclear?
- Was the navigation through the site clear?

- Is there anything you do not understand about this site?
- Will you come to PATIO later on your own? If so, how often do you think you will be visiting it?
- Will you keep you account with your data at PATIO?
- What is your overall impression of PATIO?
- Could this test be arranged in a better way?

Some of the questions replicated those that were asked in the beginning of the test in order to see if the users' impression about PATIO changed after further acquaintance.

Most testing sessions lasted about 45 minutes. In the end the testers were thanked for participation and were given a movie ticket and a gift from PATIO.

Soon after the testing sessions, the recordings were imported into Morae Manager and reviewed. A test transcript was created for each testing session as text files. For the transcripts the moderator's and observer's notes were also used. The most interesting episodes were exported as video clips to be used in a presentation.

### **3.5.5 Results**

The first impression of most users after seeing the PATIO homepage was confusing. Most of the testers did not scroll the homepage down and therefore could not see the lower parts of the page at first view. Although some testers were positive and said that the page has "a modern look" and "comfortable colours", most were not very excited about its appearance and complained about various issues, e.g. about the use of space (the photo taking too much attention) and lack of a standard navigation (menu). Some of the users' remarks were: "I really have no idea what it's about"; "The girl's face is disturbing because she is the only one who is not enjoying the show"; "The background is boring"; "Pictures are not informative"; "Fonts are too small and hard to read."

Non-Finnish users felt confused when they saw Finnish text on the English version of the front page. All test participants found the homepage and the whole site not attractive enough and missing some elements to make them interested to explore the site deeper and to create an account if they came across it occasionally. The examples of their comments: “I don't see exactly what they do”; “Nothing attracts me here, no word that I would be interested in”; “Nothing comes up”, “The site is not welcoming enough”.

Most participants were clearly uncertain in navigation through the site. Most testers were obviously missing a visible “Back” and “Home” buttons. Although some of them could find the “Back” link and used it occasionally, its location in the lower part of the page was unexpected for them. It was surprising to see that none of the participants actively used the PATIO logo as “homepage” button.

At least one non-Finnish tester needed some time to find the language selector in order to switch to English version of the site and told that it was not noticeable very well. Our observations indicated that most of the users were somehow lost among the links on the front page, and some of them said that the navigation was almost not visible there. However, when asked explicitly, all lab testers told that the navigation “was clear”.

All the testers understood the general idea of PATIO. However, none of them was certain about detail. For example, most could not explain clearly the purpose of the site and how they can take part in the projects: “It looks like the information is hidden somewhere”; “It is for businesses to find their consumers or target group; I don't understand how I can use it”; “This site is rather for companies”.

Some functions and sections of the site, e.g. “Test user Search” and “Project Top 10” were incomprehensible for all testers. The former was perceived as a function for test users for finding and joining new projects and expected to have announcements about new projects where test users are needed. One participant said that she was thinking that this is the way “to join or find interesting projects”.

(In reality, this is a search among existing users of PATIO according to some criterion.

The procedure of recruitment into the projects was also obscure for the testers. They did not understand how people are found for projects and how people learn about the projects. The users were uncertain when asked whether they understood how to join the activities on the site, i.e. it was not instantly clear how to participate as a tester. A few of them mistakenly understood that “Register Description” section describes how to register at the site, whereas it describes the personal data processing.

The execution of the test tasks revealed that the users found various obstacles and obscurity during account creation and project enrolment. The main complaint was the lack of confirmation about success of user actions, e.g. there was no clear feedback when the account has been created. In at least two cases, the information email from PATIO went to the user’s spam folder; the users did not check it until they were given a hint about such possibility by the moderator. One user complained that the “From” field of the message looked odd and would not be informative in the list of emails. In general, our observations and user answers to our questions indicated that most users would like to have more guiding in these operations (appendix 7).

None of the testers tried to see “My info” section or to add more details there upon account creation. When suggested to do this, users did not understand how much information about themselves they should write. One tester asked, “Can I put my photo there?” meaning to replace the default avatar picture; this option was not clear.

Using the project forum caused less complains, but some options were missed by most testers. For example, a few of them complained about the lack of possibility for replying to certain users (all comments are posted as a list in the order of appearance) and for deleting and editing posted message. The usability testers

made quite many other comments that were summarised in the end of the report (appendix 7).

The overall impressions of the testers about PATIO were divided equally: three persons told that it is “rather positive” and the other three told that it is “rather negative”. The average evaluation of PATIO on the standard 100-point System Usability Scale was 68, with the minimum value 52 and the maximum 80. However, the users’ comments during the test and the debriefing interview did not support the positive evaluations (appendix 7). Most testers liked the simplicity of PATIO website (as opposed to the complicity of “typical websites”). However, in general it was not found interesting and attractive for them to create an account there independently of this study.

### **3.6 Independent testing of PATIO by remote participants**

All study participants who were not selected for the lab usability tests were invited to test PATIO independently. The aims of this test were providing the participants with experience of using PATIO and enabling them to answer questions about the site in the second survey, as well as collecting additional opinions and notes about the service and adding users to PATIO database.

When the selection of lab testers was done (see chapter 3.5.1) and testing dates were agreed, email invitations to test PATIO independently were sent to the remaining study participants 23.3.2011. The lab testers should have not seen the website before the test; therefore it was not possible to invite remote testers until the final selection of lab testers was completed. The invitation for remote testers contained the web site address and a list of tasks that the participants were suggested to complete. The participants were instructed to familiarize with at the site, create an account, fill in personal information, join the ViTeSt project and answer moderator’s questions, i.e. leave some messages in the forum with opinions about the service. A couple of reminders were sent within the next month following the initial invitation.



Five forum threads that contained the following questions were created in ViTeSt project:

- What do you think is the main purpose of PATIO?
- What is your impression of this site?
- Is there something that you like about this site?
- Is there anything that you do not like about this site?
- Do you have any opinion how this service can be improved?

## **Results**

Total 27 remote participants enrolled the ViTeSt project. However, only 10 of them left messages in the forum. At least two of the remote testers came previously to usability tests, thus they had more experience with the site than the rest of the remote testers. This lowers the number of the true independent testers to 8. Most of the users did not add any additional details in their personal information (PATIO profile) and none of them uploaded any image to replace the default avatar pictures; therefore, in most cases it was impossible to determine the real names of the project members.

The comments of the project members indicated that they correctly understood the purpose of the website. The opinions about it were, however, quite neutral and similar to the answers of the lab testers and the online survey respondents (appendix 8). Most visitors agreed that it is functional and “professional looking”, but not more. The common expression was about the lack of some attractive elements in the site’s design that would convince a web surfer to stop there and use it. Furthermore, small font made extracting the most important information from the site’s content difficult.

Unlike the lab testers, remote users were not unlimited with time and explored the site on their own. This could enable them paying more attention to detail, because the remote users noted a few technical and visual issues and pointed out at grammar and typography errors. None of these were noticed by the lab testers.

The large difference between the numbers of the registered project members (27) and those who posted their comments in the forum (10) may indicate a low attraction of the site for users and confirms the comments that were given during the lab sessions, the forum discussions and in user questionnaires. The low visual appealing of the site seems to hinder its popularity.

## 4 Conclusion

The usability, user experience and functionality of the website PATIO was evaluated using three different approaches: heuristic evaluation, usability testing and user survey. Among these methods, the heuristic evaluation discovered the largest number of problems in the functionality and the interface of the site, many of which were confirmed by usability tests and user survey. Thus, heuristic evaluation has proved to be an effective and cheap tool for discovering potential and existing usability problems. However, the findings of all these methods did not completely overlap, which indicates that these methods complement each other and all of them are required for a comprehensive evaluation of usability and user experience. Most of the found issues related to information architecture and interaction design and stemmed from violations of consistency and standards, which were not followed closely in the site's design.

Many study participants liked the idea of making better products, expressed interest towards trying new things and, therefore, sympathy to the idea of PATIO in general. The users were especially enthusiastic about influencing local public services. Thus, there are good potentials for test user recruitment for PATIO projects. However, most of the users would not be attracted by the visual appearance of the site to explore it deeper and create an account if they were occasional visitors. Therefore, in the current state, the website may not be able to fully utilise its potentials. Substantial modifications of its design are still required in order to make it not only useful, but also a desirable service.

## 5 Discussion

Heuristic evaluation, usability tests and user feedback revealed quite a large number of problems with usability, user experience and functionality of PATIO website. Unfortunately these tests were performed with the completed site and not with its prototype; therefore, not all found problems could be addressed by the developers. In a correct designing process, several tests should be performed in the course of a site development because usability testing is, in fact, an investment in the next version of the product (Kuniavsky 2003, 260). In this study, only one usability testing could be performed and it was done when the PATIO's development phase was over. However, at the time when this thesis has been completed, the modification of the site was still going on, more issues were being addressed and some major changes to the design had also been planned (Posio 12.9.2011, discussion; Haukipuro 12.9.2011, discussion).

Although heuristic evaluation exposed the majority of usability issues, the testing in the lab not only confirmed many of these findings (which demonstrated that they were not just based on the evaluator's individual preferences) but also discovered other problems. The usability testing was also very important because it provided the insight into the real user behaviour and experience and discovered issues that were obvious to neither the site developers nor the heuristic evaluator (the author). For instance, it was surprising to see that none of the participants actively used the PATIO logo as home button, whereas for the author this would be a natural and conventional way to access the site's front page. This example illustrates that conventions do not necessary work for every user.

The main problem that was found during usability tests is that the information is 'hidden' inside the website and not instantly visible. This makes the purpose and functionality of the site obscure even for users who have spend there a considerable amount of time. Most of occasional users would not simply go in depth and most likely read only a minor amount of even visible text (Nielsen 2008).

Because of the positive attitude towards the idea behind PATIO, an evident degree of user tolerance to usability problems was observed. Furthermore, some users seemed to describe things better than they obviously were. For instance, most testers were clearly confused about the structure, navigation and information that can be found in the site. For instance, some testers complained that they could not find out how product testing works, but when asked: "Was the navigation through the site clear?" they answered "Yes". In the second questionnaire, 80% of the respondents have also given the same answer. (This, however, could also mean that the users were not willing to accept that they were lost.) The site evaluation on the System Usability Scale produced surprisingly high scores (mean 68), which also look overrated when confronted with the test observations. This example above also demonstrates that the information obtained from user questionnaires should be treated critically and analysed in an aggregate.

Although 60% of the respondents of the second questionnaire found the site "attractive", only 48% would explore the site independently and just 4% would create an account. This is a warning message for PATIO project: despite of what users said about the site's appearance, it is not attractive enough for occasional visitors who would simply ignore it.

Usability testing also has its own limitations. The most important one is probably the artificial situation of the testing: users follow the moderator's instructions; they are under close surveillance and limited with the time (Rubin & Chisnell 2008, 25-26). These conditions and face-to-face contact with the moderator may have affected expression of their opinion about the site and may also explain the discrepancy between the observed behaviour and users' comments. However, it is worth noting that some of the lab testers told that they were liked to have moderator's guidance because initially they expected to do testing alone and were not comfortable to face an unknown system.

In usability and user experience studies, users with specific background are usually recruited (Kuniavsky 2003, 84-103). However, given the fact that PATIO is aimed at quite broad audience that could not be defined precisely (potential test

projects may be aimed at any type of users), we could only try to select as diverse testers as possible from the study participants. In this study, the testers and survey respondents represent active Internet users of mostly middle and young age (the mean age was 35 years), many of whose are interested in trying new things. Although this is probably the core group for potential participants of PATIO tests, it clearly does not represent the whole variety of potential users. For instance, the accessibility of the site for elderly users has not been studied, although such group may be a potential target group for PATIO projects.

The fact that the target audience has not been clearly defined was probably also hindering the developers of PATIO and could have been the reason for many of its flaws: naturally, it is impossible to fit everybody's preferences. Cooper (2004) argues that designing software for an abstract user often leads to a fault. Instead, a clear images of a few types of potential users can help creating more useful products (Cooper, Reimann & Cronin 2007, 75–108). For example, web user profiles are commonly used for defining the target audience of a web service (Kuniavsky 2003, 46–47, 129–156).

A certain amount of found usability issues seem to stem from so-called code reuse (Cooper 2004, 106–109). Although Cooper writes about such practice in programming, it is likely to be not less common in web design. Just a brief comparison of PATIO with some other websites relevant to the project and the site's developers gives an impression that at least a few elements of its design that caused usability concern were borrowed from the other sites.

More than half of the participants agreed to test PATIO only as a favour to the author. Although this merely reflects the fact that the recruitment for the study was done mostly via personal contacts, it still indicates that motivation is an important factor for success of any testing project.

\* \* \*

The fact that the analysis of PATIO revealed so many problematic issues with usability and user experience made this study a very good learning experience for

the author. My skills in heuristic evaluation have clearly improved and I have practiced a complete cycle of usability testing from planning and recruiting testers to conducting the lab tests, analysing them and reporting results. These as well as conducting online surveys are practical experience I was lacking before. Furthermore, I have acquired a good understanding of developers' needs and now I am able to present findings in a more systematic and clearer form. The progress in my reporting style can be easily tracked from the first to the consequent reports presented in the appendices.

The most interesting part of this work was communication with the testers on one side and with the PATIO project members on the other. The challenge of my role was to bring the message from the users of the site to its developers unchanged and, at the same time, in a clear and compact form, so that it can be used as ready guidelines for further actions for the site's improvement. I hope that my efforts will help to make PATIO a successful and popular service.

## References

- Arhippainen, L. 2009. Studying user experience: issues and problems of mobile services – Case ADAMOS: User experience (im)possible to catch? University of Oulu: Acta Univ. Oul. A 528. Ph.D. Thesis.
- Chisnell, D., Redish, J. & Lee, A. 2006. New heuristics for understanding older adults as web users. *Technical Communication* 53 (1), 39–59.
- City of Oulu. 2011. PATIO. Date of retrieval 5.1.2011. <http://www.patiolla.fi>
- Cooper, A. 2004. *The inmates are running the asylum*. Indianapolis: SAMS publishing.
- Cooper, A., Reimann, R. & Cronin, D. 2007. *About Face 3: the essentials of interaction design*. Indianapolis: Wiley.
- Dumas, J. & Redish, J. 1999. *A Practical Guide to Usability Testing*. Exeter: Intellect.
- Dix, A., Finlay, J., Abowd, G. D. & Beale, R. 2004. *Human-computer interaction*. Harlow: Pearson.
- ENoLL 2010. The European Network of Living Labs. Date of retrieval 30.12.2010. <http://www.openlivinglabs.eu/livinglabs>
- Følstad, A. 2008. Towards a Living Lab for the Development of Online Community Services. *The Electronic Journal for Virtual Organisations and Networks* 10 (Special Issue on Living Labs): 48–58.
- Følstad, A., Brandtzæg, P. B., Gulliksen, J., Börjeson, M. & Näkki, P. 2009. Towards a Manifesto for Living Lab Co-creation. Published in: T. Gross et al. (eds.) *INTERACT*



2009, Part II, LNCS 5727. International Federation for Information Processing, 979–980.

Haukipuro, L., Project Coordinator, Center for Internet Excellence. 2011. Discussion 12.9.2011.

Heuristic. 2011. Wikipedia. Date of retrieval 24.3.2011.  
<http://en.wikipedia.org/wiki/Heuristic>

International Organization for Standardization. 1998. ISO 9241-11. Ergonomic requirements for office work with visual display terminals (VDTs). Part 11: Guidance on usability.

International Organization for Standardization. 2010. ISO 9241-210:2010. Ergonomics of human-system interaction. Part 210: Human-centred design for interactive systems. Contents retrieved 11.1.2011 from <http://www.naerg.din.de>

Järvinen, P. 2004. On research methods. Tampere: Opinajan kirja.

Kreitzberg, C. B. & Little, A. 2009. Useful, Usable and Desirable: Usability as a Core Development Competence. MSDN Magazine, May 2009. Date of retrieval 15.7.2011.  
<http://msdn.microsoft.com/en-us/magazine/dd727512.aspx>

Krug, S. 2006. Don't make me think! A common sense approach to web usability. Berkeley: New Riders.

Kuniavsky, M. 2003. Observing the user experience: a practitioner's guide to user research. San Francisco: Morgan Kaufmann.

Nielsen, J. 1994a. Guerrilla HCI: Using Discount Usability Engineering to Penetrate the Intimidation Barrier. Date of retrieval 15.3.2011.  
[http://www.useit.com/papers/guerrilla\\_hci.html](http://www.useit.com/papers/guerrilla_hci.html)

Nielsen, J. 1994b. Heuristic evaluation. Published in: Nielsen, J. & Mack, R. L. (eds.) Usability Inspection Methods. New York: Wiley, 25–62. (The list of heuristics available at [http://www.useit.com/papers/heuristic/heuristic\\_list.html](http://www.useit.com/papers/heuristic/heuristic_list.html); retrieved 15.3.2011).

Nielsen, J. 2000. Designing web usability: the practice of simplicity. Indianapolis: New Riders.

Nielsen, J. & Loranger, H. 2006. Prioritizing web usability. Berkeley: New Riders.

Nielsen, J. 2008. How little do users read? Jakob Nielsen's Alertbox, May 6, 2008. Date of retrieval 3.5.2011. <http://www.useit.com/alertbox/percent-text-read.html>

Nielsen, J. & Pernice, K. 2010. Eyetracking Web Usability. Berkeley: New Riders.

Nielsen, J. & Tahir, M. 2002. Homepage usability: 50 websites deconstructed. Indianapolis: New Riders.

NorthRULL 2011. Northern Rural-Urban Living Lab. Date of retrieval 11.1.2011. <http://www.openlivinglabs.eu/livinglab/northern-rural-urban-living-lab-northrull>

OULLabs. 2010. Date of retrieval 30.12.2010. <http://www.oullabs.fi/en/oullabs.html>

Posio, E., Chief Technology Officer, Center for Internet Excellence. Re: Oullabs and Enoll. Email message to Vitali Reif 3.1.2011.

Posio, E., Chief Technology Officer, Center for Internet Excellence. 2011. Discussion 12.9.2011.

Roto, V., Law, E., Vermeeren, A. & Hoonhout, J. (eds.) 2011. User Experience White Paper. Bringing clarity to the concept of user experience. Date of retrieval 26.8.2011. <http://www.allaboutux.org/uxwhitepaper>

Rubin, J. & Chisnell, D. 2008. Handbook of Usability Testing: How to Plan, Design, and Conduct Effective Tests. 2nd edition. Indianapolis: Wiley. Support materials downloaded from <http://eu.wiley.com/WileyCDA/WileyTitle/productCd-0470185481,descCd-DOWNLOAD.html> 7.1.2011.

Sharp, H., Rogers, Y. & Preece, J. 2007. Interaction design: beyond human-computer interaction. 2nd edition. Chichester: Wiley.

Ståhlbröst, A. 2008. Forming Future IT. The Living Lab Way of User Involvement. Luleå University of Technology. Social Informatics. PhD. Thesis.

TechSmith. 2011a: Morae software. Date of retrieval 15.3.2011. <http://www.techsmith.com/morae.asp>

TechSmith. 2011b: Morae Learning Center. Date of retrieval 16.3.2011. <http://www.techsmith.com/learn/morae/>

Ubiquitous Oulu. 2010. Date of retrieval 30.12.2010. <http://www.ubioulu.fi>

User experience definitions. 2011. Date of retrieval 26.08.2011. <http://www.allaboutux.org/ux-definitions>

ZEF Solutions. 2011. Date of retrieval 1.3.2011. [http://www.zef.fi/en/evaluation\\_engine.html](http://www.zef.fi/en/evaluation_engine.html)

## **Appendices**

Appendix 1. Report on heuristic evaluation of PATIO website.

Appendix 2. Observed issues with PATIO functionality and user interface.

Appendix 3. Questionnaire 1 for prospective PATIO users.

Appendix 4. Patio user questionnaire 2. Survey for experienced PATIO users.

Appendix 5. Respondents' answers and comments about PATIO website.

Appendix 6. Usability testing plan of PATIO website.

Appendix 7. Report on usability testing of PATIO website.

Appendix 8. Comments given by the ViTeSt project forum participants.

## Report on heuristic evaluation of PATIO website

Revised 1.2.2011

The PATIO website has been primary tested with Google Chrome 7 and 8. MS Internet Explorer was used for investigating a few cases (indicated as IE in the text).

### Contents

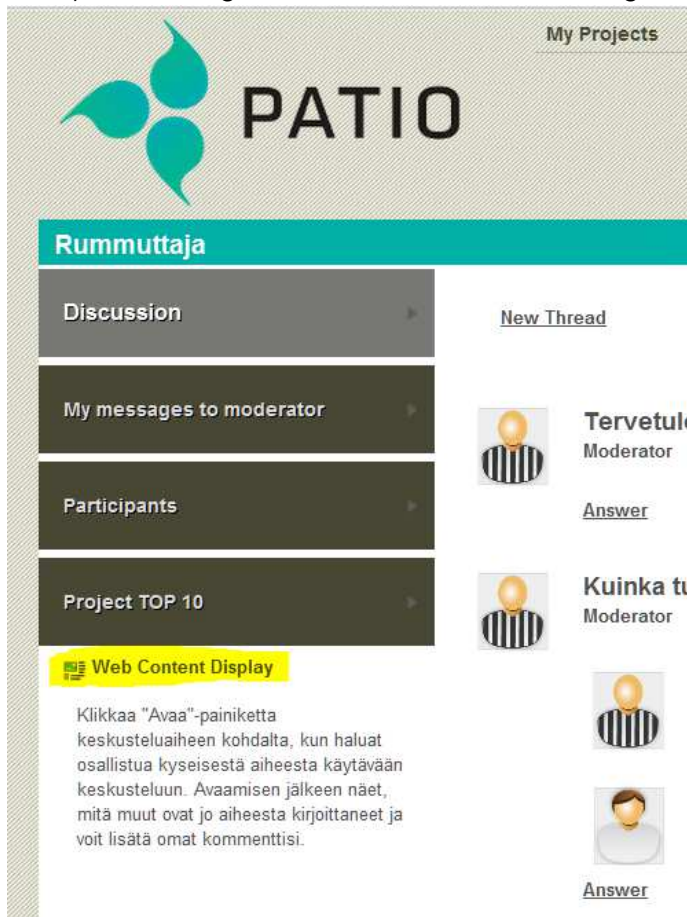
New notes.....	2
General notes .....	3
Background .....	3
Navigation.....	3
Specific pages, functions and cases .....	6
Home page .....	6
Registration form.....	6
My info .....	8
My projects.....	8
Top 10 (user profiles) .....	9
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User search.....	10
Password recovery message .....	11
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Case: Wrong password or nickname entered.....	12
Bug specific for Google Chrome .....	13

## New notes

- “remember me” option on the login page does not work (Chrome and IE) (27.1.2011):



- What is “Web Content Display”? It looks like a clickable link (cursor becomes hand), but it brings no results. It looks like a “bug” in the page code. *Fixed?*



- Availability of user profiles without login?
- “Contact us” link (front page) results in “PATIO overview” page in English and Swedish front pages; in Finnish page it opens email client

- Top pane (Oulu, Oulun kaupunki | City of Oulu): why is it always there? Takes part of the screen; looks like a navigation panel.
- “News”, “Announcements”: the same things.
- “Social networks”: Google?

## General notes

The interface is not fully translated into English, causing a language mixture on some pages (perhaps, temporal problem). For example, the registration form is in English, the page header (“Foorumi, jossa...”) is in Finnish. Register description pop-up in Finnish.

In general, how are three languages are going to be treated? At the level of the interface only or in the content as well (less likely)?

Some red message sometime appears on the top of the page when a link is clicked, but disappears too fast to be read.

“Register declaration” in the bottom of the front page displays the same as “Register description” (two different titles of the same thing). **Fixed.**

## Background

There are two types of the background, and division between them and their use does not seem to have a logical basis. Only in IE this dividing line on the home page corresponds to the lower end of the “main” image on the PATIO site, but still only on the front page:



## Navigation

Language selector flags: 

- why this order (not FI, S, E?)
- (Fixed) Why exactly US flag chosen? Since we are in Europe, therefore, British might look more appropriate;

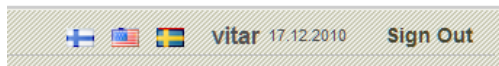
Furthermore, British flag looks better in a very small picture: .

- screen tips say “suomi (Suomi), English (United States), ”


**Current language is not indicated** (i.e. the flags are not really button selectors but only links) and because of the language mixture, it is impossible to identify it without an indicator.

When the language is changed at the Sign In page, the result page is not the same in another language, but a previous visited except of sign in, even if it was in another language.

Name of the logged user is indicated between the language selector and current date.



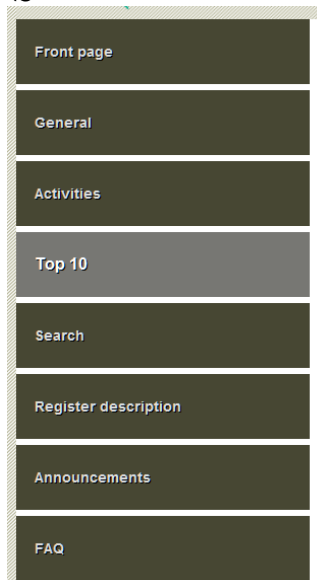
Suggestion: the current date is unnecessary information (this is not a news site), and user nickname should be next to the “Sing Out” link. (The date is displayed only when user is logged in.)

Navigation is not persistent: the “Back” button  is not everywhere (it is visible only inside project pages ). Is it actually needed?

Obscure behaviour: on the “Sign In” page there is strange link “Return to Full Page” (“Palaa sivulle” in Finnish) (which implies that this Sign In page is a reduced version of that “Full Page”), which brings me back to **any** previous page. Its location is different from other Back buttons.

Suggestion: should be changed for “Back” (or removed).

Situation with menus is not consistent. There is a longer version of the left-side menu (general menu, does not depend on the user):



From the pages with this menu I can get to My Projects via the link, but I cannot get to this long menu directly from My Projects pages, only via the front page (requires at least two clicks).

The front page does not actually have any menu. For entering the site, one has to click “Read more about PATIO” or select one of the sections in the lower part of the front




page that are not instantly visible on the screen unless it is scrolled down. Suggestion: a smaller version of the general menu should be available somewhere on the front page.

The list of current (active) projects is available via three different ways, and in each case the tile or link text for this page is different (the presentation of the project list is also different because of the two different versions of the left-side menu):

1) “Kaikki yhteisön testiprojektit” menu item from the “shorter” menu:

Front page		<b>Personal Chart</b> Project ends 31.01.2011 Personal Chart on viestintä- ja hyvinvointi-tähtäävä tuotekehitysprojekti. Testiprojektin aikana 30.11-2.12.2010 osallistuneet henkilöt. <a href="#">More info</a>
Testiprojektit, joissa olen mukana		
Uudet ehdotetut testiprojektit (1)		
Kaikki yhteisön testiprojektit		<b>Oulu10-palvelut</b> Project ends 31.01.2011 Tässä tutkimuksessa pyrimme selvittämään Oulu10-palvelujen laadusta sekä toiveita: vastaajiksi on kutsuttu Oulu10-palvelujen käyttäjiä. <a href="#">More info</a>
		<b>Mobiilimittari - testaa dataaliittymän</b> Project ends 17.12.2010 Mobiilimittarin kokeiluversio tukee nyt kolme eri palvelutaloutta millainen sovellus on käyttäjä. <a href="#">More info</a>

2) “Active projects” on the home page:



**ACTIVE PROJECTS**

Browse all ongoing projects here. Join them and give feedback.

3) “Activities” menu item from the “long” menu:

Front page		<b>Personal Chart</b> Project ends 31.01.2011 Personal Chart on viestintä-tähtäävä tuotekehitysprojekti 30.11-2.12.2010 osallistuneet <a href="#">More info</a> ▶
General		
Activities		
Top 10		<b>Oulu10-palvelut</b> Project ends 31.01.2011 Tässä tutkimuksessa pyrimme Oulu10-palvelujen laadusta vastaajiksi on kutsuttu Oulu10 <a href="#">More info</a> ▶
Search		
Register description		
Announcements		<b>Mobiilimittari - testaa data</b> Project ends 17.12.2010 Mobiilimittarin kokeiluversio t palautetta millainen sovellus <a href="#">More info</a> ▶
Usein kysyttyä		

Suggestion: left-side menu should not change; an additional context-specific (=short menu) could be placed horizontally on the top of the page (instead of the slogan "Foorumi, jossa..." that can be shown only on the home page).

**Links to social media** are visible only on the pages with general description of projects. It is not possible to link a project where I am already participating (or I have to open it from the front page)

## Specific pages, functions and cases

### Home page

Announcements are not available on the home page, and there is not even a link to them.

The logos of PATIO sponsors (?) on the bottom of the front page:



Shouldn't they be links, like the same  logo on the top left of the page?

### Registration form

"New password": this term is commonly used for password change function. Here it is incorrect since I have not entered any password for this site before. Should be perhaps just "password".

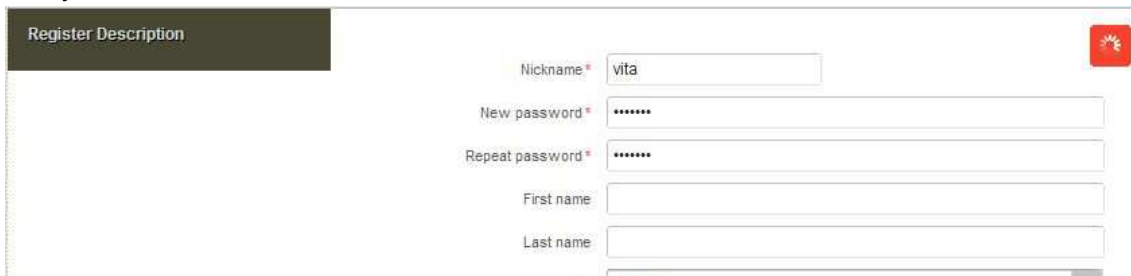
What is actually “Register description” and how does it differ from “terms of use”? Why “Register description” should be present twice on the same page (once a link to a separate page and once as a pop-up)?

Terms of use are not available in English.

Depending on the further purpose of PATIO, there might be a need for “country” field in the registration form. (There is Country field in the My info page.)

What does button “Back” mean here? Go to the front page? Perhaps it is not needed. A more appropriate (usually used) would be “Clear form”.

When “Create Account” is pressed, there was a “process circle” rotating, which was first yellow but turned red later. What do these colours mean?



The screenshot shows a registration form with the following fields: Nickname (filled with 'vita'), New password (masked with dots), Repeat password (masked with dots), First name, and Last name. A red circular progress indicator is visible in the top right corner.

When done, I do not get logged in the PATIO, and no message tells me why and what should I do next.

Greeting email after the registration comes in English. Will the language of the message depend on the interface language during the registration or not?

**Upd. 25.01.2011: Greeting email in Finnish! How about English testers?**

When I log in as a new user, there is just an empty page. Not very welcoming:



The screenshot shows the PATIO user interface. The browser address bar displays 'www.patiolla.fi/en/user/vita/currentactivities'. The page header includes the OULU logo, 'My Projects', 'My info', and a 'Sign Out' button. The main content area features a sidebar with navigation links: 'Front page', 'Current Activities', 'New Activities', and 'All Activities'. The main content area is currently empty.

Suggestion: some welcome message or info how to enroll a project (or invitation for filling My Info data) should be displayed.

## My info

The form on the “My info” page has some untranslated fields - not ready for English test users. (Btw, why is it “My ino” but “My Projects”?)

Language: Can I enter more than one? How should they be separated?  
(Yes, I can put more than one and it works for search, but only if they are entered for search in the same order and user entered them. Should it say “languages”?)

The drop-down menus Birthdate have irrelevant indicators showing the current number of entries of the whole list):

Birthdate [dropdown menu with years 1962-1971, 1964 selected]  
Phone 1971  
Email\* 1969  
Street address 1968  
Zip code 1966  
City 1964  
Country 1963  
tietue 2 40-49/100  
ssurassa lapsi Not defined

Some field titles are clipped, e.g.:

Missä purjehdusseurassa lapsi

Could you use Patio in your wo

The menu item Front page behaves unexpectedly very differently from the other menu items: when selected, the it brings me to the front page where no menu is available. Perhaps the left menu column does not require this Front page item at all, PATIO logo works just fine for this option and it is already a convention for going to the front page of a web site. If the Front page link still desired, it can be located outside of this menu.

When I **resign from PATIO**, the front page is displayed. No information about what happened. No email either.

## My projects

There is no information about the projects where I have enrolled and have been waiting for a confirmation. I can see this only if I try to enroll again.

There is no information about how I can cancel my enrollment before it is accepted. For instance, I actually tried to enroll a project just for looking how it works. Perhaps there

should be an advance information message telling what will happen after I click “enroll” (about the confirmation that should be received from the project coordinator, etc.)

## Top 10 (user profiles)

“Top 10” can mean anything (projects, products), it is impossible to know that it is about users.

How are users rated so that they get into the Top 10?

There are only 9 top users, even though there are totally 18 registered PATIO users (16.12.2010).

How useful (and for whom) is the percentage of Profile completeness? I.e. what is too little and what would be enough?

What do the stars in the profile mean?

I can look at the profiles of some users, while clicking on some others displays a “forbidden” page that is not informative. It is impossible to predict which user profile is public and which is closed. Or is it just a bug?



15.12:


16.12: “This web page has a redirect loop.”

## Project pages

When I chose a project on the home page, there is no clear indication whether I am already a participant of the project. The difference between the pages of project where I am a participant and other projects is not very visible.

I am not a member:

**Personal Chart** Project ends 31.01.2011



**You are a suitable person for this project if:**

1. Osallistuit Personal Chartin testaukseen Oulussa marras-joulukuussa 2010


Duration	Enrollment deadline
10.12.2010 - 31.01.2011	31.12.2010

Personal Chart on viestintä- ja hyvinvointiteknologian kehittämiseen ja integrointiin tähtäävä tuotekehitysprojekti.

Testiprojektin kohderyhmä: Personal Chartin testaukseen 30.11-2.12.2010 osallistuneet henkilöt.

Kyseessä on käyttäjätutkimus demosovelluksesta, johon liittyy henkilökohtaisten terveystietojen tallennus ja käyttö N900-mobiililaitteella. Patiolla jatkamme keskustelua sovelluksen käyttäjäkokemuksista ja testin yhteydessä esiin nousseista teemoista.


Lisätietoja: [contact@patiolla.fi](mailto:contact@patiolla.fi)

Link to social media 

[Back](#) [Enroll](#)

I am a member (highlighted are the only differences):

**Oulu10-palvelut** End participation in forum Project ends 31.01.2011




**You are a suitable person for this project if:**

1. Olet Oulu10-asiakaspaneelin jäsen

Duration	Enrollment deadline
29.11.2010 - 31.01.2011	31.12.2010

Tässä tutkimuksessa pyrimme selvittämään asiakkaidemme mielipiteitä ja käsityksiä Oulu10-palvelujen laadusta sekä toiveita palvelun kehittämisestä. Tutkimukseen vastaajiksi on kutsuttu Oulu10-palvelujen asiakaspaneelin

Link to social media 

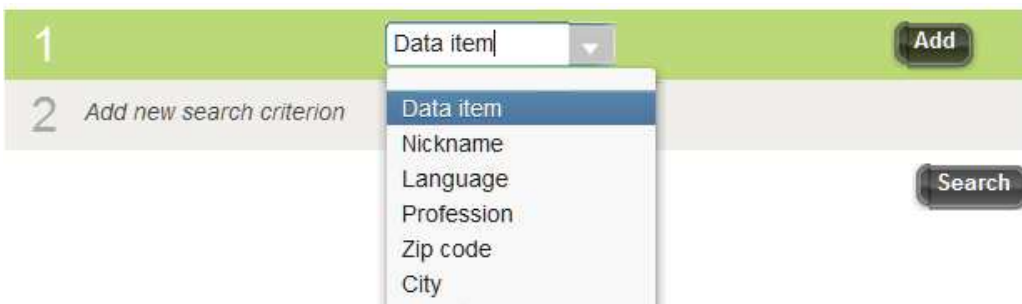
[Back](#) [To the forum](#)

Still I am informed if I am a suitable person. The only difference is that here I can end participation and go to the forum and cannot enroll. However, the link "To the forum" does not bring me there but simply reloads the same description page.

## User search

Age range suggested and used as a search criterion by default. Why?

What is "Data item" that is on the top of the list of new search criteria? It can be added as a criterion, but has no specification. Perhaps it is the title of the list and does not need to be there.



1

2 Add new search criterion

- Data item
- Nickname
- Language
- Profession
- Zip code
- City

The “Add” button is not needed. When a new search criterion is added it is possible to start searching right away or add another new search criterion.

Age range:  -

1 Language English Add

2 Add new search criterion

Search

Search resulted with 1 hits of which

Males: 1	Females: 0
between ages	between ages
- 10: 0	- 10: 0
10 - 20: 0	10 - 20: 0

“Enter” does not work in the field of search criterion specification.

## Password recovery message

The message with the link for password reset is sent from “Online communities” (not informative sender title):

Archive Report spam Delete Move to Labels More actions Refresh

Online communities Reset Your Password

There is a bug (name repeated twice) and unnecessary information (technical details) in the message. The message has also an illogical statement - some words should be deleted:

★ **Online communities** to vitar [show details](#) 11:18 (19)

Dear vitar vitar,

You can reset your password for user ~~vitar~~ at [http://www.patiolla.portal/update\\_password?p\\_l\\_id=31212&ticket=c11cf18d-864f-4](http://www.patiolla.portal/update_password?p_l_id=31212&ticket=c11cf18d-864f-4)

The request for a new password was made from 130.231.12.63 browser Mozilla/5.0 (Windows; U; Windows NT 6.1; en-US) App like Gecko) Chrome/8.0.552.224 Safari/534.10.

Sincerely,  
Online communities

## New project invitation message

The information message about new project matching my profile is written better, but still has some flaws:

- I do not know what teaglegroup is. This name is not mentioned anywhere at PATIO site. Therefore, it can easily be considered as a spam or fishing message based on the sender only. Suggestion: the sender name should be specified as "PATIO". A sentence that no replies should be sent to the sender can be included in the end of the message.
- How can I contact Oulun Kaupunki?
- It has no signature.

## Your Patio profile has matched a new project. Inbox | X

★ [patio-no-reply@teaglegroup.com](mailto:patio-no-reply@teaglegroup.com) to [show details](#) 12:04 (2 hours ago) Reply

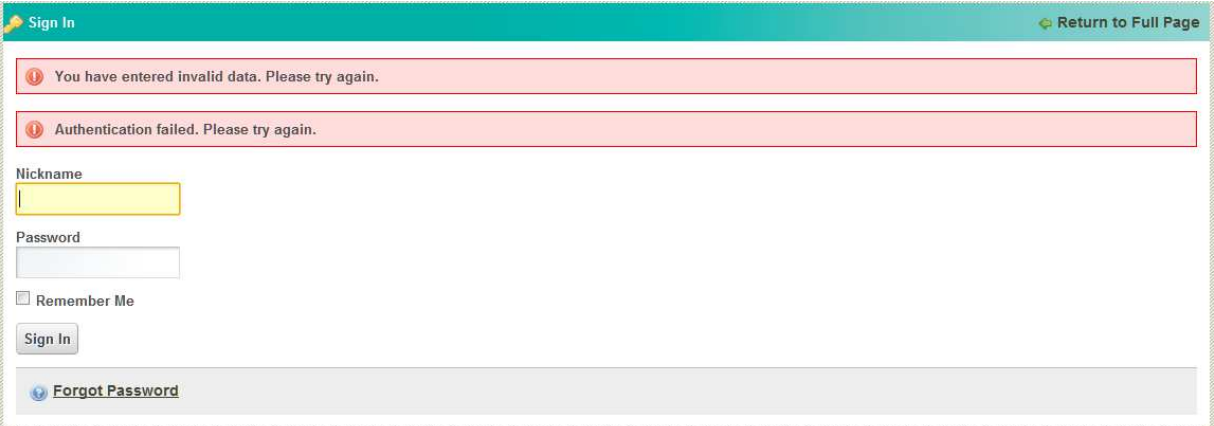
Date: Dec 20, 2010 10:04:50 AM  
Dear vitar:  
The project Pysäköinti now needs new participants.  
Your profile matches the project's target group.

Please log in to community at <http://www.patiolla.fi> and volunteer to join the project!  
You can read the project's public pages and decide whether the subject interests you.

Please contact Oulun Kaupunki for any other information.  
On the community pages you can also find information about our data privacy policy and how to update your personal information.

## Case: Wrong password or nickname entered

Two error messages that are not very informative. Shouldn't there be just one, but talking human language (e.g. "You have entered wrong name or password"). Again that enigmatic link "Return to full page".

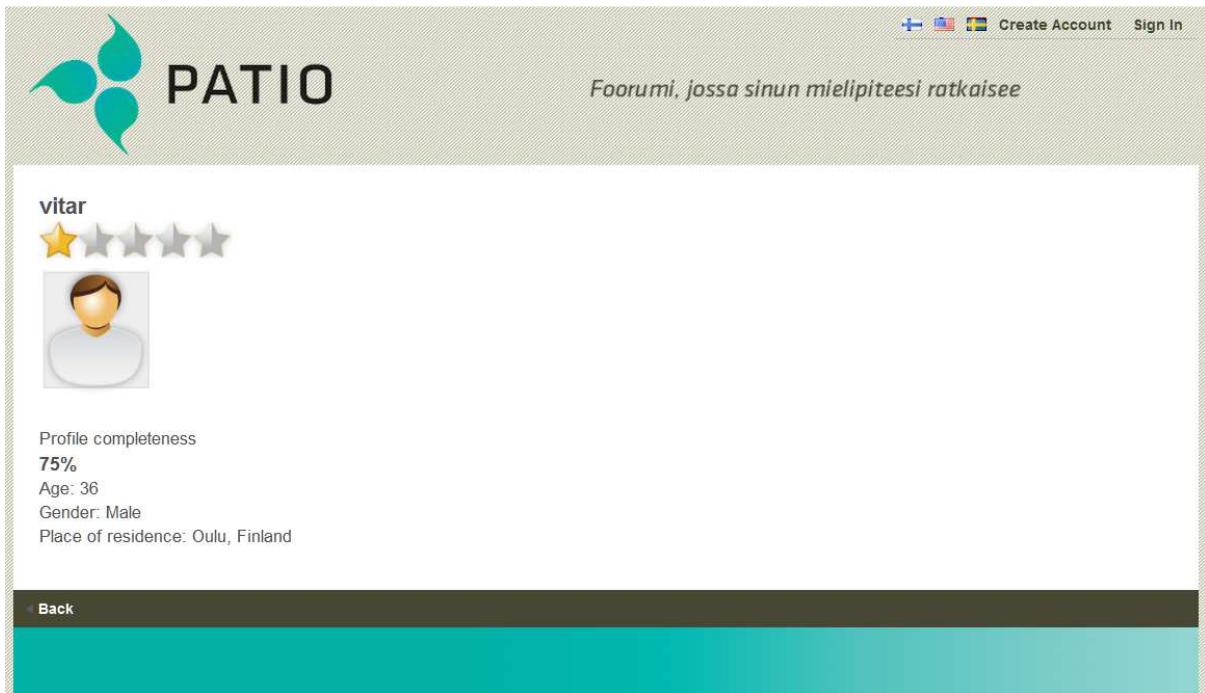


The screenshot shows a login form with the following elements:

- Top bar: "Sign In" on the left and "Return to Full Page" on the right.
- Two red error messages:
  - "You have entered invalid data. Please try again."
  - "Authentication failed. Please try again."
- Form fields:
  - Nickname: A text input field with a yellow highlight.
  - Password: A text input field.
  - Remember Me: A checkbox.
  - Sign In: A button.
  - Forgot Password: A link with a blue arrow icon.

When "Return to full page" is chosen, my user profile page displayed, even though I have not logged in yet:



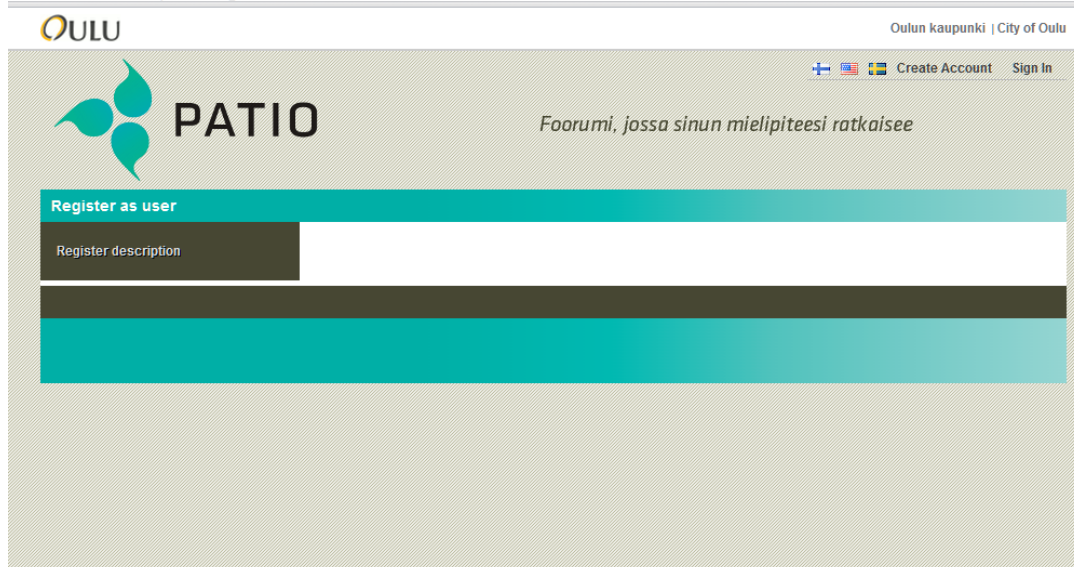


I failed to repeat this since later that link bring me to the PATIO's home page.

## Bug specific for Google Chrome

On the registration page, after I entered some information and clicked “Register description” in the top left corner: when I chose to go back (browser button), no form appear, just an empty page:

[patiolla.fi/en/web/patio/registration](http://patiolla.fi/en/web/patio/registration)



This always happens when browser's back-forward function is used in Google Chrome. Page reloading brings the form back (fortunately the entered data preserved). This does not happen in Internet Explorer.

## Observed issues with PATIO functionality and user interface

updated 14.4.2011

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## **Urgent action is needed**

*(before recruited test users, most of which are non-Finnish, can be invited for registration)*

1. In the Sign In page, the language selector flags work as back buttons.
2. In the registration form, the fields that will be displayed as open public profile should be clearly indicated.

## **Technical problems**

3. “Remember me” option on the Sign In page does not work: once browser is closed or if the PATIO window is open but was has not been active for some time, a new sign in is required (tested with Chrome).
4. Buttons (Add, Done, Search etc.) look “broken” (in Google Chrome) when the page zoom is set for more than 100%:  

5. Test user search: Age range is the default criteria that is always displayed and cannot be removed.
6. Current date display (next to the signed in user name) is unnecessary information.
7. A problem specific for Google Chrome: on the Registration page, if “Register description” is opened and then user returns to the Registration page using browser back button (and there is no other way to do it since there is no Back button on the page), no registration form appears anymore, just an empty page (reloading is required).

## **Language**

8. “PATIO NEWS” link on the front page leads to the same page as “Announcements” item in the left-side menu.
9. Obscure “Return to full page” (“Palaa sivulle”) link in Sign In page. Should it be “Back”? Its location is different from other Back buttons.

10. “My Projects” but “My info” (small first letter).
11. “Register description”: “Terms of use” may be a clearer and more common name.
12. There is “Sign in” page and link, but if one tries enrolling a project without being signed in, there is “Log in” button in the pop-up window.

### **Front page**

13. Current front page layout does not allow instant access to most other pages of the site (no menu; useful links are at the bottom of the page).
14. News are not displayed on the front page.
15. Logos of PATIO founders/sponsors on the front page should be links to their respective sites. There should be a title telling why these logos are there. Currently it is not clear what they are.

### **Navigation and information**

16. News should be sorted in a reverse order (the newest one at the top of the list).
17. The “Back” (“Takaisin”) button is not present in every page (only inside projects pages); where present, its location is not convenient (too low on the page).
18. “End participation in forum” (“Lopeta testiprojektiin osallistuminen”) link is at the top of the page and can be clicked by mistake (e.g. as “exit” or “back”) because it is found easier than “Back” link. It can be placed in the lower part of the page.
19. The information about current location within the site is missing on most pages. “Breadcrumbs” can be useful for this purpose as well for navigation around the site.
20. Some pages do not have a visible link to the front page (e.g. Registration page) besides the PATIO logo.

21. Three different sets of the left-side content-specific menu look very similar and may be confusing. Pages with project description (available from the front page or via All Activities menu item) as well as My Info do not have any menu.
22. No information about what user stars are (what they mean, how to earn them).
23. No information about how Top 10 users list is formed.
24. Pages with general information about projects do not indicate user's status (member or not): A link that leads directly to the forum (for signed in project member) reads "More info".
25. Forums do not allow branches within the treads, i.e. new messages are appended to the end of the list and answers to a specific message cannot be traced.
26. No indicator of the current language. Because not everything is translated into English, on some pages the current language is not clear.
27. There are three links to Oulu city website on the top pane (Oulu logo, Oulun kaupunki, City of Oulu). One could be enough.

### **Communication (messages and emails)**

28. Double and non-informative error messages are displayed when wrong nickname or password entered during signing in.
29. When user resigns from PATIO (button on "My info" page), the front page of the site is displayed. No confirmation message is displayed and no email arrives either.
30. Messages to forum moderator ("My messages to moderator"):
31. Submitting of empty message is possible;
32. No preview or feedback note when message is sent.
33. Password recovery message is always in English and its text is loose (e.g. user's nickname is written twice, many unnecessary technical details are included; see the Evaluation Report sent in December for more information).
34. The sender of the password recovery message is indicated as "Online Communities"; the sender of other information messages is "patio-no-

reply@teaglegroup.com” (see Evaluation Report). Such messages may be considered as spam.

35. If an already project member tries to enroll the same project again while not being signed in the site, selects “Log in” button in the popped up window and signs in, the standard project enrolling options are displayed, with no warning that the user is already a project member. If enrollment continues, the user is brought to the front page of the site, again without any notification message.
36. In fact, messages in the forum are always to Moderator; thus there is no obvious difference from “My messages to moderator”.

### **Confusing behavior of links and menu items**

37. Names of the left-side menu items and the content they display are inconsistent and may be confusing. E.g. there is “Current activities” item, but “New activities” displays a message “No current projects”.
38. There is no definition for “New activities” (i.e. what is new: since last visit, or new projects which information I have not read?)
39. The purpose of “All Activities” page is not clear.
40. Entering the same projects using “Current Activities” and “All Activities” menu items (in both cases the same “More info” link is displayed after the project description) results in completely different pages: in the first case—project forums, in the second case—project description.
41. “Contact us” link in English and Swedish front pages results in “PATIO overview” page; in Finnish page it opens an email client immediately, like the address link below it. An expected action from “Contact us” link would be opening of a contact form or a separate page with contact information.

### **Privacy, personal information and own forum messages**

42. Some information from user profiles (e.g. nicknames) is available to visitors without a registration. It may also be Google-searchable.

43. The list of top ten users is available without registration. The purpose of displaying this information is not clear.
44. My Info contains also project-related questions (i.e. Oulu10 questions) even if the project does not exist anymore.
45. Closed projects with related forum discussions should not just disappear from the site with no trace. Perhaps they can be archived into “Past projects” section and still be available to the project members. Many users would not like their messages simply deleted when the project is finished. In any case, the information about what happened to the information collected in the closed projects (e.g. whether it is submitted to the project owner) should be displayed. A list of past project could be a good thing to display for everyone.

### **Minor defects**

46. Google icon among the “Link to social media” icons opens Google front page. (It is not clear what it is supposed to open: Google Buzz?)

### **Fixed issues**

47. The slogan “Foorumi, jossa...” is always in Finnish independently on the selected language.
48. Terms of Use that should be accepted for registration are not available in English.
49. “Sign In” title over the form for nickname/password in the Sign In page is a clickable link (cursor changes to hand) but returns no result.
50. A welcome or information message instead of the empty page could be displayed on My Projects page when a new user is signed in.
51. The greeting email that comes after the registration is in Finnish, even if the registration has been done in English (previously, e.g. in December, the message was in English).
52. The field “My messages to moderator” has Send button with a title “Valmis” (always in Finnish independently on the current language).

## Questionnaire 1 for prospective PATIO users.

*Only the question sets related to testing PATIO are presented.*

### General information

1. Name: \_\_\_\_\_

It will be used only for contacting you.

2. Email: \_\_\_\_\_

It will be used only for contacting you.

3. Sex

- 1. male
- 2. female

4. Year of birth: \_\_\_\_\_

5. Place of residence: \_\_\_\_\_

6. Profession and occupation: \_\_\_\_\_

7. Education

- 1. comprehensive school
- 2. higher secondary school
- 3. vocational school
- 4. polytechnic
- 5. university (Bachelor, Master)
- 6. university (Ph.D., Licentiate)
- 7. other: \_\_\_\_\_

### PATIO: expectations and motivation

What are your thoughts about PATIO service before you had a chance to try it?

1. Why would you like to use PATIO test environment?

- 1. I would like to influence development of public services
- 2. I would like to influence development of new products
- 3. I like trying new things before everyone have an access to them
- 4. out of curiosity



- 5. as a favour to Vitali
- 6. other (please specify): \_\_\_\_\_

**2. What do you expect from PATIO?**

- 1. it will be easy to use
- 2. it will be hard to use
- 3. it is fun to use
- 4. it will motivate me
- 5. other ideas: \_\_\_\_\_

**3. How often do you expect you are going to visit PATIO?**

- 1. only occasionally
- 2. weekly
- 3. daily
- 4. no idea

**4. Are you going to visit PATIO from a mobile device?**

- 1. yes
- 2. no
- 3. I don't know

**5. Have you ever been a tester of any product?**

e.g. usability tester, beta tester of a software

- 1. yes: \_\_\_\_\_
- 2. no

**6. Have you ever given a feedback to a product manufacturer/developer?**

(e.g. clothes, gadgets, home/office equipment, software, website, etc.)

- 1. yes: \_\_\_\_\_
- 2. no

**7. Would you like to come for usability test of PATIO website in a lab?**

The lab tests will be arranged in March in Raksila (Oulu University of Applied Sciences) or in Linnanmaa (University of Oulu). Please specify which location is more convenient for you. We do not test you, only PATIO services. Participants will get a movie ticket.

- 1. yes: \_\_\_\_\_
- 2. no

# Computer and technology use

## 1. Technology use

What kind of technology user are you? Mark all relevant options.

- 1. Efficient user
- 2. Enthusiast and experimenter
- 3. Use mostly when it is useful for me (efficiency, time or money saving, etc.)
- 4. Somehow resistant: prefer using old stuff as long as possible
- 5. Use only when absolutely have to
- 6. Learning how to use new devices and applications is hard
- 7. I like using technology for staying in touch with people.

## **PATIO user questionnaire 2.**

### **Survey for experienced PATIO users.**

*Only the question sets related to testing PATIO are presented.*

### **General information**

**1. Name:** \_\_\_\_\_

You can use a nickname.

**2. Email:** \_\_\_\_\_

It will be used only for contacting you (e.g. for future tests invitations). If you do not wish to be contacted after this study is finished, do not leave your email.

### **PATIO website**

What are your impressions about PATIO?

**1. Did you understand what kind of services PATIO provides?**

- 1. yes: \_\_\_\_\_

- 2. no: \_\_\_\_\_

**2. Did PATIO website fulfilled your expectations?**

- 1. yes, I expected something like this

- 2. no, I was disappointed

- 3. it is better than I expected

**3. Would you visit PATIO from a mobile device?**

- 1. yes

- 2. no

- 3. I don't know

**4. What do you think about PATIO front page?**

- 1. I like it: \_\_\_\_\_

- 2. I don't like it: \_\_\_\_\_

- 3. Cannot say anything

**5. If you came across the PATIO front page occasionally, would you become interested to explore the site deeper?**

- 1. yes: \_\_\_\_\_

- 2. no: \_\_\_\_\_

**6. If not for this study, would you create an account at PATIO on your own?**

- 1. yes

- 2. no

**7. Was the navigation through the site clear?**

- 1. yes

- 2. no

**8. What did you like about the site? (Free answer) \_\_\_\_\_**

**9. What did you dislike about the site? (Free answer) \_\_\_\_\_**

**10. In general, did you find the site attractive?**

- 1. yes

- 2. no

**11. Will you come to PATIO later on your own?**

- 1. only occasionally

- 2. weekly

- 3. daily

- 4. I don't know

- 5. it depends on the project I will be taking part in

- 6. I am not going to visit it again

**12. Will you keep you account with your data at PATIO?**

- 1. yes

- 2. no

**13. Is there anything you still do not understand about PATIO? (Free answer) \_\_\_\_\_**

**14. Your free comments about PATIO**

e.g. overall impression or suggestions: \_\_\_\_\_

## **Respondents' answers and comments about PATIO website**

(from the Questionnaire 2)

*Original spelling retained.*

### **Did you understand what kind of services PATIO provides?**

#### **No:**

- “not clear what are 'products' and 'services', and whether they are already available to the public, or still in development. The front page is not explicit enough about the purpose of PATIO.”
- “although it claims to have english language, it doesn't translate the text”

#### **Yes:**

- “it's an environment for contact of service/product users (and between them) and those who provide this service/product”
- ”Näin luulen.”
- ”user testing/feedback”
- ”Se on sivusto, jossa pystyy vaikuttamaan tuotteiden ja palveluiden kehittämiseen.”
- “ideointi- ja palautekanavan”
- “some sort of testing forum”
- “more or less, but had to read the FAQ to get a better idea”
- ”PATIO:n kautta voi vaikuttaa tuotteiden kehittämiseen”
- “Product testing”
- “discussions”
- “user-testing of different computer services, websites etc.”
- “PATIO is a site for users to test and express their opinions on products or services.”

### **What do you think about PATIO front page?**

#### **I don't like it:**

- “The photo is not very attractive, and doesn't invite you to look further.”

- "i do not care about PATIO services. i do not want to explore the rest of the website based on the front page"
- "Hämmentävä kuva joska ei auta ymmärtämään asiaa & isoimmat tekstit eivät heti kerro mistä on kyse. Usein kysytyä-osio oli hyvä ja auttoi ymmärtämään mistä on kyse."
- "The front picture is bad"
- "What does the big picture stand for?"
- "I don't like the colours and the main photo (too big, not very clear what it means)"
- "Meaningless pictures, I would expect more 'strict' and logical structure"
- "voisiko se olla vaihtuva kuten työpöydän taustakuvaksi voi valita vaihtuvan kuvan. Olisi mielenkiintoista seurata kuvia..."
- "The layout is not helpful for understanding the purpose of the site. Especially pointless is the photo of the angry girl that takes most of the screen."

**I like it:**

- "good picture with everyone happy except one lady in focus who symbolizes the user"
- "Sivusto on selkeä ja siitä selviää heti, mikä sivusto on, mikä sen tarkoitus on ja mitä osa-alueita siinä on."
- "vaikkakin se vaikuttaa vielä aavistuksen verran keskeneräiseltä (ks. kommenttini foorumilla)"
- "easy to find information"
- "but the main photo isn't giving any clue about the purpose of PATIO. There is room for improvement."
- "selkeä, ei tarvitse etsiä mitään, kaikki löytyy itsestään"
- "Elegant and simple"
- "Nice colors, easy enough to navigate."

**If you came across the PATIO front page occasionally, would you become interested to explore the site deeper?**

**No:**

- "I like the page, but I'm absolutely passive consumer"
- "I would. it does not share music or pictures, connect me with friends, or tell me where there are job openings or free activities"

- ”Ensinäkemällä siinä ei ollut mielenkiintoa - riippuu toki siitä, millä asioilla olisin eksynyt sivulle. Jos olisin etsimässä tuotteiden käytettävyydestä tietoa, sitten toki.”
- “It's not related to the fields of my interest”
- “It's difficult to gess from the first glance what is it about and why I should be interested in this service.”
- “not clear where to press, a lot of info on first page”
- “Not at all, I wouldn't have understood what PATIO does.”
- “Probably not. It's not the kind of thing I would usually spend my time on.”

**Yes:**

- “Sivusto on houkutteleva ja kutsuu kaikkia kiinnostuneita ottamaan osaa.”
- “jos sattumalta juuri sillä hetkellä tarvitsisin sen tapaista palvelua”
- “big words in the centre-right of the frontpage are interesting”
- “Voisi silti olla kiinnostavampikin, tai ainakin edetessä tulisi olla kiinnostavia ulkoasuja”
- “Propably. There should be something in the front page that says 'this is important and interesting'.”
- “if I have time...”

**If not for this study, would you create an account at PATIO on your own?**

**Yes:**

- “only if there is a product of interest to me (ie, I wouldn't register unless I am aware of the possibility of testing a product of interest)”

**No:**

- “I dont care to post my opinion as a blog online”
- “En ole niin innostunut asiasta.”
- ”koska en olisi varmaankaan tajunnut itse etsiä sivustoa mistään.”
- “not generally interested in beta development”
- “I didn't know PATIO exists. The advertising hasn't succeed.”
- “I am not living in Oulu and, maybe because it's in finnish, I did not feel interested in the tests.”
- “only if I would be advertised to create an account for more services”
- “It would be out of the scope of my usual activity on the Web”

- "I don't have the time for it, but now that I have the account, I will see what invitations. Maybe I will continue as a tester.."
- "I'm not a typical Finnish user."

### **Was the navigation through the site clear?**

#### **Yes:**

- "Otsikoiden perusteella pääsi kyllä eteenpäin."
- "liikkuminen oli helppoa ja selkeää, kaikki oleellinen löytyi äkkiä."
- "Web pages are not too complex so it's easy to navigate"
- "Parantamisen varaa on; tulisi vielä selkeämmin ohjata tekemään oikein"
- "The navigation is clear."
- "Mainly."
- "erittäin"
- "In most of the cases. But I would prefer something more 'traditional' and logical."

#### **No:**

- "Takaisin-linkkien sijaan navigoisin mieluummin sivujen nimien perusteella, mutta menu puuttuu"
- "the clickable links should be highlighted in a different colour"
- "It was confusing."
- "It's strange that the menu appears on the left after you leave the main page. Should be consistent, I think."

### **In general, did you find the site attractive?**

#### **No:**

- "for me it's not about attractiveness, it's about function, clearness and simplicity. News should be attractive, but they aren't"
- "Edellisten lisäksi teksti oli melko pientä. Värit toivat kovan ja kylmän vaikutelman, liekö niillä tavoiteltu asiallisuutta?"
- "too many words sometimes"
- "dull colors, none of the colors say 'this is important'"
- "Not especially"
- "It looks as the site created by programmers, who did not care much about its convenience to the end users."



- ”kylmä turkoosi väri ja väritön tausta eivät visuaalisesti hyviä. Voisiko taustana olla kuvia Oulusta osittain läpinäkyvänä ja tekstiosiot voisi olla omassa ruudussa yksivärisellä taustalla.”
- “Not at all. It does not entice you to become a tester.”

**Yes:**

- “it looked fine but i was not interested in the content”
- ”värimaailma ja tekstit on visuaalisesti hyvin sommitellut.”
- ”paitsi jo mainitsemiani detaljeja (terävät kulmat, otsikkoalueelta puuttuva tausta jne)”
- ”Erityisesti pääsivu, linkit eivät ole samaa tasoa”
- “at least it didn't put me off”
- “nice and uncluttered, good colours”
- ”ei ollut liian kirkkaita väriä, mukava katsoa”
- “if I understood what it was for”
- “Fairly attractive, yes. But I might choose a different main/big photo of someone who looks happier.”

# Usability testing plan of PATIO website

*(based on the support materials by Rubin & Chisnell 2008)*

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## Objectives for the study

The PATIO website ([www.patiolla.fi](http://www.patiolla.fi)) has been open for users since December 2010. A heuristic (expert) evaluation revealed a number of problems with its interface design and functionality that potentially may hamper the use of the service. However, the site has not been a subject of an independent usability test with real users. In order to collect objective information on PATIO usability and to check the findings of heuristic evaluation and reveal other possible problems, we will conduct usability tests of the site in a lab environment.

## Research questions

The testing should reveal how easy regular users can find essential information on the site and participate in its activities and answer the following questions:

- What is the first impression about the PATIO front page?
- How much time do visitors need in order to understand the site's purpose, structure and functionality?
- What obstacles do users find in the process of creating an account and joining a project?
- How clear is for the users the way the communication in PATIO works (confirmation emails, messages at forum, communication with moderator and other users)?
- What do users like and dislike about the site?
- What is the users' overall impression about PATIO?

### **The data that should be obtained in the end of the test sessions:**

- quantitative:
  - the time period after which the users report that they feel comfortable about the site purpose, structure and functionality;
  - the number of unclear points for each user;
- qualitative:
  - answers to the key questions that will be asked during the tests;
  - the verbal protocol that will include comments that the testers will make while accomplishing the tasks and thinking aloud, which will indicate unclear and confusing points;
  - post-session comments (debriefing interviews) about testers' general impression about the site.

## **Location and test environment**

The tests will be conducted in the premises of the Center for Internet Excellence (small private booth) and/or the School of Business and Information Management of the Oulu University of Applied Sciences (software lab).

A project for testing purposes (ViTeSt) had been created in PATIO. Only the participants of this study (both independent testers and lab testers) will be accepted to the project based on their names and email addresses provided in the online questionnaire.

The test sessions will be digitally recorded on video and audio using TechSmith's Morae software and a web camera with a microphone.

## **Participants**

We will select 5 testers based on their answers in from the first questionnaire (from those who indicated their interest for coming to the lab usability test). A pilot test had been conducted with one of participant (without Morae recording) in order to check the timing and possible problem with the scenario. These results will also be included in the analysis and final report. Thus, the total amount of testers will be 6 (including one spare tester for replacing a possible no-show).

## **Moderator's role**

The moderator will sit in the room with the participant while conducting the session. The moderator will introduce the session and equipment, starts Morae recorder, asks about the participants' first impression, introduce the tasks and conducts the debriefing interview in the end of the session. In addition to Morae recordings, detailed notes will also be taken during the sessions. If necessary, the moderator will help the participants with the tasks and answer their questions about the website.

Transcriptions of the moderator's notes will be done after each session.

## **Methodology (design)**

The testing sessions will be conducted in English. However, Finnish speaking testers may use the Finnish version of the site. Participants will use a Windows PC and a web browser of their choice (their preferences will be asked in advance) with a high-speed Internet connection (LAN or WLAN). The PC that the participant uses will have Morae Recorder installed in it and a web camera attached. The camera will capture video of the participant's

face and voice; the Morae software will also record what is happening on the screen (and can collect other data). After each session, transcript notes will be written based on the Morae recordings and moderator notes.

## **Pre-test arrangements**

- Review and sign recording permissions

## **Introduction to the session (2–5 min)**

The following point will be discussed:

- Importance of the participant's involvement in the study
- Moderator's role
- Recording systems (Morae)
- Thinking aloud

## **First impression (3–5 min)**

Participants start their preferred browser and open the site's front page ([www.patiolla.fi](http://www.patiolla.fi)). Participants are asked about what their impression about the front page of the site, its design, text and navigation elements and whether they would be interested to explore the site deeper.

## **Tasks (20–30 min)**

### **Task 1. Exploring the site (15 min)**

The user is invited to explore the site on his/her own and to get a general idea about its structure and functionality while thinking aloud. The user reports when he/she feels familiar with site. Then the user is asked the following questions:

1. What are the main parts of the site?
2. What kind of information can be found there?
3. What can one do on the site?
4. How can you take part in the activities there?
5. How can you join a project?
6. Is the navigation through the site clear?
7. Is there anything you are wondering about this site?
8. If you came across this site occasionally, would you be interested to register (create an account) at PATIO?

### **Task 2. Creation of an account (3–5 min)**

The user is asked to create an account and to fill in My info data. The user should be warned that his nickname will be freely visible to anyone.

The question asked in the end of the task:

- Was anything difficult or unclear for you during this process?

### **Task 3. Enrolling ViTeSt project (3–5 min)**

The user is asked to find ViTeSt project and to join it. The moderator will manually accept the application. The task ends when the user receives a confirmation email or manages to enter the project.

The question asked in the end of the task:

- Was anything difficult or unclear for you in this task?

### **Task 4. Posting a message in the discussion (2–5 min)**

The user is asked to enter ViTeSt project and leave a message in the discussion in the forum.

The question asked in the end of the task:

- What do you think about the project's inner structure (forum)?

### **Post-test debriefing (10–15 min)**

In the end of the session, a free-form discussion about the participant's impression about the site. The questions that can be discussed:

1. What do you think about PATIO?
2. What did you like about it? What was easy/attractive?
3. What did you dislike about it? What was unclear?
4. Was the navigation through the site clear?
5. Is there anything you do not understand about this site?
6. Will you come to PATIO later on your own? If so, how often do you think you will be visiting it?
7. Will you keep you account with your data at PATIO?
8. What is your overall impression of PATIO?
9. Could this test be arranged in a better way?

(Similar questions will be asked in the second user survey that will be sent to all the participants including those who visit PATIO independently.)

## Deliverables

As the results of these tests and their analysis, the following materials will be available:

- Test session transcripts
- Morae recordings of each session
- A final written report of complete findings
- A presentation of findings

## Schedule

What	When
Pilot test with one participant	13.3.2011
Review this plan Identify participant selection criteria Agree on final schedule	week 11 (14–18.3)
Recruitment of participants	week 11
Installing and testing Morae software	week 11
4–5 usability testing sessions Transcriptions of moderator's notes	weeks 11–12
Reviewing, tabulating and analyzing data, writing the final report	April 2011
Deliver final written report	2–13 May 2011 (weeks 18–19)
Present study findings	2–13 May 2011 (weeks 18–19)

## Report on usability testing of PATIO website

### Summary

Lab usability tests of PATIO website ([www.patiolla.fi](http://www.patiolla.fi)) were arranged for studying motivation towards using the site, user experience with using it and revealing problems with its interface and confirming findings of heuristic evaluation. Total six tests were conducted in March 2011. Of those, five tests were conducted in the premises of CIE; Morae software was used for recording during these tests. One preliminary test was done elsewhere without recording but it followed the same procedure as the recorded tests. The users were asked about their first and more profound impressions, as well as about their thoughts during the test. This report presents the procedure of the testing, usability problems that were noted while observing the tests, summary of user replies to some questions and opinions of individual testers.

In general, the test users liked the idea behind PATIO and were enthusiastic about being testers. However, they were less positive about the current implementation of the website. Although most of them liked its simplicity, none would become interested to explore the site and create an account there if came across the site occasionally. The way the site works (how projects are organised at PATIO) and its structure mostly remained obscure for the testers. The main suggestion that could be drawn from the test results is that the site should tell explicitly which parts of it are for the test users and which are for companies that are seeking to test their product (and these parts to be clearly separated). Design, at least of the front page, should be simplified to include clear and short information blocks and made more attractive (e.g. with brighter colours). The users should see what are the benefits (or fun) of being at PATIO. The language mixture (having both Finnish and English) on the same pages should be avoided.



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## 1. Test participants

The testers were selected based on their wish to participate such test expressed in the user survey conducted in the beginning of March 2011. In order to ensure diversity of participants (their characteristics, background and experience), further selection was done based on the respondents' self-description as technology users ("What kind of technology user are you?") and experience in being a tester ("Have you ever been a tester of any product?"). Although the answer options for the former question were not exclusive, respondents with non-overlapping answers were tried to be selected. Because PATIO site is aimed at people of various age and also at international audience, the age and nationality (Finnish and non-Finnish) of participants were also taken into account.

Five females and one male of ages 26, 28, 30, 36, 49 and 55 years participated the tests. Two testers were Finnish and four non-Finnish. In relation to technology use, two of the users described themselves as "Enthusiast and experimenter", two used technologies "mostly when it is useful", four told that they were "somehow resistant: prefer using old stuff as long as possible", one liked "using technology for staying in touch with people". None of the testers told that they were "efficient users", "used [technology] only when absolutely have to" or "learning how to use new devices and applications is hard". Two of them had been testers of some products before. Therefore, the selected testers can probably be described as "average" but enthusiastic—since they voluntary participated the study—users, which should fit the target audience of PATIO.

## 2. Test setting and equipment

The tests had been conducted in a small room. A PC computer running Windows 7 operation system, a 24" wide monitor (resolution 1920\*1200) and a web camera with autofocus and face tracking function were used during the tests. Morae software was used during five testing sessions and for reviewing and analysing the records.

Morae is a set of extensive software tools for assisting usability tests (TechSmith 2011a). Its components are Recorder, Observer and Manager. Morae Recorder enables video capture of the screen and recording a video from a camera and sound from a microphone and automatically logs screen changes, mouse clicks and keystrokes at the computer where it is installed. It also enables setting of markers during recording and making user surveys (questions can be displayed during the testing sessions). Morae Observer enables a remote observer connect to the computer where Recorder is running and see and hear everything that is being recorded in real time (with a few seconds delay). Remote observer can also

create markers and write notes that are later merged into the recoding that is being made at the test computer. Morae Manager enables arranging recordings into one or more studies, viewing and analysing recordings and user surveys.

A free trial version of Morae 3.2 was requested and downloaded from TechSmith website and installed in the test computer. The trial version of Morae Manager is fully functional during one month.

During the testing sessions, the user's face was recorded along with the computer screen (as picture in picture). The camera microphone recorded voices of the tester and the moderator. Two sessions were observed and commented by a member of PATIO project group with another computer using Morae Observer. The moderator was taking notes on a paper during all sessions in order to have a hard and safe copy in case of a recording failure.

Before the first recorded testing session, a pilot testing of PATIO site with one participant had been conducted in order to check the time required for completing the test tasks and rehearsing the whole procedure. Apart from not being recorded, this pilot testing session did not differ from other sessions and its results were analysed along with the later sessions.

The test sessions were moderated. The moderator's functions during the test sessions were as the following:

- meeting the testers and introducing them to the test;
- starting and stopping Morae Recorder, displaying the survey questions;
- introducing the tasks (giving directions to the users);
- asking questions upon the task completion;
- providing assistance during the tasks if necessary;
- accepting user enrolment to the PATIO test project;
- conducting post-test debriefing interview;
- observing the users and taking notes during the sessions;
- concluding the sessions.

### **3. Procedure**

The testing session consisted of introduction, studying user's first impression of the PATIO front page, four tasks that users were asked to complete (exploring the site, creation of an account, enrolling the test project, leaving a message in the forum) and post-test debriefing. In the beginning of each recorded test, a recording permission form was signed by the participant. Testers were allowed to use their preferred web browser (they were preliminary

asked about their browser choice in order to ensure that is installed in the test computer). Five testing sessions were conducted in English and one session with a Russian speaking participant was in Russian. However, Finnish speaking testers could use the Finnish version of PATIO.

Testers were introduced to the aims of the test, procedure and equipment. The testers were asked to think aloud during the whole session. Then Morae Recorder was started and user was asked to open PATIO front page with his/her preferred web browser. When the page was displayed, the users were asked about their impression about the page, its design, text, navigation elements and whether they would be interested to explore the site deeper if came across this page occasionally.

Then the testers were asked to explore the site during a few minutes and report when they feel familiar with the site. Upon completion they were asked a few questions aimed at revealing how well the user understood the purpose of the site and its functionality:

1. What are the main parts of the site?
2. What kind of information can be found there?
3. What can one do on the site?
4. How can you take part in the activities there?
5. How can you join a project?
6. Is the navigation through the site clear?
7. Is there anything you are wondering about this site?
8. If you came across this site occasionally, would you be interested to register (create an account) at PATIO?

During the next three tasks the users had to create an account, enroll the test project and leave a message in the project forum as a reply to one of moderator's questions—a set of actions that a typical PATIO user would have to perform. A special project entitled ViTeSt was created in PATIO for the testing purposes. After each of the tasks the tester was asked if there was anything difficult or unclear during the task execution.

When the last task was completed, the tester was asked to fill in a standard ready-made System Usability Scale questionnaire available in Morae. It consisted of ten questions with five grade answer options on the scale from “strongly disagree” to “strongly agree”:

1. I think that I would like to use this system frequently.
2. I found the system unnecessarily complex.
3. I thought that the system was easy to use.
4. I think that I would need the support of a technical person to be able to use this system.
5. I found the various functions in this system were well integrated.
6. I thought there was too much inconsistency in this system.

7. I would imagine that most people would learn to use this system very quickly.
8. I found the system very cumbersome to use.
9. I felt very confident using the system.
10. I needed to learn a lot of things before I could get going with this system.

At the last stage, a debriefing interview was conducted. The interview was a free-form discussion based on a number of questions about user's experience with using PATIO website and opinion about its interface and general impression (some of the questions replicated those that were asked in the beginning of the test):

1. What do you think about PATIO?
2. What did you like about it? What was easy/attractive?
3. What did you dislike about it? What was unclear?
4. Was the navigation through the site clear?
5. Is there anything you do not understand about this site?
6. Will you come to PATIO later on your own? If so, how often do you think you will be visiting it?
7. Will you keep your account with your data at PATIO?
8. What is your overall impression of PATIO?
9. Could this test be arranged in a better way?

Most testing sessions lasted about 45 minutes. In the end the testers were thanked for participating the test and were given a movie ticket and gifts with PATIO logo.

Soon after the testing sessions, the recordings were imported into Morae Manager and reviewed. A test transcript was created for each testing session as text files. The transcripts were based on the moderator notes, observer notes (for two sessions) and additional notes that were taken during the review. The most interesting episodes were exported as video clips to be used in a presentation.

## **4. Results**

### **4.1. First impression**

The first impression of most users after seeing the PATIO homepage was confusing. Most of the testers did not scroll the homepage down and therefore could not see the lower part of the page at the first sight. Although some testers were positive and told that it has a "modern view" and "colours are comfortable", most were not very enthusiastic about it and complained about various issues. Some of the remarks they made:

- "I really have no idea what it's about."
- "Girl's face is disturbing because she is the only one who is not enjoying the show."

- “The background is boring.”
- “Pictures are not informative.”
- “Fonts are too small and hard to read.”

One user specified that too much text with small fonts prevents from fast understanding what the site is and would like to see there a few large and easy to read headers. Another tester was missing some standard menu panels on the homepage. Non-Finnish users felt confused when they saw Finnish text on the English version of the front page. One participant was confused by the word “PATIO” (she was not sure about its meaning in this case because the word sounded like something irrelevant in her native language).

All participants told that the site homepage is missing some element that would attract their attention (like a sign “Look here”). One of the suggestions was that the welcome text could be in more noticeable (in the current state it “does not come out” and link “Read more about PATIO” is not visible). One tester suggested that graphics can be more attractive and some small animations could be added (“they don’t need to be big, but something beautiful is missing.”)

None of the participants would become interested to explore the site deeper if came across the homepage occasionally. Some of their reasons were: “I don’t see exactly what they do”; “Nothing attracts me here, no word that I would be interested in”; “Nothing comes up”.

## **4.2 Task 1: Free exploring of the site**

Four of the participants reported that they finished the site exploring and that they feel familiar with its content after 5–7 minutes. Two other testers were exploring the site during 13 and 15 minutes, but they were asking questions during this task, thus the ensuing discussion could disturb them from completing the task. While answering the questions (see above), the testers concerned various issues that can be grouped into the following parts: homepage, navigation (site’s interface) and information.

### **Homepage**

A few more remarks about the homepage were made after the site had been explored; they were more specific as compared to those made at the first encounter. Several testers told that the girl’s face on the homepage as the main picture draws too much attention and takes too much space.

At least two users noted that the logos on the front page are not visible because they are in the bottom of the page. One user told that making them more visible could add to the

credibility of the site. Some testers were trying to click on the logos and were surprised that they were not links to corresponding websites.

One user felt that there is some disconnection between the “lower” and “upper” parts of the front page and also between the “right column” and “the lower part of the page”. Another one would like to see a summary of the projects to be altogether at one place, including also past projects (this remark could be because of the Finnish description of the projects in the English version of the homepage). One participant suggested that the latest news should be visible on the front page without a need to look for them specially.

### **Navigation**

According to my observations, most participants were clearly uncertain while trying to navigate through the site. However, when asked explicitly, everyone told that the navigation “was clear”. One user said that the navigation was “clear but not convenient” and one needs time to get used to it.

Most testers were obviously missing a visible “Back” button. Some of them were able to use it occasionally, but its location in the lower part of the page was unexpected. It was surprising to see that none of the participants actively used the big PATIO logo as “homepage” button.

At least one non-Finnish tester needed some time to find the language selector in order to switch to English version of the site and told that it was not noticeable very well. One user was not sure whether the menu and the links on front page were the same and hoped that the menu (on the left side of other pages) would function a site map. She also suggested to arrange the menu items in them same order as the links on the front page. Most of the users were somehow lost among the links on the front page and were feeling that the navigation was loose, inconsistent and almost not visible there.

### **Information**

All the testers understood the general idea of PATIO, but were not sure about detail. Most were not certain about the sites purpose:

- “It looks like the information is hidden somewhere”.
- “It is for businesses to find their consumers or target group; I don’t understand how I can use it”.
- “This site is more for companies”.

The procedure of participants recruitment into projects was obscure. The testers did not understand how volunteers are found for projects and how people get to know about the

projects. One of them was wondering, “How do they get people into projects?” since the participation is voluntary and nobody gets paid for it: “Are there any prizes?”

The users were uncertain when asked whether they understood how to join the activities on the site, i.e. it was not instantly clear how to become a tester. A few of them wrongly understood that “Register Description” describes “how to register” at the site.

None of the test participants understood correctly the purpose of “Test user Search”. In general it was perceived as a function for test users for finding and joining new projects (like a section with announcements about new projects where test users are needed). One participant said that she was thinking that this is the way “to join or find interesting projects”.

The “Project Top 10” section was also not clear for anyone. The users did not understand who the Top 10 users are. One user was wondering if those persons are online at the moment. Another one expected to see there a list of projects, but not users.

At least two users suggested that the “Frequently asked questions” section could look less boring. They complained that it was missing some interaction, e.g. expandable answers for each question, so that not all the text would be one list: “Who is going to read the whole list in its present state?!”

One users clicked the “Contact us” link in the Finnish version of the front page (“Ota yhteyttä”) and was confused by an unexpectedly started email client (she was expected to see PATIO contact details).

### **General impression**

When asked whether they would become interested to register (create an account) at PATIO if came across this site occasionally, all testers answered negatively, even though they were interested in testing. One tester said, “If I was not living in Oulu, I would not become interested”, implying that she was already familiar with styles of local websites and knew what to expect from them, and only the possibility to influence services of the local community would make her interested in PATIO. Another user told that she would register only if someone she knew was “already there”, otherwise the site is “not welcoming enough”. The other reasons for not becoming interested in signing up were:

- “I am so busy”
- [It is] “not yet encouraging enough” [for occasional user]

All testers expressed the opinion that some “cool” thing is missing from the site for attracting new users.



### 4.3. Task 2: Account creation

All testers successfully created an account at PATIO, but they faced a few obstacles during this task. One complained that it was “hard to find how to do it”. Another one was reluctant to think up yet another nickname and password given the large number of other web services that she was already using. She said that “because it says ‘Oulu’, it would be good if I could use my university account” for logging in (she was thinking that PATIO is a part of the University of Oulu).

One user asked, “What happens if I put wrong email address?” Another user did inadvertently put a wrong email during the registration and this error could only be discovered occasionally when “My Info” section was checked.

Almost every tester find the text verification difficult. A few did not notice the field right away because it was too far from the picture with the text that had to be verified. At least one user did not understand why this action was required.

All the testers were confused about what was happening when the “Create account” button had been pressed. Although the rotating circle suggested that something was going on, because this process was taking somewhat a long time, everyone was uncertain whether it was successful or some system error took place. The confusion was added also by the changing colours (yellow, red) of the rotating circles. When the screen had finally updated, the confusion was even bigger because no message was displayed about the registration result. One tester was wondering, “Should I check my email?”

Only when the users tried to sign in and succeeded, they understood that the account was created successfully. Everyone eventually complained that there was no immediate feedback about success of account creation: “It was not telling me that it was ok.”

In at least two cases the information email from PATIO went to the testers’ spam folder, but they did not check it until were given a hint by the moderator about such possibility. One user complained that the “From” field of the message looked odd and would not be informative in the list of emails.

One participant complained that the top menu cannot be instantly found (the user did not know where to find “My Info” section). In fact, none of the testers tried to see “My Info” section or to add more details there upon account creation. When suggested to do this, users did not understand how much info about themselves they should put there. One tester asked, “Can I put my photo there?” meaning to replace the default avatar picture; this option was not clear.

#### **4.4. Task 3: Enrolling project**

The lack of information was the main complain of testers also during the process of a project enrolment. Although everyone has seen the pop-up message that the request was sent to project moderator, when asked the users were still uncertain about what has happened and what to expect next. A few testers said that they were not sure how soon they will be accepted (at least one hoped that it will be done automatically and right away). One user was not sure to which address the confirmation email will be sent. In at least three cases, the users did not receive any confirmation about acceptance because the information email went to the spam folder and they users did not think to check it.

When the confirmation email was received, one user complained that it contained too little information about the joined project and if some longer time has passed it could be difficult to remember the details about the project. Some users expected to see a pending project information in “My Projects” because once the pop-up message disappear, no information that the user applied for a project can be seen on the site. One user complained that the top menu containing the item “My projects” was not prominent enough.

#### **4.5. Task 4: Entering project pages and posting to the forum**

This task, in general, caused less confusion than the previous ones. One participant was not sure if she needed to see some instruction in the confirmation email for entering the project (i.e. she did not understand exactly how she can enter a project). For all users, however, the overall structure of the project was not clear, as well as what is, in fact, a “project” at PATIO and what to expect to see inside of a project. One user was confused about the word “Forum”: because the English link reads “To the forum”, she suspected that the forum and project are the same. Some other users did not understand the meaning of a forum in a project either.

The other complains and suggestions were:

- No delete/edit option for posted messages;
- It was not clear to whom the message will be sent because the “answer” button is under the last message;
- Most users complained that it was not possible to reply to specific user;
- The last message should be on the top of the thread;
- At least one participant was wondering if she could communicate with particular users and was trying to do so by clicking user’s nickname (she also expected to see options for such communication in the section “Participants”);
- One user was wondering who is the moderator in the project and suggested that “moderaattori” is not a Finnish word and therefore it is unclear;

- Because discussion forum is the main part of the project, the other left-side menu items should be hierarchical sub-menu items.
- Some users were confused about additional options in project pages, such as “My messages to moderator” (how it differs from leaving a message in the discussion where messages can also be only answers to the moderator).

#### **4.6. Site evaluation on the System Usability Scale**

The average value of the site calculated from five user answers to the System Usability Scale questionnaire was 68 points on the standard 100-point scale, standard deviation 10.5. The minimum value was 52 and the maximum 80 points.

### **5. Post-test debriefing**

During the testing sessions the users’ opinions about PATIO somehow transformed based on some real experience. The answers were given with more confidence as compared with the beginning of the test.

#### **What do you think about PATIO?**

- The tester was interested in doing some real tests but had no idea how this could happen: “Are there any awards for participants of such tests?”
- All testers liked the idea of making better products, especially improving local community services.
- “First page is modern, but other pages could be more inspiring, now they are too neutral.”
- “Now I like it more, but I still don’t really know how it can help me”. No reasons for using it.
- “The first page was quite modern, but other views could still be improved in more inspiring directions. Some development needed to make the site more interesting”.

#### **What did you like about it? What was easy/attractive?**

- “One picture on the front page was nice, but it appeared only on the front page.”
- “It is good that there is a ‘resign’ button.”
- “The site is simple.”
- “It looks like a great page with great picture [front page], but they don’t say what they do.”
- “It is easy to use.”

**What did you dislike about it? What was unclear?**

- Layout is not attractive.
- “I think the language is a problem; only the titles are translated.”
- Graphics and visual appearance are not attractive.
- “The colours are very sad, grey; this [blue colour] is not a bright blue”.

**Is there anything you do not understand about this site?**

- “What do you do with the test user search? Is it a user function or administration function?”
- “How do I get informed about what’s happening here?”
- “What is the fun of being at PATIO?”
- “It is not clear how tests will be arranged. I am interested to be a tester, but have no free time. Will I get compensation if I have to take a day off from work for testing? In general, what kind of rewards will testers get? What does one get out of being a tester? Testing of the city public services [*moderator mentioned the past Oulu10 project*] is a good idea; this kind of testing is rewarding by itself.”
- “Do the stars indicate the profile completeness?”
- “I still don’t really get what PATIO is and why I should want to use it so much.”

**Will you come to PATIO on your own?**

- “No.”
- “Maybe, but not more often than once per month.”
- “If I get a message from it and if I have some time.” Once in 2–3 months.
- “Yes; how often depends on the project” (expected guidance by a project moderator).
- “I don’t see why.”

**Will you keep your account with your data at PATIO?**

Most users answered to this question positively; one was uncertain and one wished to be “reminded about what is happening” at PATIO and to receive relevant information.

**Was the navigation through the site clear?**

- “Back” and “Home page” could not be found.
- Some menu headers are not prominent enough or their meaning is obscure.
- Menu tabs should look like tabs, i.e. to be visibly as a part of the page (“I don’t see how they are related to the page”).
- It was not clear how to get to the menu from the front page.

- A site map is missing.
- “I would put the projects in the middle of the page, not on the side.”
- “News should be visible, so that one understands that this is not just a static site and something is happening there.”

### **Some other words**

“Reports on the past projects are missing. It is not clear what have been already done there. Why to trust the site if it does not show any results?”

### **Overall impression**

The formal answers about the overall impression about PATIO distributed equally: three persons told that it is “rather positive” and the other three told that it is “rather negative”. However, the comments that were given after these evaluation do not support the positive evaluations:

- “Rather positive, but I would say [the site is] not excellent yet, there is a room for improvements to make it more interesting.”
- “It’s positive, but it looks like a great web site that is useful for somebody, but I don’t think it is useful for me.”

The other concluding comments were:

- “The website is not nice, but it is simple.”
- “It is not attractive, it is boring.”
- “PATIO is a starting company with no experience in advertising itself. The website is not attractive.”

## **6. Conclusions**

All testers expressed interest towards testing new products and sympathy to the idea of PATIO in general, even though none of them would be convinced to create an account at PATIO independently. Everyone liked the idea of making better products, and the users were especially enthusiastic about influencing (helping to develop) local community services. Therefore, there are good potentials for test user recruitment for PATIO projects. However, in the current state the website may not be able to fully utilise these potentials.

Because of the positive attitude towards the idea behind PATIO, an evident degree of user tolerance to usability problems was observed: some users seemed to describe things better

than they were. For instance, most testers were clearly confused about the structure, navigation and information (e.g. could not find out how product testing works), but when asked “Was the navigation through the site clear?” they answered “yes”. (This, however, could also mean that the users were not willing to accept that they were lost.) The site evaluation on the System Usability Scale produced surprisingly high scores (mean 68, the highest 80 of 100 possible points) that also look overgraded when confronted with the test observations.

Most testers liked the simplicity of PATIO website (as opposed to the complicity of “typical websites”). Therefore, this is the feature of PATIO that should be preserved during further development.

## **Supplement.**

### **List of suggestions made by the testers and the moderator based on the observations**

#### **General**

1. PATIO should be better advertised (e.g. on Oulu city or university web pages)
2. Clear division of the site: for companies and test users.
3. Some attractions for test users, actions (e.g. lottery?)
4. “Idea-box” for users’ feedback about the site improvement.
5. Language versions should be clearly separated

#### **Home page**

6. Short, clear and easy and fast to read paragraphs with the most important information on the front page.
7. The latest news should be visible better (frequent users do not need to go through the same parts of the site in order to find them).
8. Account creation link should be somewhere close to the active projects. Currently it is lost on the site’s periphery among other elements. It should look appealing so that a visitor would really be attracted to it and become interested in creating an account.
9. Tests projects should be moved to the middle of the front page.
10. The logos of the supporting organisations should be more visible and function as links.

#### **Navigation**

11. A noticeable “home” link to front page should be included, and “Back” should be more visible.
12. A standard menu visible on all pages.
13. Unified naming of links.

#### **Account creation**

14. Check of the entered email (automatic check, double fields or message “Please check if it is ok”).
15. Message about the possibility that the registration email end up in a spam folder.
16. Another option for robot protection (e.g. reCAPTCHA) and some explanation why it is necessary.

17. Rotating circle (during the process of account creation) to be accompanied by a message like: "Please wait while your account is being created".
18. After account is created, some information should be displayed (maybe the user should already be logged in?)
19. After first logging in, "My Info" page should be displayed and a suggestion to fulfill the information.

### **Information for users**

20. FAQ should be implemented as expandable list so that questions could be read faster.
21. Indication "who's online".
22. Enroll button should be next to the project description
23. List of pending (awaiting for authorisation) projects.
24. More info about the joined project in the information (welcome) email.
25. A visible option for uploading picture in My Info (to replace the default avatar picture).
26. Information on past projects would increase the credibility of PATIO.

### **Forums**

27. Reverse order of messages in the forum (or option for sorting them)
28. Possibility to answer to a specific user.



## Comments given by the ViTeSt project forum participants in reply to moderator's questions

March–April 2011

*Original spelling retained.*

### Thread 1. What do you think is the main purpose of PATIO?

**win0wave:** dicussions

**Chayok:** Patio is a place to discuss tested items or servises.

**Alisa:** to discuss things that are going on in the community, to target consumer groups, get peoples opinions through surveys and posting comments

**janne:** To harvest ideas for new products and services.

**minni:** To companies: get contact to possible test users and get their comments about a service or a product.  
To test users: to get contact to companies and their new products or services and give one's comments about a service or a product.  
To read other test users opinions about services or products.

**Tuulia:** It gives companies a possibility to hear experiences and comments about their products.

**Jozo:** To connect users and companies straight. To attract test users (this should be advertised and rewarded though, the site does not attract by itself). To show that the city cares (which I believe is the case).

**polina:** to express opinions about tested products.

### Thread 2. What is your impression of this site?

**win0wave:** it is ok. UI can be reviewed to have more usability.

**kongxh:** professional looking colour scheme. agree with win0wave above

**janne:** Looks professional, that's my first impression, too. I think cufón or other font replacement technique, applied to at least the headings, could make the impression even stronger :)

**minni:** The site shouldn't annoy anyone. No bright colors, very official look like it should be.  
I'd like to have more contrast between text and background: light gray, small text on white background is for the young eyes. If you want also older people as test users this should be corrected.

**Tuulia:** I agree with others that it looks professional (a bit boring, too?) and it is relatively clear. I would put larger font, and reduce the amount of text if possible, from the first page.

**Jozo:** Looks functional, I like this. But motivation of a user is not clear. I would only use it if someone had led me here (which is the case).

### **Thread 3. Is there something that you like about this site?**

**janne:** Not something but a lot of things. Keep up the good work!

**minni:** It's a good thing that

- testers have a one place to go to write the results of the testcases
- the companies have a place where they can advertise and organise their common users' test events

The challenge is how to make this site known to all possible testers. The companies are more easy to get contact to.

**Tuulia:** It seems a very good idea, very much in time.

### **Thread 4. Is there anything that you do not like about this site?**

**Chayok:** Photo on the first page of the site.

**kongxh:** i am having trouble with the signing in. when i click the sign in button at the top right, the homepage just refreshes

**elisa:** I don't like the graphics and the pictures don't say anything respect to the purpose of the website.

**janne:** Content issues: the purpose of the site could be made clearer. A lot of grammar and typography errors in the (Finnish) texts.

Technical issues: a jsessionid appeared in a URL once (can't seem to reproduce now). The page after sign-up loaded forever (I lost patience after about 3 minutes and clicked away).

Visual issues (using FF 3.6.16 on Ubuntu): the sharp boxes could use some border-radius; without borders and its own background, the title-slogan area looks odd to me; not all the turquoise bottom borders on the front page are vertically aligned; the right sidebar could use some more padding-right.

**minni:** I agree with Janne and Elisa.

Some texts start just the edge of a div. There should be some margin. See also my previous question comment about the text.

**Tuulia:** At the first sight, I did not understand what the page is about (I read it in Finnish). The name Patio did not tell anything, and not even "foorumi, jossa mielipiteesi ratkaisee", only the description of the facebook page helped me (testikäyttäjien verkkoyhteisö). Also the photograph raised mixed feelings since to me it did not relate to testing products: why it is focused on a lady who is looking to another direction than the others? There also seemed to be a lot of (small) text.

## **Thread 5. Do you have any opinion how this service can be improved?**

**win0wave:** My projects -> New proposed projects = no entries shown.

**janne:** If this survey uses the same platform that the forum discussion will, I only have three miniature suggestions: utilize Gravatars (<http://en.gravatar.com/>), clean up the URLs so that they are easier to link to, and get rid of the annoying, delayed page refresh occuring after an answer is submitted.

**minni:** What do you mean with the concept "this service"? The site itself, the services to companies, the services to users, ... There seem to be quite a lot of services (<http://www.patio.fi/web/patio/faq>). I can write about the test user UI. The UI should guide me to do what is most important at the moment. On the other hand the UI should guide me to read 'this might interest you'.

**Jozo:** Label of a famous company on the front page might help - with something like "Be our test user". The first thing you see on the front page is an unhappy face. The first impression is that they usually complain here. The next impression (and, I guess, the right one) is that you (the user) are the only one among all those applauding who are aware that something can be improved. It took me some time to realize what the picture means - perhaps, you might loose the occasional serfers.