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Evaluating Web Usability from the User's Perspective: a Laurea LIVE Intranet Case

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**Evaluating Web Usability from the user's perspective: a Laurea LIVE
Intranet case**

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Web usability is an approach for making a website to be easy for end-users. Web Usability has become an important component of most web design projects and recently it has received a great attention. Usability evaluation of a web site is a key element in identifying the areas where the site visitors might experience problems while interacting with the system. Usability evaluation methods and techniques can help a designer to understand the needs and limitation of users in order to create a website that meet user needs.

The aim of this thesis is to evaluate the usability of the LIVE student interface, which is a Laurea university of applied science internal web site, through the use of user questionnaire and lab testing followed by interviews.

The literature review consists of usability definitions, concepts and evaluation criteria's and methods. In addition to definitions, this study includes web site usability, user experience and testing the site's functionality with help of usability software.

The empirical study is conducted to evaluate usability of the LIVE student interface from a user perspective, focusing on the user's perception and performance. The usability testing revealed good features along with usability challenges that will discussed in detail in the report. Usability test results and all findings will be listed in the form of recommendations for further development.

Keywords,
Usability, Web Usability, User experience, Usability Measures, usability testing.

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1 Introduction

The success of a website depends on the usability of the site. Usability on the Web plays a major role in determining the number of people visiting a website. Users prefer to visit those sites which are easy to learn and visually attractive to them. A Website can be considered as usable if users can accomplish their tasks without much effort.

This thesis aims to evaluate the usability of the LIVE student interface, which is the Laurea University of Applied Science, internal website for sharing information and news related to study, living, and health services. However, this study focuses only on the English version of the student interface and its usability from a user's point of view. This study used quantitative and qualitative measures to record the experiences of students enrolled in the different field.

Usability testing is a ways to understand how real users interact with a website or application. Usability evaluation of websites can identify the areas of difficulty in using websites and help to highlight areas where the site visitors might have a problem. The test also provides information about the strengths and weaknesses of the Web site thorough analysis of website usability.

This thesis consisted of two main parts, a literature review about Web usability and usability evaluation tests to LIVE. Methods used for evaluating LIVE usability and user experiences are, heuristic evaluation, questionnaire that contained fifteen questions with four main parts and lab tests that required the participants to test Live independently with the help of the usability software.

The test participants were selected from Finnish and international groups from different fields. The questioner was prepared in both languages and the lab tests were conducted in a language laboratory class (015) where usability software is installed.

The test participants were given 7 tasks to complete using LIVE and after that they were interviewed to obtain user views about the sites and the test. The test was conducted totally with fifty four students during the month of January-February 2014.

The study shows that LIVE is neither easy nor difficult to use. A detail of the results including observations made during the test sessions and recommendations for discovering usability problems are described in the report. The data obtains through the use of questionnaires and lab test can be used for further development of LIVE.

2 Usability and User experience, definitions

2.1 Definition of Usability

The term usability was invented in the early 1980's in order to replace the term user friendly. The first formal definition of usability was proposed by Shackel B.(1981) who is called as a father of usability. Shackel defined usability as the ability to be used by humans easily and effectively.

Since then, many different usability definitions have been proposed. For instance the international standards organization is defined usability as "The capability of the software or a product to be understood, learned, used and attractive to the user, when used under specified conditions." (ISO 9241-11) In ISO usability has been defined in terms of measures for ease of use of products or systems.

The easy and direct definition for usability is that how easy something is to use. Usability measures the quality of a user's experience when interacting with a product or system. From the user point of view usability is about how a system or a product correctly performs the functions and how the much with the needs and requirements of users.

Most of usability definitions refer to ease of use and relates to how usability should be measured in each point of views. For instance in the product view, usability can be measured in terms of the design features of the product but in user performance view usability measured by analyzing how the user interacts with the product for carrying out tasks in a specific environment.

The usability professionals association (UPA) definition focuses more on the product development process and defined usability as "an approach to product development that incorporates direct user feedback throughout the development cycle in order to reduce costs and create products and tools that meet user needs". (Dumas & Redish 1999, P. 97-261)

All above mentioned definitions of usability shares common themes that a user is involved and doing something with a system and the experience user has while interaction with the system or product relates to the usability.

The well-known usability expert Jakob Nielsen(1994) defines usability as quality of users experience during interaction with a system and includes four major characteristic for usability

such as effectiveness, efficiency, satisfaction and learnability. The description of each characteristic shown in figure 1. and described in detail below.

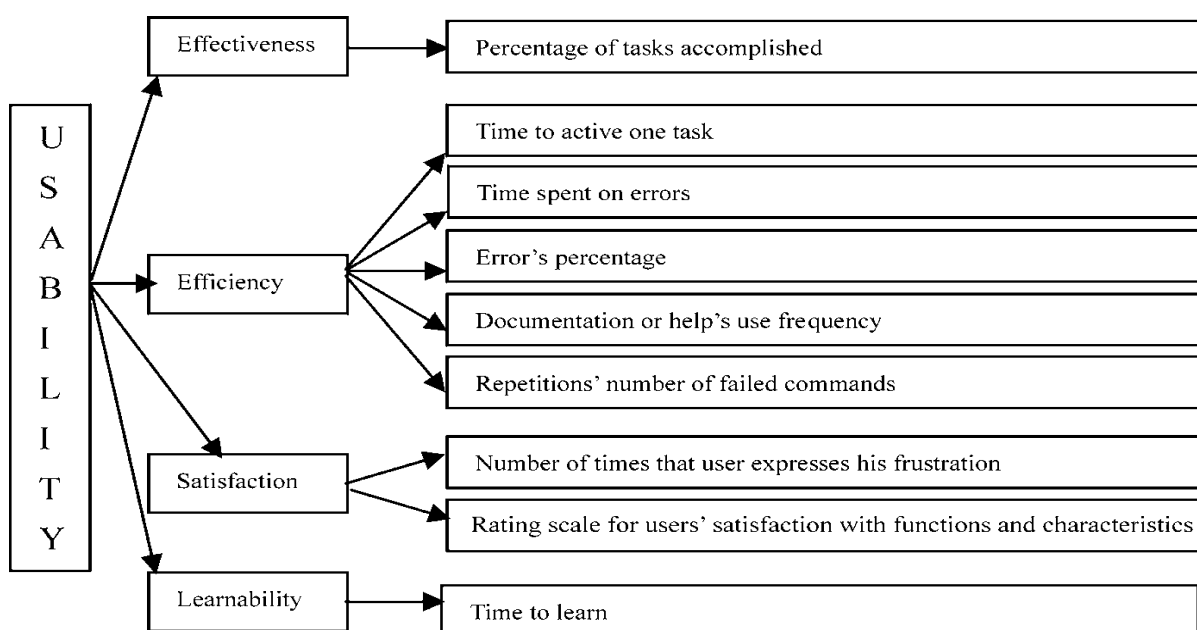


Figure 1. Nielsen major characteristic for usability

Effectiveness

Effectiveness relates to how completely and precisely the goal of users reached using the system. Effectiveness measure how productive user can be with the system and it can also be described as the speed in which users can complete the tasks for which they use the product or the service.

Effectiveness can be determined by looking at whether the user's goals were met successfully and correctly. Effectiveness focuses primarily with how quickly a task can be completed and considers how well the work is done.

Efficiency

Efficiency refers to the level of performance when the user interacting with a system. ISO 9241 defines efficiency as the total resources consumed in a task and how quickly users can complete their task.

Currently user requires a high level of efficiency to be more productive so the system should support users to quickly complete the task they came for and help them to easily recover

from their errors. Efficiency can be measure of the time or action required to perform a task. Efficiency metrics include the number of mouse clicks required and total time spent on task.

Satisfaction

Satisfaction can be defined by how pleasant the system is for the user (Nielsen Norman Group 2012). Usability is defined by how users feel about using the system whether the system supports the way they would like to carry out their tasks and do they feel that the system is helpful and easy to learn.

Satisfaction refers to the user feelings and opinions of the product or system. Satisfaction is a subjective response from users about their feelings while interaction with the system. User satisfaction has many different metrics that gives the most important information about user's perception of the system and their interaction with it.

Learnability

Learnability is the scope to which something can be learned. Learnability is the most necessary usability attributes as most of the system or product needs to be learned as easily as possible. Learnability is a part of effectiveness and reflects how quickly new users can learn to operate the system and quickly perform a task procedures.

User usually prefers to use a system that allows them to be productive after a short time period. The first experience most people have with a new system is that how they learn to use it. Research made on user behavior shows that users do not take the time to learn a complete system fully before starting to use it.

2.2 User experience

When planning a usability study we need to understand the user behavior and what they are trying to accomplish. User experience (UX) is the process of the interactions between a person and products or web sites. User experience is the result of how a person feels when interfacing with a system.

They feeling user usually have when they interact with the system for first time is like they must have done something wrong but after all they think it's not their fault the site doesn't work the way they expect but they still feel bad anyway "If you intend to drive people away from your site it's hard to imagine a more effective approach than making them feel stupid when they use it" (Jesse James Garrett 2011. User-Centered design for the Web. P. 23-25).

A good user experience is where a user achieves their goals and is satisfied with the process (Burton & Taylor, 2004). User experience (UX) goal is to create a website which is easy to use, pleasing and valuable because mostly users are facing the site alone and no manual instruction to read in advance or training to help guide them through the site; they only use their personal experience.

According to Morville (2003) the success of a website depends on how users find it. “Does this website give me value? Is it easy to use? Is it pleasant to use?” (Morville Peter 2003. User experience Design P.21). These are some of the questions that come to a user's mind when they interact with a website and based on the first impression they get they make the decisions on whether to become regular users or not.

To design a successful website we need to understand of user needs, desires and limitations. This means understanding of user's expectations at every step of the way throughout the whole designing process helps to build a successful website.

Peter Morville put together seven usability concepts in a visual form, which he calls the user experience honeycomb (Figure 2). User experience honeycomb shown in figure 2. Describes the elements of user experience and how they interact with one another to help to design a better site. The honeycomb helps to see the Web site from the user's point of view.

The elements on the honeycomb ensure that all different aspects are applied in to a right order with correct relations to one another. They also clarify the use of different terms on the user experience but they don't define what user experience is, just brings up the issues they should be considered while designing the Web.

The core for user experience is ensuring that users find value in what provided to them so in order to meet that information must be valuable, usable, useful, findable and credible and accessible. Each element is described as follows.

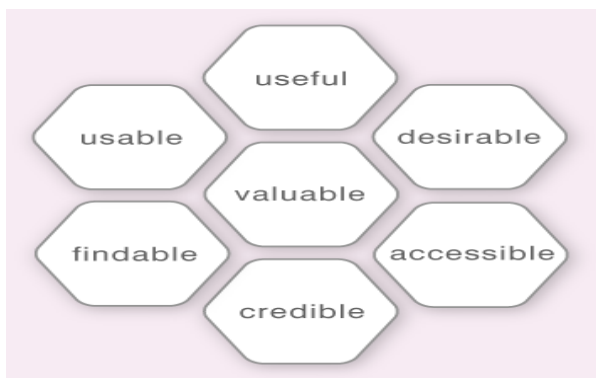


Figure 2. Morville Honey Comb

Valuable

Value is a cornerstone of a good user experience. Sites must deliver value to users by designing the system features in a way that they support user needs. System that does not add a value and meet user needs does not provide a significant user experience.

Usable

Usable is about ease of use a highly usable system enables the user to achieve their goals with a minimum error. Usability is a functionality of the system that enables users to feel that they are able to use it without too much effort.

Useful

User experience starts with a first impression while interacting with a system. Users need to get most out of the system that in order to have a feeling that the system is useful for them so to ensure that we should consider usefulness while designing.

Findable

Find-ability is about making accessible the site by ensuring users can discover, find, or navigate to their desired content. Web sites have to be designed in a way that so users can easily find all they assume is present in a website.

Credible

Credibility has become an important topic because the web has become mostly used as an information resource so user must trust and believe the contents of a Web site so the certain design elements which can affect the believability of the source need to be considered.

Accessible

Accessibility is the ability to access and benefit from the system. Making the system accessible to users without restriction is very important in user experience. Web sites should be designed, developed and edited that all users have equal access to information.

Desirable

Desirable means how the site affects to the users emotions and satisfying users. The emotional design which is image, brand must be considered not only the efficiency of the system. Users find the usefulness, usability, and desirability of a Web application based on the sum of all earlier mentioned elements and their direct and indirect interactions with each other.

2.3 The Difference between user experience and usability

Usability and user experience are important in the overall success of a website as it relate to how well a product or service is designed. Usability is part of the user experience and plays a major role in experiences that are effective and pleasant.

Usability is about the user-friendliness and efficiency of the interface. Usability is a narrower concept than user experience since it only focuses on goal achievement. User experience takes a broader view in entire design; visual, interaction, information architecture and content strategy are also part of user experience as well as the thought and feeling from that interaction. Usability is one of those layers that influence the overall experience of ease of use. User experience includes usability but also addresses how a user feels when using a system.



Figure 3 User experience picture by Daniel Würstl

As it shown in figure 3.user experience involves a person's emotions about using a specific product, system or service.

User Experience includes the person experience, feeling, important and valuable aspects of human- interaction. Additionally, it includes a person's perceptions of the practical aspects

such as usefulness, ease of use and efficiency of the system. But usability is about making sure that something works well that a person of average ability and experience can use the website. (Steve Krug 2000. Don't Make Me Think. P.5)

3 Web usability, definitions and Criteria's

3.1 Web Usability

Web usability can be defined as making the design simple enough so that users can accomplish their task as quickly and easily as possible. Web usability is the quality of the website that measures how quick and easy the web site is to learn, efficient to use, and allows users to recovery easily from errors. Web sites are most effective when they meet the content and usability needs of their user.

Usability on web is defined as the ability of web applications to support users with effectiveness, efficiency and satisfaction to achieve their desired goals while interacting with the system. Web usability focuses on the design and structure of the entire website.

Web usability has been recognized lately as an important quality factor for the success of Web applications. A user satisfaction and convenience are the main considerations when discussing about usability so it needs to be a part of every step of the design process and users need to be considered early and often. (Nielsen, Marie Tahir.2002). This means designing a site with the users in mind throughout the whole process and information about users should come as early as possible in the design process.

Website usability is a human factor issue which should be study based on well-defined guidelines. User satisfaction and convenience are the main considerations when discussing about website usability.

Usability is a necessary condition for survival on the Web. A web page is considered user centered as long as the user can accomplished the task they need without much effort. (Nielsen 2004). Nielsen (2000) studies on user learning behavior shows that user never want to wait neither learn on how to use a site they should be able to grip the functionality of the site right after viewing the home page so browsing through web site should not involve too much thinking.

Users tend to spend very little time in reading the web pages they rather like to scan them and look for words that catch them interest. Users do not read the content on the web they scan it through (Krug 2006). There are three main reasons for this. 1) We are in a hurry and

performing a task, 2) we know that we don't need to read all of the content and 3) we have learned to this with similar content mediums like newspapers and magazines. (Krug 2006 Don't make me think. P. 22-23). That is why we should design content that can be found by scanning.

The concept of user-centered design (UX) is to take the user into account in every step of the way while developing the site. To design a user-friendly web page, it is important to guarantee that the needs and limitations of the user are taken into account throughout the whole development process (Rubin & Chisnell, 2008).

A user friendly site should be easy to read and answer the user's key question and have a clear navigation panel. Navigation is an important designing element that allow users to achieve more of the information they are looking for and making the information easily accessible (Machlis 1998). Web pages should be dominated by content of interest to users and the written manner and language should be at the user's level so that it can be easy for understanding and to make a web site readable.

According to Krug (2006) in order to make the user friendly Webpage, that users understands as much of the site as possible four important elements need to be considered. Each of the elements will be discussed as follows:

Hierarchy

Information appearance on the page should have a clear visual hierarchy instead of having everything looks same and equally important because a clear visual hierarchy helps to make a page easy to understand. For instance important headings are written either in larger font or bolder and a similar information is collected together as a group and displayed under a main heading in clearly defined area to make clear and useable website.

Convention

User learned that knowing the various convention of page layout made it easier and faster to scan and find the information they need easily. Well applied conventions make it easier for users to go from site to site without spending much time to investigate how the page works.

Using an existing web convention make a webpage much easier for the user than replacing them with totally to the new idea.

Break pages up

Web page should be divided into clearly defined areas to allow users to decide quickly which areas of the page to focus on and which areas they don't need to pay attention.

According to Nielsen (2010) users decide very quickly which parts of the page are likely to have useful information and then almost never look at the other parts.

George A. Miller's (1956) studies about human memory shows that human can keep only 5-9 things at one time. Since human memory has some limits on its potential for processing information web page should be break up into clearly defined areas to enable users to point out what they can do on this site and move to the rest of the site.

Visible clickable elements

Users are looking first the next thing to click when they come to the website so it is very important to make it obvious what is clickable and what is not. In order to state this clearly to users the clickable elements and plain text should be separate from one another and applied properly across an interface. Using visual styling such as color and contrast might help users to understand the primary language of navigating the interface.

3.2 Criteria for Web usability

Based on usability engineering approach, a cost-effective way for increasing usability is to apply in very early phases of the application development. Many literatures on web design identified seven main factors that should be considered as criteria for good web usability. Those criteria's are layout, content, accessibility, navigation, consistency and interactivity. Each factors well be explain as follows:

Layout

According to Shirley (1999) layout is divided into three categories such us, space rule, choice of color and readability. Each of the three categories is described below;

- Space provision

Space provision refers to proper location of space for function and content displayed in a web page to help users focusing their attention.

- Choice of color

Proper use of color is highlight almost in all web design guides as it improves learnability and ease of use beside the attraction of users.

- Readability

One of the main objectives of web usability is to provide readable content because reading from a computer screen is different from reading from paper.

According to Nielsen (1997) user reads 25% slower from a computer screen than a paper. Due to this reason web should not have much content.

Morkes and Nielsen(1998)research states that user find it difficult to read if a large volumes of information on screen rather they prefer to scan text and pick out keywords of interest and skip others words are not related to their interest.

Content

The content on a web page depends largely on the goals of the site but to ensure web site usefulness a designer should keep on mind the basic elements of the document. According to Lynch and Horton (2000) basic elements of a document s are, who, what, when and where:

- Who?

Who is the very important element from user perspective because it will determine the owner of a Website? Users are looking usually for information that is reliable and come from those whom they can trust. So the designer must tell the users who own the web site.

- What?

The second element that refers to the question, what a web site is offering? users will not browse a website without knowing what the site is offering so every web page should state clearly what they offer and capture user's attention. Users must have some kind of ideas on what to browse when they come to the website.

- When?

When highlights the need of timelines of information in a web page. Timelines is an important element in evaluating the worth of the document because frequent users look for the date the information is updated.

- Where?

The last element relates to the need to inform users about the servers they are browsing from. Users should be informed about the country of origin or location of a web server.

In order to have useful, interesting and up to date content the web site should consider those elements described above. However, many other elements that not included in this report are relevant.

Accessibility

Accessibility is the most important criteria to attract many visitors as possible from different location. The high level of accessibility will lead to the high level of usability. Accessibility includes loading time, browser compatibility, and search facility.

- Loading time

Loading time is the time takes to download data and files from a server. In other word loading time is the time users have to wait for a browser to download data and files from a web server. Long download times are one of the top frustrations users face on the Web. According to Nielsen (1999) users want a quick response to their request and could not tolerate long loading time therefore design for speed should be one of the objectives in any website development. Long download speed can affect the quality and usefulness of the site. Acceptable loading time is 10-20 seconds. (Ramsay 1998)

- Browser compatibility

The website designers should also consider different browsers used across the world and provide the compatible contents for all main browsers (Netscape, Microsoft Explore) users might use and also compatible contents between different versions of the same browser.

Navigation

Navigability is a core to effective web site. With good navigation users know where they are and where they can go next so it's the key to make user feel with a site enjoyable and efficient.

According to Benjamin (1999) web navigation should have limited list of menu and limited number of links to other relevant sites. However the applicability of the navigation depends on user experience and technology used.

Web usability criteria for navigation requires a list of content in the main page and have a link from one page to another. Use of other graphics and text based menu is also recommended.

Consistency

The design of a web site is different one form another, some web site might put the menu bar at the top of screen and others might use a horizontal. Therefore there are always some elements that are not familiar to users when they first visit the web site so considering this design logic is important for users learning. Consistent layout for title, background and navigation links and icons would help users to learn easily and quickly about the site.

Interactivity

Interactivity is one of the most important factors that contribute towards highly usable web sites. Interactivity is a two way communication between users and site owners that allows users to give feedback and comments concerning the web site.

4 Usability Evaluation, Methods and Techniques

4.1 Usability evaluation

Usability evaluation is commonly used usability practice by testing services or products with end-users. According to Preece (1994) usability evaluation is concerned with gathering data about the system usability with a specified group of users for a particular activity.

Traditional usability evaluation includes many different forms such as, informal user studies, formal experiments, task-based usability studies and heuristic evaluations. (Carol M Branum. 2011). The evaluation consist different methodologies for measuring the usability and identifying specific problems related to usability of the web site.

Usability techniques are applied in different stages of the design of the system within a certain environment. The objectives of the evaluation is to ensure every potential issue are highlighted and fixed before the web site launched or to improve the usability of existing system according to problems acquired during the evaluation.

The usability evaluations can capture two types of data, qualitative and quantitative data.

- Quantitative data

Quantitative data is a data that can be classified in terms of a quantity. Quantitative data is usually analyzed through a collection of information to measure user performance.

The quantitative data collection methods for usability testing are surveys, lab test, think alouds methods that allow the researcher to follow the number of errors that occur on tasks and the number of users who successfully perform tasks.

- Qualitative data

Qualitative data is data that describes what participants thought or said. In quantitative studies, the data is gathered indirectly such as a web survey and analyzed through thematic coding. Thematic coding identifies categories of users' behavior such as how well users can complete a task and where they are having problems. In addition, qualitative data can identify users' perceptions and opinions of the technology's.

4.2 Methods and Techniques

There are many methods and techniques available for usability evaluation depending on defined goal and available resources for the test. The methods used to collect data for this study is based on the theoretical part of the study and includes set of techniques that is considered as the best options for this study. The chosen methods are suitable for collecting qualitative and quantitative data and help to determine participants' satisfaction and dissatisfaction with the LIVE system. Usability problems encountered by the users and all obtained data will be analyzed, interpreted, and presented in form of recommendations for further development of LIVE.

According Barnum(2011) usability test takes two forms depending on the point at which it is done and the goal for the study. These two forms are formative and summative evaluation they will be described as follows;

4.2.1 Formative evaluation

Formative evaluation is the evaluation approach during development step to improve a design or a quality of the service and it is always done before the finalization. The main goal of this evaluation is to find usability problems and make improvements in the design before the final launching.

According to Hix and Hatrson(1998) identifying the problems and making the recommendation for improvement of the quality as early as possible in the development phase is recommended.

Formative evaluation help development team by providing a list of finding to analyze and fix after that another study will be conducted to see whether the fixes worked or not.

With a formative approach we can identify the most significant usability issues that hold users from accomplishing their goals and also the experiences user have with a site, what work well for users and what users find frustrating. (Tullis T, Albert W. 2008)

4.2.2 Summative evaluation

Summative evaluation is used to assess or to compare the level of usability achieved in an interaction design. The goal of summative evaluation is to investigate how well the website functionality meets its objectives.

With summative usability evaluation we can measure if the usability goals of the project has been met and the overall usability of the service or product. Formative evaluation is done usually during development period to improve a design but the summative evaluation is done after development to assess a design so this thesis will be focused only on summative evaluation.

From the literature reviews I have compiled a list of usability evaluation methods that have been applied in most of usability studies. However there are a wide range of methods and combination of methods are available for use that is not included in this study.

Heuristic Evaluation

Heuristic evaluation is guidelines-based expert evaluation in which several usability experts separately evaluate a user interface design by applying a set of relevant design guidelines. In heuristic evaluation users are not involved. Results from the experts are then combined and ranked to plan for redesign of each usability issue discovered [Nielsen & Mack, 1994]

Cognitive Walkthrough

Cognitive walkthrough is an approach to evaluate a user interface based on common tasks that user would perform and evaluate the interface's ability to support each step they make. This approach is intended especially to help understand the usability of a system for users in learning mode (Polson et al.1992)

Questionnaire

Questionnaire is a written set of questions used to obtain information about user interests after they have participated in a usability evaluation session. Questionnaires are good for collecting subjective data and are often more convenient and more consistent than personal interviews (Hix & Hartson, 1993).

Interview

Interview is a technic for gathering information from users by talking directly to them. Interview enables researcher to get more information than a questionnaire and may go into a deeper level of information detail. Interviews are good for getting subjective reactions, opinions, and insights how people feels about the system they have been evaluated.

There are two types of interview, Structured and Open-ended interview. Structured interviews are pre-defined set of questions and responses but an Open-ended interview allows the respondent to provide additional information as it asks broad questions without a fixed set of answers.

Usability test

Usability testing is the best way to understand how real users experience the website .User task analyze provides useful information for designer in terms of what users are able to do with the application and where the face a problem and why. In lab test user asked to perform a task with a system to evaluate the performance and effectiveness of the site in supporting users to accomplish the task successfully.

However, usability test with end-users does not always require a usability laboratory it might be done in simple a computer class with available resources. Therefore it would not be expensive way to be applied in usability evaluation.

5 The case study: Live

5.1 Background of LIVE

LIVE is a Laurea University of applied science staff and students' shared interactive workspace. It mostly used for sharing news and events with all of Laurea students.

LIVE has been built to support student to plan and implement their studies and to help them with a professional growth and well-being. The idea for launching LIVE is to replace the old communication system called Intra and to add many features that Intra did not provides for instance news and event were sent before by e-mail for each students but now student can find those information's in LIVE.

When you sign in to LIVE you will see your own units' home page where you can find information's about Laurea events, news and information regarding to studies/work and health service. Laurea Leppävaara has four different interfaces; each group has their own sites

- Finnish students' homepage
- English students' home page
- Finnish home page for staff members
- English home page for staff members

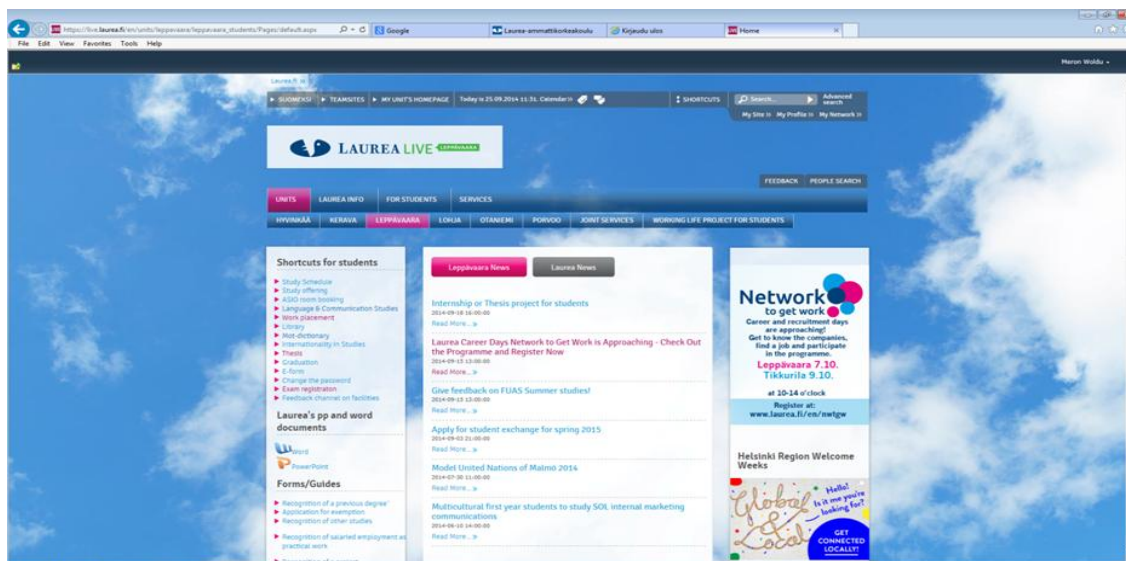


Figure 4 Screenshot, English version of LIVE website

5.2 Usability test

Usability testing is a way to see how easy the Web site is to use by testing it with real users. Usability test is used when we want to study the way users use the system. The test allows researcher to identify potential usability problems more effectively than other methods. In lab usability test users are asked to complete a task, while they are being observed by a researcher to see where they face a problem and experience confusion. Usability testing is a good way to ensure that users have a positive experience and are satisfied with the system. However, it is important to keep in mind that usability testing is only part of an overall design process that focuses on meeting users' needs.

The testing process includes several main steps which is common for most types of usability studies. The process start with planning of the test continues with setting a testing environment, selecting participants and preparation of test materials. After completing those steps the test session will begin with debriefing of the participants about the aim of the study and observers. The analysis of data and observations, report about findings and recommendations will be conducted.

There are three types of usability testing methods such as, user-based testing, expert-based testing and automated testing. But the most basic and useful methods for studying usability is testing with end users (Rubin and Chisnell 2008)

The Usability tests in this thesis consisted of four parts, questioner, lab test, interview and heuristic evaluation. The questionnaire focused on the user experience about Live and the lab test and interview focused on the usability of LIVE that was tested with help of usability software with seven tasks given to participants.

5.3 Implementation of the test

The process of testing began with a development of a test plan which includes the methods and measures. I first studied the issues related to web usability from different books and researches which include concept of usability, usability evaluation methods and tools. Based on the theoretical study those methods were determined to evaluate LIVE.

The main goal of usability testing was to observe how student actually interact with the LIVE. I prepare first questionnaire and then choose a testing environment for the questioner and the lab test. I conducted paper questionnaire and deliver it personally in Laure Leppävaara campus main lobby and library to get as much as data from students. I had also a chance to have further discussion with most of the student after they complete the questionnaire.

For the lab test purpose I choose the language laboratory room (015) as Laurea does not have an official usability laboratory. The language room has three computers one is installed with usability software called Morea and another with observer. The room has web camera and microphone so I was able to capture the participant movement while doing a test. The voice of participants also recorded as most of the participants were using thinking a loud method.

5.4 User questionnaire

The best way to learn about the usability of something is to ask users about their experience with the system. Some studies shows that people who are asked directly for self-reported data provide more positive feedback than when asked through web survey. (Dillman 2008) accordingly paper based questionnaire were conducted for this study.

Questionnaire is traditional way of getting user feedback about their using system or product and it can be used to evaluate the usability of the system. According to usability researcher Covey D.T. (2002) Surveys and questionnaires are best way for collecting large quantities of qualitative data on user attitudes, motivation and satisfaction. There are three basic types of questions, Factual-type questionnaires, Opinion-type questions and Attitude questions.

The opinion-type Questionnaire allows a quick assessment of the user experience of a service or products. The biggest advantage of using questionnaires in usability study is that it gives you feedback from the user point of view. But for this research I choose Opinion-type questions because it is reliable on gathering data about user experience and feeling about LIVE.

This questionnaire is developed according to client request and available web usability criteria checklists. In this research Laurea communication center is the client and we went through the questionnaire with the LIVE development team beforehand. The questionnaire fulfills the needs because it contains clear and simple questions based on various factors discussed in the previous section. In order to get appropriate feedback the questionnaire is prepared in both languages: English and Finnish, and distributed in main lobby and library of Laurea Leppävaara campus.

The questionnaire covers a wide range of users as it was conducted in two languages. Totally forty-five students have participated on this study and almost half of them are international students. The questions asked in this study, the data collection, and the results of the statistical analyses of the data collected are presented in the following chapter.

5.4.1 Result from questionnaire

The questionnaire is conducted based on the theoretical part studied and it consists, functionality and appearance, content, layout and at the end open user feedback. Questions are divided into three sections with maximum 5 questions in each section. The questions asked on this study are presented on Appendix 2 and 3.

The result from questionnaire provides me useful information in advance, and helped me to understand about the participants' behavior and their experiences with LIVE system. It also gave me an idea where to focus in lab Test. The question began with asking the student how often they visit LIVE the result was, 61 % of student visit LIVE occasionally and 23 % of the participant visit live often and 16 % of the respondents did not have any idea about how often they visit the site or expected to visit. The result shows that most of the participants were not sure about what LIVE offers especially foreign students due to very limited information given to students about LIVE when they start studying in Laurea.

According to the answer Live has mostly useful information's for students but as it shown in Table 1. Most of the participants have difficulties in finding the information they need due to confusing information organization and navigation problems occurred in the site. All the findings are structured by categories and shown in Tables 5.

The result from the first part of the questionnaire is presented in Table 1. The questions were answered according to the following choices, Strongly Agree, Agree, Disagree, and strongly disagree.

Questions	Strongly Agree	Agree	Disagree	Strongly disagree
LIVE is easy to use	8 %	54 %	27 %	11%
The navigation language is clear and easy to understand	17 %	48%	23%	12%
The information in LIVE is easy find	12 %	21%	39%	28%
The information organization in live is appropriate	10%	16%	37%	47%

Table 1 Result from the first part of questionnaire

The result from the second part of the questions about functionality and appearance, which consists loading time, error message and capabilities of LIVE shows that the loading time is reasonable. Thirty-four out of forty-six participants found the system with low error and the rest believed that error messages can be described more clearly. The participant opinions about capabilities of LIVE divided in two parties some of them would like to add more features to make LIVE easier to use and the rest accepted as it is now.

	Strongly Agree	Agree	Disagree	Strongly disagree
The website loads quickly	35 %	48 %	12 %	5 %
The system gives error messages that clearly tell me how to fix problems	32 %	54 %	8 %	6 %
LIVE has all the functions and capabilities I expect it to have	23 %	32 %	22 %	13 %

Table 2. Result from the second part of questionnaire

The result from third part of the questionnaire regarding layout (Color, Graphics, font size) shows that almost all participants were happy with a layout of LIVE. Many students have said that LIVE is visually interesting, the background and the font color, blue background with a white text is good combination and other would like to see vise veers.

Table 3, shows the result from third part of Questionnaire. The participant choose the answer according to the point given 2, 1, and - 1, - 2

Questions	Very Attractive	Attractive	Not attractive	Disturbing
The colors used are?	17 %	64 %	15 %	4 %
The graphic elements are?	Suitable 2	1	-1	Disturbing - 2
	19 %	27 %	33 %	21 %
The Text size is?	Too small 2	1	-1	Too High -2
	6 %	78 %	11 %	5 %

Table 3. Result from third part of the questionnaires

The questionnaire contains four open questions to invite the respondent to provide answers in their own words. All the answers from open questions reported as follows:

1. What did you like about LIVE?

Most of the answers for this question were positive student like the idea behind LIVE and using LIVE do not need much time to learn. Below are some of the comments directly from user survey.

- Live has all information needed during the study
- Separate Logon not required to review the information
- News and events can be found easily
- the blue backgrounds makes easy to identify the main link
- LIVE documentation have described clearly the user needs

2. What do you think is the biggest problem with the site?

Most of the student answer was that LIVE did not help users to understand the main features of LIVE. Information cannot find with a few clicks. Bellows are some of the problems identified by student;

- Confusing terminology
- Unclear structure of information
- Too much contents
- Mixed language
- Inappropriate Information appearance

3. What additional information or features would you like to be included in LIVE?

According to the result that student would like to suggest than wish for additional features because most of them emphasized that LIVE has all information needed to achieve the goal it just need rearrangements of the content. The additional features student like to have is you tube instruction video, pictures and site map that helps student to navigate easily through the pages.

4. What is your overall impression of the site?

The overall impression was surprisingly positive. Many students like LIVE and find useful for them. Below are some of the positive comments from participant of the test.

- LIVE is a simple and easy to use
- The interaction with LIVE does not require a lot of effort
- Very useful specially for international student

Overall the study shows that 57 % of participants understood the idea behind LIVE. The site fulfilled the expectations of 47 % of the respondents and the expectations of 12 % were disappointed the rest did not show the interest of Live.

6 Lab usability test to LIVE:

6.1 Lab test

Lab test is second mainly used method in usability studies to measure a user's ability to accomplish tasks. The main idea of the test is to identify the major usability problems with LIVE and to discover what is working and what is not. With a lab test we can collect a quantitative data, for instance how long it takes student to complete a task and the type of errors they make during task completion.

The lab test was conducted in Laure language libratory class, where is a two computer one is installed with the usability software called Morea and another computer with the observer.

Nine participants were involved in the lab test and 8 tasks to complete, each of these tasks have a specified goal with effectiveness, efficiency and satisfaction of users. The data collected from the test can be used for further development. Techniques and methods used in lab test to enable the data collections are;

- Error rate
- Time needed to complete the task
- Number of steps required to perform the task
- Percentage of tasks completed successfully
- Difficulties LIVE users faces

6.2 Test setting and equipment

The tests had been conducted in Leppävaara campus language laboratory room 015, where one computer were installed with the usability software Morea and another computer with the observer and there were also one free computer for writing test report.

The test room has microphone and web camera for capturing user movement and voice during the test session. The testing sessions was conducted in English but Finnish speaking testers had also a chance to use the Finnish version of the site. However nobody use the Finnish version so these studies concern only the English version of LIVE student page.

6.3 Recruitment of participants and procedure

One of the primary tasks of this thesis was to recruit the participants for lab test of LIVE. The recruitment of test participants had been done by personal invitations and e-mail.

According to Nielson (2004) by testing the site with five users it is possible to identify about 85 % of the usability problems. Accordingly I decide to take eight students to discover as many usability problems as possible. Each student had eight tasks to complete within fourth minute testing session. Some participants easily completed all tasks within time given while other participants were unable to complete all tasks in the given time.

Before the first recorded testing session, a pilot testing of LIVE with two participants had been conducted in order to check the time required for completing the test tasks and to prepare for the whole procedure. The pilot session did not differ from the final tests and its results were analyses along with the later session.

The participant was introduced to the aims of the test, procedure and equipment. The testing session consisted of introduction, studying user's first impression of the LIVE front page and eight tasks that users were asked to complete. In the beginning of each recorded test a recording permission was asked from Participant then Morae Recorder started and user were asked to open LIVE front page with his/her preferred web browser.

When the page was displayed, the users were asked about their impression of LIVE webpage, its design, text and navigation elements then the main tasks was given to complete. A copy of test questions can be found in Appendix 3.

The testers were asked to use think aloud method during the test session. By talking about what they are doing, each participant indicate their thoughts as they complete each task.

The use of a think-aloud protocol is to see users' difficulties in completing task and to get spontaneous comments on facing problems. At the end of each testing sessions participants were asked a questions to ensure they had a chance to fully describe their experience with the LIVE.

The goal in conducting user interviews after the test is to get the complete responses from evaluators. After participant completed the given task the information obtained was saved in to memory flash and taken to the observer to convert the result into graphs. Lab test findings and recommendation can be seen at the end of this report.

6.4 Usability software; Morea

Morae are a set of software's that are designed for assisting usability tests (TechSmith 2011a). The software has many options that facilitate for data capturing and analysis with a three components, 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 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 analyzing recordings and user surveys. However in this study the recorder is not connecting to the observer computer so I saved all records in my personal flash and take obtained date to the observer computer.

During the testing sessions, the user's face was recorded with web camera and microphone recorded voices of the tester and the moderator. I took notes during the sessions which I later used for the test analysis. The idea for taking notes was to have a backup in case of a recording failure.

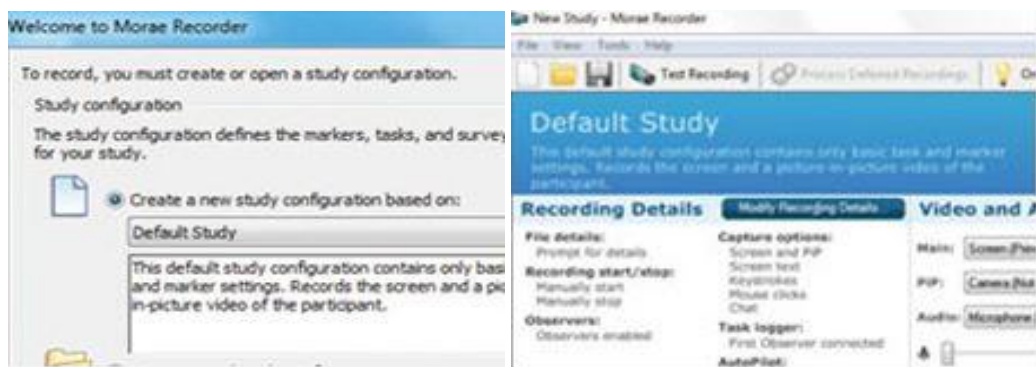


Figure 5 Morea recorder

6.5 Lab test result

In this section I will explain briefly the result from lab test and will also be shown in Tables. In the first section result is analyzed according to the good web usability guidelines covered in chapter 2 and after that I will go through each task completed in the lab according to the result from usability Morea observer.

Web usability guidelines focused mainly on Content, Navigation, Visual design, speed, and error. Each of this will be defined based on the Lab test result as follows:

Content

Most of the participant understood the general idea of LIVE however the scope of the site is not clear and broad enough to satisfy them. For example, most of the student could not explain clearly the purpose of the LIVE and how it support them professional growth.

The result shows that LIVE have useful and appropriate content that support students in studying, living and health issues. The basic information student expect to find is there but some of the participant had difficulty in funding the information because the content is not clearly structured and not divided in to small chunks.

The language problems mostly related to the information architecture. Inappropriate or confusing terminology and mixed language used at several steps, for instance in health service the information appears in Finnish and English which confused specially international students as they do not speak Finnish.

Navigation

Navigation is important to the user and needs to be consistently present. According to the result the navigation is visible and user can easily find in a top and left side of the page. Student found easily their way from place to place.

The relationship between main section and subsection is clear but the back button not present in every page. Users should always be able to return easily to the home page and to other major navigation points in the site.

Consistent navigation is an essential component of the overall user experience. Navigation elements at the bottom of the page require scrolling. Therefore they could not be seen by most of the participants on the test.

Visual design

Most of the participants were satisfied with design of LIVE and believed that the design is simple and usable. Only a few participants found the homepage not especially interesting and attractive enough for student and missing some elements to make them explore the rest of the site. The main problems of the front page concerned the use of space, arrangement of the links and unclear title. A screenshot of the front page is shown in figure 2.

Download speed

The download speed of LIVE is reasonable and no one has complained about it.

Error

An error message is text that is displayed to describe a problem that has occurred during the interaction with a system. LIVE help users to recognize and recover from error by providing clear error messages that explain how the student corrects a problem so they were be able to return to their previous location.

The overall impression of the participant while interacting with LIVE homepage was bit confusing. Navigation and information problems included e.g. "Back" button not present in every page. Most of the participant did not scroll the homepage down so therefore did not see the lower parts of the page at first view.

The Morea manager that create a data profile automatically help me to filter the data according to the study objectives. In order to measure the performance of participants I decide to select the most important actions and activities captured during the study such as, task completion rate, time on task and help required by participants during the test session.

Table 4 shows the result from the Morea manager about the success of participants in accomplishing there task during the test session.

Task completion percentage of users which successfully completed the given task and the average time spent to complete each task were calculated as follows and shown in Table 4.

- 100 % task completed without any difficulty
- 75 % task completed with basic help
- 50 % task completed with helps is several steps
- 25 % task not completed partially
- 0 % task failure

Participants	Task 1	Task 2	Task 3	Task 4	Task 5	Task 6	Task 7
P 1	75 %	100 %	75 %	0 %	25%	75 %	50 %
P 2	75 %	50 %	50%	25 %	25 %	50 %	100 %
P 3	100 %	50 %	50%	25 %	25 %	25 %	75 %
P 4	50 %	50%	25 %	25 %	50 %	50 %	50 %
P 5	75 %	100%	50 %	0 %	75 %	50 %	75 %
P 6	75 %	50 %	75%	25 %	50 %	75 %	50 %
P 7	75 %	50%	25 %	0 %	75 %	50 %	75 %
P 8	75 %	100 %	75%	25 %	50 %	50 %	100 %
Success Rate per each task	75 %	69 %	53 %	15 %	47 %	53 %	72 %

Table 4 Task completion percentage by participant

Result by each task completed

Task one that ask participant to find information on enrollment and right to study has been managed to complete by most of the participants with a basic help (Table 4) The link to complete the task is shown below.

[In English »](#) [For Students »](#) [Planning of Studies »](#) [Study Offering and Enrollments to Studies »](#)

The result from the task 2 indicates that only three participants have succeeded in completing the task without any help and others found difficulties in task completion.

The success rate of participants in task 3 increases over 16 % compared to task 2. This shows that the content of LIVE require some kind of rearrangements to improve the organization of information that users can find easily the information they need to achieve their goal.

The task 4 that ask student need to search a tutor teachers contact were the most complicated and time consuming task. Participants were confused about task 4 due to unclear terminology used and long process required to complete the task.

[In English »](#) [Services »](#) [Campus Services »](#) [Leppävaara »](#) [Counselling and guidance »](#) [Tutor Teacher »](#)

After going through entire link this message will appear “A tutor teachers has been assigned for each student, You can see your own tutor in SoleHops” As a result no one couldn’t find a way to come across this message and most of them were frustrated during this task. Finally the tutor contact information not available in LIVE so task four cannot be completed that is why the success rate significantly reduce compering to previous tasks.

Task 5 is about health care and student accommodation services provided by Laurea universities during the study period. The result shows that the content in LIVE is not well organized and named in such way that student could easily understand and find what they need. The structure of LIVE requires many clicks to complete simple task.

One of the usability problems discovered in LIVE is information appearance with mixed language. This did not happen in Finnish version of LIVE only in English version of LIVE. Mixed languages were the biggest problems for international student because of a minimal Finnish language skill they have.

As it shown in below the link to health service starts normally in English then the information appear totally in Finnish even though the title is in English “Student health care” and the contact information is also in Finnish .(Figure 6)



Figure 6. Capture from Student wellbeing service

Information about student accommodation was found by most of the student and the link to Housing is easily identified.

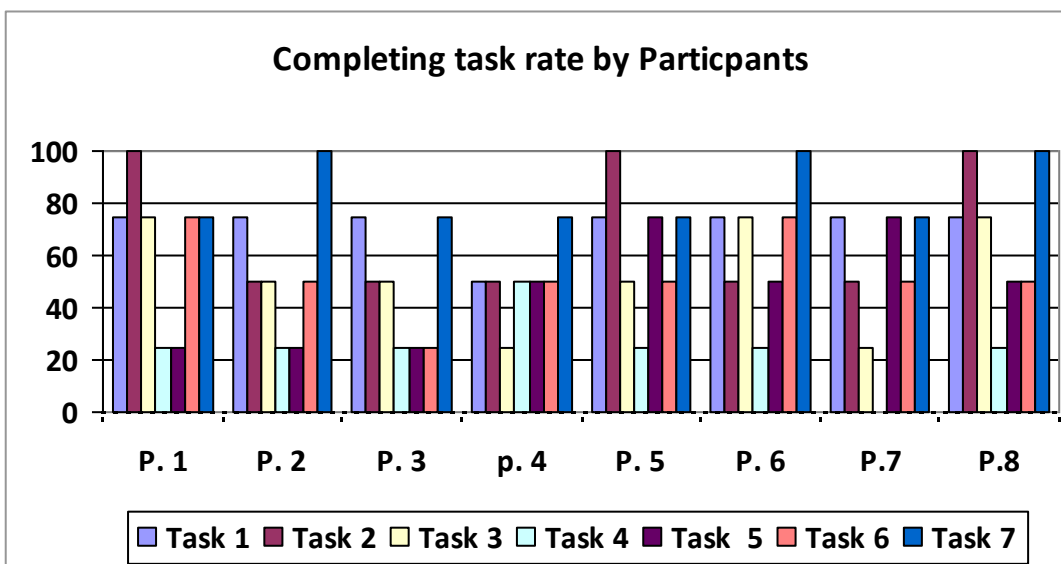
Task 6 and task 7 relates to application forms for internship/ grant and templates/guidelines for thesis and searching for upcoming graduation dates.

As a result of task 6 & task 7 most of headlines and text do not present a clear picture to the users. The terminologies and the order shown below is one example for unclear information structure in LIVE that makes information not to be found easily.



Participant were not sure where to find the application form after finding the right link to Job placement Leppävaara and to general procedure and Instructions. Because it is not clearly defined and the link to application forms is hidden in the middle of the instruction.

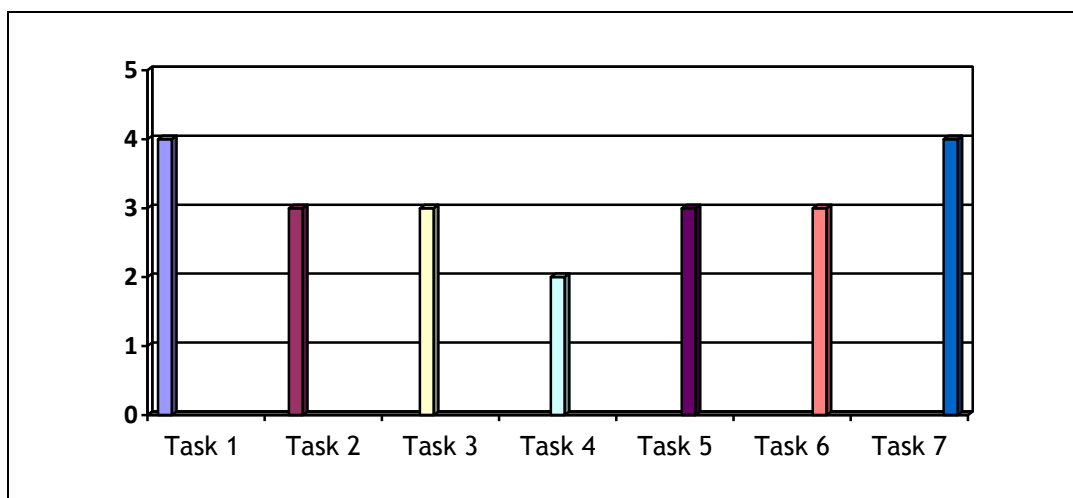
According to the result (Graph 1) finding the application forms were very complicated for most of the student. Locating all application forms and instruction for filling at one place under clear navigation links will result in significant improvement of information accessibility.



Illustrations 1 Completing task rate by participants

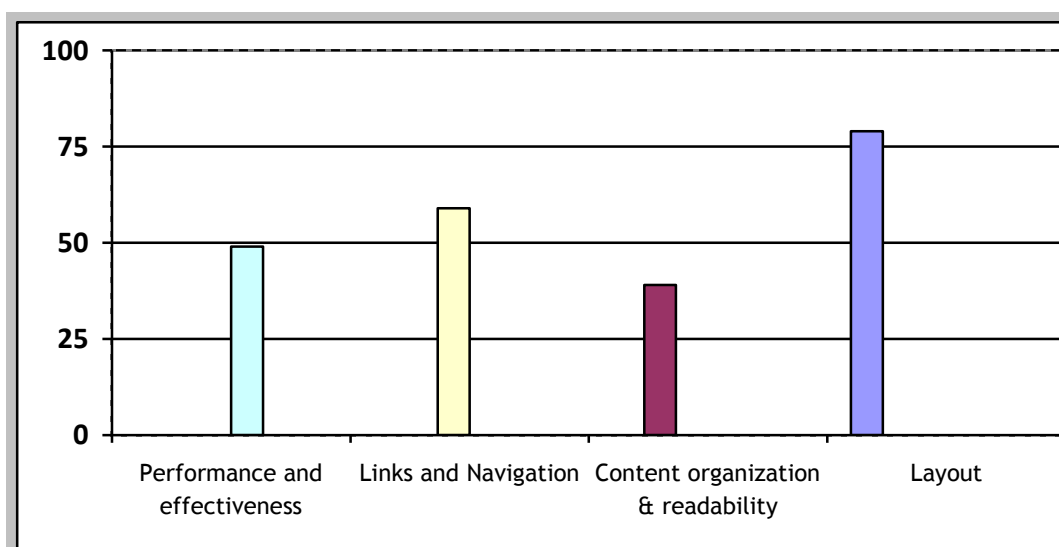
The last task about instructions and guidelines regarding thesis was found easily by most of participants because they had spent some times exploring the rest of the pages during the earlier task completion. The graphical view of completing task rate by participants is shown In the graph shown above task four was the most difficult task for participants. After each task completed participants were asked to comment how easy for them was to perform each

task and rank their experience from one to five, where five is maximum score. If user was not able to perform the task it was ranked with zero. A total task evaluation rank is shown in graph below.



Illustrations 2 Task evaluation rank

The overall satisfaction of users from both usability tests conducted in this research is presented in Graph 3.



Illustrations 3 Satisfaction of participants by four major categories

As it shown above most of the participants was satisfied with a layout of LIVE and links and navigations seem not to be problems for most of users. But the organizations of the content were the most critical usability problems discovered during this usability study to LIVE.

Information architecture has a huge impact in overall performance and effectiveness of the site because of lack of information hierarchy the participants were not satisfied with performance of LIVE. The information architecture did not match to the users' expectations.

Lynch Patrick (2009) states that without logical organizational of content the web site will not function well even if the basic content is accurate, attractive, and well written. According to Lynch, Patrick, Horton, Sarah (2009) basic design principle for creating Web sites should follow five basic steps in organizing information;

1. Content inventory

Inventory is about going through the content and listing of basic information about all content that exists in a site and identifying what more information is needed according to user needs. The content gathered in LIVE need to be invented according to the need of student and should be listed in order of the importance of the content.

2. Hierarchical outline of content

Most sites are moving from the home page to sub menus and content pages so making different categories for the information and ranking them according to importance of information's and how it relates to the whole. Creating a simple controlled vocabulary that a major content, site structure, and navigation elements are always identified easily.

3. Chunking

As the word chunk refers to split in two parties in this case content should be divided into logical units with a consistent structure. Lynch, Patrick J., Horton, Sarah (2009) discovered that readers appreciate short chunks of information that can be located and scanned. LIVE did not support this idea often information is too long and not available in first review.

4. Diagrams

A diagram that shows the site content structure and the outlines of pages with a list of major site content divisions and subdivisions helps to identify with structural relationships between the pages. Having a clear site map is a useful idea as it supports to guiding users with the main structure of LIVE.

5. System analyzing

Analyzing the system by testing the organization of information with real users is recommended. Considering thus steps in organizing Web contents helps to design information architecture that meets user expectation.

Next paragraph I will report in details about all usability problems discovered during this usability study to LIVE. The suggestion and recommendation to identified usability problems will be listed in Table 5.

6.6 Findings and suggestion

Based on the results from questionnaire and lab test the problems occurred during the usability study period related mainly to information architecture and confusing terminology.

Introducing LIVE briefly to student in beginning of the studies is a best way to reach the target users. As the main goal of the LIVE is to share and help students by providing useful information regarding to study, health, and accommodation.

Having a YouTube video about use, goal and instruction of LIVE can also reduce the load to student affairs because most of the student specially international student goes first to ask as they do not know that the same information can be found in LIVE.

The important question that should be answer when designing a Web site is “How many clicks does it take for users to get the information they want” (Jonathan Lazar 2005 p) the result shows that many mouse clicks are required in LIVE to get from the homepage to the content page student would like to go.

Rosenfeled (2002) usability research findings indicate that users give up if they are required to go through more than four or five clicks to get the content they are looking for.

Information in LIVE are required mostly more than five clicks because the structure of LIVE is not clear and not helping students find what they want. The balance between the number of levels in the information hierarchy and the need to limit long lists of unorganized choices are not proper. For instance, several links are present for finding upcoming exam days in different part of the page.

LIVE should provide choices that are organized into groups and a have only a few levels in the information architecture to help users find easily what they are looking for. As it shown in Figure 6 the link structure at the bottom of the page is much easier to understand than the link at the top of the page.



Figure 7 Capture from the bottom of the page

LIVE has many other hidden links on the bottom of the pages that requires page scrolling, according to experts user read only what they see on the first view. Nielsen J. and Hoa L. (2006), study on how users scroll on the Web shows that only 23% of visitors scroll on their first visit to a website. This means 77% of users just view the content which is visible on the screen without scrolling down so referring to this most of the student missed the information on the bottom of LIVE.

The sitemap navigation is not displayed on the homepage of LIVE and must be searched through the search engine, which leads to site map with extremely large number of links that are not clearly organized.

Creating a sitemap, that list out every page of LIVE clearly in a hierarchical format and showing the relationship of pages might be a good solution to the most usability problems noticed during this study.

Content is one of the most important elements of the page because users come to web sites for the content that they think is there. Users want the content that answer their question or helps them to complete a task they came to do. Most users don not read they web site just scan and try to find links that takes them to the site they came for. Due to large number of information available in LIVE, it is hard to find anything and usually use get lost on the page.

Using unclear terminology and disorder of the links was the second large usability problems identified by student. “The system should speak the users’ language, with words, phrases and concepts familiar to the user rather than System-oriented terms” (Nielsen, 2004. Usability Heuristics for User Interface Design P.46).

LIVE has limited information in English there are clear differences between the information provided in English and Finnish language. As I also speak Finnish I was also able to compare in some point the differences between the two different language versions of LIVE.

The result also shows that Finnish student find the information much easily than international students because, Finnish version use more familiar words to users than the English version. Figure 8 shows an example of news from English and Finnish version of LIVE. How the same information has appeared on this pages.



Figure 8 Capture of News in both languages

Compering this to contents the Finnish version tells clearly that there will be maintenance on E-lomake on specific day and no mouse clicks are required but due to unappropriated word used such us “E-lomake” on the English side of LIVE international student might be confused.

Making information appear in a natural and logical order help to prevent from unnecessary mouse clicks. Unnecessary function such us, my site, my profile, my network on the top right corner of the page which all this links lead to the same page none of this has not been used so unnecessary links are better to remove.

Another important issue in web usability that is missing from LIVE is Categories. The main classes of contents need to be identified and categories. For instance, information regarding the placement can be categories in one and presented under the link of job placement as follows:

- ▶ **Job placement**
 - > Finding the opportunity
 - > Enrolment and approval
 - Enrolment instruction
 - Application form
 - After the job placement
 - Report
 - Presentation
 - Guideline and template

Instead of having instruction and link to application form in the middle of the paragraph the categories shown above in logical order can improve the information accessibility.

List of finding from both usability test used in this study and recommendations for findings are shown in Table 4 to help the client to understand what critical usability issues the study exposed.

Usability categories	Findings	Suggestion
Performance and Effectiveness	<ul style="list-style-type: none"> ○ Many clicks are required to complete basic tasks ○ Most of the time link will open in a new window ○ Back to the homepage not always possible ○ Banner link does not work properly ○ Search box disappears in some pages ○ Contacts hard to find 	<ul style="list-style-type: none"> ○ Max. four or five clicks ○ Make information easily findable ○ Notice about the link will take to another page ○ Back buttons in every page ○ Remove unnecessary buttons ○ Contacts information in clearly visible place
Links and Navigation	<ul style="list-style-type: none"> ○ Too much buttons / links ○ Navigation labels are not clear and concise ○ Back buttons are not present in every pages ○ White links not enough to contrast with the background color ○ User are required to scroll to get to important navigation 	<ul style="list-style-type: none"> ○ Reasonable links and buttons should be removed ○ Primary navigation area in a highly noticeable place ○ Group navigation into logical units ○ Choose a top navigation bar with drop down feature ○ Use Blue color for hyper-text
Content, Organization, and Readability	<ul style="list-style-type: none"> ○ Main headings are not clear and descriptive ○ Application forms are hidden in paragraphs ○ Information is not up-to-date ○ Users were unfamiliar with certain terminology ○ Relevant information's are displayed at the bottom of the page. ○ Content organizations are not clear and in logical order 	<ul style="list-style-type: none"> ○ Build consistent information infrastructure, to organize the content ○ Unnecessary parts should be removed ○ Update constantly & Include last-update date ○ Use white space to make content more readable ○ Use user language

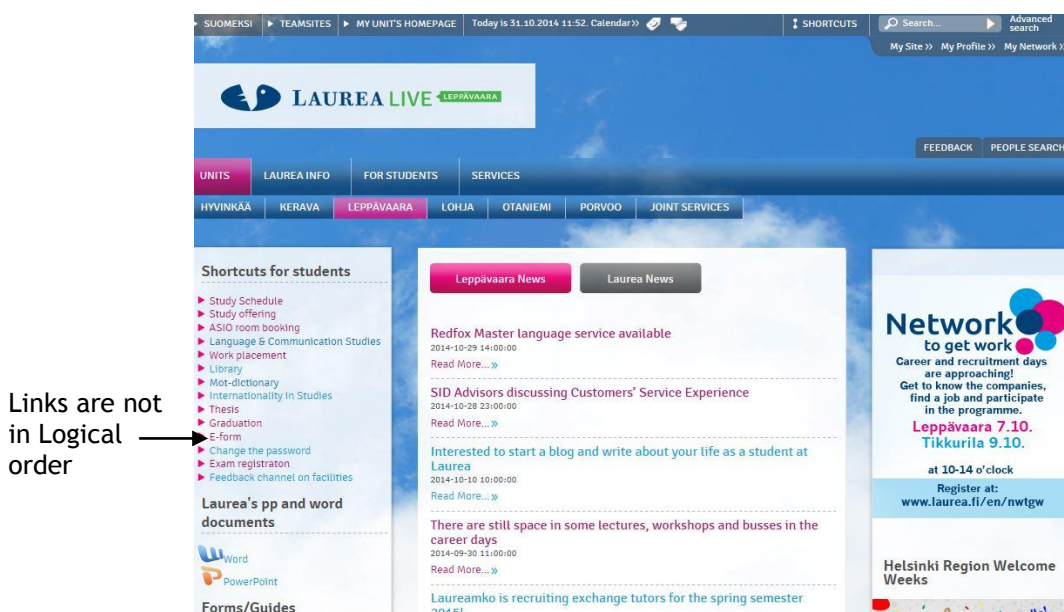
<p>Appearance</p>	<ul style="list-style-type: none"> ○ Search engines like google cannot find the LIVE service ○ The screen area margins are not sufficient ○ Body language is to short, 7-10 words per line ○ The same buttons in several places ○ Alt text and linked images is missing(only decoration images) ○ Visually not attractive 	<ul style="list-style-type: none"> ○ Add LIVE address to the google archives ○ Divide layout into sections, separating them with white space. ○ Empty space between paragraphs ○ Body language 10-12 words per line ○ Have Clear Site map ○ Add a picture ○ Add instruction video
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Table 5 Findings and recommendation

7 Result from heuristic evaluation.

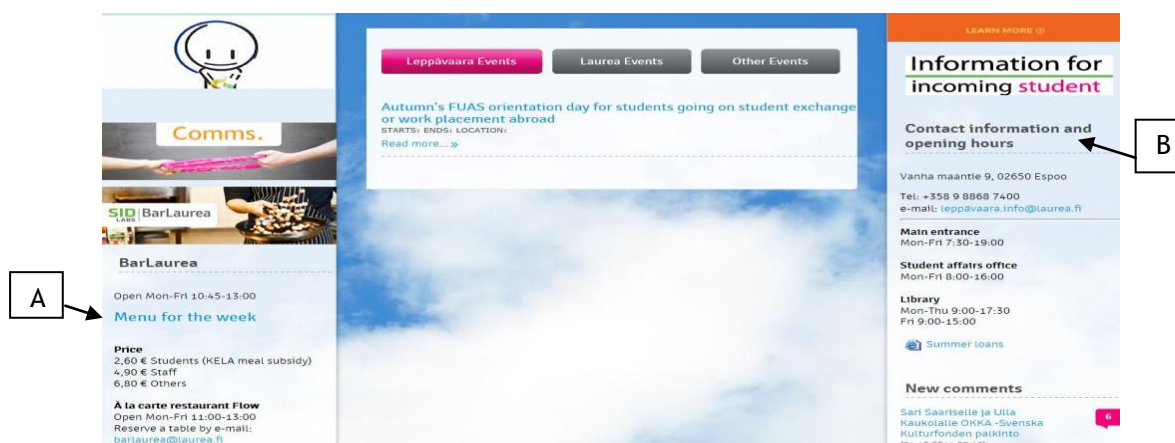
As a guidelines for the heuristic evaluation I have used two books Nielsen's (1994) usability evaluation and Krug (2006) website design. Some of the result of heuristic evaluation of LIVE is shown as follows:

The main problems of the front page concerned with a use of space and arrangement of the links. Side bar is not up-to-date for instance the link to the networking events is still displayed (27.10) even the vent has been held 7.10. The side bar supplies the user with extra or secondary site functionality so it should be updated constantly and group the navigation on the left side of the page shall be put into logical units.



Screenshot, LIVE front page English version

Many navigation elements were not instantly visible and page scrolling is required (B). Many relevant links at the bottom of the page (A) might not be seen by most of the student as users usually do not like to scroll.



The language problems mostly related to the information architecture. Namely, inappropriate or confusing terminology was used at several steps. One of the language problem discovered was a mixed language Finnish and English texts within the same page. Below is an example of health service information, where the heading is in English and the text in Finnish.



Student health care

Lakisääteiset palvelut

Ammattikorkeakouluopiskelijoilla on kansanterveyslain mukaan oikeus opiskelupaikkakuntansa kunnalliseen terveydenhuoltoon riippumatta siitä, mikä opiskelijan kotikunta on. Opiskeluterveydenhuoltoon luetaan oppilaitosten terveydellisten olojen valvonta, opiskelijan terveyden- ja sairaanhoito sekä hammashuolto. Terveydenhoitoon kuuluu terveystarkastus, terveystarkastukseen seurantatutkimukset ja rokotukset sekä muut ehkäisevät toimenpiteet (Laakintohallituksen ohje opiskeluterveydenhuollosta terveyskeskuksissa).

There are many links that lead only to the Finnish version of the site, for instance room booking leads to totally to the Finnish version of the site and there is no back button present that users can come back easily to the homepage.

▶ ASIO room booking



Tilat



Laurea-ammattikorkeakoulun tilanvaraukset

Kirjautuminen Laurean käyttäjätunnuksilla:

- [Järjestelmään kirjautuminen](#)

Kirjautuminen Tilanvarauksen paikallisilla tunnuksilla:

- [Kirjautuminen tilanvarauksen tunnuksilla](#)

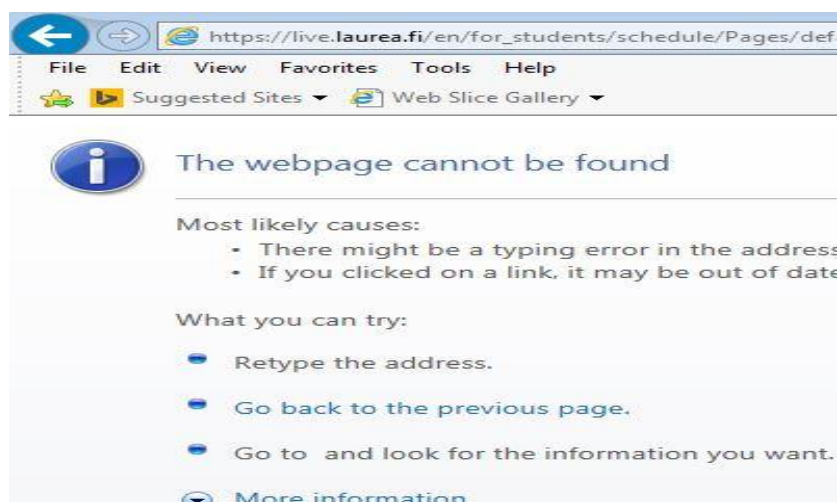
Muiden kirjautuminen järjestelmään selailutunnuksilla :

- [Järjestelmään kirjautuminen ilman autentikointia \(suomi\)](#)
- [Login without authentication \(english\)](#)

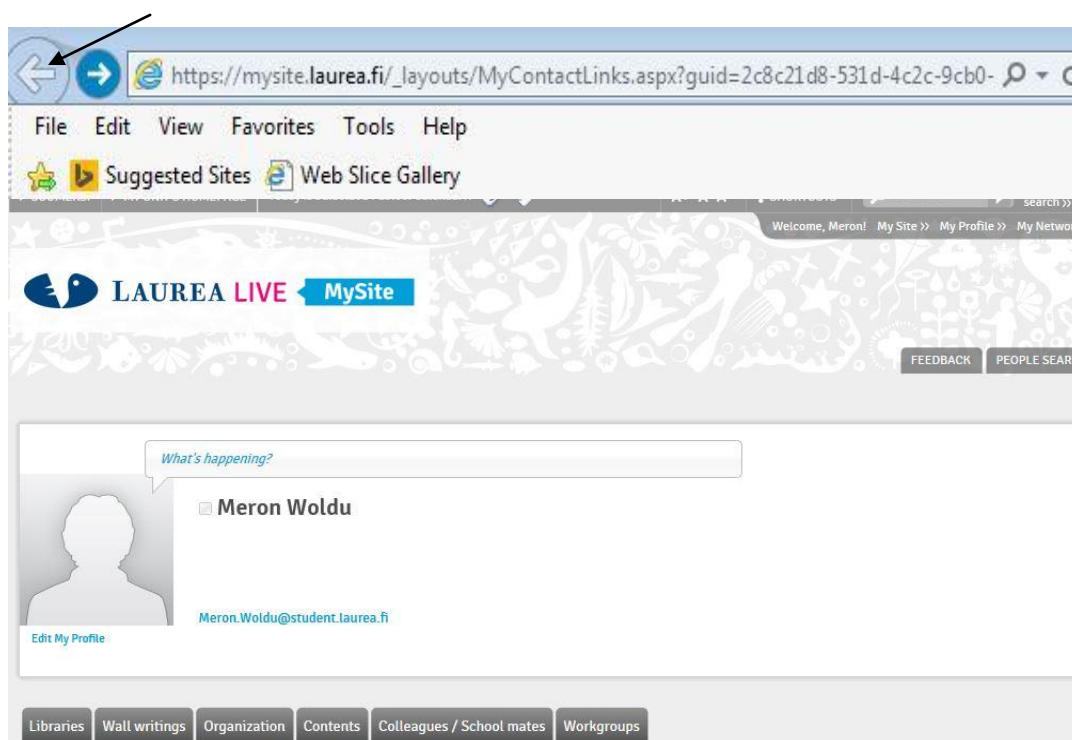
The link for “Event” in the middle of the page and another “Event” link in the bottom of the page show the event announcements in different way and the information are not exactly the same.(See figure below)

Error message that don not help users to recover from the error for instance the link to for student schedule led always to the error page shows in following figure.

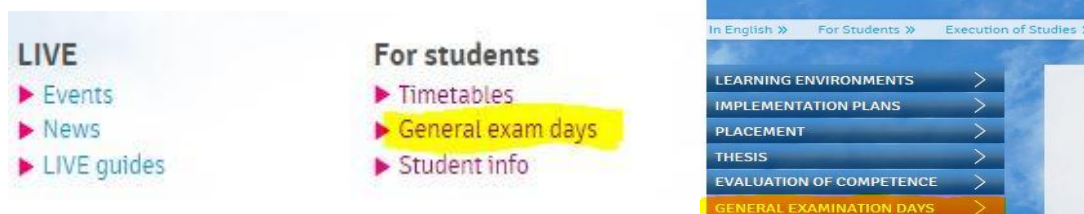
► Study Schedule



The link on the top right side of the pages (my Site, my profile, my network) not been used almost by all of students. The uses of this links are unclear and “My Profile” link on the front page leads to the same page as my network. The “Back” button is not present in this page so going back to the homepage is not possible.

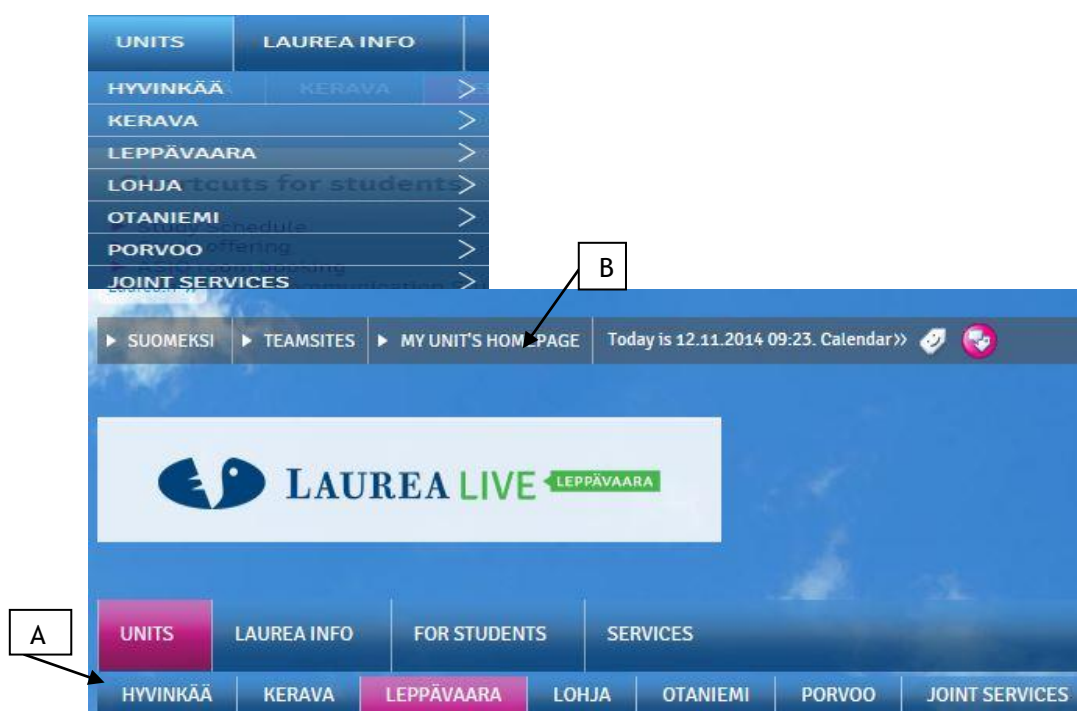


The same link appears in many places, which confused users and also affect the usability of the site. For instance the link to the general exam days is in several places as it shown in the screen shoot below.



After signing with student user name LIVE will automatically shows the unit where student is registered so there is no need to choose from menu unless a need to check other units. However the drop down menu is better choice than a link on the top “ MY UNIT’S HOMEPAGE(B)

After choosing your own unit from drop down menu all other unites still displaying in the page(A) so it might confuse users even though your own unit color is different than others.



All of the pictures in LIVE are decorative images and there is no Alt.text for images. Having a picture in the web improves the accessibility of Web site. For instance the picture on the student housing section would have the link to HOAS: The Foundation for Student Housing in the Helsinki Region.

The alternative text that presents the function of the link must be given to most of the pictures in LIVE.



The tutorial video for enrolling to the studies through SoleOps is a good idea but the Alt-text that presents the function of the link is written in black color so it might not be noticed by users. Using blue color helps to identify easily the link. Also adding a word " Video" right after " SoleOps enrollment Tutorial" text would be useful.



8 Summary

Usability study of LIVE started with learning the theoretical aspects of web usability from several books and researches available online. The book resources help me to determine how to design, execute and analyze the test data and also to write a finding report with recommendations.

Usability Testing is a test done with an end-user's from a user perspective to determine if the system is easily usable. The test helps to identify areas where the site isn't working as it intended to work and it also reveals other user behaviors by observing how the users interact with the system. LIVE was tested by the student, the actual users of the system and the methods used to collect the data were questionnaire, interviews and observation with the help of Usability Software.

The observation part was conducted in Laurea Leppävaara campus language laboratory class where is installed the usability software and manager for collecting, managing and analyzing the observational data.

According to result the main problem related to information architecture. Most of the student was saying that the useful information not instantly visible. This makes the purpose and functionality of the LIVE ambiguous even for users who have spent their amount of time on LIVE.

User don't usually want to read a website manual or spending much time to learn the interface rather than they expect to get the information they looking for right away. (Nielson 2004) so LIVE should define the main goal and accordingly gathered the important information for students and make sure this information is easily accessible.

The interface should clearly state what they offers and what users can do on the site. Also need to ensure that content takes relevant sections on the site that users can find it easily. Because the result indicates that especially international student had difficulty on finding the information they were asked to search due to lack of clear information structure and confusing terminology used in the main navigation link.

According to Nielson(2004) if users get lost on a website or if information is hard to read and don not have the answer to users' key questions they leave right away. Usually users are not interested to go through many different menus before they find the content they looking for. Overall, the result shows that the LIVE system was neither easy nor difficult for students to be used.

9 Conclusion

Usability lies in the interaction of user with the product or system and can only be measured by assessing user performance, satisfaction and acceptability of the system.

Usability testing is a way to see how users perform specific tasks and can be used to examine the functionality of the system and the way presented to the target user. The usability, user experience and functionality of the LIVE were evaluated using three different approaches, user survey, usability testing followed by short interview and heuristic evaluation based on the available usability guidelines. Among these methods lab test and heuristic evaluation discovered a number of usability problems in the functionality and interface of the site that were discovered partly by user questionnaires conducted in both language.

The finding issues of this study related to information architecture and confusing terminology. The site design is not closely followed with the criteria of web usability, therefore student cannot make full use of the possibilities that LIVE offers. Changes in the information structure and in the content organization are required in order to make it useful and desirable for student.

Web sites are most effective when they meet the content and usability needs of their users. Some of the link in the English version of LIVE is not clear and even after finding the navigation panel the information appears in Finnish while the link is still remains in English, which brought a lot of confusion to the international student.

As most of the student has a positive attitude towards the idea behind LIVE therefore users tolerance toward usability problems were noticed. Overall the study found LIVE as useful tools for student to support their study with a minor problem.

The result of this study can be used as guidelines for the further site's improvement of LIVE.

9.1 Future research

Usability test delivers numerous benefits particularly in design and information architecture. Users prefer an easy access to the website's information and the possibility to use the system with minimum amount of mouse clicks. In order to insure the usability of LIVE a further heuristic evaluation and an improvement on found usability problems is required.

The further research can be carried out on web designing, information architecture and user language guidelines to apply the knowledge appropriately through the whole development of LIVE.

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Appendix 1 User questionnaire in English

The following questions concern the Laurea internal communication and information channel Live.

How often do you use LIVE?

Constantly often rarely never

Please indicate the extent to which you agree or disagree with the following statements.

Strongly Agree Agree Disagree Strongly Disagree

Content

LIVE is easy to use

The navigation language is clear and easy to understand

The information in LIVE is easy to find

The organization of the information in LIVE is clear

Functionality and appearance

The website loads quickly

The system gives error messages that clearly tell me how to fix problems

LIVE has all the functions and capabilities I expect it to have.

The use of colors is

Attractive	2	1	-1	-2	Ugly
------------	---	---	----	----	------

The graphic elements are

Suitable	2	1	-1	-2	distubing
----------	---	---	----	----	-----------

The Text size is

Too small	2	1	-1	-2	too high
-----------	---	---	----	----	----------

What did you like about this site?

What do you think is the biggest problem with the site?

What additional information or features would you like to be included on the web site?

What is your overall impression of the site?

Your free comments about Live

Thank you for completing the questionnaire. I greatly appreciate your consideration and time!

Appendix 2 User questionnaire in Finnish

Kysymykset

Seuraavat kysymykset koskevat Laurean LIVE.n sivustoa

Ympyröi kysymyksistä parhaiten tuntemuksiasi vastaava vaihtoehto.

Vastausvaihtoehdot ovat seuraavat:

4 Täysin samaa mieltä

3 Lähes samaa mieltä

2 Lähes eri mieltä

1 Täysin eri mieltä

Sisältö

LIVE on helppokäyttöinen

4 3 2 1

LIVE.n asettelu ja layout on toimiva

4 3 2 1

Informaation löytäminen on helppoa

4 3 2 1

LIVE on järjestelty niin, että kokonaisuus on helppo hahmottaa

4 3 2 1

Toimivuus ja ulkonäkö

4 3 2 1

Sivusto toimii nopeasti

4 3 2 1

sivuston asettelu, layout, on toimiva

4 3 2 1

sivusto on houkuttelevan ja kiinnostavan näköinen

4 3 2 1

sivuston värit ovat

Miellyttävät 2 1 -1 -2 Epämiellytt

Sivuston graafiset elementit ovat

sopivia 2 1 -1 -2 Häiritseviä

Tekstikoko on

liian pieni 2 1 -1 -2 Liian suuri

Mikä on mielestäsi parasta sivustossa?

Mikä on mielestäsi LIVE.n suurin ongelma?

Mitä muita ominaisuuksia haluaisit LIVE:n sivustolle

Vapaa palaute sivustosta ja sen käytettävyydestä

Kiitos osallistumisesta!