



**LAUREA**  
UNIVERSITY OF APPLIED SCIENCES  
*Together we are stronger*

# A user-centered study for the improvement of Laurea LibGuides

Mohamed, Ahmednur

2015 Leppävaara

**Laurea University of Applied Sciences**  
Leppävaara

## A user-centered study for the improvement of Laurea LibGuides

Mohamed Ahmednur  
Business Information Technology  
Bachelor's Thesis  
May, 2015

Mohamed, Ahmednur

**A user-centered study for the improvement of Laurea LibGuides**

Year	2015	Pages	33
------	------	-------	----

---

The library of Laurea University of Applied Sciences is launching a new content management service that makes it easier for users to access available resources. This thesis report describes the findings of a user-centered study of the Business Information Technology LibGuide subject guide, the purpose of which is to develop an understanding of the users' perspectives and expectations, as well as the perceived weaknesses of the service and the improvements the users are expecting to be made.

The study consists of a user satisfaction questionnaire distributed to a class of 20 students and a series of interviews with nine BIT students and lecturers. The literature review compares the results of similar user-centric research studies, where emphasis is placed on studies focusing on usability, user experience, reception as well as perception.

The study proved to be successful because all of the research questions and objectives have been achieved. The results of this research show the question of how future users perceive this service as positive, using responses to many questions from both the interview and questionnaire as a basis for this conclusion. The participants of this study have also given sufficient data to suggest the improvements that should be made and why.

The results of the questions that are not specific to BIT, but the subject guides in general mostly confirm the findings of previous research. A usability test would have validated the findings of this study, but could not be performed due to time constraints. Further research similar to this can be carried out with other subject guides in mind. In addition to the performance of surveys to collect insight into the behavioral habits, opinions and preferences of users, it is recommended to carry out a usability test for the validation of data collected and an in-depth evaluation of the implemented service.

**Keywords** LibGuides, subject guides, development, usability, user-centric, user experience, user requirement, user perspective, user expectations

## Table of contents

1	Introduction .....	5
1.1	Objectives.....	5
1.2	Background.....	6
1.2.1	First implementation of BIT LibGuides .....	6
2	Research methods and implementation .....	11
2.1	Research Questions .....	11
2.2	Target audience .....	12
2.3	Primary Research.....	12
2.3.1	Interviews.....	12
2.3.2	User satisfaction questionnaire.....	13
2.3.3	Idea generation .....	14
2.4	Secondary research .....	14
2.5	Limitations .....	14
3	Literature review.....	15
4	Analyzing the results .....	17
4.1	Questionnaire .....	17
4.2	Interviews .....	21
4.3	Ideas for improvement .....	23
5	Conclusion.....	24
5.1	Learning experiences and reflections.....	25
	Illustrations .....	27
	Tables.....	29
	Appendixes.....	30

## 1 Introduction

The educational approach of Laurea University of Applied Sciences entails for students to engage in multiple projects during their times of study, projects which require both extensive time and effort to execute. Furthermore, when searching for research and/or reference material, students often have to allocate even more time and effort in order to find a satisfactory source.

Currently, students studying in Laurea UAS also find it difficult to find journals and articles relevant to their study programmes. LibGuides, a web 2.0 based online information sourcing platform powered by Springshare LLC, is the solution Laurea UAS is currently implementing in order to make it easier for both students and staff to efficiently access reliable references.

LibGuides is a content management system designed to compile different information resources into a single unit with the purpose of making information easier to manage and present by bringing them together. This enables Laurea UAS to showcase all available references by category, to students, making it easier for said students to access needed information from portals, journals, articles, theses and books both physical and electronic.

The focal point of this thesis is developing Laurea University of Applied Sciences' Business Information Technology LibGuide from the users' perspective in comparison to the work of information specialists that will be developing the guides to other degree programmes. For this I will need to develop an understanding of the users expectations and requirements of such a service by engaging in several social experiments such as questionnaires and interviews to collect information in order to better understand what users will expect from a service such as this.

### 1.1 Objectives

The main objective of this project is to evaluate and improve the BIT subject guide in collaboration with the client of this project, by considering the expectations of potential user groups in order to make it as satisfactory and usable as possible. The secondary objective of this project is to develop an understanding of how the users perceive this service and the kind of improvements they expect to be made.

In addition to the development of the BIT guides, the objective of this thesis is to provide a coherent report of the process of the project as well as insight. The aim will be to present this report in a way that anyone, whether it is an expert, a specialist, non-technical folk, a student or other non-specialist, can read and understand what this report is conveying.

## 1.2 Background

The prior mentioned educational model that Laurea University of Applied Sciences has implemented is called the Learning by Developing (LbD) educational model which was first developed by Laurea UAS in 2002 in order to produce competence, professionalism, and innovation in their students by redefining the roles of student and teacher as that of junior colleague and mentor/senior colleague respectively in order to simulate an organization based real-life working environment. LbD is internationally recognized for promoting the independent thinking and confidence of students as well as their competence in working with real-life situations, establishing contacts to companies and organizations as well as overall better employment possibilities. All study units in Laurea UAS are designed to accommodate LbD. This causes for students to undertake multiple projects (per semester) in order to bring LbD into effect.

The standard knowledge platform that Laurea UAS currently uses is the information retrieval portal, Nelli, which allows for the possibility of executing a direct search query to multiple different databases. This content management system is widely used by universities in Finland, however, it's outdated.

LibGuides is meant to serve as the successor of Nelli in providing online library services.

### 1.2.1 First implementation of BIT LibGuides

The first as well as incomplete version of the Business Information Technology LibGuide has been developed with particular attention and emphasis to usability, simplicity and practicality. The developer, as well as the client of this thesis, has attempted to make the guide as user friendly as possible by substantially reducing scrolling, clicking and any unnecessary or redundant text. The content and links have been kept to a bare minimum and emphasis has been placed on the most relevant of sources.

The first page of the Business Information Technology guide was designed to be as simple and concise as possible with only three panels in the entire page. The panel on the right side contains the name and picture (of choice) of the developer as well as e-mail as the method of contact. The center panel has a brief description of what this guide is, to whom it is for as well as what it contains.

The panel on the left contains some useful links including several e-book libraries, dictionaries as well as information portals. The navigation contains six tabs that can be used to navigate to resources of different categories.

Figure 1: Screenshot of BIT LibGuides Home

The uniform layout of the subject guide, which aims to be as simple, usable and concise as possible, begins with the Books page. This page contains five panels, each panel displaying different resources as well as a description or title in order to differentiate between types of sources presented. Each source also has a description either directly or by hovering the cursor above it. The emphasis is placed on the top most panels and their content.

Figure 2: Screenshot of BIT LibGuides Books

The topmost panel on the left contains a search function to Laurea UAS' library service, Laurus. Laurus is a website which contains a database of all of the books in the libraries of Laurea University of Applied Sciences. A search performed on that bar opens a new tab in the browser and leads directly to the results of that search in the Laurus website (see Figure 4). The search can be specified by title, author, journal title, subject, ISBN or ISSN.

The screenshot shows the Laurus search interface. At the top, there's a navigation bar with 'Home', 'Books', 'Journals & articles', 'Theses', 'Other resources', and 'IT News'. The main content area is titled 'Business information technology: Books'. On the left, there's a search box for 'Printed books in Laurea Library' with 'Dawson' entered and a dropdown menu set to 'Author'. Below this are 'Dictionaries' (MOT, Oxford, Redfox) and 'Collections of other Finnish libraries' (Melinda, HelMet). On the right, there's an 'E-books' section listing 'EBL (Ebook Library)' and 'ebrary'. A footer shows 'Last Updated: Apr 9, 2015 8:03 AM' and 'URL: http://libguides.laurea.fi/bit'.

Figure 3: Laurus search function

The screenshot shows the Laurus search results page. The search term is 'Tekijä(Dawson)'. The results list authors: Dawson, Alexander; Dawson, Alexander; Dawson, Al; Dawson, Alistair; Dawson, Angus; Dawson, Catherine; Dawson, Christian W; Dawson, Garathina. Each entry shows the number of references and the type of reference.

Figure 4: Laurus search results

The center topmost panel contains the two most important e-book library sources for BIT students, while the panel below it contains additional sources in the online catalog of the Helsinki Metropolitan Area library (HelMet) and the union catalog of Finnish university libraries, the National Repository Library, Library of Parliament as well as the Library of Statistics



(Melinda). The panel on the right contains instructions and manuals such as the instructions on how to download e-books and the user guides of the ebrary. The second panel on the left contains links to online dictionaries such as MOT Dictionaries, Oxford English Dictionary as well as the Redfox Master.

The Journals and Articles page follows the same simple and concise model as the previous tab. There are four panels in total and similar to the previous page each panel has a title or description and content specific to that panel alone.

The screenshot shows the 'Journals & articles' page of the Laurea LibGuides. The page has a blue header with the Laurea logo and navigation tabs. The main content area is divided into three columns. The left column has a 'Search journals' section with two search boxes (one for Nelli, one for Laurus) and an 'International newspapers' section with a link to PressDisplay. The middle column is titled 'Article databases' and is split into 'First choice' (listing ProQuest Central and ScienceDirect) and 'Other databases' (listing EBSCOhost, Emerald Journals, and Taylor & Francis SSH Library). The right column is titled 'Google Scholar' and contains a search box and a brief description of the tool. The footer includes a 'Last Updated' date, a URL, a 'Print Page' link, and a 'Login to LibApps' link.

Figure 5: Screenshot of Journals & Articles

The topmost panel on the left contains a search function to both Laurus (for printed journals) and Nelli (for e-journals) databases and works exactly the same way as the search bar in the books page. Below the Search e-Journals panel is the international newspapers panel, which so far only contains the link to PressDisplay. The center panel contains article databases and they are divided into “the first choice” and “other databases”, “First choice” for the licensed databases that are available for Laurea students for free, which contains the links to ProQuest Central and Science Direct (Elsevier) and “Other databases” for secondary licensed portals, contains the links to Emerald database, EBSCOhost combined search as well as Taylor & Francis SSH Library. The reason for this separation is to emphasize the amount of IT related works available in each database as well as their overall sizes.

On the right there is a google scholar search function, which also opens a new tab in the browser, containing the search results of the performed search.

The theses page contains four panels containing different theses databases. The leftmost panel “International Theses” has links as well as a description to the Open Access Theses and Dissertations database and the ProQuest Central database. The topmost center panel has the link and description to Theseus, the thesis database to the theses of Finnish University of Applied Sciences. The panel below that (Theses of Finnish Universities) contains the thesis databases of the universities of Helsinki, Tampere, Jyväskylä, Turku, Lappi, Eastern Finland as well as the Lappeenranta University of Technology and Aalto University.

LAUREA  
AMMATTIKORKEAKOULU

Laurea LibGuides / Business information technology / Theses

Business information technology: Theses

Home Books Journals & articles **Theses** Other resources IT News

**International theses**

- **Open Access Theses and Dissertations**  
More than 2 million theses and dissertations from more than 1000 universities and research centers worldwide.
- **ProQuest Central**  
ProQuest Central includes roughly 100 000 theses and dissertations on many areas of knowledge. Most of the theses are published in North American universities. Limit your search results to theses and dissertations only by choosing Source Type -> Dissertations & Theses.

**Theses of Finnish UAS**

- **Theseus**  
Theses and publications from Finnish universities of applied sciences. Laurea's theses are added since 2009.

**Theses of Finnish Universities**

- **Aaltodoc (Aalto University)**
- **HELDA (University of Helsinki)**
- **TamPub (University of Tampere)**
- **JYX (University of Jyväskylä)**
- **LUTPub (Lappeenranta University of Technology)**
- **University of Turku**
- **University of Eastern Finland**
- **Lapin yliopiston julkaisut**

**Instructions**

- **Finnish theses in Melinda**

Last Updated: Apr 9, 2015 8:03 AM | URL: <http://libguides.laurea.fi/bit> | [Print Page](#) | [Login to LibApps.](#)

Laurea-kirjasto | Laurea Library

Figure 6: Screenshot of Theses

The instructions panel contains instructions on how to find theses in the Melinda library database.

LAUREA  
AMMATTIKORKEAKOULU

Laurea LibGuides / Business information technology / Other resources

Business information technology: Other resources

Home Books Journals & articles Theses **Other resources** IT News

**Statistics**

**Finnish statistics**

- **Statistics Finland**
- **Finland in Figures**
- **Findicator**
- **StatFin's PX-Web databases**

**International statistics**

- **Eurostat**
- **UNdata**

**Authoritative information**

- **FICORA (Finnish Communications Regulatory Authority)**  
FICORA (Viestintävirasto) maintains an overview of the functionality of electronic communications networks and information security, and reports of eventual information security threats. Also, the objective is to increase the awareness of information security in homes and companies for example by means of guidelines. The National Cyber Security Centre is part of FICORA.
- **Public sector ICT (Ministry of Finance)**  
The Ministry of Finance directs and coordinates the development of information security across local and, more particularly, central government. The Government Information and Cyber Security Management Board (VAHTI), appointed by the Ministry, is responsible for Government cooperation, steering and development efforts in this area. VAHTI sets all the main policy guidelines for information and cyber security in central government.

Last Updated: Apr 9, 2015 8:03 AM | URL: <http://libguides.laurea.fi/bit> | [Print Page](#) | [Login to LibApps.](#)

Laurea-kirjasto | Laurea Library

Figure 7: Screenshot of Other Resources

The Other resources as well as IT News tabs are the most incomplete tabs of the guide. Currently other resources only contains two panels: Statistics, which contains some links to both Finnish and international statistics websites and Authoritative information, which displays the link to the websites of the Finnish Communication Regulatory Authority (FICORA) and well as the Ministry of Finance's Public Sector ICT.

IT news currently only has the ComputerWeekly and MIT Technology Review newsfeeds.

LAUREA  
AMMATTIKORKEAKOULU

Laurea LibGuides / Business information technology / IT News

Business information technology: IT News

Home Books Journals & articles Theses Other resources **IT News**

**ComputerWeekly**

- [Linux Foundation to host open encryption project](#)  
The Linux Foundation is to host an open encryption project aimed at providing a free and easy way to protect online data
- [Nano Server: Microsoft debuts simpler Windows Server for the cloud era](#)  
Microsoft finally confirms details about Nano Server, its stripped back Windows Server operating system designed specifically for cloud apps
- [Indian outsourcing is booming in the Nordic countries](#)  
Headlines about Indian IT service providers securing high-profile outsourcing deals in the Nordics have become commonplace
- [InfoVista buys Ipanema to boost application performance offer](#)  
Network management supplier InfoVista buys application and network performance firm Ipanema to realise software-defined WAN ambitions
- [Facebook faces privacy class action suit in Austria](#)  
Privacy campaigner Max Schrems leads a 25,000-strong class action lawsuit in Vienna against Facebook, claiming it breached European privacy law
- [Mixed reaction to AT&T's \\$25m data breach penalty](#)  
A \$25m fine by the US Federal Communications Commission on AT&T for data breaches at call centres has received a

**MIT Technology Review - Computing**

- [IBM Tests Mobile Computing Pioneer's Controversial Brain Algorithms](#)  
IBM is testing a contentious idea for making computers more intelligent by trying to copy mechanisms from the human brain.  
For more than a decade Jeff Hawkins, founder of mobile computing company Palm, has dedicated his time and fortune to a theory meant to explain the workings of the human brain, and provide a blueprint for a powerful new kind of artificial intelligence software. But Hawkins's company, [Numenta](#), has made little impact on the tech industry, even as machine learning has become central to companies such as Google.
- [AI Doomsayer Says His Ideas Are Catching On](#)  
Philosopher Nick Bostrom says major tech companies are listening to his warnings about investing in "AI safety" research.  
Over the past year, Oxford University philosophy professor [Nick Bostrom](#) has gained visibility for warning about the potential risks posed by more advanced forms of artificial intelligence. He now says that his warnings are earning the attention of companies pushing the boundaries of artificial intelligence research.

Figure 8: Screenshot of IT News

## 2 Research methods and implementation

The following chapter will justify the methods that will be used in this research in addition to their purpose and objectives. Furthermore, the research question, target audience and research limitations will also be discussed in the following chapter. There will also be a brief mention of similar user-centered studies conducted in the past.

### 2.1 Research Questions

In addition to the numerous existing studies conducted on different aspects of LibGuides or subject guides generally as well as studies conducted from different user groups' perspectives, this research requires our own set of studies in order to discover,

1. How the potential users perceive the implementation of the BIT LibGuides?
2. Which improvements the users are expecting for BIT LibGuides?

### 3. How the proposed service will help the students and teachers of BIT?

The purpose of this research is to clarify and prevent any difficulties and inconsistencies users might encounter while using the BIT subject guides, to understand and examine in detail the user requirements of the proposed service, as well as improving the overall user experience. Moreover, understanding which improvements the users expect to be made and why. The methods of research to be conducted will be of a combination of both qualitative and quantitative research methods. Focus will be placed on usability, visual implementation, the quality of content and overall user satisfaction.

In addition to the above-mentioned research questions, the client of this project had specific questions related directly to usage in general as well as the usability and accessibility of this website. While the website itself would be responsive, the questions were whether it should be developed to be optimized for mobile devices for fast and easy access or optimized for PC usage. Furthermore, whether it makes sense to exclude content to prevent the necessity for scrolling in order to make the website easier to browse.

#### 2.2 Target audience

This study is aimed mainly for subject guide and LibGuides developers to give insight into the needs, requirements and perspectives of highly technical students in order to create better guides. This paper may also be used for reasons such as familiarizing oneself with the resources available in the BIT subject guide and their purpose, creating best practices for a subject guide targeted for similarly technical users as well as the starting point for further user-centric studies.

#### 2.3 Primary Research

There are several studies to be executed for research and data collection in order to improve and further develop the BIT guide. Most of the studies conducted in this thesis will be surveys due to efficiency. According to Saunders et al. (2007, p. 138), surveys allow for a large amount of data to be collected from a sizable population in a highly economical way. The methods of research that will be used to collect information for the study are as follows.

##### 2.3.1 Interviews

Interviews will be conducted with both BIT students and teachers of mixed backgrounds to find out exactly what the potential users expect from a service such as LibGuides as well as any suggestions they might have for potential improvements.

The interviews can either be structured or unstructured. The difference between these is that the structured method requires a set of prepared questions that need to be presented by the interviewer while the unstructured method entails for the interviewer to ask open-ended questions that the interviewee can answer without constraint. Both methods have their advantages and disadvantages.

The structured method is appropriate for an interviewer who either lacks confidence or experience, but leaves little room for flexibility, as the questions have to be prepared in advance. Structured interviews can also be repeated and conducted at a short notice, which enables the interviewer to collect many samples in a fairly short period of time. The results from a structured interview are also easily quantified. The set nature of the questions however, causes the answers to lack depth and they are often missing the reason for why the results are a certain way.

Unstructured interviews, on the other hand, can be adapted and changed depending on the answer of the person being interviewed. The unstructured nature of the questions promotes familiarity and comfort by allowing for the respondent to answer informally, in their own terms. Disadvantages of this method are the possibility of it being time consuming due to the flexible nature of the interview. This type of interview may also require prior skills or experience from the user.

The semi-structured method is a middle ground for the aforementioned interviewing methods. It allows for the flexibility, scalability and comfort of the unstructured method as well as the efficiency and repeatability of the structured method. This is the interview method that will be used for this research.

### 2.3.2 User satisfaction questionnaire

In connection with a presentation to introduce a class of 20 students to the thesis project and a demonstration of the current implementation of several Laurea UAS' LibGuides, a user satisfaction questionnaire will be conducted to discover the students' opinions of the usability, appeal and importance of such a service, the BIT LibGuide in comparison to the other guides as well as suggestions and ideas to improve the current implementation in more detail.

The nature of the survey is mainly qualitative, however some things will need to be quantified in order to discover recurring trends.

### 2.3.3 Idea generation

This section will describe the method used to collect ideas for the improvement of the BIT subject guide. A brainstorming exercise will be executed with the original survey group of 20 BIT students in order to generate random ideas that could potentially be used to improve the guide. The brainstorming exercise used in this thesis is a variant of the 635 brainwriting method which is an exercise where six participants each write three ideas on a piece of paper within a time limitation of five minutes. After the time limit is exceeded, each participant passes their ideas to the next participant in order, so that each participant may either write three new ideas or expand from the previously written ideas. This process is then repeated until each paper returns to their original owner. The optimal outcome of this exercise is 108 ideas generated in 30 minutes. The variation used in this thesis required the use of six teams instead of six participants due to the size of the group. The 635 method was originally developed by Bernd Rohrbach, who later had it published in a German sales magazine in 1968.

## 2.4 Secondary research

In this research it is important to discover what the standard is in the use of information sourcing platforms, subject guides and LibGuides of other institutes of higher education and academic libraries. In addition to studying existing subject guides it is also important to study previous researches conducted on this subject.

Previously conducted user-centered studies, which are relevant to this research include, Co-bus-Kuo et al. (2013), Mehdikashi (2013), Sonstebly and DeJonghe (2013), Mokia and Rolen (2012), Ouellette (2011), Hintz et al. (2010), Tawatao et al. (2010), Beaton et al. (2009) as well as Courtois, Higgins and Kapur (2005). Of the prior studies, the emphasis will be on researches focusing on usability, user experience, reception as well as perception.

## 2.5 Limitations

Due to the purpose of this study being the improvement of the BIT subject guides, the results of the performed studies will be relevant only to the users affiliated with BIT. Therefore, the potential users this study will target will be BIT affiliates (students and teachers). The opinions of these user groups will more than likely be different to the results expected from a study concerning non-technical users due to BIT users having highly technical pre-dispositions, which may lead to an appreciation for technically advanced functions. Furthermore, of the nine interviewees only two were female.

### 3 Literature review

This chapter will discuss various relevant user-centered studies conducted on different aspects of subject guides.

With nine students of mixed background, Tawatao et al. (2010) conducted a usability test consisting of six research scenarios in five different subjects in the University of Washington. Before the test they were given a survey, which asked them about their backgrounds, library usage, class rank, previous library instruction as well as their familiarity with subject guides. In addition to this, the students were asked to participate in an exercise in which they were presented with five screenshots. They were then tasked to circle what they found to be useful or cross out what they found to be redundant as well as include comments and suggestions for what they found to be missing.

The usability test showed that there was confusion caused by the structures of the LibGuides home page and navigation from the home page to specific subject, course or disciplinary guides. In addition to this, there was confusion stemming from the perceived scope of the library catalogs as well as inconsistency of the guide layouts. Furthermore, the students gave preference to the guides with fewer tabs and in some cases didn't recognize tabs as a navigation option. It was also observed that the students often misused the LibGuides search function by attempting to directly search for books. The students also expressed difficulties in generally browsing some guides.

Hintz et al. 2010 distributed 55 questionnaires to evaluate the subject guides of the University of British Columbia in order to develop an understanding in what students want and need from library subject guides. The questionnaire consisted of two sections, with the first section asking, "If you could create a webpage that would help you with your research or course work, what are the kinds of things that you would put on it?" (Hintz et al. 2010). This allowed the interviewed students to freely express the requirements they have of a service such as this. They were allowed to respond by drawing, sketching or listing their ideas of what they would like to have on their website of choice.

The second section introduced the students to three different kinds of subject guides including UBCs own static guide, a LibGuides subject guide and a guide created by other open source software each with a wide variety of functions. The students were then asked to rate each guide on comprehension, visual appearance and content using a Likert scale of 1-5 (1 being the least satisfactory rating).

The findings show that the students found the LibGuides subject guide to be far more appealing than the open source subject guide and UBCs own subject guide in content, comprehension and visual appearance. The interviewed expressed a need for concise descriptions in connection with recourses as well as limited scrolling. The data from the questionnaire was used to create a top-ten list of student recommendations. The following elements are those in the top-ten ranked in order of importance: a simple and clean layout, annotations, search function, embedded instruction, easily comprehensible content, librarian contact info, tabs, citation info, section headings as well as length.

Ouellette (2011) sought to discover how students used subject guides, how subject guides affected the information seeking behaviors of university students and which of the subject guides elements they liked as well as disliked. To study the mentioned topics, semi-structured interviews were conducted with 11 students. The interviews asked about how they searched for information for their assignments, how familiar they were with subject guides and which of the features available they were partial to.

The study revealed that the students considered the guides to be clean and easy to use. However the students were in many cases overwhelmed by the amount of content present. Some students were also impartial to the tabs and considered them to be outdated. The study also revealed that students also lacked awareness of the existence of subject guides and those who were aware only used the guides as a last resort because they either preferred finding information via search engine or because they don't feel as though they need to, preferring to use various other alternative methods instead.

Cobus-Kuo et al. (2013) performed a usability test with a group of 20 students in order to discover how students were using subject guides, or if they were using them at all. The purpose of this study was to find a way to improve their subject guides by creating best practices for them. The research was given to a human interaction class titled "User Interface Design and Development" at Ithaca College, located in New York, as an assignment to give students experience in a real-life research case. The research required the use of two usability questionnaires, one for course guides, and the other for subject guides where each questionnaire provided various scenarios for the interviewees to follow. The interviewees were then assigned randomly to either one of the questionnaires.

They discovered that out of the 20 students being interviewed only five were previously acquainted with subject guides. The research also revealed that students like to use Google as a first choice when searching for information. Databases were discovered to be the most important aspect of the subject guides. Moreover, the organization and consistency of the guides were found to be important as well. There were mixed opinions among the interview-



ees in relation to the amount of content as well as the images used in the guides. The use of images on the guide didn't bother most, but some thought them redundant. In regards to the content presented, some were of the opinion that the amount was overwhelming (also discovered by Ouellette 2011) while others saw this as the guide being thorough.

Mehdikashi (2013) initiated semi-structured, open-ended interviews with 11 Information Systems students of mixed background in order to develop an understanding of the expectations of IS students and their perspectives on quality aspects of Linnaeus University LibGuides. The topics of his research were to discover how IS students define the university LibGuides quality in support of their researches and the students' expectations for improving the quality of said guides.

This study revealed that students responded well to the information the guides provided. The students specifically liked to know about the recent advances in the field as well as other up-to-date information. The students also liked the interdisciplinary information available to them, the accessibility and availability of information, and other information specifically those required for writing their theses. The interviewees also raised several negative aspects of the guides into attention. There appeared to be complaints about the lack of efficiency and difficulties finding the required information. Furthermore, similar to Ouellette (2011) and Cobus-Kuo et al. (2013) the students lacked general awareness of the existence of these subject guides. Consistency of layouts between different guides was also mentioned (Tawatao et al. 2010, Cobus-Kuo et al. 2013).

#### 4 Analyzing the results

This section will account for the results of the research performed and how they are supported, if at all, by the results of researches conducted before. The main findings will be based on the results from the interviews and questionnaires.

##### 4.1 Questionnaire

The questionnaire consists of mostly open-ended questions as well as questions where the respondents will be asked to rate their satisfaction regarding the choices presented to them and a couple of questions where the students will be asked to choose a preferred option between two choices.

The purpose of the first question of the questionnaire was to discover if any of the students had prior experience using not only subject guides, but any similar resource platform or database. Similar to the findings of Ouellette (2011), Cobus-Kuo et al. (2013) and Mehdikashi

(2013) the students had no prior experience using subject guides. Many of them did, however, have experience using Laurea UAS' library services, Laurus and Nelli, while a few of them even had prior experience using databases such as ACM and Emerald. When asked how they would place their overall satisfaction with the implementation of the BIT LibGuide (choices being very satisfied, satisfied, unsatisfied, very unsatisfied and not sure) 13 out of 20 students placed their choice at satisfied, while six students placed their choice at not sure and the last at very satisfied. This comes to show that the overall reception of the current LibGuides was fairly well received. Illustration 1 visualizes the results from this question. The students were a little more active answering when asked in detail about their satisfaction on the use of color and images, the amount of content presented, usability and general feel and the overall presentation of the BIT LibGuide. The purpose of this question was to attempt to pinpoint what works and what doesn't.

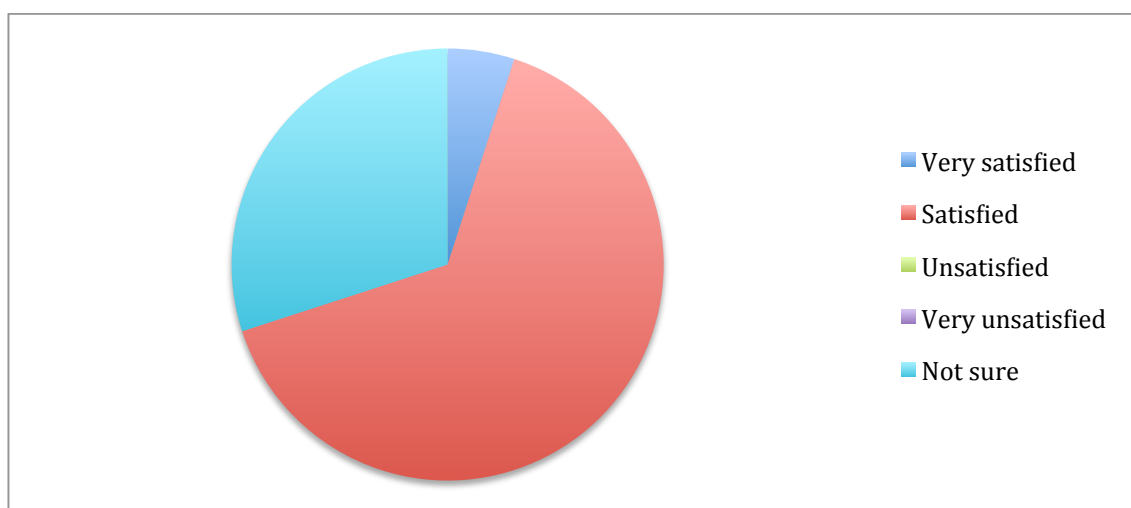


Illustration 1: Overall student satisfaction with BIT LibGuide implementation

Table 1 shows the distribution of the ratings the students have given each aspect in percentages. From this it is apparent that students are mostly partial to the BIT guide. 25% of the students voted very satisfied for the use of color and images while 60% voted satisfied. 10% voted unsatisfied while 5% voted for not sure.

On the use of color and images there is the opinion of 5% (one student) unaccounted for. The students opinions on the amount of content presented in the subject guide followed a similar fashion to the use of color and images with 25% at very satisfied, 60% at satisfied, 5% at unsatisfied and 10% at not sure. This pattern continues for the usability and fell with 30% of the students choosing very satisfied, 60% satisfied and 5% choosing not sure. Similar to the use of color and images the opinion of 5% is unaccounted for. The results for the overall presentation of the BIT LibGuide still remain favorable, with 30% choosing very satisfied and 45%

choosing satisfied. However 15% of the students, which is the highest individual value for the number of negative choices, chose unsatisfied, with 10% being not sure.

	Very satisfied	Satisfied	Unsatisfied	Very unsatisfied	Not sure
Use of color and images	20%	60%	10%		5%
The amount of content presented	25%	60%	5%		10%
The usability and general feel	30%	60%			5%
The overall presentation	30%	45%	15%		10%

Table 1: BIT guide user satisfaction

When asked what they like most about the BIT subject guide, the students came up with various answers. Simplicity was the most recurring element that the students mentioned. Other such answers included organization, helpfulness, and the lack of unnecessary content, straight forwardness, variety, ease of use, everything being available in one place, the IT-news and the books sections as well as the dictionary links. The respondents thought that the portal could be improved with more BIT related content, interactivity such as discussion forums or help chats, more visuals such as colors and pictures, individual tabs for instructions and help as well as an FAQ.

At this point it is apparent that the response rate for the questions has dropped possibly due to the length of the questionnaire or the open-ended type questions. In conjunction with the initial demonstration the students were shown two other guides (Physiotherapy and Beauty care) with different developers and styles in order to demonstrate different options for visual implementation. Both guides were rich in content; no reservations were placed on the amounts of text, images used and scrolling necessary to browse the pages. Table 2 displays the respondents' opinions on the visual implementation of the subject guides of BIT, Physiotherapy and Beauty Care.

	Very satisfied	Satisfied	Unsatisfied	Very unsatisfied	Not sure
Business Information Technology	15%	55%	5%		
Fysioterapia (Physiotherapy)	20%	40%	5%		10%
Kauneudenhoitoala (Beauty care)	20%	35%	5%		10%

Table 2: LibGuide comparison

It can be seen from the distribution of choices that, although the initial response to the BIT subject guide was good, the students seem to be slightly more partial to those of Physiotherapy and Beauty care. The reasons to this can possibly be explained by examining the results of the previous question where it was discovered that students sought more content and visuals: elements that both these guides had more of in comparison to the BIT guide. 25% of the respondents didn't answer for either BIT or Physiotherapy while 30% didn't answer for beauty care.

The students were next asked how easy it is for them to browse the website for information (the choices being very easy, quite easy, quite difficult, very difficult, not sure) to which only 15 (75%) out of 20 students answered. Illustration 2 shows that three of these students found information to be very easily acquirable while 11 of the students' choices were quite easy. The last respondent placed their choice at not sure.

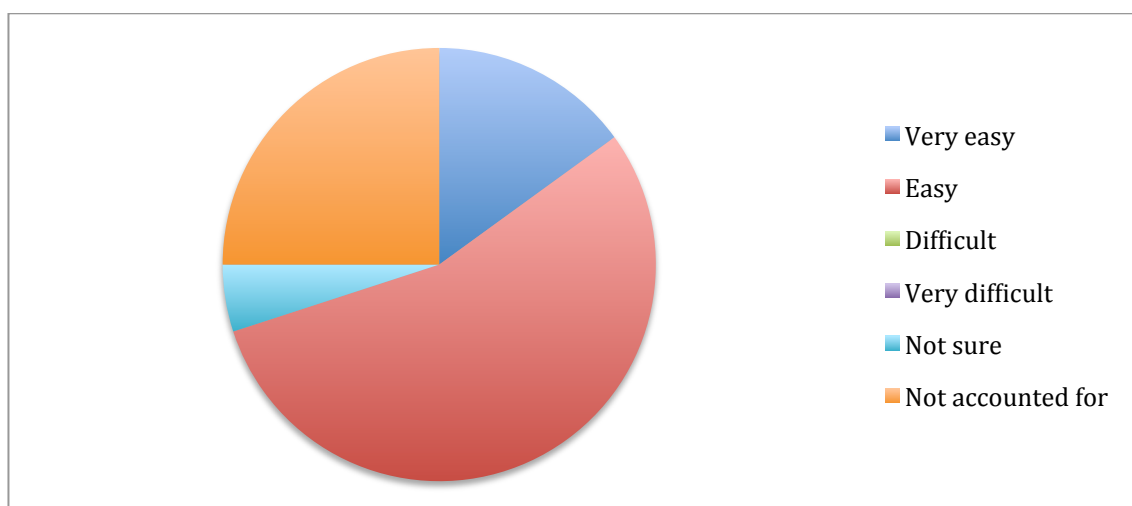


Illustration 2: How easy it is to browse the website for information

The next two questions were asked with the purpose to discover what the students opinions were regarding the clients personal question of usage and usability, namely whether the website should be optimized for mobile or PC use and which the users prefer between centered content and scrolling. Similar to the previous question, only 15 students answered the question of whether the subject guides should be optimized for mobile use or not. The results were clear on the preference despite this, with 11 students voting for PC and four students for mobile use. The reasons for this are because the students see subject guides as resources meant to help their researches. One student answered that, "LibGuides is mainly for working and research; All work is done one PC". The distribution for answers regarding the question for scrolling was similar, with five votes for and ten against. The reasons given by those for scrolling was that it is better for displaying more content, easier to read, control over perception and that there is a logical flow of information. Those against scrolling thought that

this way it would be easier for them to locate the information relevant to them and that it promoted the visual appeal of the subject guide.

Next the students were asked if there was anything they didn't like about the LibGuides in general. To this many complained about the outdated and dull visual appearance of the website and the inefficiency of the presented text. As a solution, some students recommended the website to have a similar visual appearance as the website of Laurea UAS.

When asked how important the students perceived this service to be, the most recurring answers were that the subject guides are beneficial for projects and theses and that it is useful for all of the necessary resources to be brought together.

## 4.2 Interviews

In this section we examine the results of the interviews. The interviews, as mentioned before, are semi-structured in nature. Their purpose is to further examine the reasons behind the recurring trends discovered by the quantitative questions of the questionnaires and help answer the research questions. The interviewees were comprised of BIT lecturers and students of varying backgrounds and experience levels and the sessions lasted for approximately 20 minutes.

In the beginning, it was planned to open each interview with an explanation of the project and its purposes as well as a description of subject guides and what kind of service they are. This worked well until the third interview session where the actual subject guide had to be shown to the interviewee for him to understand the kind of service it was. From there it was decided that it would be better to include a brief demonstration into the introduction to help the respondents achieve a higher level of understanding of subject guides in order for their answers to have as much depth as possible.

The interviewees were first asked if they had any prior knowledge or experience with LibGuides, to which every interviewee answered in negative, with the exception of the first. The second question, which asked for what a service such as this should include in addition to the resources, met a variety of answers. Among the suggestions were links to professional bodies integrated with working life, student related organizations, and other IT societies as well as information related with student integration to working life such as expeditions and recruitment events, current IT situation in Finland, teachers recommendations to make subject guides more personal. In fact, two of the interviewed lecturers were of the opinion that teachers should have rights to submit content in order to better affect what the students were exposed to. The third lecturer found it enough to be able to share links to books and

other useful resources through an integrated list of e-mails. Six of the interviewed persons were also of the opinion that too much information would be harmful and cause a possibility for students to be distracted from their intended target. The proposed solution to this was to implement inclusion criteria such as student interests, current situation or relevance to BIT curriculum.

The second question asked if there are any other information portals the interviewee uses regularly for their researches. The purpose of this question is to discover what means the respondents use for their information inquiries and if there are common databases or other information platforms that the interviewees are using, excluding Laurea UAS' library services. In addition to Laurea UAS' own library service Nelli, which was by far the most popular, Google Scholar received the most hits at six. Other common answers were the ACM and Emerald databases. There were also mentions of the databases of EBL, ISACA, CSO, and IEEE as well as the databases of the Finnish public libraries.

The third question, similar to the second, asked if there were any news feeds or any other professional subscriptions the interviewees follow. The purpose of this question was to discover common newsfeeds that the interviewees are using that can be added to the IT-news section of the BIT LibGuide. Most of the interviewees, specifically the student respondents were following general news headlines, their relevance to IT relying on chance of encounter, which naturally meant that there were no common newsfeed subscriptions. The second lecturer interviewee, however, had many subscriptions as well as his own collection of cyber security newsfeeds.

The interviewees were then asked if a service such as this would make their work as a student or teacher easier for them. The purpose of this question was to discover how the interviewees perceived this service. The next question would then, depending on the answer the respondent gave this time, ask if the respondent found this service to be necessary at all. Eight out of nine interviewees gave sufficient answers to the former of the two questions. Three of the student interviewees believed the subject guide to be helpful for students looking to work on their theses. One of these three students suggested there to be more instructions and information to the thesis process rather than just the thesis databases that are currently available. One lecturer said that it makes it easier to point students at a certain direction and that it's useful for bookmarking and the later use of useful references as material. One interviewee didn't sound entirely convinced of the potential efficiency the subject guide would bring to his work. He answered, "To tell you the truth, I would just use Google if I wanted to search for information for my projects". When asked if he considered this service to be necessary at all he answered, "Well it depends on the person. Personally I think it will be useful for thesis

students only”. After being asked for clarification, the student responded, “Of course it’s necessary, but only for students that have reached a certain level in their studies”.

The next question asked the interviewees on their opinion on whether the website should be optimized for mobile or PC use to which three of the nine respondents answered mobile, because of accessibility and five were of the opinion that it should be optimized for PC usage. One interviewee said, “It depends on usage, but mobile devices should be considered, because they are more available”. The next question, asked the interviewees of their opinions regarding scrolling. Eight of the interviewed nine were of the opinion that the content should remain centered. The reason given for this varied. Some thought it made the website look better, while others thought it promoted usability.

The next two questions were later additions and were given to six of the nine interviewees. The interviewees were asked what they thought about the visual implementation of the subject guide. All six of the interviewees said that it looks simple and easy to read as well as navigate. Despite the apparent simplicity however, three of the interviewees expressed their discontent with the appearance of the website. They all considered the website to be dull and boring. One of them even said that it was old fashioned and that it would look better if it looked like Laurea UAS’ website. This was an answer, which was almost word for word with one of the answers to the questions on the questionnaire. The next question asked was whether it was easy to find information on the website to which all six of the persons being interviewed answered in positive. One of the interviewees said that the layout is straightforward enough and that it should be kept like it is.

Finally, the interviewees were asked if they had any other suggestions for the improvement of the subject guide. A student interviewee suggested a section where lecturers, graduates and senior students can give tips to less experienced students. When asked if the student meant a sort of FAQ, she answered, “Yes, or somewhere where they can share their experiences”. Another student suggested a thumbs-up function and a consequent top-ten student recommendations panel, which would display the ten most popular resources by the users standards.

#### 4.3 Ideas for improvement

This section will list and discuss the ideas generated by the students via brainstorming activity for the improvement of the BIT guide excluding those attained from the questionnaires and interviews.

In addition to continuous remarks about the perceived blandness of the subject guides the students have in many cases suggested cover images and descriptions of specific works in the

Books, Journals & Articles and Thesis tabs. The cause of this idea may be the cover images the students saw on Laurea UAS' other subject guides at the time of demonstration. This may also be a good way to implement the student and teacher recommendations feature that was suggested in one of the interviews. It was suggested for the Thesis tab to include recommendation for titles (cover images and descriptions included) of a few assistive books (academic writing, project guides etc.) as well as further instructions regarding different thesis approaches and methods. Additional suggestions included an FAQ tab or panel, discussion forum relevant to each subject guide, event panel for changes concerning the library or LibGuide, social media widget such as Facebook or Twitter as well as video tutorials. The More resources tab may be a good place to implement some of the previously mentioned ideas.

## 5 Conclusion

This research began with the intention to discover how the potential users perceive subject guides and what kind of improvements they would like to see made in order to make the service as usable and convenient for users as possible. A study of this nature is good for discovering the necessity of a planned service, the kind of response it is sure to meet from its targeted audience as well as discovering the strengths and weaknesses of the service in question.

The study proved to be successful because all of the research questions and objectives have been achieved. The results of this research show the question of how future users perceive this service as positive, using responds to many questions from both the interview and questionnaire as basis to this conclusion. The participants of this study have also given sufficient data to suggest the improvements that should be made and why.

The results of the questions that are not specific to BIT, but subject guides in general mostly confirm the findings of previous researches. A usability test would have validated the findings of this study, but could not be performed due to time constraints. After negotiation with the developer it was decided that most of the suggested changes would be implemented in time for the next semester.

Further researches similar to this can be carried out with other subject guides in mind. In fact, it is recommended for Laurea University of Applied Sciences' library to initiate similar researches to discover guide specific user requirements. In addition to the performance of surveys to collect insight into the behavioral habits, opinions and preferences of users, it is recommended to carry out a usability test for the validation of data collected and in depth evaluation of the implemented service.



## 5.1 Learning experiences and reflections

To engage in a project that required extensive studying of several cases and the work of other researchers to get a clear view of the topic, then proceeding to abandon all that which I have learnt in order to keep the results of my own research findings as unbiased and accurate as possible, allowed me to maintain an objective view of the findings throughout the research.

Furthermore, in addition to learning how to conduct a study such as the one conducted in this thesis, this project has allowed me further develop my generic skills by constantly challenging the limits of my experiences. Stepping out of my comfort zone by interacting with an odd 30 potential users forced me to adapt, develop and apply new interaction skills while the support and advice of my supervisor and client proved to be helpful throughout the project as they served to embolden and direct through each stage of the project.

Working, while trying to maintain the standards and expectations of my client helped me keep a service oriented mindset throughout the process. In summary, this project proved to be a valuable experience for me as it promoted my growth both as a professional and as a person.

## References

- Beaton, B., Bonnet, J. Dueher, B., Desai, S. & J. Piacentine. 2009. LibGuides Usability Task Force Guerilla Testing: Usability Report. Michigan: University of Michigan Libraries.
- Berndtsson, M. Hansson, J. Olsson, B. and Lundell, B. 2008. Thesis Projects A Guide tfor Students in Computer Science and Information Systems. 2<sup>nd</sup> Edition. London: Springer-Verlag.
- Cobus-Kuo, L, Gilmour, R. & P. Dickson. 2013. Bringing in the Experts: Library Research Guide Usability Testing in a Computer Science Class. Evidence Based Library and Information Practice, 8(4), 43-59.
- Courtois, M. P., Higgins, M. E., & Kapur, A. 2005. Was this guide helpful? Users' perceptions of subject guides. Reference Services Review, 33(2), 188-196.
- Dawson, C. W. 2009. Projects in Computing and Information Systems A Students Guide. 2<sup>nd</sup> Edition. Essex: Pearson Education
- Dennis, A. Haley Wixom, B Tegarden, D. 2010. System Analysis and Design with UML an Object-Oriented Approach. 3<sup>rd</sup> Edition. John Wiley & Sons.
- Gonzalez, A. C., and Westbrook, T. 2010. Reaching out with LibGuides: Establishing a working set of best practices. Journal of Library Administration, 50(5/6), 638-656
- Hintz, K., Naslund, J., Farrar, P., Lee, T., Eshghi, S., Stephens, T., et al. 2010. Letting students take the lead: A user-centred approach to evaluating subject guides. Evidence Based Library and Information Practice, 5(4), 39-52.
- Madison Libraries, Libguides Studies Bibliography  
<https://wiki.doit.wisc.edu/confluence/display/MADLIB/LibGuides+Studies+Bibliography>
- Mehdikashi, N. 2013. LibGuides Quality from Students' Perspective: Exploratory Case Study Of Information Systems Students, Linnaeus University, Sweden.
- Mokia, R. and Rolen R. 2012. LibGuides: Improving Student and Faculty Access to Information Literacy, Journal of the Louisiana Chapter of the ACRL, 1(4), p.37.
- Ouellette, D. (2011). Subject guides in academic libraries: A user-centered study of uses and perceptions. Canadian Journal of Information & Library Sciences, 35(4), 436-451.
- Saunders, M. Lewis, P. and Thornhill, A. 2007, *Research Methods for Business Students*. 4<sup>th</sup> Edition. Essex: Prentice Hall.
- Shelly, G. B. Rosenblatt H. J. 2010. Systems Analysis and Design. 8<sup>th</sup> Edition. Boston: Shelly Cashman.
- Sonstebly, A. and Dejonghe, J. 2013. Usability Testing, User-Centered Design, and LibGuides Subject Guides: A Case Study. Journal of Web Librarianship, 7(1), 83-94.
- Springshare, LibGuides  
<http://www.springshare.com/libguides/index.html>
- Tawatao, C., Hungerford, R., Ray, L., & Ward, J. L. 2010. LibGuides Usability Testing: Customizing a Product to Work for Your Users. University of Washington Libraries, Seattle, Washington.

## Illustrations

Illustration 1: Overall student satisfaction with BIT LibGuide implementation.....	18
Illustration 2: How easy it is to browse the website for information.....	20

## Figures

Figure 1: Screenshot of BIT LibGuides Home .....	7
Figure 2: Screenshot of BIT LibGuides Books .....	7
Figure 3: Laurus search function .....	8
Figure 4: Laurus search results .....	8
Figure 5: Screenshot of Journals & Articles.....	9
Figure 6: Screenshot of Theses .....	10
Figure 7: Screenshot of Other Resources.....	10
Figure 8: Screenshot of IT News .....	11

## Tables

Table 1: BIT guide user satisfaction .....	19
Table 2: LibGuide comparison .....	19

Appendixes

Appendix 1: User satisfaction survey .....31

Appendix 1: User satisfaction survey

1. Have you ever used a similar information platform? How frequently? Which platform(s)?

- Daily
- Weekly
- Monthly
- Every now and then
- Nope

i. Name of the platform(s) used

2. How would you rate your satisfaction with the following aspects of the layout the BIT section of Laurea LibGuides?

	Very satisfied	Satisfied	Unsatisfied	Very unsatisfied	Not sure
Use of color and images					
The amount of content presented					
The usability and general feel					
The overall presentation					

3. How satisfied are you overall with the current implementation of Laurea LibGuides BIT?

- Very satisfied
- Satisfied
- Unsatisfied
- Very unsatisfied
- Not sure

4. What did you like most about the BIT section of Laurea LibGuides?

5. What do you think we could do to improve the guide?

6. Do you feel there is something missing from BIT LibGuides?

7. How do you feel about the visual implementation of the following guides?

	Very satisfied	Satisfied	Unsatisfied	Very unsatisfied	Not sure
Business Information Technology					
Fysioterapia (Physiotherapy)					
Kauneudenhoitoala (Beauty care)					

8. How easy is it to find the information you are looking for around the website?

- Very easy
- Quite easy
- Quite difficult
- Very difficult
- Not sure

9. Which do you prefer? Scrolling or centered content? Why?



**10. Between mobile and PC which do you think a platform like this should be optimized for? Why?**

**11. Is there something you didn't like about Laurea LibGuides in general?**

**12. How important do you think this service is for students? Why?**

**13. Do you have any additional comments about the BIT LibGuides of Laurea?**