



Designing by the rules

A user-centered approach to redesigning Aalborg University's e-Learning Lab website

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Title Page

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Designing by the rules: A user-centered approach to redesigning Aalborg University's e-Learning Lab website

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Preface

The majority of my time, during the period of the last four months, has been spent on writing this report. Without any doubt, I can say that this is the most significant scientific project that I have worked on, both in terms of time and efforts that were spent on it, but also in terms of its implications for my future career. A project that potentially marks the border between my life as a student and my career as a professional.

I would like to express my gratitude for the professionalism and the continuous help and support of my supervisors, professor **Marianne Lykke**, and assistant professor **Sandra Burri Gram-Hansen**. Thank you for your help.

I would also like to thank all people who have taken part in this project, in one way or another, providing me with valuable data, feedback and support.

Last but not least, I would like to thank to my girlfriend for being there for me, bearing with me during the hardest moments and inspiring me to give to best of myself. I would not have made it without you.

Abstract

In this project I am developing a methodology, for designing websites for organizations. The methodology is focused on including the users and taking into consideration their goals and needs, while also acknowledging that there are other factors that have to be taken into account, during the design process. At the same time I am also developing a website that I use as a source of empirical data, and a tool to help me develop, exemplify, and validate my methodology. I see both of my goals as interrelated, as the completion of any of them is a key requirement for the completion of the other.

My overall attitude is governed by a user-centered approach to design. I use Rogers', et. al (2011) *simple interaction design lifecycle model* and its core activities, as framework that forms the foundation of my methodology. To obtain a broader perspective on the different aspects that have to be considered in the design process, I use Morville and Rosenfeld's (2007) *model of balanced approach to research*. A third dimension is added to the framework by the inclusion of Garrett's (2011) *model of the elements of the user experience*.

By combining all three models, I assemble a methodological framework that I put into practice in the process of redesigning the website of the e-Learning Lab – a research center in the Department of Communication and Psychology in Aalborg University.

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Chapter I

Introduction

About this project

This master thesis is concentrated on developing a methodology for designing websites, where the focus is on accounting for the users' needs, while still complying with the limitations and requirements stemming from the context. To help me develop, test and exemplify this methodology, I use a specific case, related to redesigning a website for an organization, which is subject to a complex variety of factors, such as different user needs, contextual requirements and internal politics. As Morville and Rosenfeld (2007) argue, factors between which exist complex dependencies and which in this particular case, often appear to be in conflict (Morville & Rosenfeld, 2007).

The specific case that I use should not be mistaken with the focus of this project, but is to be seen as an important and necessary tool on my way of developing a methodology. Nevertheless, it should also be noted, that I see the development of this methodology as a mean for enabling me to design a website, as part of my practical work on this project. In accordance with the thematic frame, this renders it a '*design and implementation*' project ("Curriculum for the master's programme in human centered informatics," 2008). In that sense, this project can be seen as very practically oriented, as it is structured around an actual real-world case, where the goal is, by completing the project, to have developed both a methodology and a website.

Apart from addressing the complex dependencies between the users and the organizational context as design factors, on a more global scale, the need for developing a methodology of this kind can be understood if we consider the implications of the Internet, and in particular – websites, on almost every aspect of people's lives, especially in relation to how businesses and organizations operate today.

The World Wide Web

The developments in technology, together with the almost three billion people using the Internet today (see fig. 1), have in many ways drastically changed the way we live, work, play, communicate and interact. The Internet is arguably the most significant global communication medium of our time. As Gonzalez (2014) argues:

“As a tool available to a fairly wide public, the Internet is only twenty years old, but it is already the key catalyst of the most extensive and fastest technological revolution in history. It is the most extensive because over the past two decades its effects have touched practically every citizen in the world. And it is the fastest because its large-scale adoption is quicker than that of any earlier technology”.

(Francisco Gonzalez, 2014).

Recognizing this significance, it becomes increasingly important for companies and organizations, in general, to ensure that they have well-developed and properly employed communication strategies. In today’s highly competitive environment, being able to keep up with the advancements in ICT and the Web can mean the difference between having the competitive edge and trying to catch-up; between success and failure.

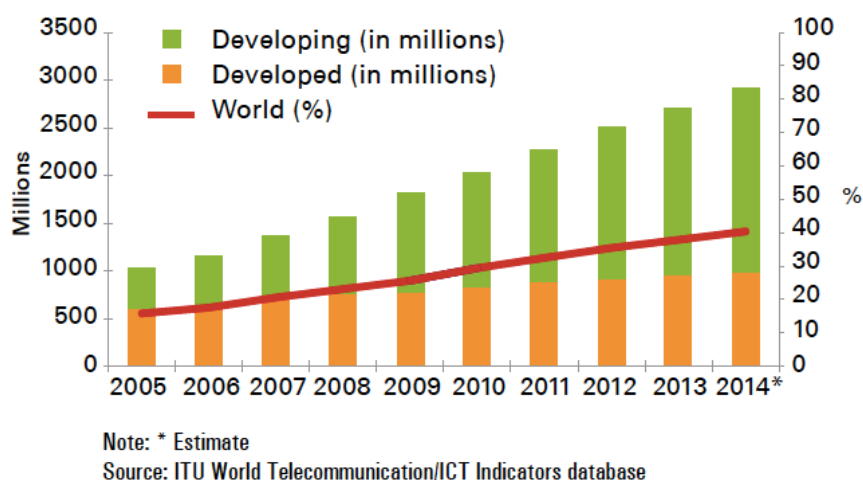


Figure 1. Graphic showing the increase in the amount of individuals using the Internet, in relation to developing and developed countries, total and percentage, for the period 2005-2014

Websites

In that sense, websites, as one of the more 'traditional' approaches to being present in the online space, apart from the recent rise in popularity of social

"A public Web site is a Web site that you can use to have a presence on the Internet. It is a public facing site to attract customers and partners, and it usually includes information about your business..." (Microsoft TechNet, 2008).

media, can be seen as of crucial importance for organizations of today. They allow for an easy and convenient access to information and services provided by the organizations, in disregard of constraints like time and space.

They also serve the purpose of a fast and efficient communications channel and allow for a wider reach of target audiences in a global aspect. It almost seems, as if today companies and organizations are expected to have a website or be present online in one form or another. Not being reachable online could mean missed opportunities and lost clients as more and more people start using the web as their main way to find information, research and communicate.

Following this line of thinking, being well represented online and having a well-developed webpage, becomes an important factor for companies' and organizations' growth and success - a factor that is bound to become increasingly central in the future. Moreover, it is becoming insufficient to just be present online, as users' needs and expectations grow bigger fueled by the rapid development in technology. Aspects such as the user experience, where the focus is not anymore just on the physical (e.g. content, function), but rather on the subjective feelings and the experience when interacting with technology, are becoming essential (Hassenzahl, 2008). This is why I see the issue of how website are being designed as one of crucial significance for organizations that will be getting even more important going forward.

Typically websites (and products in general) are developed primarily in consideration of the needs and goals of the company or the organization that they are being developed for. As further discussed in chapter II, accounting for the organizational context is critical for developing a website that serves and is in line with the goals, believes, and the ideology of the organization, and thus, for

the success of the website in terms of its usefulness for it. However, as important as taking into consideration the context of the organization is, there are other areas, equally important for the success of the website in long term, that have to be accounted for and implemented in the design decisions when developing a website. As Hassenzahl argues, designing products requires understanding of both the context and the people that it is designed for (Hassenzahl, 2008).

Unfortunately, as important as both of these aspects are, accounting for the users when designing can easily, and often is, threatened as a secondary objective. This is understandable to an extent, as the need for websites to be developed, derives first and foremost from the organizations being in need to be represented on the web. However, this approach falls short to acknowledge the multivariate nature of the different factors playing a role in websites' success in the long run. To address this issue, one of the goals in this project is to develop a methodology.

Developing a methodology

While there are many different design traditions that focus on including the users when designing products, I see developing websites in a sustainable manner as requiring a more balanced approach to design, and a matter of being able to account for, and include the different aspects that have to be considered in a rational and meaningful way. Therefore, I see designing successful websites as a question of finding the right balance. Due to the presumption that users' needs and requirements are often threatened as secondary in comparison to the requirements of the organizations, when designing websites, I see as necessary to develop a methodology that aims to account for the users in the prospect of the organizational context. In this sense, I focus on the users, to the extent of how can the users' needs be meaningfully accounted for, within the frame established by the requirements of the context. By combining different methods and approaches I attempt to develop a methodology that is broad enough to encompass the various factors, but at the same time focused enough on accounting for the users, as I consider this to be an area where not always enough attention is dedicated.

Designing a website

On a more practical level this project is concerned with redesigning a website for the e-Learning Lab - an organization that is part of Aalborg University. In accordance with Aalborg University's¹ new line of design² that is gradually being implemented, since the fall of 2013, all websites within its organization have to comply with a number of common rules³ in regard to their visual layout and structure. As an organization that is a part of the Department of Communication and Psychology within AAU, the e-Learning Lab and its website are subject to change.

I take the opportunity to use this case as a basis for my practical work that would allow me to gather empirical data, develop, and further validate my methodology. I also see this project as important for my own personal development and future career as a professional, as it provides me with the precious opportunity to gain more experience, and become more knowledgeable when designing with the users in mind. Last but not least, as a student of Aalborg University, and a user of its information services and its website, my work is directly affected by the introduction of the new design. Thus, being part of this project and having the opportunity to 'make a difference' in itself bears a level of interest and personal gratification.

¹ "Aalborg University" will be referred to as "AAU" further in this document

² For more information on the new design guideline visit <http://aau.designguides.dk>

³ For more information on the rules in regard to the web design visit <http://aau.designguides.dk/webdesign.aspx>

Problem statement

Having all this in mind, the aim of this project can be seen as twofold:

- On one hand, as part of my practical problem, I attempt develop a design for the website of the e-Lab, whose main goal is not only to comply with the formal requirements resulting from the organizational context, but also to take into consideration the users, their goals, needs, and the experience of using the website.
- On the other hand, in relation to my theoretical problem, I am developing a methodology of how to design a website with the aforementioned characteristics, where I see my practical work on the case as empirical data.

It is my view that both of these problems are in a way intertwined, and therefore solving one of them is a key requirement for solving the other one. I see the development of a methodology as an essential and necessary tool for enabling me to design a website, and for guiding my practical work in the design process. At the same time, I see the practical process of developing a website as a valuable source of empirical data that would allow me develop, further refine, and validate a methodology.

In this regard, I see this project as a journey with the goal of getting a deep and profound understanding of what the e-Learning Lab is, who are the people working there, what are their needs and goals, and how can that knowledge be relevant when designing the website. By attempting to develop a web design that merges rather than clashes, the needs and requirements of on one hand - Aalborg University, and the e-Learning Lab - on the other, I try come to a solution that is consistent as much as possible to the interests of the stakeholders.

At the same time I see this project as a process of developing, refining and validating a methodology that is balanced and broad enough to address the complex dependencies between the different design determining factors, but

focused enough on taking the users' needs and goals in consideration during the design process.

As a result in this report I wish to focus on studying how to redesign the website of the e-Learning Lab, with the main goal of developing not only a design methodology, but also a design solution in the form of a website, that is consistent not only with the needs and goals of the users, but also with the requirements and limitations deriving from their context.

The thesis statement that I wish to answer is:

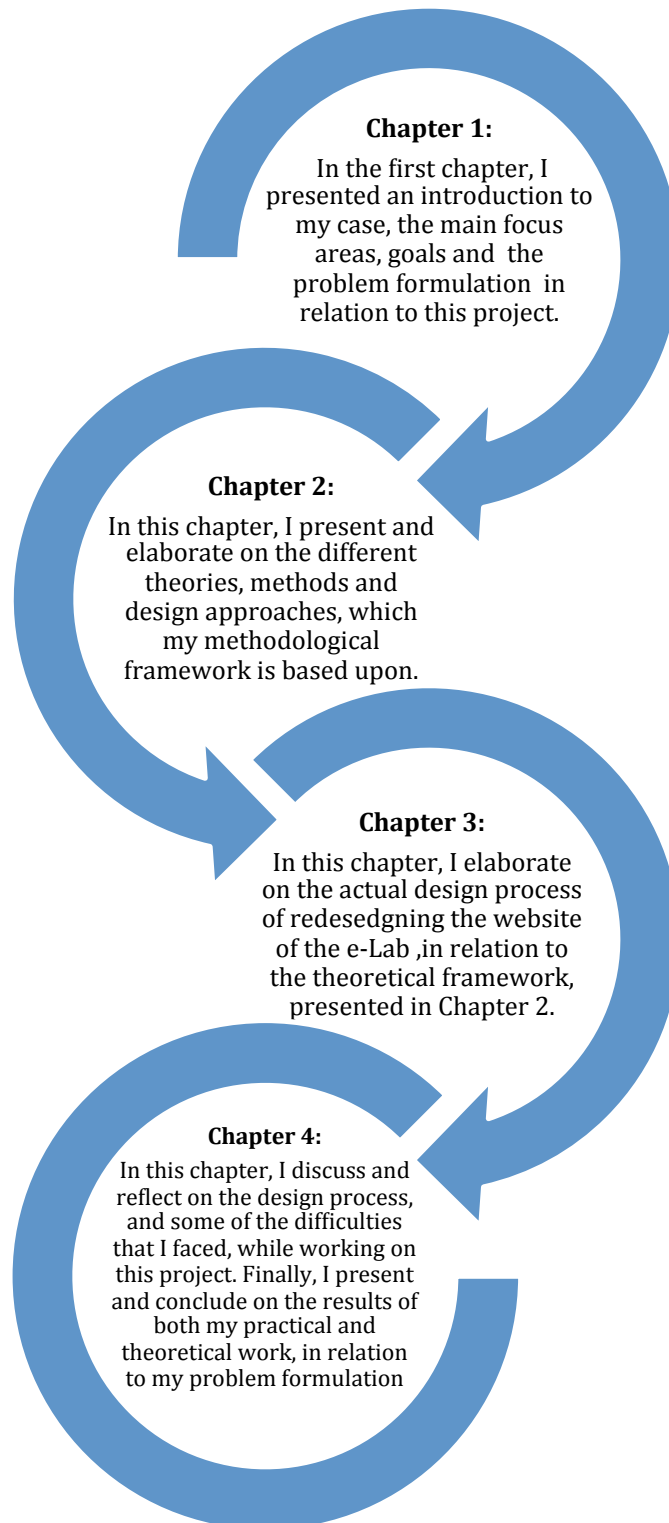
How can an organizational website be redesigned in accordance to the contextual requirements of the organization that it represents, while still accounting for the goals and needs of its users?

In order to answer my thesis statement I will look into the following supplementary questions:

- What is the organization and what are its requirements?
- Who are the users and how can I understand their needs?
- How can I use that knowledge and translate it into actual design decision when designing a website?

In this study, I see *hermeneutics* and *phenomenology* as my philosophical foundation. I use the *simple interaction design lifecycle model* and its four core activities as a main framework that provides the basis for the methodology that I am developing. To form a more wide-encompassing and balanced approach for design, I also use Rosenfeld and Morville's (2007) *model of balanced approach to research* and Garrett's (2011) *model of the elements of the user experience* in relation to websites (Garrett, 2011; Morville & Rosenfeld, 2007).

Structure of the report



Chapter II

Theory and Methods

In this chapter, I start by exploring a map of the multifaceted design environment, encompassing the different design traditions and approaches that allows me to position this project, in relation to the complex tension and relations between them. I introduce hermeneutics and phenomenology, as my main philosophical foundation. Further on, I present the methodological reflections, which my project is based upon. I elaborate on the use of user-centered design, and present the simple interaction design lifecycle model that forms the foundation of my methodological framework, and which I use extensively throughout this project. I go through each of the main activities of interaction design, and explore their importance in relation to developing a website, focused on accounting for the users. I look into Morville and Rosenfeld's (2007) model of balanced approach to research, and discuss its significance, as a conceptual framework for gaining a better overview of the broader environment that is to be considered, when designing websites. I also mention the different data gathering methods and techniques, that can be used during the phases of website development. Finally, I present an additional framework, developed by Jesse Garrett (2011) that highlights some of the different aspects that a web page consists of, in relation to the user experience.

A complex design environment

As Sanders (2008) points out, the design research space is in a state of constant development, and over the past years there has been a tremendous amount of exploration and growth, but also increasing levels of conflict and confusion. While the relation between different design traditions, mindsets, and approaches is evident in the sharing of common tools, methods, and ideas, there is no lack of collision and confusion, on where exactly the borders between the different design approaches are, and how they are related (Sanders, 2008).

To help identify this complexity, and visualize the interrelatedness of the different components in the design space, Sanders has developed a *map of design research* (see fig. 2) The map constitutes of two intersecting dimensions, positioning the design traditions, in accordance to their orientation to approach and mind-set. In relation to approaches to design, the map allows us to distinguish between *design-led* and *research-led design* perspectives (the top and bottom part - respectively). In reference to the mindset, Sanders identifies two opposing traditions in the practice of design research – governed by *expert* and *participatory mindset* (the left and right side of the map) (Sanders, 2008).

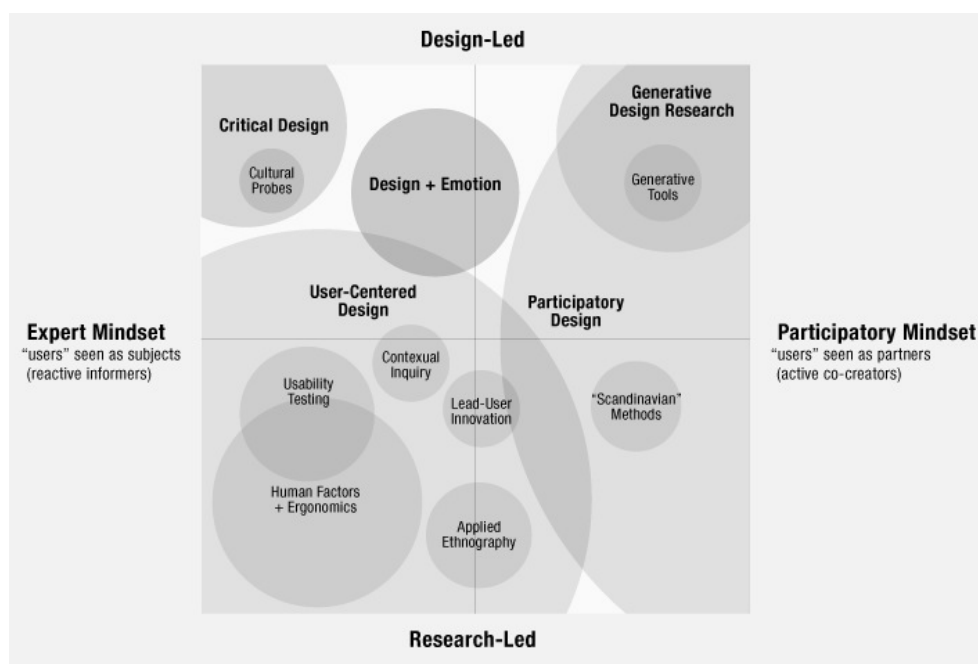


Figure 2. A map of design research, Sanders (2008)

I find this map as a valuable tool to help identify and position myself, within the complex field of design traditions and approaches in relation to this project. As previously mentioned in chapter I, my goal in this project is to develop a methodology that focuses on accounting for the users' needs, but also to design a website. In doing so, I intend to work closely with the users, with the aim to obtain an understanding of their goals and needs. However, I still perceive the users as subjects that I study, rather than active participants and co-creators.

Therefore, as in the very nature of this project, due to the complex interconnectedness of the goal to develop a methodology that is based on research, but also refined by design, I see this project positioned close to the center in accordance to the design-/research-led dimension, but still within the boundaries of research-led design. My view on the users and their role in this project, positions it at the left, expert mindset side on the model. While this adequately represents my overall perspective, towards the later stages of my work on this project, I see my approach as slightly shifting towards participatory mindset direction, while still remaining within the user-centered design tradition. In this sense, it can easily be identified on the model, that my overall design approach is user-centered design, and while firmly situated in the center of the model in relation to the horizontal scale, my perspective experiences a slight shift from the left to the right half of the model (while still remaining very centrally positioned) in relation to the separation on the vertical scale.

To provide for a level of perspective, and give sense of depth, in the next paragraphs I present hermeneutics and phenomenology as the philosophical foundation, behind the iterative design cycles that are such an essential part of the research-led user-centered design process, and behind the shift towards a more participatory oriented mindset in the latter stages of my work.

Hermeneutics and Phenomenology

Historically hermeneutics as a theory has been concerned with a mosaic of disciplines. It starts as theory of text interpretation, but further on, since Heidegger's (1927) philosophical hermeneutics shifts focus from interpretation towards existential understanding. According to Heidegger, in order to understand the whole in reference to reality, one has to understand the pieces that constitute it. However, in order to understand the pieces, one also needs to have an understanding of their relation to the whole (Heidegger, 1962). Thus, for an understanding to be developed, when starting in a position where one does not have such, neither of the whole, nor of the parts that constitute it, one has to use 'fore-structures' in an attempt to interpret the reality in a preliminary way.

Even though I account for Heidegger, I take Gadamer's (1975) view on the concept of the hermeneutic circle, where my understanding of the reality is established on exploration of its details, through continuous iterations (Gadamer, 1975). In that sense, in a design environment, each of the iterations that are performed allow for the establishment of a better understanding that can serve as a starting base for another iteration. My work on designing in this project, can then be seen as a hermeneutic circle of iterations expressed through "conversation with the situation" (Schön, 1983). I see these conversations expressed through the iterative and interconnected nature of the way my work is structured, where I start at the point of not knowing - the stage of gathering data- in order to gain an understanding and establish requirements, continue with the stage of creating design alternatives based on that understanding, and further on, continue with the stages of prototyping and evaluation. Each of these stages is done in consideration with the previous one, but also in consideration of the global goal or 'the whole', thus they are all intertwined and required.

It should also be noted that in my work, I take a phenomenological approach to studying the world as an ordinary experience, where we are to take a step back and "experience it, before we think, conceptualize, abstract or theorize it"(Van Manen, 2014). In my work of designing a website, for an organization, I see as

necessary to get an actual understanding of that organization, what is it that makes it unique, and what the experience of being part of it is, in order to be able to develop a website that successfully reflects it. As later explored in chapter III, while my overall approach is one governed by an expert mindset, towards the latter stages of my work, I see my approach as experiencing a slight shift towards a participatory-oriented mindset that I see as more in line with phenomenology. In this sense the e-Lab becomes the phenomena that I am trying to study and design for.

Design Methodology

In the first chapter, I presented the arguments for why I find it important to include the users in the design process, and the use of user-centered design. In practice, my main methodological structure is based on a user-centered approach - the simple interaction design lifecycle model, as described by Rogers, Sharp and Preece (see fig. 3) (2011). The model itself is similar to models from other fields of design; however, I find it particularly suitable due to its focus on users and their goals, which I believe is essential for this project.

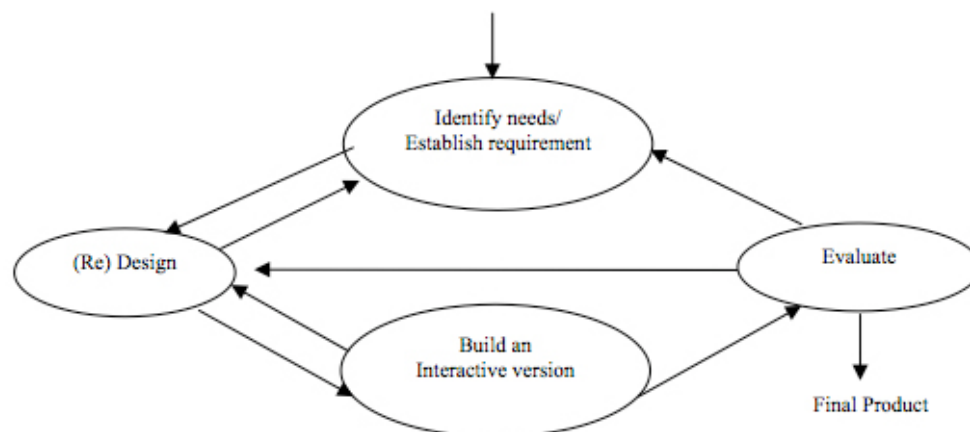


Figure 3. The Simple Interaction Design Life-cycle Model that serves as a foundation and guiding framework for developing my methodology, and for my practical work of designing a website. Source: Rogers, et. al. (2011)

The model can be seen as a reflection of the hermeneutic circle, as in its essence, it describes an iterative process of developing a product, in which each iteration serves as a basis and informs the design of the next one. Furthermore, each of the

phases within an iteration are interrelated to each other, but also to the iteration itself, as they each serve the purpose to inform the design of the next phase, and thus the design of the product as a whole.

The model consists of four main activities found in interaction design, which form each of the phases in the lifecycle model, and is based on the three principles that form the foundation of user-centered design (Mao, Vredenburg, Smith, & Carey, 2005; Rogers et al., 2011). In the following sections, I will explain in more details the principles behind user-centered design, and why I believe they are relevant for my project. I will also elaborate on each of the activities that constitute the model, as they can be seen as the fundamental elements around which my work as a designer is structured.

User-Centered Design

There are three main principles established by Gould and Lewis that lay the foundation of user-centered approach (1985):

- **Early focus on users and tasks**
This principle is related to the understanding that users, their tasks, and goals should be the driving force behind development, and that the design of the system should be done in consideration of the users' behavior, context, and characteristics. It also states that users should be consulted during all stages of development, and all design decisions should be taken while considering the context of the users.
- **Empirical measurement**
This principle states, that specific goals should be identified, that can be measured further on in the project development, as means of evaluation of the progress.
- **Iterative design**
This principle refers to the notion of repetitive design cycles that allow the designs to be further improved on the basis of feedback (Gould & Lewis, 1985).

As Rogers, et.al (2011) notice, these principles, even though now considered “the basis for a user centered approach”, used to not be accepted by designers, as

they were seen as too obvious. However, I see them as fundamental when developing a product that is to be used by people. By designing with the users in mind we can ensure that the end product will be usable, from the perspective of the people who it is designed for. Involving the users also allows for better expectations management, where the users are kept aware and informed, throughout the development process, not only on the product being designed, but also on the effects it will have on their work, and lives (Rogers et al., 2011). As my project is concerned with developing a methodology that focuses on the users and their needs, I consider the use of user-centered approach to design to be especially appropriate.

Interaction Design Core Activities

As mentioned earlier, my methodology is structured around the four main activities of interaction design presented in fig. 3. In this sense, the interaction design lifecycle model can be seen as the main framework for guiding my practical work in this project of designing a website, but also the foundation of developing a methodology of how to do it.

In this chapter, I present each of the activities of *establishing requirements*, *designing alternatives*, *prototyping*, and *evaluation*, and further reflect on their implementation in relation to my project.

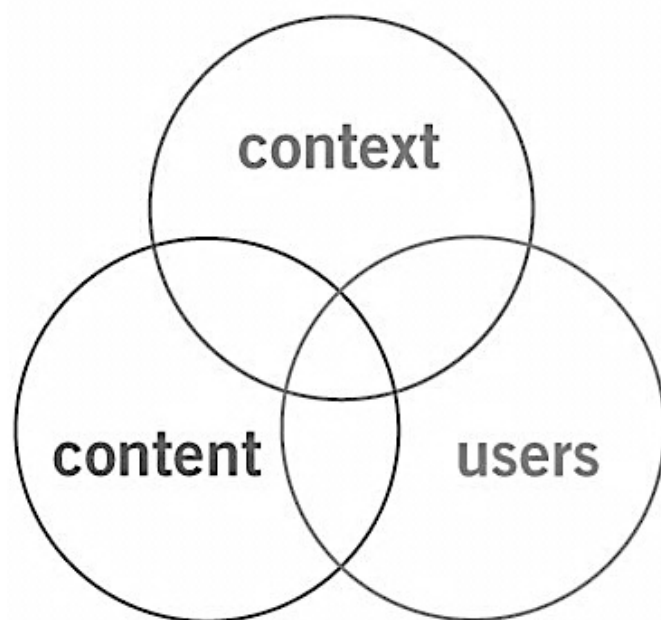
Establishing requirements

The first activity in the model is related to establishing the requirements for the product that is being designed. This is a fundamental activity for a user-centered approach, and is accomplished by conducting data gathering process, the results of which after being analyzed, serve as the basis for establishing the requirements. It should be noted that even though my overall approach to design is governed by a user-centered attitude, in relation to some of my data gathering activities, I am more participatory oriented.

I consider this to be the most crucial phase of the design process, and devote a considerable amount of time, in order to ensure that I have gathered enough (and the right) data, to allow me to take informed decisions in relation to

establishing the requirements that will guide the future work on the project. Taking misinformed decisions, and failing to properly establish the requirements in the beginning could lead the project in the wrong direction, resulting in time and financial losses, as well as ending up with developing a product that fails to live up to the expectations and needs of both the organization and the users. According to Boehm and Basili (2001), “finding and fixing a software problem after delivery is often 100 times more expensive than finding and fixing it during the requirements and design phase” (Boehm & Basili, 2001). Jones (2000) and Weinberg (1997) also pinpoint that mistakes during the phase of establishing the requirements could lead to severe problems (Jones, 2000; Weinberg, 1997).

In order to design something “to support people, we must know who our target users are and what kind of support an interactive product could usefully provide” (Rogers et al., 2011). Of course, as important as accounting for the users is, when establishing the requirements, it is also essential that the design process is done in consideration of the business environment, as well as the



organizational context that the product is designed for. To help guide my work during the data gathering phase, and acknowledge the different perspectives that have to be taken into account when designing a website, I use the information architecture model (see fig. 4) of *balanced approach to research*, developed by Morville and Rosenfeld (2007).

Figure 4. The model of balanced approach to research.
Source: Morville and Rosenfeld (2007)

The authors, originally, use the model as a basis for practicing effective information architecture design. However, whereas they limit its use to the

information architecture aspect of designing a website, I see it as a conceptual framework that allows me to gain a better overview of the broader environment that is to be considered, when designing websites in general. As the name of the model suggests, by taking into account the different elements that it consists of, we can essentially achieve a more balanced approach to research, which will result in collecting the right data, properly establishing the requirements, and taking informed decision further on in the design process. While I see this model as useful, primarily in relation to my data gathering process and the activity of establishing requirements, I consider it essential for the overall design project itself, as the implications of its use are to be echoed throughout the entire project.

There are three elements that constitute the model: context, users, and content.

1) Context

Context refers to the business or organizational context. As the authors state “All web sites exist within a particular business or organizational context” and “...each organization has a mission, goals, strategy, staff processes and procedures, physical and technology infrastructure, budget and culture” that are unique to that organization. In many cases, it is tacit knowledge, not written anywhere, but residing in people’s experience and knowledge (Morville & Rosenfeld, 2007).

In this project, I argue for the importance of designing with the users in mind, however, I acknowledge that taking into account the specifics of the context is just as important for the successful development of a product, especially when we consider how blurred the borders between the users and the context can be (see meetings and interviews, p. 61).

After all, the reason for websites to be designed in the first place (apart from it being a response to the users’ demand) is primarily due to the needs of the organizations. This is also why the requirements and the

needs stemming from the context are normally considered to be a priority, when taking design decisions.

Developing an online store, for example, is done first and foremost to serve the company that it is designed for. In a business environment this could mean increasing the revenue and boosting the public recognition of the brand. In that sense, designing with the users in mind is important and beneficial as long as it does not interfere with the company's long-term goals and mission. As much as users would enjoy using an online store, where items are free to purchase, this might not necessarily be in line with the company's goal of making profit.

When designing a website (or any other product) for an organization, I see the context as the element that lays down the foundation, around which the rest of the elements have to be structured. It is the element that gives the direction and sets the frame, within which the design has to take place. In relation to my practical case, and as further elaborated in chapter III, Aalborg University and its new design requirements can be seen as the main source, setting the contextual requirements for this project. However, it is important to not focus too much on the context, as the exact path that the design follows should also be determined by taking into consideration factors such as the users and the content.

2) Users

In the perspective of product development, there can be different understanding of who the users are, the most obvious of which being the people who are directly involved in interaction with the product (Rogers et al., 2011). Holzblatt and Jones (1993) widen that definition by including people, who are directly managing users, receiving products from or testing the system, taking purchasing decision or using competitive products (Holzblatt & Jones, 1993). According to Eason (1988), users of a system are those who have direct frequent interaction with it, those who use it through an intermediary, and those influenced by

the introduction of it or have influence over the purchase of the system (Eason, 1988).

In that sense, it is problematic to provide a clear definition of a specific group that is considered to be the users. In my view, I see the users as those whom the product is aimed at, but also those whom the product is designed for, and will be directly influenced by its introduction. A more comprehensive discussion of whom I see as the users in relation to the current case can be found in Chapter III (see meetings and interviews, p. 61). However, I still believe that in many levels it is difficult to provide a clear-cut separation, when trying to distinguish between the users and the organization, as they are so intertwined.

As Rosenfeld and Morville argue, different user preferences and behavior in the real world translate into different needs in the context of websites. Disregarding the users and building a website that confuses or frustrates them, will most probably not be used (Morville & Rosenfeld, 2007). This is why it is important that apart from accounting for the organizational context, we also take into consideration the users when designing websites. I will not argue further here for the importance of accounting for the users, as this is more or less the focus of my entire project. Instead, as already mentioned, I would like to point the attention to the importance of the context, and the complex interrelation between the context and the users that render the consideration of the different elements of the three circles model essential for achieving a balanced design.

3) Content

In the previous sections I discussed the importance of taking into consideration not only the organizational context, but also the needs and the goals of the users when designing a website. There is, however, a third aspect that also has to be accounted for early on in the data gathering stages – the content.

Morville & Rosenfeld define content as “the stuff on your website”. That includes the different types of documents, applications, services, and multimedia files (Morville & Rosenfeld, 2007). These are the building blocks that the website is constructed of and thus, having a good understanding of the content that we need to work with is required.

In many cases (as the practical case that I am working with) the design projects are related to redesigning existing webpages, rather than starting from scratch. This provides for a good starting point and is an opportunity to allow us to learn and gain a better understanding of what works well and what does not.

An existing website could be a valuable source of information and point of reference, when developing a new design. They are also a good tool for jumpstarting the process as they provide for a concrete subject for discussion with representatives of the context and users on what should be worked on or against in the design. Having a website already in place often allows for gathering precious usage information, which means that right from the start of the project possible areas in need of improvement can be identified.

In relation to my current project, having an existing website (content) on which I could base many of the elements in the new design was really beneficial, as it provided me with a foundation that I could build upon, instead of having to start from scratch. In practice, the new design of the website, that I present in chapter III, looks the way it does because it was built based on the current one. In that sense, the content actually has a very strong influence on the overall design outcome of this project.

In conclusion of the discussion above - the specific path that the data gathering and the following design activities follow, when the aim is to achieve a balanced design, should not be too focused on the context, nor the users or the content, but rather be within the area of triangulation, where the three circles of the

model combine. As the author of the model argue, even having a perfectly usable website would not be sufficient for it to last in time, if it fails to support the business goals of the organization (Morville & Rosenfeld, 2007). On the other hand, merely focusing on the organizational context, and disregarding the users would also lead to products that are unusable from the users' perspective and fail the test of time in the long run. Therefore, I see designing a successful product a matter of being able to account for, and create a balanced relation between the context, the users, and the content, whereas each of these areas is considered and their influence – acknowledged, in terms their significance.

Recognizing the importance of all elements, I still see the focus of my work in this project on attempting to account for the users, as it is often the case that the organizational context prevails, as a factor of steering the design process, resulting in suppression of the influence of other factors. Whereas the element of the content is important to be considered and could potentially provide for a good starting point and a point of reference, the consideration of the users is essential for developing a usable product that fits with the users' needs.

In a perfect situation, when the focus of developing products is on the users, the design should start and be structured, first and foremost, around the people, their needs and goals, and only then work towards meeting with the rest of the elements. In the real world, however, when designing products for companies and organizations, this is more often than not a highly improbable way of prioritizing the design determining factors. This is due to, as already discussed, the organizations being the reason for products being designed in the first place. As such they usually have certain requirements and conditions that the product should meet.

Unless designing for the users is the main goal of the design project itself, including them then can only be a priority, as long as it meets or is not in contradiction with the company's goals. Trying to incorporate a user-centered approach to design then becomes a challenge of managing to include the users, within the frame that the context forms. Hence, gathering data and obtaining a

good understanding of the users, the context and the content, and how they can be combined as to be in line with each other is to be seen as a necessity, if we are to design a sustainable website; even when the factors are not equally positioned in relation to their priority.

Having considered all these aspects in the data gathering activity, the process of establishing the requirements ends with producing a list of requirements that are to provide the basis for the next stages of the design process. The list of requirements is not necessarily a major document, nor does it has to be set in stone. However, establishing requirements is not as simple as making a list of features that we would like to have. As Rogers, et. al. (2011) argue, considering the iterative nature of the design process, and how each of the stages are interrelated and dependent on each other, isolating the requirements activities from the rest of the process is more or less an artificial way of separating the process. In practice, as all stages are intertwined, some design activities may take place during the data gathering process, and requirements may change during designing alternatives and prototyping. However, it is important that when specifying the requirements we are able to produce a list that does not radically change in time. This means making sure that after having conducted a proper data gathering process that takes into account the different aspects that are to be considered, we take informed decisions that are in the right direction in consideration of the information we have at the time.

Data gathering methods and techniques

So far I have discussed the importance of conducting data gathering, and establishing a stable list of requirements that is grounded on facts, and provides for a sound basis to start the design process. What I have missed to mention is the different methods and techniques that can be use to gather that data.

Rogers, et. al (2011) distinguishes between a variety of methods that can be used for that purpose, including interviews, questionnaires, observations, as well as techniques such as studying documentation and researching similar products (Rogers et al., 2011). Morville and Rosenfeld (2007) also propose a

comprehensive toolbox of different methods for research, aimed at each of the elements of their model of balanced approach to research, even though not suited for all kinds of project, and more oriented towards the information architecture aspect of a website. Among others, some of the methods they propose include background research, presentations and meetings, stakeholder interviews, heuristic evaluation, benchmarking, search log and clickstream analysis, user interviews and user testing.

Different data gathering methods provide for different types of quantitative and qualitative data that sheds light to certain aspects of the elements of users, context and content. None of the methods on its own would provide the same level of deep and broad understanding of the elements required for achieving a balanced approach to research (and design), as in comparison to using a combination of them. This is why it is important to understand that designing in a user-centered manner, requires a good understanding of all aspects that are to be considered, and how they can be combined in a meaningful way. It should also be noted that even though primarily used during the activity of establishing requirements, as all phases in the design cycle are intertwined and interdependent, the various data gathering methods and techniques presented here can be used on 'as needed' basis, throughout the entire design process. I do not consider all these methods suitable for all kinds of design projects, and I see the methods provided by different authors as overlapping in many levels. Hence, in the following lines I will only briefly mention some of the methods that I am actually using in my practical case. In chapter III, I further discuss each of the methods in reference to my empirical work.

- **Interviews**

According to Kahn and Cannel (1957) interviews can be seen as a "conversation with a purpose" (Kahn & Cannell, 1957). They are a good tool for gathering initial data and exploring different paths, as they are rather flexible and can be used in many different situations. Depending on the type of interview, Fontana and Frey (1994) differentiate between unstructured, structured, semi-structured, and group interviews (Fontana

& Frey, 1994). As the names of the first three suggest, they differ in relation to the level of control of the interviewer, while the last type is conducted with a group of participants. Rogers, et. al. (2011) suggest conducting interviews with both stakeholders and users (Rogers et al., 2011). In relation to the model of balanced approach to research, using interviews as a method would allow me to get a better understanding of the organization and the users. In the context of being user-centered and phenomenological oriented, I also see interviews as a powerful tool for exploring people's reality, and understanding their needs and goals.

- **Questionnaires**

Questionnaires are another helpful technique for collecting empirical data and users' opinions. In comparison of interviews, questionnaires cannot provide as deep and focused understanding of the issues being explored, but are useful for getting a wider perspective on specific questions, from a large group of people that might be geographically dispersed and otherwise hard to reach. They can be used on their own or together with other methods as a way of cross-referencing and clarifying the information that is obtained. Essentially, it is important that questionnaires are well thought and clearly structured, when a researcher is not available to clarify any doubts. It should also be noted that unlike interviews, the lack of physical presence of an interviewer could pose a motivational issue for people filling in the questionnaire (Rogers et al., 2011).

- **Observation**

While interviews and questionnaires are a great way to gather data, it is not possible to get a full and complete understanding of the context, the users, and the content without triangulating these methods with additional investigation approaches. This is because, while interviews and questionnaires are good at eliciting people's opinion and understanding on specific topics, they do not provide for a good understanding of the context. In that sense observation can provide for a good supplement that could uncover details and nuances that might otherwise be missed.

Observation as a technique can be used at any time of the design process. As Rogers, et. al. mention, in the early stages of the design process, observations can help to gain a better understanding of the context, tasks and goals of the users. Later on, if used as part of the evaluation phase for example, it could provide information for how well does the designed prototype support these tasks and goals (Rogers et al., 2011).

There are two main approaches to conducting observation that can be used, depending on the case that has to be dealt with. One approach is to conduct direct observation of users as they perform their activities. Another option is to perform indirect observation of users that can be in the form of a diary, or by using analytical software. Furthermore, a decision that has to be made is whether or not the observation is conducted in the field - as part of natural environment of the target users, or in a controlled environment, where - as the name suggests, we can achieve more control over the test conditions. The decision depends on whether the emphasis is on the details of what individuals do, or on the context and interaction of people and technology in their natural environment (Rogers et al., 2011).

If we take a phenomenological point of view, conducting direct observations of people in their natural habitat and workplaces should prove to be the most useful approach to experiencing and understanding people's context. This is because, by directly observing or being part of the context, we would be able to more closely experience the world as seen through the users' eyes and, presumably, gain a better understanding of their reality. Unfortunately, this kind of observations are not appropriate for all projects, as they are often very time-consuming, and deliver huge amounts of data that have to be subsequently analyzed. This is why alternative observation techniques should also be considered.

As Rogers et. al. notice, in the context of tracking user behavior when interacting with websites, web analytics has become a very popular form of indirect observation. The rich and detailed level of information they provide, combined together with additional data gathering techniques allow for a more complete understanding of how websites are being used. A good example of how this method can be used is to track how the number of visitors or the website usage patterns change over time or after a website redesign. As the authors argue, web analytics can be seen as a powerful tool for business and market research (Rogers et al., 2011).

According to Allen and Chudley (2012), analytics are important, because they provide for a better understanding of how something is being used, and where the work should be focused, as to have the biggest impact. However, it should be noted that they could only provide information about what is happening, but not why it is happening. In that sense, analytics is a good supplement for quantitative data that is to be used together with the rather qualitative data that is gathered by conducting interviews and questionnaires (Allen & Chudley, 2012).

- **Studying documentation**

Documentation can be a good source of information in regard to understanding legislation, regulations governing tasks, and gaining overall background knowledge (Rogers et al., 2011). Depending on the source, documentation can prove to be of crucial significance for the successful development of a product, as it can refer to requirements and regulations imposed by the context. As previously discussed, accounting for the context is essential when designing a product, as it serves to provide the frame within which the design has to take place. However, it is also important to remember that in accordance with phenomenology and user-centered design, the focus should be on understanding the actual real-world practices, rather than the idealized prescriptions that documentation provides. In this regard, it is valuable to have an

understanding of the documentation, but also have a sense of its actual implication in practice.

- **Researching similar products**

Another useful technique that can be used when establishing requirements or generating alternative designs, is to look into similar or competitive products to the one that is being designed (Rogers et al., 2011). This can serve the purpose of not only finding inspiration, but also as a point of reference. For many different types of websites (or products in general) there are specific elements and functions that are considered basic or essential. By checking similar products we can ensure that we meet the standard and do not miss any essential functionality, when establishing requirements or designing alternatives.

- **Meetings and presentations**

Apart from the more formal interviews, questionnaires, and observations, an important part of the data gathering and communication process, especially when considering the organizational context, and the stakeholders, could be performed through the use of more informal means, such as meetings and presentations. As Morville and Rosenfeld argue, an introductory presentation is a good way to start a project and get all parties involved on the same page (Morville & Rosenfeld, 2007). Meetings are also a good way to keep the communication between the designers and the stakeholders, and make sure everybody is updated throughout the design process.

- **Content analysis**

Content analysis is a useful information architecture component aimed at exploring the different elements that constitute the content of a website, analyzing them, and determining how they are (or not) in line with the goals of the organization or the needs of the users. The process of content analysis includes a content gathering activity, where different types of representative content is selected (or if the webpage is smaller – the entire content) and subsequently analyzed. One benefit of this process is

gaining familiarity with the subject matter. More importantly, however, the content analysis allows different patterns and relationships with content to be discovered, which should ultimately results in creating better content structure, and easier access to the content (Morville & Rosenfeld, 2007).

So far I have discussed the first and presumably most crucial phase of the process of developing a product – the activities of gathering data and establishing requirements. I argued for why I see approaching research (and thus design) in a balanced and rational manner, as a necessity, as even when the focus is on designing in consideration of the users and their needs, it is crucial to ensure the scalability and sustainability of the project in the long run. I elaborated on the significance of using different data gathering methods that allow obtaining a broader and deeper understanding of the different aspects that have to be considered in a design environment. I looked into how obtaining the right (and enough) data allows for the creation of a sound list of requirements that can serve as a basis for the next stages of the design process.

I see successfully establishing a list of requirements, as an important milestone in the product development process, as this is the stage after which the actual design activities can be initiated, through iterative cycles of design, evaluation and redesign. In the next section I elaborate on the activities of designing alternatives and prototyping that can be seen as the initial steps towards creating an actual website.

Designing Alternatives and Prototyping

The second and third phases in the interaction design lifecycle model are related to developing conceptual and physical models, and prototypes based on the gathered data and the established requirements in the first phase. Rogers et. al. describe it as “the core activity of designing”. Conceptual design includes developing a conceptual model of the website being designed, that is more of an abstract outlining, serving the purpose to show people what the product can do and how it can be used; and is especially useful in the early stages of designing a

product. As a further step in the design process, the authors describe the activity of developing a physical design, during which more detail and consideration are provided. Ultimately, in order to allow for the product to be evaluated by the users, a prototype needs to be developed. As Rogers et. al describe, "...prototyping involves producing a limited version of the product with the purpose of answering specific questions about the design's feasibility or appropriateness" (Rogers et al., 2011).

Even though presented as separate steps in the lifecycle model, I consider the activities in the designing stages so strongly intertwined and dependent on one another, as the borders between developing conceptual and physical design alternatives, prototyping and evaluation blur and become difficult to distinguish. It should also be noted that depending on the project at hand, it might be necessary for more emphasis to be put on any of the design activities, as the design process progresses in an iterative manner. Here I focus primarily on the activity of developing a prototype, as I consider it to be the most essential part, and the culmination of all work and efforts on developing a design that can successfully be evaluated by users. As noted by the authors, prototypes allow for gaining a better impression of the user experience, in comparison to descriptions and concepts. This is because it is often easier for users to tell what they do not want after having the opportunity to see or use something, than in comparison to expressing their opinion on what they do want to have in a product (Rogers et al., 2011).

Prototyping is an important tool for developing design manifestations that users and stakeholder can interact with. But prototypes are also invaluable part of the design process, as they can be useful when communicating between team members, exploring different design ideas, and choosing between design alternatives.

There are different types of prototypes that can be developed throughout the design process. Prototypes can range between anything starting with paper-based sketches, storyboards, or cardboard mockups, going through video

simulations, and finishing with complex software or finely detailed working prototypes that are closer to a finished product. They can be low- or high-fidelity, depending on their level of detail, functionality, and the materials used for their creation. Prototypes can also be categorized as vertical or horizontal in relation to the level of detail, and range of functions they incorporate. They can also be classified as evolutionary or throwaway prototypes, depending on whether or not towards the final stages of the design process, they transform into a finished product or are used as disposable material that serves its purpose and is subsequently discarded. In the following sections I further look into the different types of prototypes that can be developed, while in chapter III, I elaborate on a practical implementation of developing a prototype in the context of web design (Rogers et al., 2011).

- **Low- and High-Fidelity Prototypes**

As already mentioned, the difference between low- and high-fidelity prototypes is in the level of details and their functionality. Whereas low-fidelity prototypes are useful for their simplicity, low productions costs and fast development speed, they lack the level of detail and interactivity of more sophisticated high-fidelity prototypes.

Low-fidelity prototypes are good for exploring different design alternatives, especially in the early stages of designing. This is due to their flexibility that encourages exploration and experimentation. On the downside, they are of limited use after establishing the requirements, and require the use of a facilitator. Examples of low-fidelity prototypes include *storyboarding* and *sketching*, where the product under development is presented as hand-written sketches (in *sketching*) or series of sketches (in *storyboarding*) exemplifying how the product would look like or behave when being used.

High-fidelity prototypes are closer to representing the actual product through the choice of materials, functionality and level of detail that can be comparable to a fully developed product. They are more interactive,

user-driven, and allow for better evaluation possibilities. However, as Retting (1994) argues, they come with inherent problems, such as taking too long to build, provoking comments on superficial aspects from testers and reviewers, and setting too high expectations. Other issues that Retting identifies include, developers being reluctant to alterations of the prototypes, due to the excessive amount of time spent on developing them, as well as the danger of bringing the entire testing session to a halt, in case of a bug in the prototype (Rettig, 1994). High-fidelity prototypes are also more expensive to build. Thus, it is recommended that high-fidelity prototypes are used in the later stages of the development process, where not so many major changes are expected, and the concept is more mature and better established.

- **Vertical and Horizontal Prototypes**

Another way to distinguishing prototypes is based on the tradeoff between the scope and depth of their functionality. In that sense, *horizontal* prototypes are focused on including more functions with a lower level of detail, whereas *vertical* prototypes focus on a few functions only, but provide a high level of detail. When developing prototypes, depending on the desired results, a compromise has to be made on which element should the work be focused on.

- **Evolutional or Throwaway Prototypes**

A third way of classifying prototypes is based on the way prototypes are being handled, after they serve their purpose of ensuring the design meets the requirements of the users and the stakeholders. One way to approach this is to evolve the prototype into a final product. This allows for an easy and fast transition from the phase of prototyping to actually developing a finished product. A concern with this approach is that even though prototypes usually undergo multiple iterations cycles, they might not necessarily have been subject to thorough and rigorous testing that will ensure that the product is error-free, and robust enough to meet the challenges of the everyday use. This is why it is recommended, that if this approach is chosen, the prototypes are thoroughly tested, before being

released as a final product. The other approach is to consider the prototype that is being developed merely as a stepping-stone to developing a finished design, discard it, and build a final product starting from scratch. Obviously the choice of approach depends on the specific characteristics of the case that the designers are facing.

Having went through the iterative process of establishing requirements, designing alternatives and developing a prototype, the next step in the design process is to obtain an understanding of whether or not the proposed design successfully accounts for the needs of the users and the specifics of the context. This can be achieved by conducting an evaluation. The evaluation activity is explored in the following section.

Evaluation

As Rogers et. al state, “evaluation is integral to the design process”. It allows gathering data on the users’ experience when interacting with a prototype and based on that to further improve the design. The focus of conducting evaluation is both on the usability and the experience when using the system. However, there are many different evaluation methods, and not all of them require user involvement. Evaluation is important, not only in regard to meeting users’ goals and needs, but also from a business and marketing perspective. It is an important way of ensuring that the design meets the requirements, before being put on the market (Rogers et al., 2011). If we consider the model of balanced approach to research (see fig. 4), the process of evaluation should confirm to what extent the prototype accounts for the model’s different aspects. Evaluation can happen at different stages of the development process. For example, in order to ensure that during development the design continues to be in line with the requirements of the context and the needs of the users, frequent cycles of *formative evaluations* can be conducted. If the goal is to evaluate the success of a finished product, the designers can perform *summative evaluations*. Depending on the settings, the user involvement, and level of control, Rogers et. al. identify three main types of evaluation:

- *Controlled settings involving users.* In this type of evaluation, the activities of the users are controlled, which allows for specific behaviors to be measured.
- *Natural settings involving users.* This type of evaluation is conducted in the natural environment of the users, with little or no control over the users' activities.
- *Any settings not involving users.* This evaluation type relies on consultants and researchers identifying possible usability problems by using methods such as inspection, heuristics and others.

Each of the different evaluation types has its strengths and weaknesses; thus a combination of them when conducting an evaluation is advisable. In the following paragraphs I look into each of the different types of evaluation.

- **Controlled Settings Involving Users**

When evaluating in controlled (or laboratory) settings, the evaluator has more control over the process. In that way, a more objective observation can be achieved in the sense that there are less external factors and distractions that can bias the process. This way of evaluation usually takes the form of *usability testing*, which is an approach that relies on different data gathering methods such as interviews, questionnaires, observations and experiments. The goal is to investigate on how the intended users perform the tasks that the prototype is designed to allow for; this can be done by measuring the number of errors and the used time for completing the tasks, though the use of video and audio recordings, observations, and taking notes. To obtain understanding of the user experience when using the prototype, questionnaires and interviews can be used. As Rogers et. al. note, “observing users’ reaction to an interactive product has helped developers understand usability issues that would be extremely difficult for them to glimpse simply through reading reports, or listening to presentations” (Rogers et al., 2011). Madrigal and McClain (2010) state that “usability testing is one of

the least glamorous, but most important aspects of the user experience research” (Madrigal & McClain, 2010).

As a downside of this type of evaluation can be pinpointed the lack of consideration of the users’ context, which is an important factor that is to be taken into account when evaluating prototypes. Taking the users away of their natural environment might also lead to obtaining data that is not in direct correlation to how the product will be used in the real world (Rogers et al., 2011).

- **Natural Settings Involving Users**

Conducting evaluation in real world settings allows accounting for the context and the natural environment, where the product is to be used. This type of evaluation can be achieved by recruiting people, who are willing to test-use the product as part of their everyday lives. Data can then be gathered in various forms such as taking notes, audio and video recording, and logging of events related to the interaction between the users and the prototype. The aim of this approach is to be less obtrusive, and to avoid alteration of the natural behavior of the users. As Rogers et. al. argue, in order to get an understanding of how people do (or do not) use the technology in the real world, evaluators have to give up some level of control.

As a weakness of exclusively using this evaluation approach can be pointed out the lack of control, and the uncertainty of how much valuable data can be obtained. Observing and waiting for users to interact with a prototype might prove to be extremely time consuming; and in case where the users are responsible for noting their experience of interacting with prototype, there is a risk of them being too busy or forgetting to do it consistently (Rogers et al., 2011).

- **Any settings Not Involving Users**

Involving the users in the evaluation process makes sense, when the aim is to develop a product that actually accounts for their needs and goals.

There are, however, situations in which the evaluation has to take place without the inclusion of users. Examples include early stages of development, where the researcher has to imagine how the product is to be used, or when the development of a competitive product has to be kept secret. Not involving users could also prove to be a time and resource saving approach for finding usability problems. Still, this type of evaluation cannot provide for the varied perspective that can be obtained by including users, and even more - combining different types of evaluation techniques. Evaluation methods that do not involve users include heuristic evaluation and cognitive walkthroughs (Rogers et al., 2011).

Finishing with an evaluation, an iteration of the process of designing a website is concluded. The development of a finished product usually involves that the design process goes through a number of iterations. Based on the results from the evaluation it might be necessary that a new data gathering and a new process of establishing additional requirements are performed. If there are rather small issues identified during the evaluation process, the next iteration might begin by further developing and adjusting the prototype, and omit the initial steps of the lifecycle model. In case that the prototype successfully passes the evaluation phase, then its status can be changed to a finished product. By including the users through the phases of establishing requirements, prototyping and evaluation, while keeping in mind the different aspects that have to be accounted for, when aiming to achieve a balanced design, we increase the chances for developing a sustainable, well crafted website. A website that accounts for the needs of the users, but also manages to be realistic in relation to the context of the organization that it represents.

The Elements of User Experience

An important part of accounting for the needs of the users is ensuring the good user experience when interacting with a website. In that sense, apart from designing for the users' needs, it is also important to design for the user experience. As Garrett (2011) states, user experience design is "about ensuring

that no aspect of the user's experience with your product happens without your conscious, explicit intent" (Garrett, 2011). Hassenzahl (2008) defines it as the "momentary, primarily evaluative feeling (good-bad) while interacting with a product or service". In that sense the focus is not on the form or the function, but rather on the experience. (Hassenzahl, 2008)

A model (see fig. 5) developed by Garrett can give us a different perspective on the various aspects and elements that a web page consists of, in relation to the

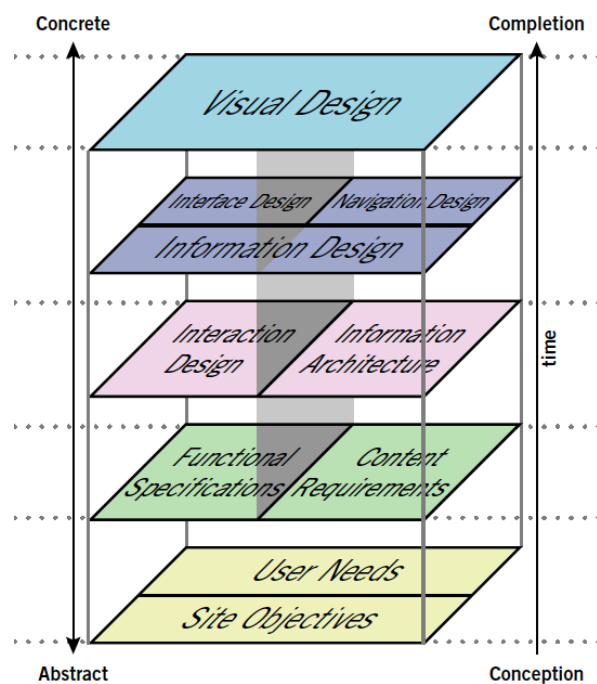


Figure 5. A model of the elements of user experience in relation to websites. The model shows the areas the relationship between the elements that are perceived as determining factors for the users experience

user experience. As Garrett mentions, the model is not intended to define a development process, but rather to highlight the key areas of consideration when developing websites. It consists of five planes, exploring the different layers of a website in relation to their level of conceptuality. Each of them is interrelated and dependent on the next one, and they all have influence on the overall user experience. This is why they constitute an important framework that is to be considered, when designing for the user experience (Garrett, 2011).

On the more concrete level, as indicated on the top plane of the model, we can see the visual design and the graphical layout of the elements on a website. Going down the structure of the model, into the more conceptual layers we should be able to uncover the reasons that define the more practical decisions made for how the website looks. Ultimately, on its most conceptual level a website is designed in relation to the business objectives and the users' needs. Furthermore, each of the layers going from the top to the bottom should be designed in consideration to each other. That is, even though the model is not to

be seen as a process, in certain situations it could be used as one. It is also a good point of reference, presenting the relations between the components that constitute it.

I will not go into details exploring the different layers in the model, but I do consider it as a valuable framework when talking about problems with the user experience. Even more, because this model can be closely related to Interaction design, information architecture, and the model developed by Morville and Rosenfeld (2007), emphasizing on the contextual (site) objectives and user needs as being at the core of the factors defining the design of the webpage.

My intention is to use the model in combination with interaction design's lifecycle model and information architecture's three-circle diagram, to give me broader perspective of the different elements that should be accounted for, when the goal is to design for the users and for their experience. It would also allow me to identify possible issues in the dependencies between the layers, as further elaborated in chapter III.

Chapter 3

The e-Learning Lab

In the previous chapter, I presented interaction design's lifecycle model and its core activities that serve as the basis for my methodological foundation. I further related the model to information architecture's model of balanced approach to research, as a mean of obtaining a richer, and more balanced perspective on the different elements that should be considered as the main factors determining the direction that the design process should follow. I also looked into Garrett's model of the elements of user experience that provides for a good overview of the different layers that a website is constituted of, in relation to the user experience.

In this chapter, I combine the three frameworks that are the building blocks of my methodology, and I put them in practice by going through the design process, in relation to my practical case of redesigning the website of the e-Learning Lab. My work on this case should be seen as a mean of validating and further refining my methodological foundation. At the same time, I see my methodology as a necessary tool that I need in order to be able to complete my practical work of redesigning a website. Here I start by presenting the e-Learning Lab, its goals, mission and structure. I look into the issues and concerns rising due to the need of an implementation of a new design, and explain the different steps that I undertake in the redesign process, while reflecting on the methodological and theoretical considerations presented in the previous chapter.

About the e-Learning Lab

The e-Learning Lab is the organization that I use as foundation for my practical work of developing, testing and exemplifying the methodology, presented in Chapter II. In the following sections I present general information about the e-Lab, its goals and mission, structure, unique characteristics, and concerns in relation to this project.

In this regard, it should be noted that while my initial understanding of the e-Lab as an organization is largely formed by the information provided on the official e-Learning Lab website⁴, and my personal impression as a student studying at Aalborg University, my view and reflections presented throughout the report are also supplemented by, and mostly based on, the knowledge obtained during my practical work in relation to this project.

Goals and mission

The e-Learning Lab is a scientific organization within the structure of Aalborg University that acts as a dynamic research, development, and resource center for e-Learning on a national and international level. It is referred to as a “center for user driven innovation, learning and design”. The center has four core activities that are in line with its mission of developing and applying theory, tools, and methods to enhance the integration of design, organization and innovation of ICT in the practices of its users (Aalborg University e-Learning Lab website, 2014).

The center’s main activities are related to:

- Experiments and support
- Sparring and participatory research
- Basic research
- Promotion of research and knowledge

⁴ <http://www.ell.aau.dk/about/>

Structure

The e-Learning Lab is the biggest research center and knowledge group within the Department of Communication and Psychology at Aalborg University. On an organizational level, the e-Lab consists of 36 employees that are distributed in four separate categories, in relation to their functions: management, researchers, visiting scholars and technical staff.

Apart from PhD students, the center consists of five professors, two associate professors and four assistant professors, with currently Marianne Lykke being the e-Learning Lab's leader and head of research. What makes an impression and is rather specific, in comparison to other knowledge groups, is the relatively high number of PhD students (22), many of which – international (thus not necessarily speaking Danish) or involved with other institutions, while also working as researchers at the e-Learning Lab (see interviews with Marianne and Sandra, p. 127 and 129).

A concept

Unlike Professors and other fulltime employees, PhD students have much shorter contracts, usually in the timeframe of three years, which ultimately results in the e-Lab being a very active community, characterized with high rates of exchange between new and old members, coming to, and departing from the e-Lab. Most international PhD students return to their home countries after their three-year contracts expire. However, even during their employment, many of the employees work in different physical locations. This is why according to Sandra Gram-Hansen, an assistant professor and PhD student at the e-Learning Lab, the members see the Lab, not as much as a physical location, but rather as a concept (see interview with Sandra, p. 129).

As Sandra mentions in an interview, on a conceptual level, for the researchers and members of the e-Learning Lab, the lab can be seen as a harbor, a common place that unites them, gives them a sense of identity and belonging. In that regard, because the members' sense of affiliation is rooted in the common goal behind the concept, for them the website of the e-Learning Lab, due to its accessibility regardless of time and location, becomes an important tool for

expression of that concept, and for keeping in touch with its community and its work, both during and after employment. The website then can be seen as an extension of the organization on virtual realm, which most important function is to bring visibility, show the people working in the e-Lab, and present their work to the outer world, in the best way possible. It is also a place that shows how they are all connected, part of something bigger, part of the e-Lab.

My role

My role in this project can be seen by considering the duality of my work, where even though on one hand I am in the role of a student, working on my project report, on a more practical level I take the role of a designer, sharing some of the functions and responsibilities of the technical staff, and being in charge of the project of redesigning the e-Lab's website. The significance of my second role, with no intent to belittle the importance of my studies, can be traced to the deep meaning and importance that the website, as a symbol of the concept of the e-Lab, has for the e-Lab's members. As the website, due to its intrinsic nature of being accessible, is also an important communication tool and a port of connection to the outer world, the task of developing a new design of the website that successfully manages to capture and communicate the essence of what the e-Lab is, becomes one of crucial importance.

Concerns

The new design that Aalborg University is implementing on all of its websites brings a new, modern look, and a more integrated experience that strengthens its corporate image. It is more flexible in technological aspect compared to the current Content Managements System (CMS), and allows for easier administration. However, the new design policy introduces one major change that affects all parts of the organization of the university – compliance with it is obligatory.

Until now, units like the e-Lab were free to choose how they were represented on the web space. They were allowed to have their own logos and be independent of the CMS used for the main website. For instance, the current version of the website of the e-Learning Lab is using Word Press, a popular

blogging platform, as its Content Management System. The new requirements from Aalborg University change all that. They create a lot of practical challenges, as the content from different systems cannot simply be transferred. Even then, the strict guidelines provide for a design with limited possibilities for customization and rather generic structure.

Aalborg University is a rather vast organization, with more than 14 000 enrolled students, allocated within four faculties teaching diverse programs and consists of a number of units like the e-Learning Lab, each of which with their own organizational sub-culture, goals and needs. As the new design was developed with a strong focus on Aalborg University as the overarching organization, and to an extent in disregard to the more specific usage cases, and needs of the sub-organizations going down the structure, the requirements for such a strict compliance with the guidelines, and the limited customization capabilities become more of a paradox, rather than a necessary measure, if we consider consistency to be the only thing at stake.

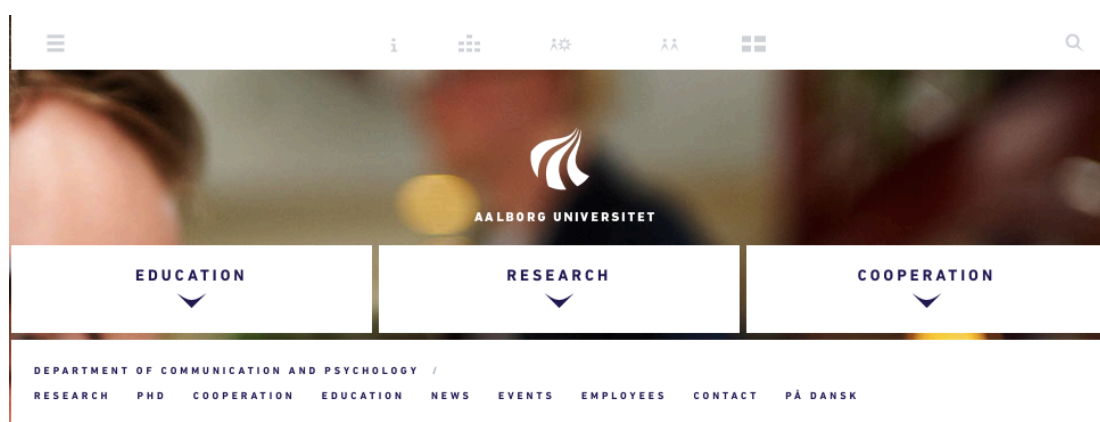


Figure 6. An image showing the global menu of AAU's new design. The service menu (on top), Aalborg University's new logo (middle) and the global navigation consisting of the categories "Education", Research" and "Cooperation" are persistent on all pages and cannot be modified.

According to Line Horndal, a webmaster involved in the redesign process of the university's websites, the overall business goal with the redesign is centered around increasing the target audience's knowledge about the different education, research and cooperation possibilities in AAU (see e-mail conversation with Line, p. 135). While relevant to the University's goals, the design consequences are not always in line with the needs of the organizations further down the structure.

A simple example of that is the hard-fixed global navigation menu (see fig. 6), being persistent on all pages of the university website and always guiding to the same location, and providing the same information, even when it makes little sense to do so.

Trying to change the language through the global menu of any of the pages of AAU using the new design, for example, takes the user away of the page he is currently visiting, and brings him to the main page, instead of translating the actual page he was on, as one would expect. Another instance is that checking for the location information always leads to the address of the main campus of university, rather than the one specific for the department or research group that the user might be looking at, at the moment (see fig. 7).

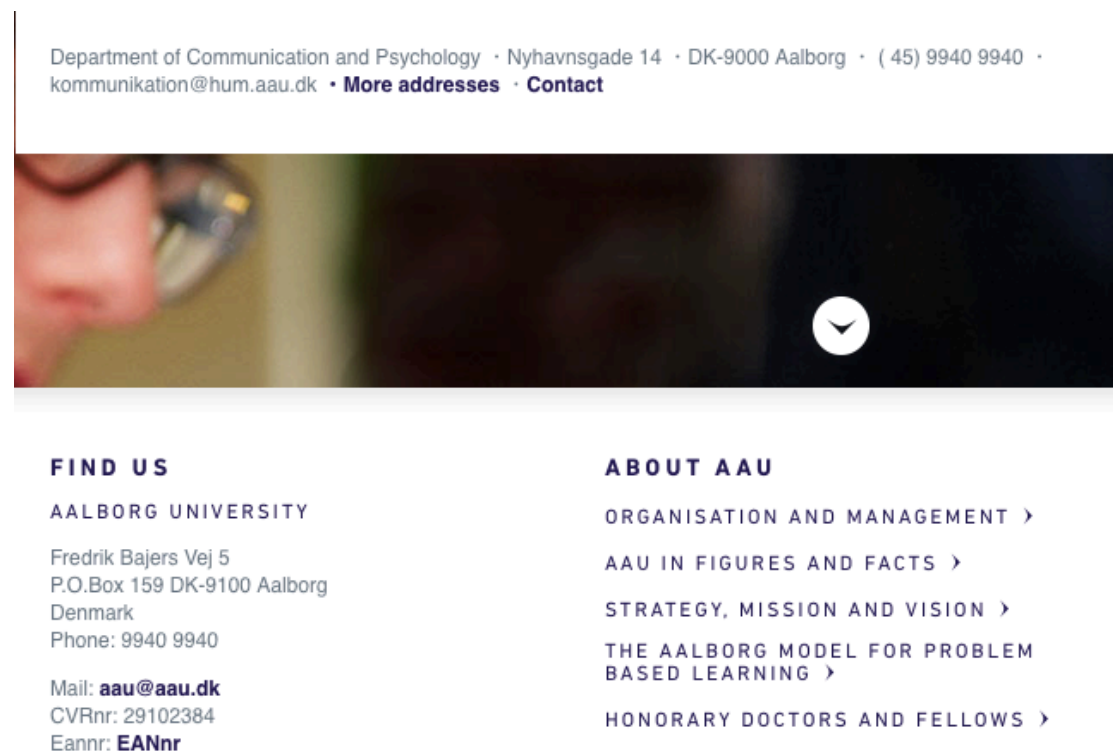


Figure 7. Excerpt from the website of the Department of Communication and Psychology in Aalborg University. Trying to find information about the address via the global footer provides information for the address of the main campus

Furthermore, the university's pressure for faster implementation of the new design shifts the focus even more towards blindly complying with the formal design requirements (expressed in the form of a technological limitation through the new CMS), rather than the focus being on developing technology in consideration of the people and their needs. Moreover, the lack of close

collaboration and consideration of the needs of the specific sub-organizations, when incorporating a new design endangers to lead to a potential turbulent transition period.

One of the consequences that I see as a main challenge in this project is preserving the identity of these sub-organizations, in regard to the website. As already mentioned, the website, as an expression of a concept and a port of connection between the organizations and the outside world, bears an important meaning for whom it represents. Thus, introducing such a major overhaul of the functions and design of the website could have a significant impact on that organization in terms of not only its activities, but also and most importantly, the sense of belonging of its members.

All these concerns can ultimately be seen as a prerequisite to developing a design that is not consistent with the specific needs of the users that it is being developed for. This lack of consideration for the users' needs and the way the new design is being implemented could potentially result in developing a product that is not usable from the users' perspective. The focus when designing should be on the people, their activities, needs, and how technology can support them. As Rogers, Sharp and Preece (2011) argue, real users and their goals, not just technology, should be the driving force behind product development, which in a consequence will result in well-designed systems "that make the most of human skill and judgment", are "directly relevant to the activity at hand", and "support rather than constrain the user". In other words they argue for the use of user-centered approach to development. They come from the standpoint that in order to develop products that better fit with people's needs, we need to have "a better understanding of people in the contexts in which they live, work, and learn". By involving users in the design process, developers can get that understanding and ultimately design better products (Rogers et al., 2011).

Connecting the pieces

As discussed earlier in chapter I, today it is essential to not only design for the users' needs and goals, but also in consideration of the more wide encompassing

notion of the user experience. I use Garrett's model of the elements of the user experience, in relation to designing a website to enable myself to account for the different elements that are influential for the user experience, and the relationships that (should) exist between them. As the model suggests, and also in line with the key areas required for achieving a balanced approach to research, according to Morville and Rosenfeld (2007), at the core of the elements determining the design of a website are the users' needs and the organizational (contextual) requirements. As Garrett argues, even though his model is not to be seen as a process, it marks the logical relationship between the elements constituting a website, in accordance with their level of abstractness.

In relation to my current case of redesigning the website of the e-Learning Lab, this immediately provides for a level of concern, as the relationship between these elements appears to be broken right from the start of this design project. This can be seen as a consequence of my project of redesigning a website, being only a small part of the bigger project of Aalborg University changing its digital communication strategies, in pursuit of its own goals. Even though connected, as the e-Lab is inherently part of the structure of the university, the e-Lab as an 'independent' research center has its specific goals and needs, which while not necessarily in contradiction to the ones that the university has, are also not automatically in line with it.

The contradiction can also be seen if we consider the design sequence as described in the simple interaction design lifecycle model. Normally design projects should start with an activity of gathering data, and establishing requirements that are to be the basis for the rest of the design process. In the case of the e-Learning Lab, I am required to start the design process from a position that is in a way in the middle of a design phase, with strong limitations, and where the design outcome is to a considerable extent predetermined. In this regard, the process of redesigning the e-Lab can be seen as just one of the many activities that are part of the process of the introduction of a new design, undertaken by Aalborg University.

This essentially limits the possibilities for innovation, and disturbs the design process, rendering it an activity of trying to match unrelated pieces of a puzzle. The design outcome should be in consideration of the needs and goals of the users and the organizational context, and should not be predetermined in advance. In this sense, having more freedom in terms of the design outcome would have allowed me to focus more on developing a design that fits with the actual needs of the users, instead of the design outcome being the determining factor for how well the needs of the users are accounted for.

By providing fairly limited options that set in stone the outcome of this design process (through the use of a pre-configured CMS for example), Aalborg University is essentially addressing the upper elements in the user experience model, which disturbs the relation between the rest of the elements. This is due to the assumption that the most upper layers, responsible for the actual look and feel of the website should be designed in relation to the layers bellow, ultimately being in line with the goals of the users and the site objectives.

From the perspective of the e-Lab, by introducing this preset design, even though presumably following the grander goals and needs of the University as a whole, the relation between the elements is broken, as the outcome of the design process has been set without being in consideration of lower levels of the model. Therefore, in accordance to Garrett's model, by developing a design in this manner, we risk having issues with the user experience.

If I use the model of the elements of the user experience as a map of my work in this project, and try to relate it to the rest of the approaches that I use in combination to form my methodology, I could argue that the majority of my practical work is focused on the lower three layers of the model, while the upper two layers are mostly predetermined by AAU. This, however, does not mean that my work is limited on accounting for the lower layers; as successfully completing this project means designing for a deliberate cohesive user experience, by ensuring that all elements are designed in consideration to each other. My work then becomes a question of uncovering the lower levels of elements, and being

able to 'fit' or 'merge' them (as much as possible) with the upper two layers, in a meaningful way.

In the next section I move towards exploring my practical work in this project, in relation to the interaction design lifecycle model. The initial stages can be seen as activities addressing the lower levels of the user experience model. As I progress my work becomes focused on trying to reestablish the relationship between the lower – conceptual, and the upper - more concrete layers. I do this through the use of interaction design and information architecture as being the intermediary layer as visible on the model.

Following the simple interaction design lifecycle model

As we do not live in a perfect world, having to design in conditions of complexity and strong limitations should be seen as the norm. Luckily, the process of interaction design is rather flexible, and accommodates for a variety of cases and design needs. In the following sections, I describe the practical considerations of my work in relation to the design activities in the model.

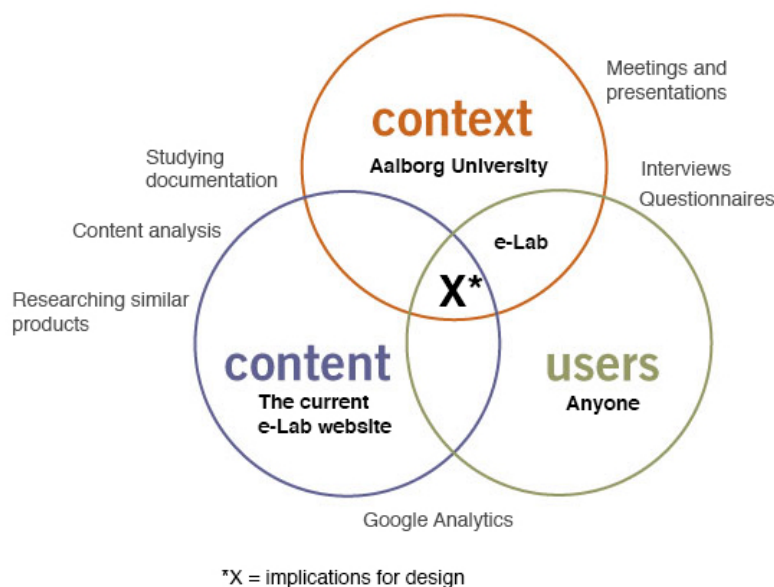


Figure 8. Morville and Rosenfeld's (2007) model of balanced approach to research modified as in relation to my practical case.

As described in chapter II, in order to develop a website in a sustainable manner, and to ensure its adequacy to both the organization and the users that it

represents in the long run, it is crucial to gather enough data and establish a list of stable requirements; that would allow me to make informed decisions and provide for a base for the rest of the activities in the design process. I have also mentioned that in order to help focus my attention at the different areas that have to be considered, throughout the data-gathering phase, I use Morville and Rosenfeld's (2007) model of balanced approach to research. Here I present the model, modified as in relation to my practical case (see fig. 8), together with the corresponding methods that I use in relation to each of the areas, in an attempt to account for them. It should be noted though, that as all the areas are interrelated and dependent on each other, different methods allow eliciting information that often concerns more than one of the focus areas. Still, the methods as presented on the model, are positioned in relation to the areas that they most closely reflect.

In the following paragraphs I explain in more detail each of the data gathering activities, as conducted in accordance to the interaction design lifecycle model.

Establishing the requirements

I began the design process by trying to gather initial data that would allow me to account for the different elements, described in Morville and Rosenfeld's model of a balanced approach to research. In order to do so I used a variety of methods.

Meetings and Interviews

I started with having meetings and conducting interviews with members of the e-Lab and university employees on different position, with the aim of obtaining a broad and deep understanding on the general organizational context, but also getting an idea of their needs, goals, issues and concerns as users, in relation to this project. Before I continue here, I believe that it is important to clarify whom exactly do I identify as the users, in the context of this project.

In the previous chapter, I already discussed that even though different authors set different scopes for who they interpret as the users of a product, I see as users those who the product is aimed at, but also those who the product is designed for, and will be directly influenced by its introduction. I also mentioned that in regard to the current case, the borders between the users and the context

are so intertwined that they begin to merge. This is due to fact that on one hand, the members of the e-Learning Lab as employees of Aalborg University are considered to be part of the organizational context. On the other hand, however, they are also users of the website.

They are users in the sense that they will be directly affected by the introduction of the new design, even more due to the significant value of the website, as a representation of the concept of the e-Learning Lab as a community. They are also users in the sense that the website is designed for them by Aalborg University, being in the role of the actual organizational context.

However, if we take the perspective of identifying as users, those who the website is aimed at, then the e-Learning Lab shifts its position (see fig. 8) from being part of the users, to being in-between two circles. The actual end-users, who the website is aimed at can then be identified. In this case, as a user can be interpreted almost anyone who might visit the website, although most probable use cases would be from students, fellow-researchers, or people interested in the research areas, publications, or researchers working at the e-Learning Lab.

In my view this way of interpreting the users, renders the people working at the e-Learning Lab as an extremely important source of information and target group, the requirements of which I have to account for, as they become representative of both the organizational context and the users. Of course, I consider accounting for the needs and requirements of external end-users, not affiliated with the organizational context of the e-Learning Lab or Aalborg University, as equally important and necessary to consider in the design process. In this regard, AAU can be seen as part of the organizational context; the e-Learning Lab, as in-between the context and the users; and the external end-users, as the pure target group representing the users (see fig. 8).

The interviews and conversations proved to be a valuable tool for exploring different directions, but also obtaining a deeper understanding on specific topics that I considered as important. To achieve a level of flexibility, and maximize the

useful outcome in terms of information that I receive from the interviews, I chose to conduct them as series of semi-structured interviews with representatives of the e-Learning Lab and the AAU, occupying different positions that were in one way or another related to the redesign project.

For example, the interview and the multiple meetings with Susanne Tøgeby, (see meeting with Susanne, p. 126) an employee at the Department of Communication and Psychology at Aalborg University, responsible for the maintenance and the implementation of the new web design at the department, were crucial for getting a sense of the practical requirements, and maintaining the coordination between complying with the requirements of the context, and designing for the needs of the users. Her input in this project could be seen as ensuring that the requirements of the organizational context were kept.

I further conducted interviews with Marianne Lykke, the head of the e-Learning Lab and Sandra Gram-Hansen, an assistant professor and PhD student at the e-Lab (see interviews with Marianne and Sandra, p. 127 and p. 129). Their input and different view points resulting from the different position they occupy, were of tremendous significance and help for identifying elements that I should focus my attention on, during the design process. I see their input as one that can be classified as both accounting for the organizational context, but also for their needs as users of the website.

Last but not least, I conducted a structured interview through e-mail with Niels Vandel Svendsen, (see interview with Niels, p. 132) a student worker at the e-Lab, and a master student in the program Human Centered Informatics at AAU, who has until now been in charge of maintaining and updating the e-Lab's website. This provided me with insights into how the website management has been ran until now, what changes have been undertaken in the design of the website throughout its existence, and some practical advices on what should be the focus of my work when designing the new website.

The knowledge that I gained through the four interviews combined allowed me to establish a good understanding of what kind of organization the e-Lab is, how the current version of website is being used, and people's vision and opinion in regard to the new design. I also see the use of interviews as a data-gathering tool as being in line with my phenomenological approach, as it is a good tool for exploring people's reality and understanding on specific questions.

This is due to the understanding that, even though following a strict methodological, expert-minded approach to design, I still see my data gathering activities as very phenomenological oriented, where I try to study and understand the e-Lab and the people working there, by experiencing it together with them as phenomena. In this regard, as a form of conversation, I see interviews and meetings as a good tool that allows achieving this goal better than the more theorized and deprived of emotion methods, such as for example online questionnaires and indirect observations.

Online questionnaire

To help me further expand on the knowledge gained through the interviews, and obtain a wider perspective, I additionally conducted a short online survey (see online survey, p. 137), measuring the user opinion of the people using the website. One of the goals was to be able to take into consideration the opinions of the rest of the members working at the e-Lab, to all of which was sent an e-mail invitation to the survey.

A second objective for conducting this survey was to allow me to account for the needs of the external end-users of the website, who are not necessarily affiliated with the e-Lab. In order to accomplish that, a link leading to the survey was positioned on the homepage of the current e-Lab website for a period of three weeks. This provided enough time for the people using the website to take part and express their opinions, in relation to the redesign of the website.

The survey received 19 responses in total, eliciting knowledge on questions concerning areas such as reasons and ease of finding information when visiting the website, as well as the overall user's opinion. In the end the survey provided

the option for people to share their ideas, suggestions, and comments about what can be improved in more detail.

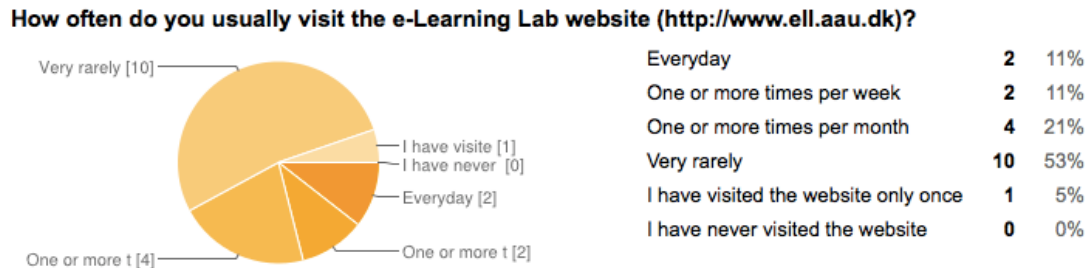


Figure 9. Results from the users opinion survey, showing how often the users visit the e-Lab website

The overall data gathered through the survey showed that most people visit the website “very rarely” (53%), whereas only few (11%) visit the website everyday, or at least once a week (11%). About one fifth of the responses pointed out that they visit the website once or more times per month.

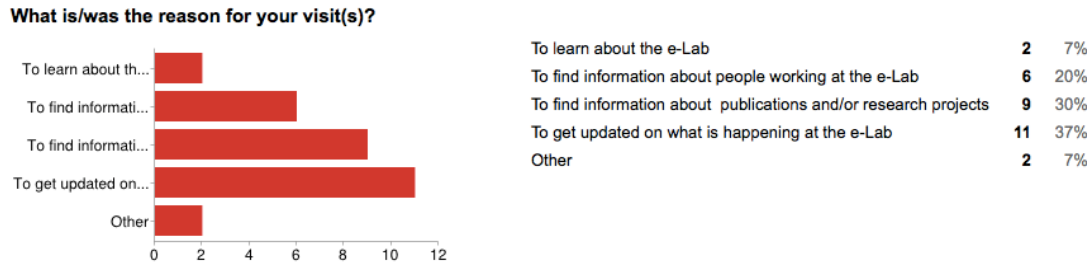


Figure 10. Results from the users opinion survey, showing the reason for website visits

The data from the survey also revealed the most common reasons for people visiting the website as to “get updated on what is happening at the e-Lab” (37%), find information about research projects and publications (30%) and about people working at the e-Lab (20%).

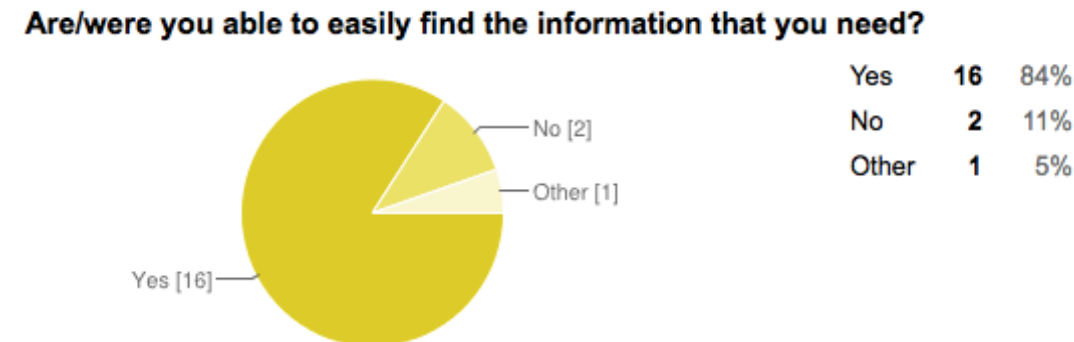


Figure 11. Results from the users opinion survey, showing responses for whether or not users were able to easily find the information that they were looking for

The majority of the respondents (84%) shared that they were able to easily find the information that they were looking for on the website. They also expressed neutral opinions, when evaluating the current version of the e-Lab’s website.

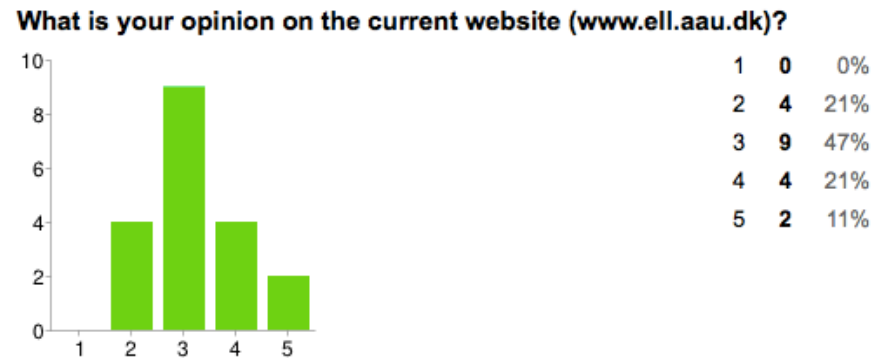


Figure 12. Results from users opinion survey showing the user's opinion about the current e-Lab website

When given the opportunity to comment, people’s most frequent wishes and recommendations were for having a more up to date website that is better maintained, better content management, and dynamic integration with VBN.

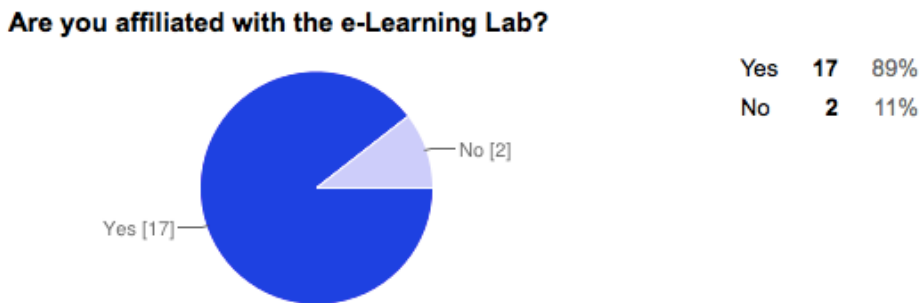


Figure 13. Results from the users opinion survey showing the distribution between affiliated and external users who took part in it

Unfortunately, although I was able to achieve my first goal of getting a broader reach to the rest of the researchers at the e-Lab, I was not able to obtain enough data regarding outside end-users, as 89% of all responses came from people affiliated with the e-Learning Lab. In this regard, the results from this survey cannot be seen as representative for the user group of the website, but rather eliciting the needs of the users affiliated with the e-Lab.

The low number of responses from outside users could partially be explained with the low engagement indicators in reference to the low amount of time the majority of people spend, when visiting the website. I will not go into details

here, however, a more detailed discussion of the reasons and the consequences for design can be found in chapter IV.

Google Analytics

As described in chapter II, web analytics software is a useful indirect observation data-gathering tool, which provides for a rich and detailed level of information on how websites are being used. In relation to the model of balanced approach to research, I see analytical software as a data gathering method that accounts primarily for the users, in accordance to how they use a website. However, as the way the website is being used is also determined by the design of the website itself (content); I consider analytical software as providing information on both the areas of users and content.

In the current case, as I work on a redesign project of an already existing website, where analytics software has already been implemented in advance, I was able to obtain significant amounts of website usage data. The information that I received through Google analytics had a crucial impact on helping me identify key areas, where I should focus my attention. In the future, it will also provide for a basis for comparison of the website usage after the new design is launched.

Google analytics provides for a broad and comprehensive statistics of website usages, through a variety of data metrics. It is interesting to look through the different statistics and find patterns. However, this could be very time consuming and in that sense it is good to have a clear idea of what exactly to look for in the statistics. In the following paragraphs I go through the key reports and data metrics that could pinpoint to issues with the website usability, and discuss some of their implications for design, regarding the current project.

The data used for generating the reports spans from 1.02.2012 to 28.02.2014. My intention with choosing a period of two years was to be able to take into consideration enough data that would allow me to spot the overall tendencies, while in the same time disregard any exclusions or anomalies, in how the website is being used. I intentionally exclude the more recent months from the

analysis, due the possibilities for alterations in traffic, as result of my work on redesigning the website.

The complete Google analytics reports can be found on p. 141 (Appendix D2). Some of the observations in the following data analysis cannot be seen in the included reports, as they are only visible in the interactive online version of the Google analytics service. It should also be noted that even though mostly accurate, the methods that Google uses to calculate the metrics in the reports are not perfect, as they depend on a variety of factors, some of which outside the control of Google, as for example website users' browser settings. Google also uses different algorithms for calculating metrics, which sometimes leads to the difference in metric results throughout the reports. Therefore, all data presented in the following reports should be taken as approximate reflection of the actual website usage.

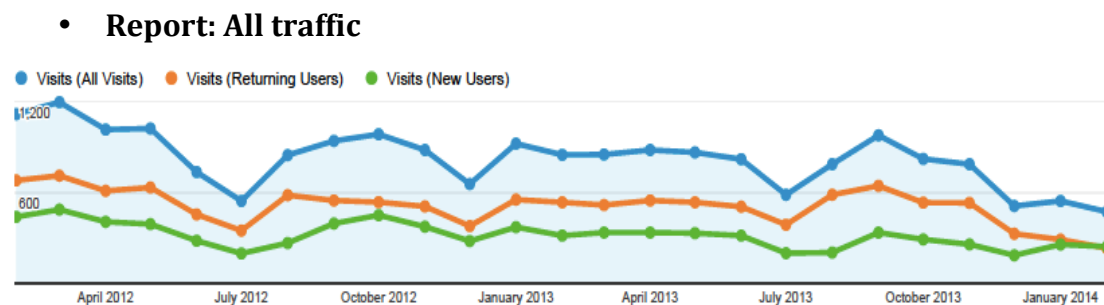


Figure 14. Excerpt from All traffic report in Google analytics showing the declining amount users of the e-Lab website throughout the years. This graphic also shows a precedent in the number of new users being more than the returning ones for the first time since traffic is tracked on the website.

All traffic report presents general information on the website usage. Looking through the traffic report for the period of two years there seems to be a general tendency of decrease in the amount of website visits, especially in consideration of the last few months (see fig.14). The amount of website visits are record low. Another tendency that can easily be spotted is that, even though, overall website visits are dominated by returning users (61.6%), in the last few months there has been a tendency of increase in the amount of new visitors, in comparison to returning visitors. This could also be related to the data gathered through the online user opinion survey and the interviews, where employees and

researchers at the e-Lab explained the low frequency of their visits with the upcoming redesign, and the not so often updated information on the website.

Another troublesome metric is the level of bounce rate (see fig. 15). According to the statistics, 68.54% of all visits end with users visiting only one page before exiting the website. As presented later on, this is also in line with the high number of people visiting the website and exiting within the timeframe of 10 seconds.

Source	Visits	% New Visits	New Visits	Bounce Rate	Pages / Visit	Avg. Visit Duration
All Visits	20,594 % of Total: 100.00% (20,594)	38.40% Site Avg: 38.40% (0.00%)	7,909 % of Total: 100.00% (7,909)	68.54% Site Avg: 68.54% (0.00%)	2.20 Site Avg: 2.20 (0.00%)	00:03:05 Site Avg: 00:03:05 (0.00%)
Returning Users	12,685 % of Total: 61.60% (20,594)	0.00% Site Avg: 38.40% (-100.00%)	0 % of Total: 0.00% (7,909)	68.68% Site Avg: 68.54% (0.20%)	2.23 Site Avg: 2.20 (1.37%)	00:04:12 Site Avg: 00:03:05 (36.43%)
New Users	7,909 % of Total: 38.40% (20,594)	100.00% Site Avg: 38.40% (160.39%)	7,909 % of Total: 100.00% (7,909)	68.33% Site Avg: 68.54% (-0.32%)	2.16 Site Avg: 2.20 (-2.20%)	00:01:17 Site Avg: 00:03:05 (-58.43%)

Figure 15. Excerpt from all traffic report in Google analytics showing a variety of metrics. An impression makes the high bounce rate and the difference in time spent on the website between new and returning users.

1. google	
All Visits	9,667 (46.94%)
Returning Users	6,246 (49.24%)
New Users	3,421 (43.25%)
2. (direct)	
All Visits	3,872 (18.80%)
Returning Users	1,907 (15.03%)
New Users	1,965 (24.85%)
3. vbn.aau.dk	
All Visits	1,251 (6.07%)
Returning Users	1,151 (9.07%)
New Users	100 (1.26%)

Figure 16. An excerpt from All traffic report in Google analytics showing the different sources of traffic for the website of the e-Learning Lab. Most users use Google to find the website, even those who are not visiting for the first time.

New and returning users' visit duration also makes an impression (see fig.15). Whereas the average visit duration of returning users is as high as 4 min. and 12 seconds, the visit duration of new users is 1min. and 17 seconds.

An interesting observation is tracking the traffic source, as can be seen on both *all traffic* and *behavior flow* reports. According to Google analytics, most of the traffic (accounting for 47% of the visits) comes through Google (see fig. 16). What is

peculiar is that returning visitors use Google as an intermediary source to access the website more often (49%) than users, who have not accessed the website before (43%). If we explore the traffic coming from direct visits we would see that new visitors access the website more often directly (25%), as in comparison to returning users (15%).

- **Report: Behavior flow**

The behavior flow report presents the traffic through the website in a visual manner. It is a good tool for understanding where most of the traffic comes from and where it goes. In that way I could easily identify which the most often visited pages within the website are, and explore the different behavior patterns of the webpage visitors.

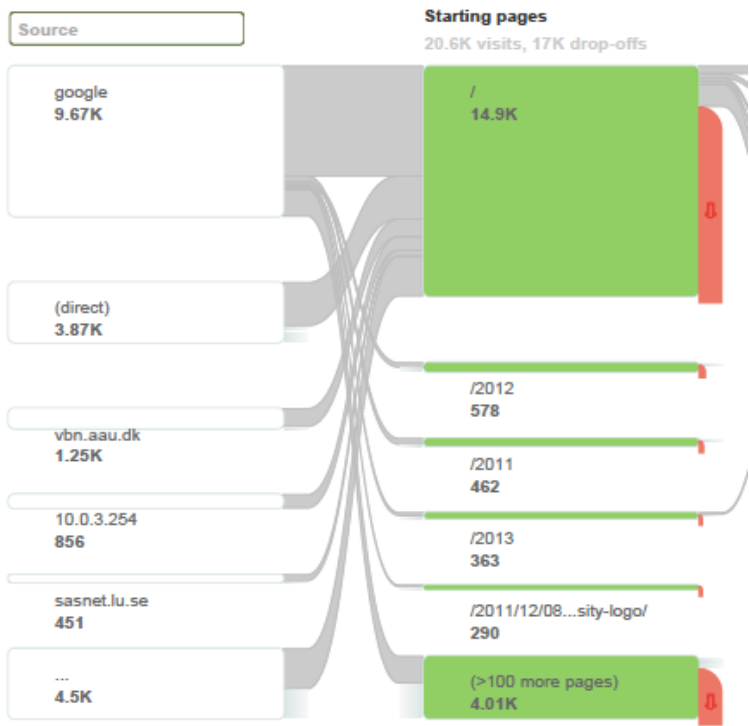


Figure 17. Excerpt from Behavior report in Google analytics showing the main sources of traffic and their destination in relation to the website of the e-Learning Lab

In the previous report I already mentioned that most of the traffic to the website comes from Google and direct traffic. A considerable amount of traffic also comes from VBN – the university’s research portal (see fig. 17). Traffic from or to social networks is almost not existent. Based on

this report, most of the traffic from these sources, except for traffic

leading to specific projects or publications, goes to the main e-Learning Lab webpage (the homepage). It is landing page for more than 75% of all visits. It also has a considerable rate of drop-offs. In total, from all - more than 20 000 visits of the website for the period of the last two years, 17 000 have been visits

where the users would move on to another website or close the page, before the first interaction with the website.

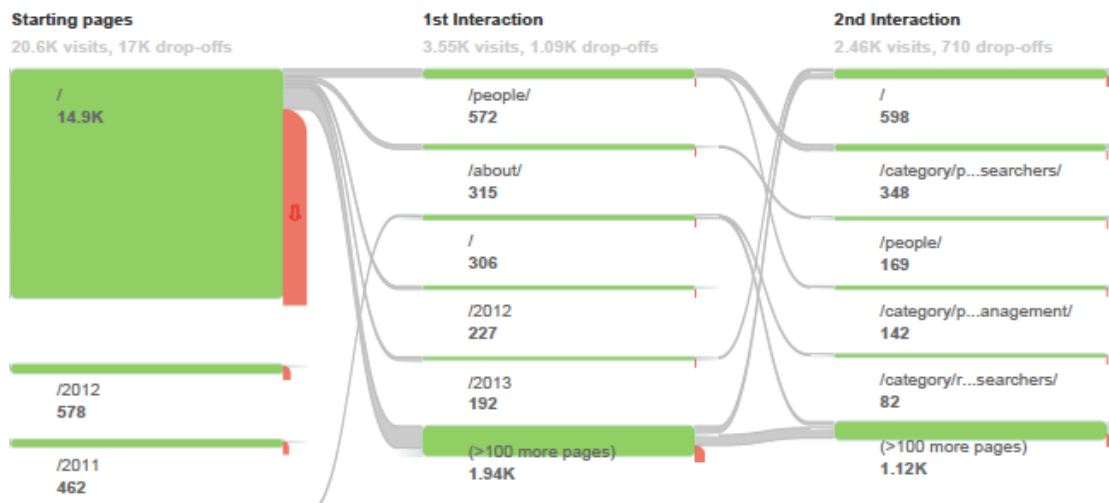


Figure 18. An excerpt from Behavior report in Google analytics showing the distribution of traffic during 1st and 2nd interaction with the website

With the increase of the number of interactions, the ratio between continuing to another interaction and the drop-off rate changes in favor of less people dropping off (see fig. 18). The behavior flow report also shows that after visiting the home page, in case that they do not exit, most people visit the “people” page, containing information about the employees working at the e-Learning Lab and the “about” page, that contains information about the e-Learning Lab as an organization.

- **Report: Engagement**

The engagement report provides a good overview of how much people are engaged when visiting the website, by measuring the page depth, and the visit duration that the different websites visits achieve.

In relation to page depth, based on this report it is obvious that most of the website visits finish with a page depth of one. What this means is that people open only one of the pages on the website, and do not continue moving through its structure. As in consideration of my comment for how Google calculates metrics using different algorithms, we could see that whereas the behavior report estimated 17 000 drop-offs at the starting page, which should refer to a page depth of one in the engagement report, the behavior report shows around 14 000 visits. Nevertheless, the tendency of the majority of people visiting the

website and exiting without performing further action on the website is confirmed (see fig. 19).

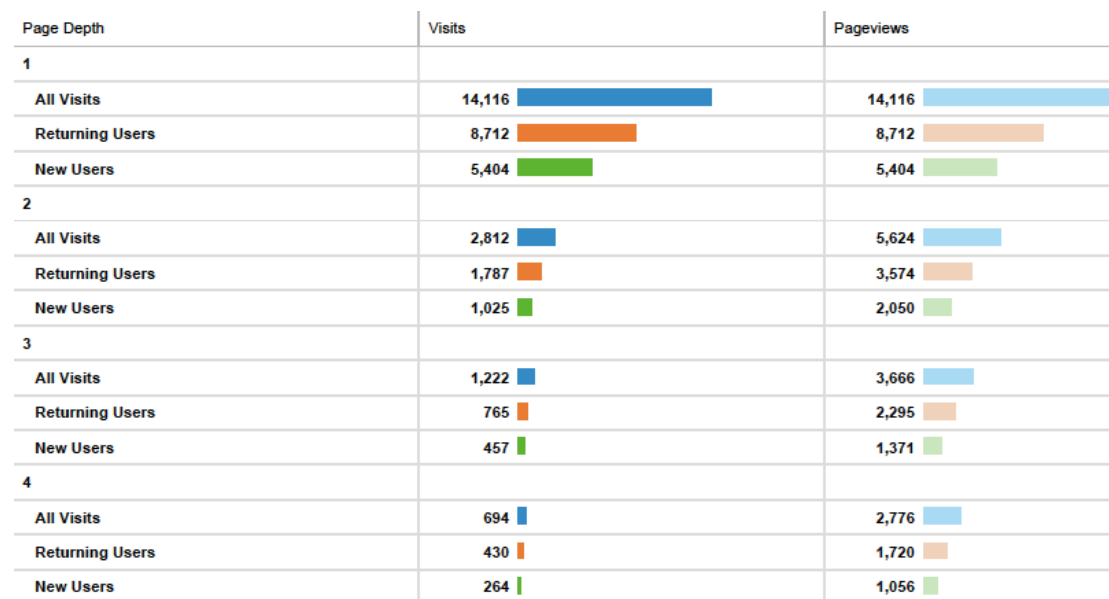


Figure 19. An excerpt from Engagement report in Google analytics showing the number of visits in relation to the page depth. This graphic exemplifies the tendency of the majority of users to not interact with the website

In relation to visit duration, we can notice that almost the same amount of visits with page depth of one, are visits that have duration of no more than 10 seconds. This means that the majority of website visits from both new and returning users finish within 10 seconds (see fig.20).

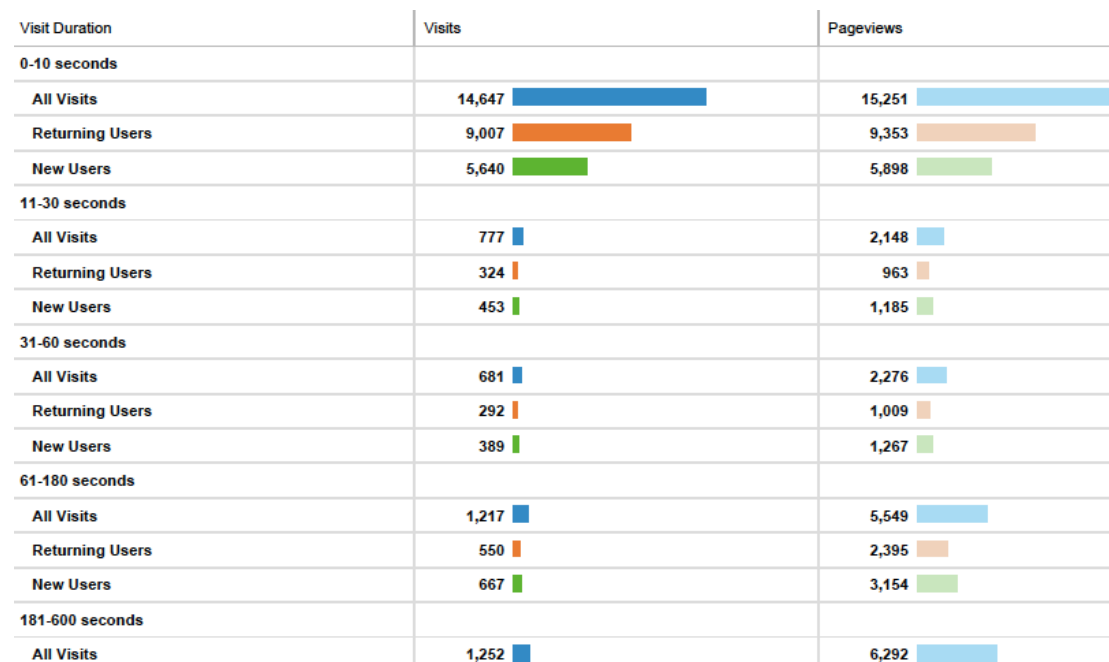























Figure 20. An excerpt from Engagement report in Google analytics showing the number of visits in relation to the visit duration. The image shows that the majority of visits end within 10 seconds

While this might indicate sessions, where users accustomed with the website visit it in order to check whether there is any updated content, it is not clear whether the high amount of visits from new users are successful in terms of people finding the information they were looking for. Based on the report, in case that people pass the 10 seconds border, there are higher chances of them staying on the webpage for periods between a minute and three hours. The number, however are still considerably low as in comparison to the amount of people having a visit duration for 10 seconds.

- **Report: Frequency and Recency**

According to Google, Frequency and Recency report “lets you see the level of interest in your site (and by extension your products or services) from the standpoint of how frequently users return to your site within a time frame (once,

Count of Visits	Visits
1	
All Visits	7,909 
Returning Users	0 
New Users	7,909 
2	
All Visits	1,020 
Returning Users	1,020 
New Users	0 
3	
All Visits	440 
Returning Users	440 
New Users	0 
4	
All Visits	263 
Returning Users	263 
New Users	0 
51-100	
All Visits	750 
Returning Users	750 
New Users	0 
101-200	
All Visits	950 
Returning Users	950 
New Users	0 
201+	
All Visits	7,030 
Returning Users	7,030 
New Users	0 

twice, ten times), and how many days go by before they return to your site (do they tend to engage once a week or once a month)”. Looking at the data provided in this report (see fig. 21), we can see a connection with the statistics presented so far. The majority of visits (7909) in the last two years have been accumulated by new users, who have visited the website only once. In general with the increase of the count of visits, the amount of visits diminishes.

Figure 21. An excerpt from the Frequency and Recency report in Google analytics that shows how often users return to the website within a specific timeframe

An interesting exception is the very high number of visits with a visit count of above 200 (7030 visits). Unfortunately Google analytics does not provide the option to explore how many of these visits are conducted from unique visitors. Nevertheless, this could suggest for small community of users, actively using the website.

- Report: Audience Overview**

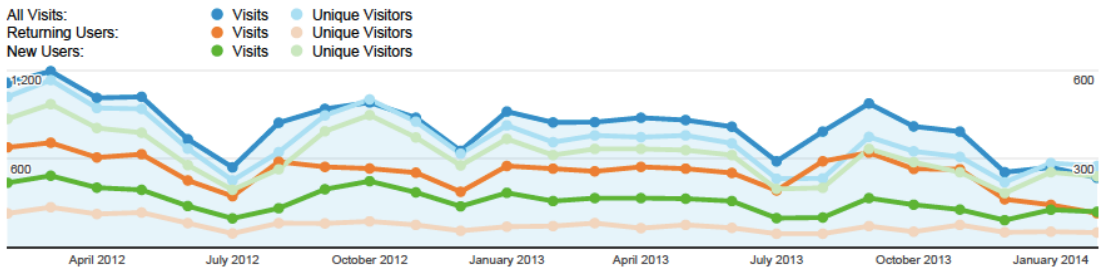


Figure 22. An excerpt from Audience Overview report in Google analytics that shows the distribution of website visits throughout the last two years. This report shows not only the number of sessions (visits), but also the number of unique visitors

This report provides a good overview of the people visiting the website, not only in relation to the number of visits and page views, but also in accordance to the number of unique visitors (see fig. 22 and 23). This is a metric that can give an idea of the number of actual people using the website.

Again, as discussed earlier, there can be noticed an inconsistency in the numbers presented by the analytical software, due to the imperfect way metrics are calculated. Disregarding this fact, we can observe that there are

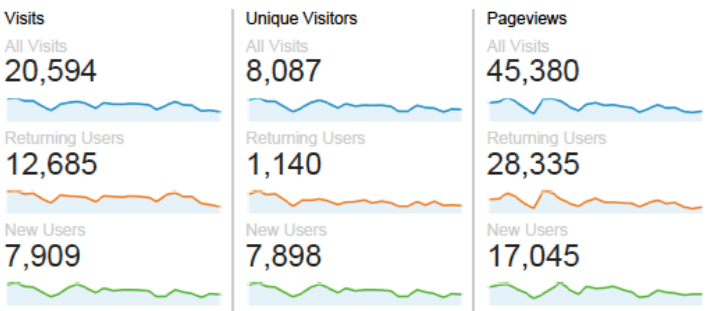


Figure 23. An excerpt from Audience Overview report in Google analytics showing information about the number of visits, unique visitors and page views for the last two years. The graphic also shows the difference between the new and returning users

roughly 8 000 unique visitors (see fig. 23), who have visited the website at least once in the period of the last two years. Out of those 8 000, around 1 000 are returning. According to the statistics, they are to a big extent responsible for the majority of website visits, with 12 685 out of the total 20 594 visits. Based on

this, it is possible to conclude that the core user base of the e-Lab website is within those roughly 1 000 unique visitors.

On a more detailed view, I could see that on a monthly basis, in consideration of the first three months of 2014, there are on average 400 visits accumulated equally by new and returning visitors. And while there were on average 200 new visitors per month being responsible for 200 of the visits, the other half was made of a user base of around 50 people, being responsible for the rest 200 visits.

Taking the different reports in consideration gave me a good idea of what is happening on the website, how people use it, and pointed me to areas of interest or possible issues that should be addressed. It showed me troublesome tendencies such as the declining overall number of visits, the high bounce rate, and the large amount of visitors exiting the website within less than 10 seconds of their visit. It also provided me with general information on the overall size of the user base of the website, the main traffic sources, most often visited pages, and the main distribution channels throughout the pages of the website.

However, it is important to keep in mind, that while Google analytics can provide with a lot of detailed information on how the website is being used, it cannot provide the answers for why the website is being used the way it is. In this regard, as also mentioned in chapter II, it is essential to use data gathered through different sources, apart from analytical software that would allow for obtaining a broader understanding.

With the data gathering methods described so far (interviews and meetings, questionnaire, Google analytics) I have attempted to account mainly for the areas of *users* and *context* as in relation to the model of the *elements of user experience*. In the following paragraphs I take a closer look at methods such as studying documentation, content analysis, and researching similar products that allow gathering data in consideration of areas such as the *context* and the *content*.

Studying documentation

As argued in the previous chapter, studying documentation is a good method for gathering data, in regard to accounting for the organizational context. In consideration of my practical work on redesigning the website of the e-Lab, I was able to obtain a good understanding of the requirements, related to redesigning websites in accordance to Aalborg University's new line of design by consulting the following two websites:

<http://aau.designguides.dk/webdesign.aspx>

<http://www.webdesign.aau.dk>

The information provided on the first website includes general design guidelines that characterize AAU's new communication strategy. It includes guidelines that cover areas such as the structure, types of pages, main elements, navigation menu, and text formats.

The second webpage features practical information, such as guides for working with the Content Management System that has to be used when redesigning the webpages, as well as examples of templates, and how they can be used as to be in line with the new requirements. Further on, the webpage provides information on different meetings and courses organized by the CMS IT support department at AAU.

In the following lines I briefly present the main requirements for redesign that I was able to obtain by the method of studying documentation, going through the information provided on the aforementioned websites and using the actual CMS. More information can be found by following the links provided above.

The new website has to be redesigned by using a preconfigured version of InfoGlue – a web content management system. Aalborg University has chosen to use this system, as part of its new communication strategy, and preconfigured certain elements of its user interface in relation to the overall university goals. The system itself provides for a level of flexibility, however, the manner in which

it has been configured allows for a limited array of functions and ways of structuring content on the website. Many of the essential elements that a webpage consists of have been preset in advance, and cannot be changed unless specifically authorized by the CMS's support team. An example of how elements are configured can be seen on fig. 24,25 and 26.

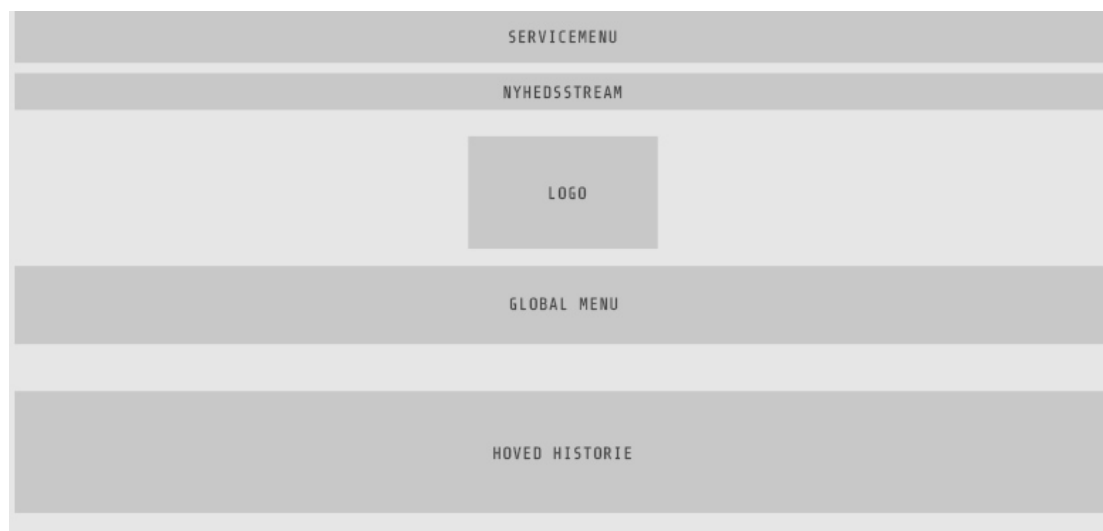


Figure 24. Wireframe of the new web design of design of Aalborg University



Figure 25. A model of the service menu, part of the global navigation system of the new web design of Aalborg University



Figure 26. An image of the global menu of the new design of Aalborg University

Websites designed through AAU's CMS always start with a service menu (see fig. 25), followed by Aalborg University's new logo, and a global menu (see fig. 26)⁵. At the bottom of the page there is a footer that when clicked on, slides up to reveal more information about the university, its address, and links to social media. The aforementioned elements always lead to the same location and show the same information, in disregard of what page the user of the website is on at the moment. These are elements that are always persistent, and cannot be changed. Content that is added and edited goes between the global menu and the global footer.

⁵ The news stream has been discontinued as being a requirement.

The typography is also not subject to change. There are two main font types being used: “DIN Next LT Pro” and “Helvetica”, depending on the components that they are used in. There are specific requirements for the size and aspect ratio of pictures used on websites. They have to be in a 16:9 format and use either 650x350px, 278:154px or 278x77px resolution. The system allows for only one color to be chosen that is to supplement the main white theme color, used as default. Furthermore the design guides specify that if a color is to be chosen, it has to be in line with the background cover picture; which is also an element that can be chosen by the web designer, but is subject to further limitations in regard to how it is processed and positioned by the system.



Figure 27. An overview of the preset templates for pages and components that can be created within the new CMS system of Aalborg University

The content guides specify three main types of pages: front page, education page, and content page. The actual CMS provides for a greater variety of page types that can be chosen when designing websites (see fig. 27, up). These pages are to be seen as guiding templates and not necessarily a requirement for structuring the content. Furthermore, there is a predefined set of content components that can be used when designing (see fig. 27, right). Some of them are preconfigured to a certain degree to work with VBN and automatically extract content from the university’s database. In that regard, the system is relatively easy to use, as it does not require any specific programming

Component name ▼
1:1 column layout
AAU Handbook
Article
ArticleList
Big button
Branding stories
Event
Event Full List
Event list
Headline
Link list
News Article
News Full List
News list
Prioritized staff list
Project list
Publication list
Search
Staff list

or coding skills. At the same time, the way it is preconfigured strongly limits the possibilities for how well websites can be designed to account for the specific needs of the different sub-organizations within the structure of the University or the specific target group of external end users that the website is aimed at.

Some of the elements that the system allows to be added include articles, action buttons, links, news lists, staff lists, research projects and publications lists, and a search function. Others are just variations of the components mentioned above, or components that are not relevant in the current case.

Some of the components provide the option to be configured to a certain degree, like choosing position, size, color or linking them to VBN for data fetching (see fig. 28). Apart from that, the CMS provides for a limited level of control and customization in how websites are designed.

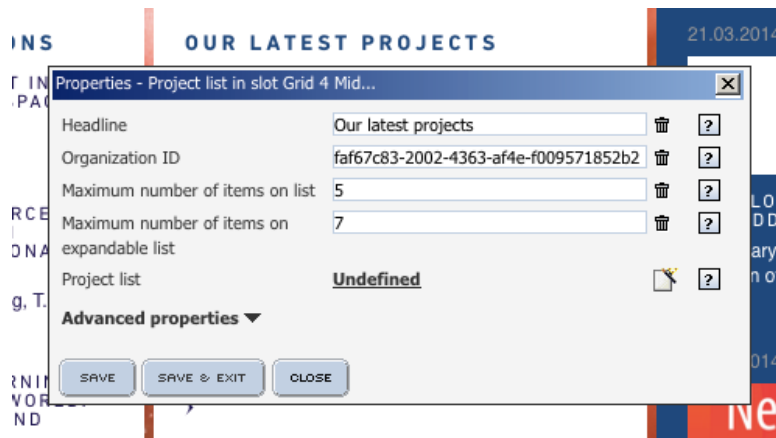


Figure 28. A picture showing the limited amount of customization options for a component that extracts information about research project from VBN

As already discussed in the previous chapter, I see the requirements formed by the organizational context, as setting the frame and giving the direction for the rest of the design process. The knowledge obtained by studying the documentation available on the websites can be seen as the one forming my overall understanding of the requirements of the organizational context. Still, it should also be noted that considering the whole design process, and how much its different activities are interrelated and intertwined, my understanding is further supplemented by the knowledge I obtained throughout the entire design process.

Another useful source of information, apart from the two websites discussed above, was an evaluation study on the website of the e-Learning Lab, performed by Helene Jørgensen, Karina Øgendahl and Mette Marie Kronborg (2012) (see evaluation of e-Lab website [study], p. 141, Appendix D3). The study focuses on the information architecture aspect of the website, and performs an evaluation of various aspects of the website's usability, with the outcome being in the form of recommendations for future redesign. The study relies on methods such as content analysis, Google and log files analytics, interviews, and laboratory studies. (Helene Jørgensen, Karina Øgendahl, & Mette Marie Kronborg, 2012)

Even though the study was conducted two years ago, not that much has changed in the website's organization, labeling, navigation or search systems. Some of the concerns and recommendation discussed in the report have been addressed, however, apart from incremental updating and maintenance, the website has remained mostly unchanged. In that regard, I consider the study performed on the e-Lab's website to be a valid source of valuable information that enlightens not only the area of content, but also the area of context, in relation to Morville and Rosenfeld's model of balanced approach to research.

In that sense, as the authors have already performed a content analysis of the website of the e-Lab, and the way the content is structured has remained mostly unchanged, I deem it unnecessary to perform another content analysis, but instead rely on the data already obtained. I do, however, also acknowledge that if a new content analysis is to be performed on the redesigned website that is to evaluate the relevance between the website components, and elements that constitute its content, it would be subjective to use it as a base for comparison in relation to the study performed before. Regarding the time constraints in relation to this project, I consider this to be a justified compromise, as by relying on the data gathered by others before me, I was able to save time and focus on my work of designing the website and developing a methodology.

This is also a reason why I do not devote a specific section here, where I elaborate on conducting a content analysis in relation to my practical work. However, it is

my opinion that conducting a content analysis in relation to the new web design would be of benefit in the later stages of the design project, when the general structure is in place, and the major content categories have already been set.

It should also be noted that, even though I have not performed a dedicated content analysis, I have spent considerable amount of time in exploring the current website and its structure that still provides me with valuable insights and understanding of how the content is organized at the moment. In this regard, having this knowledge has definitely affected my decisions throughout the design process.

Researching similar products

As mentioned in chapter II, researching similar products is a useful technique both in the initial stages of a design project, as help for establishing requirements, but also during the actual design process, as a mean of inspiration and point of reference.

In relation to my practical work on redesigning a website, looking through different websites that have already been redesigned as in consideration of the new design guidelines, proved to be a good way for obtaining a better understanding of the direction for the final outcome of my work, as a website designer. Above all, it proved to be a good source of inspiration, providing me with ideas and sparking the creativity of how the limited array of components and customization options available through the university's CMS can be used and combined together, on various types of pages in meaningful ways that are still in line with the requirements of the organizational context.

The requirements list

Taking into account all data gathered throughout the various data gathering activities of meetings and presentations, conducting interviews, and an online survey, consulting Google analytics, reading documentation, and getting inspired by researching similar websites, allowed me to obtain a broader and richer

understanding of both the organizational context, and the users' needs that I could further use for establishing a list of requirements.

The requirements list is the culmination of the data gathering activity, where all data has been gathered, analyzed and formalized in a form that is applicable to be used in the actual design process. It is not intended to be an all-encompassing manual for how to design a website, but to provide the foundation for the rest of the design process. In this regard, the requirements are to be seen as guidelines or points of reference that the future design should fulfill. The requirements list also stands to show the connection between gathered data and its actual implication in the design process.

Not all gathered data has made an impact on, or has a direct correlation, as a requirement in the list. The requirements have been established based on two factors.

- The level of unavoidability, for example, as being part of the contextual requirements that as discussed earlier have a higher priority, due to them being the ones setting the frame for the rest of the design process.
- The level of recurrence of the requirement that is observed through various data gathering activities reconfirming it. This is due to the requirement being perceived as stable and highly desired.

Furthermore, it should be noted that the requirements in the list are not presented in a specific order, even though some of them, as the ones stemming strictly from the organizational context, can be considered as having a higher priority than the others. Nevertheless, they are all important and during the design process I strive to account for all of them.

Requirements list

No.	Requirement	Source		Practical implication
		Data gathering method	Area of focus	
1.	The redesign has to be done using AAU's new CMS (InfoGlue)	Interviews: Susanne Studying documentation	Context	The prototype is being developed in InfoGlue
2.	The new design guidelines from AAU have to be followed	Interviews: Susanne Studying documentation	Context	The prototype is being developed in consideration of the guidelines presented on http://aau.designguides.dk/webdesign.aspx http://www.webdesign.aau.dk
3.	The website has to be usable by an international user group	Interviews: Marianne Google analytics	Users	The website is designed in English.
4.	The website should require less maintenance	Interviews: Marianne, Sandra Online survey	Users, Context	The website uses VBN integration to automatically fetch data like employees, projects and publications
5.	The design should be simple, intuitive and easy to navigate.	Interviews: Marianne, Sandra, Niels Online survey Studying documentation - evaluation of the e-Lab website	Users, Context, Content	Focus on improving the organization, navigation and labeling systems of the website
6.	The website should allow to easily check what is happening in the e-Lab.	Interviews: Marianne Online survey	Users, Context	News, latest research projects and publications are presented on the homepage
7.	Often visited pages should be easy to access	Google analytics	Users	The pages "about", "people", research projects" and "publications" are accessible from multiple places and promoted on the homepage
8.	PhD section should be more visible. Better reflect the activities of the PhD students	Interviews: Sandra Niels Google Analytics	Users, Context	PhD section should be further developed. Access to the section should be featured.
9.	The site should make clear the research areas of the e-lab, its scope and perspective.	Interviews: Marianne	Context, Users	Include sections about research areas, scope and perspective in the "About" page.

10	There should be connection between people and content (projects and publications)	Interviews: Sandra	Users, Context	Add possibility for browsing content based on people. Add possibility for browsing people based on content.
11.	News and activities should be less dominant	Interviews: Sandra	Users, Context	Smaller news and activities sections.
12.	The website should reflect the essence of the e-Lab	Interviews: Marianne, Niels, Sandra	Users, Context	Use a background image that characterizes the e-Lab
13.	The focus of the website should be on people and their work. The website should present them in a professional and aesthetically pleasing manner	Interviews: Sandra, Marianne, Niels Google analytics	Users, Context	The pages "People", "research projects" and "publications" are redesigned and made more visible.
14.	Contact information should be easy to find	Studying documentation : Evaluation of the e-Lab	Users, Content	Footer with contact information is present on every page
15.	Increase the amount of monthly visits	Google analytics	Users	Provide engaging content. Update the website more frequently
16.	Lower the bounce rate and the high number of sessions under 10 seconds	Google analytics	Users	Improve the organizational and navigation system

The requirements list consists of three main columns: requirement, source, and implications for design. The requirements are established based on the gathered data, the relationship with which is presented in the second column. The “source” column specifies the data gathering method used for establishing a requirement, and the area of focus that the requirements concerns, as in relation to the model of balanced approach to research. The third column is a reflection of the actual implications for design that the established requirement has, when designing the website.

While I do consider the requirements list to be an important guideline in the process of designing a website that is to show the overall direction, I also consider designing an expression of art. As already discussed in chapter II, due to the strong interrelation between the activities in the simple interaction design lifecycle model, many of the data gathering and design activities are not separated in time, but happen simultaneously.

In this project, also due to time constraints of only having one semester, many of the data gathering activities together with parts of the design processes were conducted, either simultaneously or overlapping in time. In that sense, the gathered data was influencing my design decisions, but the design activities themselves were also influencing my interpretation of the gathered data in first phase.

This is why my overall approach to designing in this project was to only set major requirements as part of the requirements list, due to the dynamic nature of the design process that could often require changes of direction. In this regard, the requirements list was serving the purpose of showing the overall direction for design, informed by the gathered data, but my decisions during the actual design process were informed by a complex and dynamic fusion of understanding, applying and reflecting on that data.

So far I presented my practical work in relation to the activities of gathering data and establishing a list of requirements. By using a variety of methods I attempted

to account for the three elements of the model of balanced approach to research, as presented by Morville and Rosenfeld (2007). In relation to Garrett's model of the elements of the user experience, I addressed the first and second layer that form the foundation for the rest of the elements. The foundation they should be based on.

In the next sections I elaborate on the actual design activities of developing the website of the e-Lab. I look into the process of developing the prototype of the e-Lab website, which is later evaluated by conducting a workshop. In the end of this chapter I present the actual prototype, at the stage where it is at the time when writing this report, and reflect on the reasons behind my design decisions.

Designing alternatives and Prototyping

In the previous chapter, I argued that the goal behind designing alternatives and prototyping is to enable the users to evaluate the website (or any other product) that is being designed.

In consideration to the current project of redesigning the webpage of the e-Lab, the limited timeframe for completing the project, and the relatively easy to operate CMS that I had to use for the redesign, I decided to focus on developing an actual prototype within AAU's CMS, and omit the phase of designing alternatives. After all, the goal behind designing alternatives and prototyping is to allow the users to evaluate the website.

On one hand, my decision was based on the understanding that apart from this being a scientific project, my practical work of developing an actual website that can be used in practice, would be of significant importance for the e-Lab as an organization. This, combined with the limited timeframe of one semester, as in consideration of the heavy scientific work involved in writing a master thesis, and my wish for having a product that can successfully be used for the purposes of evaluation, were the main reasons for my choice.

On the other hand, having the opportunity to work with the CMS allowed me to gain a sense of understanding of how much effort would be involved in using the

system, as my main tool for prototyping. Therefore, as the system was easy to learn to use and allowed for easy way of manipulating the organization structure and the content of the website, I decided to focus directly on developing a *high-fidelity, horizontal, evolutionary* prototype.

- **High-fidelity**

As the prototype is being developed within the CMS, and thus, follows all limitations and requirements, in consideration of the organizational context, and has the full functionality expected to be found in the final product, I consider it to be high-fidelity.

- **Horizontal**

In consideration of the limited timeframe for design, the aim with the prototype was to establish the main 'framework', based on which content and details can later easily be added. In that sense the focus of the work when designing was to ensure that the main elements of the organization and navigation system, in relation to information architecture, were in place. In this regard, the aim with the prototype was to focus on having developed in detail all elements that represent main categories, and essential content that has to be present in the final product, and from there on, work on adding and adjusting details further down the website structure. This is the reason why I consider this to be a horizontal prototype, however, with a level of detail in regard to the main components, corresponding to a vertical prototype.

- **Evolutional**

As from the very start of my practical work on designing, my intention was to develop a prototype that regardless of how far in the design process, could be used as a basis for continuing the work on the project, I consider it to be an evolutionary prototype. The prototype is being developed within the CMS that is to be used for managing the content when the website is completely finished. In this regard, regardless of how far in the design process I am by the time this semester project is

complete, the work on developing the website would be able to continue from the point where it was left off.

The actual activity of prototyping can be characterized as a very dynamic process of trial and error, where multiple variations and combinations of design alternatives, in terms of prototypes were developed and further refined in the process of incremental iterations. As the processes of gathering data and designing were strongly interrelated and overlapping in time, the experience of designing through trial and error, and the incoming data through the different data gathering activities, could both be seen as the elements contributing for, and developing my knowledge and understanding of the 'right' direction that the design should follow, apart from the requirements list of course.

Throughout my first iteration of the interaction design lifecycle, my aim was to develop a prototype that can successfully be used for internal evaluation by representatives of both the organizational context and the users, referring to AAU and the e-Lab. As reflected upon in Chapter II, my understanding of designing by taking into account the needs of the users is governed by the acknowledgement that in the real world, it is the organizational context that sets the frame for the rest of the design process.

In this sense, my aim with this project was to develop a prototype that was first and foremost able to meet the requirements stemming from the context (AAU and e-Lab). However, my intention was while designing for the context, to also take design decisions that were in line with the needs and the goals of the users (e-Lab and end-users), to an extent that the frame preset by the context allows.

In order to do so, while designing in consideration of the contextual requirements (AAU and the e-Lab), I used the comprehensive knowledge obtained through the data gathering activities, to steer the direction of the design process towards taking decisions that would produce the most compatible results, from the perspective of both the context and the users (e-Lab and external end-users). This is why I see conducting a proper research and

establishing requirements that account for all areas of Rosenfeld and Morville's (2007) model so essential, for enabling the design to meet complex requirements that can often be in conflict with each other.

Of course when a decision that could not be satisfactory for both the context and the users had to be made, the priority was given to the context. However, my overall goal when designing and prototyping was to always focus on accounting for the needs of the users, within the limits of the organizational context.

Following the design lifecycle, during my first iteration, based on the gathered data, and consequently established requirements, I developed a prototype that was detailed enough to be used as part of an internal evaluation. As mentioned earlier, all major components in regard to the organization, navigation, and labeling systems were in place with the goal being to demonstrate and evaluate the ideas, rather than their specific implementation. In consideration of the design process in general, my intention is, after having developed a prototype that is in line with the requirements of AAU and the e-Lab, to gradually, in an iterative manner, include the actual end-users, not affiliated with AAU or the e-Lab; following this approach, however, requires multiple iterations of prototyping and evaluation. The process of evaluation in relation to my practical work so far is explained in the next paragraphs.

Evaluation

The goal behind developing prototypes is to produce a product that can be evaluated by the users. In my first iteration of the design lifecycle I was able to develop a prototype of the website that had all characteristics of a finished product, but considerable part of the content was missing, leaving only the main pages and categories. I saw this prototype as sufficiently developed to be used as part of an internal evaluation within the e-Lab.

My goal with waiting to conduct an evaluation until I had something more concrete to present, was based on the assumption that even though I want to hear, understand, and design for the needs of the users, there were certain

requirements and limitations stemming from the context, that the design had to comply with. In this sense, conducting an evaluation at an earlier stage, where the design was still on a more conceptual level, could have resulted in enormous amounts of insights and visions, that even if really good, could have been impractical, in relation to this specific case. By presenting a prototype that was concrete enough, in its reflection of the requirements of the context, I was able to focus the area of discussion towards the elements of the design that were still subject to change.

As also argued by Rogers, et. al. (2011), by providing a more concrete implementation of my design in the form of a prototype, it was also easier for the users to tell what they do or do not like.

The authors provide for a variety of methods for conducting an evaluation. However, I did not see any of them directly applicable to my current case, at the stage where my prototype was during the first iteration. The prototype that I had developed was detailed enough to show the main concept, and the vision for how the website would look, feel, and react, but lacked the actual content that would enable any meaningful use of it that can be observed, measured, and evaluated on a more global level. In this sense, I saw it as more appropriate conducting an evaluation in a form that is also closer to my phenomenological attitude of trying to understand the phenomena of the e-Lab.

I conducted a formative evaluation of the prototype in the form of a workshop, together with members of the e-Lab. They were invited to freely join in, and be part of the evaluation process. The members who took part in the evaluation are:

- Susanne Togeby – an employee in the Department of Communication and Psychology, responsible for maintaining the web sites belonging to the department. I see her input in this evaluation as important, as she has a perspective of a practitioner when redesigning websites, but is also aware of the requirements and limitations in relation to the organizational context.

- Anne Marie Kanstrup – a professor at the department and part of the e-Learning Lab.
- Sandra Burri Gram-Hansen – a teaching assistant professor and a PhD student at the e-Lab.

My intention was to include more participants in the evaluation, but unfortunately this was not possible, due to the busy schedules of the researchers, and the short timeframe for designing and conducting an evaluation, in relation to my main work on writing a master thesis. However, I do consider that I was able to obtain good and valuable data, in consideration of the varied perspective that the participants in the evaluation had, due to their different positions.

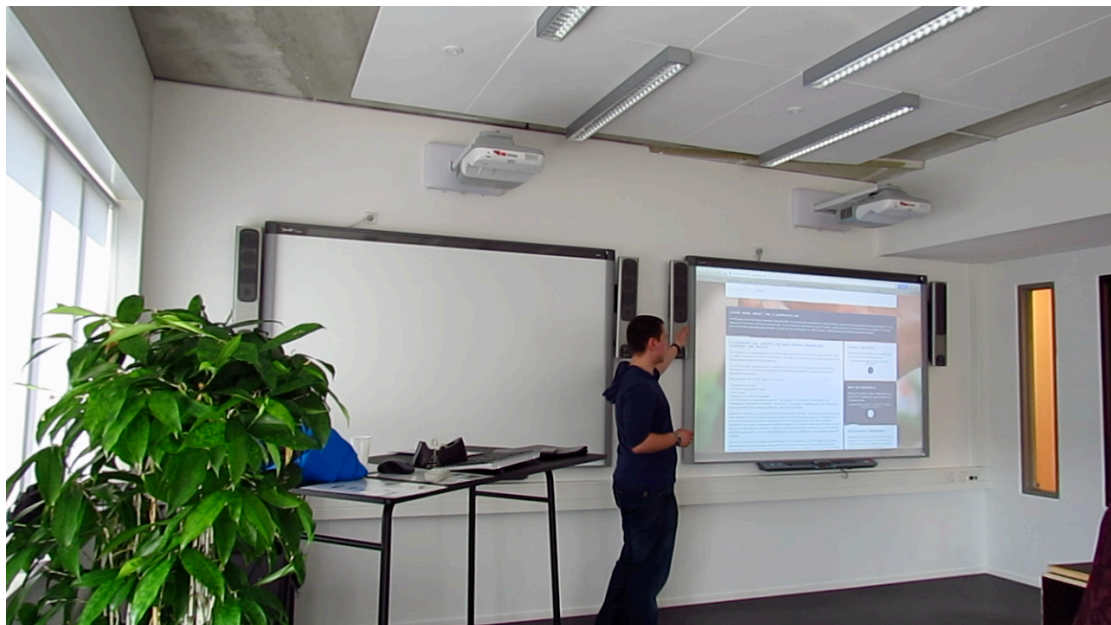


Figure 29. Part of the evaluation workshop where we discuss some of the elements of the new design

The workshop was organized as an informal meeting on which I presented an introduction to my case and the first version of the prototype (iteration one). During the workshop, the participants were asked to perform small activities related to expressing their opinion and understanding on various topics. In the end of the workshop there was time devoted for discussion, in relation to the new design.

Before the introduction, the members of the e-Lab were asked to start with the first activity. They were asked to use a white piece of paper and a pen (that were

provided for them beforehand) and write down the first three things that come to their minds, when they think about the e-Lab as an organization. Intentionally they were given only 30 seconds and asked to describe it with one or two words only, as the goal with this activity was to gain an understanding of what the e-Lab is for the researchers working there, and what they see as being its essence.

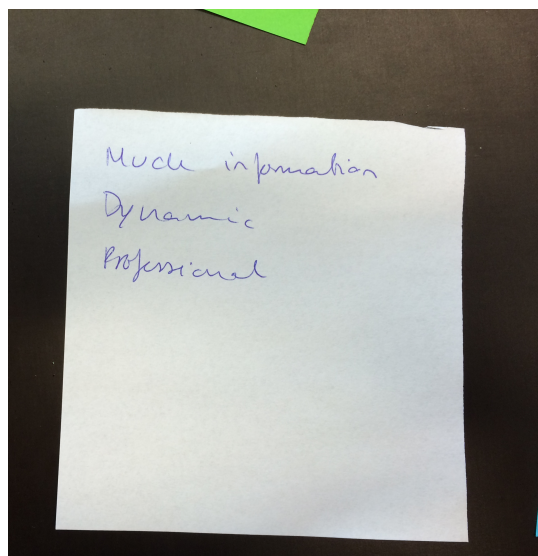


Figure 31. One of the white notes where a participant noted the first three things that come to her mind when she thinks about the e-Lab

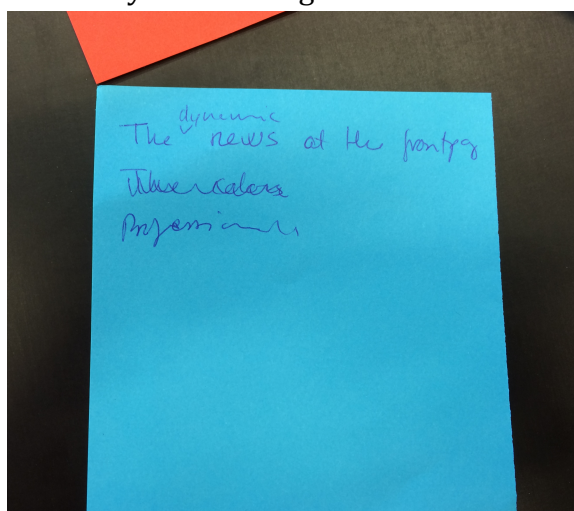


Figure 30. A blue note where one of the participants noted things that she likes about the current website

After the first activity, the participants were asked to take a blue piece of paper, and write down three things that they like about the current website of the e-Lab. They had one minute to do so. Again, the goal was not to go into detailed discussion, but rather elicit the

essence, and gain an understanding of what it is that the users like in the way the website currently functions, and would therefore like to preserve.

These activities were performed before the introduction, as I did not want to affect the view of the e-Lab members on the topics mentioned above. However, before presenting the actual prototype, I saw as necessary to start with an introduction, where I shared my main goals and consideration that I had when designing the prototype. The introduction was meant as a mean for guiding the focus, and setting the stage for the rest of the evaluation process. During the introduction, I discussed the requirements for the new redesign in accordance to

Aalborg University's new line of design, its positives and negatives, as I saw them from my perspective.

After the introduction I presented the actual prototype of the website, and elaborated on some of its specific characteristics in relation to the gathered data so far. During the presentation, the participants were involved in a discussion on their opinion in regard to my design decisions.

Next, the participants were asked to look into what they have written on the white and blue pieces of paper, and see if they can identify or relate any of the items they wrote down, to what I have presented so far. My aim was to evaluate how successful I have been in understanding what the e-Lab really is as, and represent that on the prototype. There was a short discussion followed by two more activities that were in reference to the new design.

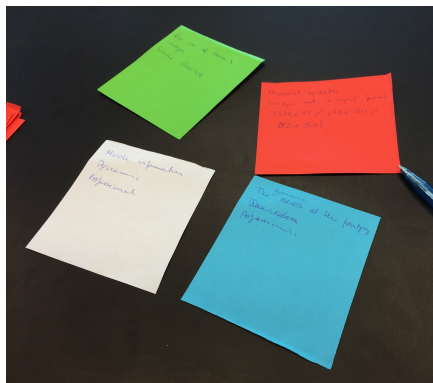


Figure 32. A pile of notes capturing insights about the e-Lab, the current

This time the participants were asked to take a green piece of paper and write down the three things that they liked the most about the prototype I had just presented. They were also asked to take red piece of paper and write down three things that they did not like about the prototype.

Finally there was a short discussion about the PhD section of the website, as this was an element that I knew I had to focus on, but needed more data in order to do so.

Conducting this evaluation provided me with valuable data and improved my understanding of the e-Lab as an organization, the good and the bad design decisions in relation to my prototype, from the perspective of users and the context. It allowed me to decide between different design alternatives, some of which were approved, and others – rejected. More importantly, it provided for an evaluation of my work so far in a more global aspect. The evaluation

workshop was documented via audio recording and pictures available in the Appendix (see evaluation workshop [pictures & audio recording, p. 141, Appendix D4]).

So far I presented my practical work on this project, following the activities of gathering data and establishing requirements, designing alternatives, prototyping, and finally - evaluation. With the activity of evaluation finishes the first iteration in the design cycle, as in accordance to the simple interaction design lifecycle. By using different data gathering methods I was able to account for the different areas of the model of balanced approach to research.

In doing so, I established a requirements list that provides for a sound foundation of the lower two layers in the model of the elements of user experience. In the process of prototyping, I used this foundation, and tried to develop a prototype that merges the concrete specifications for design stemming from the organizational context, and expressed in the upper layers of Garrett's model with the more abstract requirements from the lower layers of the model. In doing so I attempted to develop a prototype that if looked through the prism of Garrett's model, would have the different layers responsible for the user experience in line with each other.

In the last section of this chapter I present the prototype in that state that it is in at the time when I am writing this report, and discuss some of its characteristics in relation to my design process so far. The prototype has been developed in consideration of all the knowledge obtained through the various data gathering activities and the evaluation workshop that was presented above.

The e-Lab's website prototype

Before I present the prototype, it should be noted that here I only present some of its characteristics, with the goal of exemplifying how my design decisions are connected to the gathered data (thus also the requirements list).

The actual interactive online version of the prototype can be accessed by following this link: <http://www.test.ell.ig2.portal.aau.dk>.

It should also be noted that due to my work on the prototype still being a work in progress, the online version of the prototype is still subject to change.

As I have stated numerous times throughout the report, even though my main goal is to account for the needs of the users, I consider the requirements of the organizational context, as the ones that have the highest priority, and determine to what extent I am able to account for other factors. In relation to my practical case, my acknowledgement of the main contextual requirements can be seen in the first and second items in the requirements list (requirement 1 and 2).

The prototype mostly preserves the navigation system of the current e-Lab website, with the goal of not introducing too many unnecessary changes, but is designed using the new CMS of Aalborg University. In my work I have attempted to preserve, what I have found to work well, and redesign the elements that did not work so well for the users, or that had to be changed due to the new requirements from AAU.

By using the CMS, many of AAU's requirements for how the website should be designed have already been enforced, as the CMS itself provides very limited options in terms of customization (requirement 1). To ensure that my design meets the requirements of the organizational context, I have further taken into account the design guidelines available online, which is reflected in the second item of the requirements list (requirement 2).

Furthermore, the website prototype is designed in English, as in consideration to the requirement for the website being usable by an international user group (requirement 3). The need for this design decision is expressed by both Marianne, in her role of a representative of the organizational context, but is also based on the user demand as the website is being used by people with different nationalities.



Figure 33. The homepage of the prototype. Note that that background image is persistent when scrolling on the page and does not repeat like in the image. The image consists of three screenshots taken to encompass the whole length of the page

A highly demanded feature from all members of the e-Lab was the website to require less maintenance, and to be updated more often (requirement 4). The lack of new content was often pointed as one of the reasons, why people did not visit the site that often. In order to account for these needs, when designing the website prototype, I used the possibilities provided by the new CMS, that allow for a relatively easy, although very limited, way of fetching data from VBN. In this regard, the new design features are very much in line with the needs of the users. Unfortunately, the CMS does not provide for any customization, in terms of how the content is presented when it is being extracted, nor does the content allow for any kind of interaction. Instead it transfers the user to the actual VBN website.

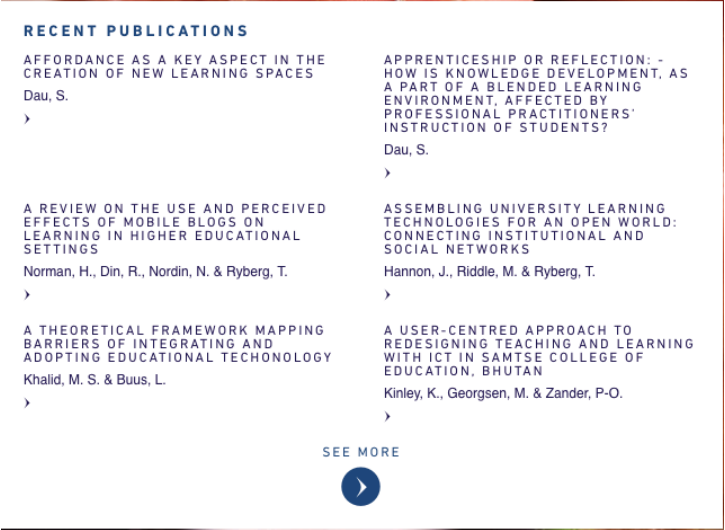


Figure 34. An example of a component fetching data from VBN and presenting it as a list. The component does not provide for any options for customization in terms of how the content is presented. Furthermore clicking on any of the link takes the user to another website.

Based on the data gathered from the evaluation, the e-Lab members very much liked the possibility for automatic content fetching, but not the way it is implemented. For example, when fetching data for publications and projects, the data is presented in a very text-heavy format (see fig. 34). If the user attempts to open a specific project presented in a list that fetches content, the user is taken out of the website, into the website of VBN. As discussed during the evaluation, this can be seen as a breakdown in the user experience. Weighing the pros and cons during the evaluation, however, representatives from the e-Lab concluded that for them the possibility of maintenance-free website was more valuable, that the possibility for customization of the design layout.

Various sources throughout the data gathering activity have confirmed the need for the design of the website to be more simple, intuitive and easy to navigate

(requirement 5). This requires for work on the organization, navigation, and labeling systems of the website. In order to address these requirements, I have made the following design decisions when developing the prototype:

- The website is less information-heavy in general. There are more empty spaces that separate the content (see fig. 33).
- Each major page category starts with a description of the page the user is at the moment, and what information can be found on that page (see fig. 35).

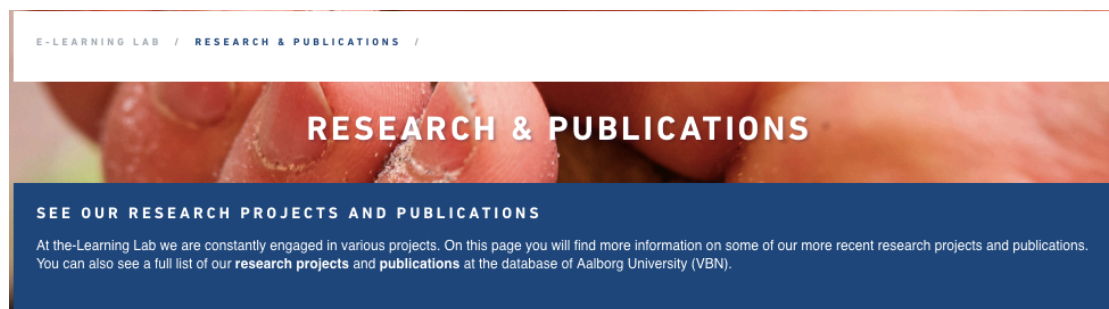


Figure 35 An excerpt from the Research & Publications page that shows a description of what information can be found on this page. In this example: Research and Publications page

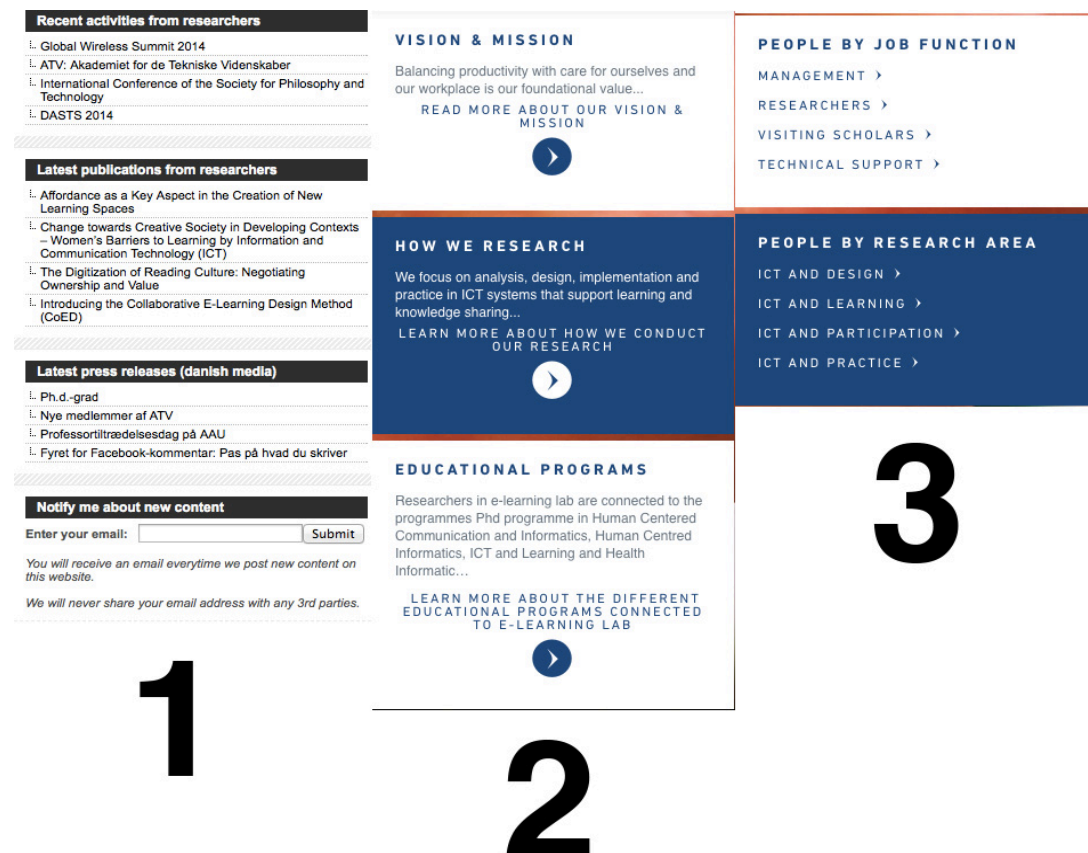


Figure 36. A picture comparing the local navigation menus of the current e-Lab website (1), that is static regardless of which page the users is using, the local menu in the "About" page in the prototype (2), and the "People" page (3)

- The content is structured and presented to the user based on its relevance. The old (current) version of the website has a lot of static content that is persistent on all pages (see fig. 36-1). The new design presents local menus tailored in consideration of where the user is (on the website) at the moment (see fig. 36-2 and 3).

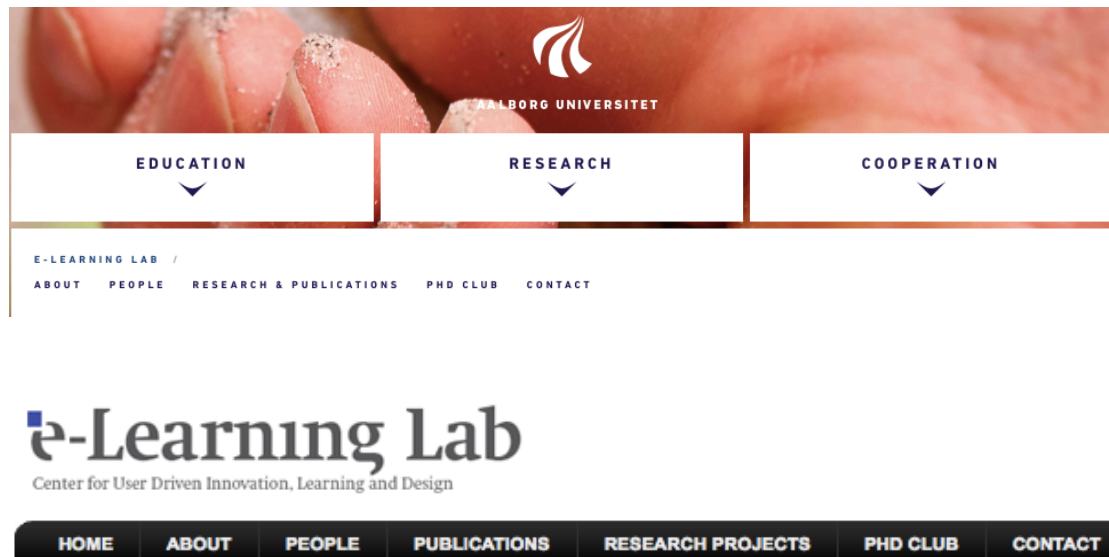


Figure 37. An image showing a comparison between the global menu of the new prototype and the global menu of the old (current) e-Learning Lab website.

- The global navigation menu (global for the e-Lab) has been mostly preserved, with the goal of not confusing the returning users of the website. In order to simplify it, the sections of research project and publications have been merged (see fig. 37). This way all content related to the scientific work of the members of the e-Lab is presented in one place.
- Additional auxiliary (local) navigation menu has been added at the end to every page that mostly mirrors the global menu (see fig. 38). On one hand, this is done in order to compensate for the inherent limitation of how menus function in the new CMS in general, only allowing to navigate in a vertical manner (see limited local [global] menu, p. 116). On the other hand, this design decision aims to keep

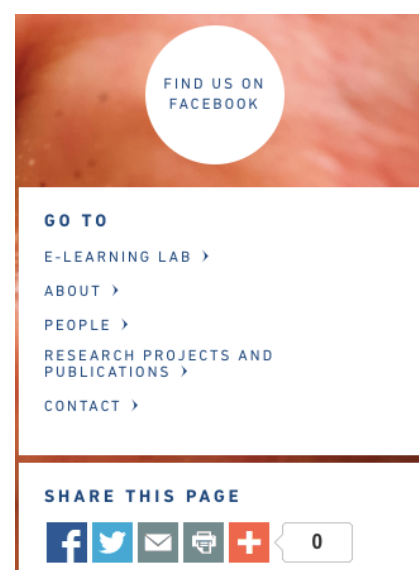


Figure 38. An excerpt from the PHD page showing the auxiliary (local) menu

the users on the website longer, by presenting them with more content that they can further explore. To further compensate for the limitations of the global navigation menu, and keep the website simple, I strived to keep the organization structure shallow and not develop too complex hierarchical structures.

- The new prototype uses labels that feature simpler language-style. The information obtained during the data gathering pointed that it is important for the website, as an expression of the concept of the e-Lab, to convey the impression of the e-Lab as a community. I have tried to address this in the design in various ways, but in terms of the labeling system, this can be seen in the intentional use of pronouns like “us”, “our”, “we”, etc (see fig. 39).



Figure 39. An excerpt from the prototype homepage showing the change in the labeling system through a more simple language style that give the impression of a community. Note the use of pronouns like “us” and “our”

Additionally, the prototype allows users to easily check for any news, straight from the homepage (requirement 6). There are lists providing information on latest news, projects, and publications that are always kept up to date by fetching data from VBN (see fig. 34). The way the news section has been structured is also less dominant (requirement 11), and does not take the majority of the page as in comparison to the old design.

Apart from that, the most often visited pages are easy to find and access (requirement 7). Aside of being present on the global menu, the pages containing information about the people working at the e-lab, their work, as well as general information about the e-lab is featured at the very beginning of the homepage (see fig. 33). This is also in line with the requirement for the focus in the website to be on the people and their work (requirement 13).

At its current state, the PhD section of the e-Lab website features the description of only one meeting, and is not really developed. Based on the gathered data, there is a requirement for the PhD section to be more visible and to better reflect the activities of the PhD students. To account for this requirement, the prototype features the PhD section, and has further developed the PhD page into a portal, offering information not only about meetings, but also general information about the PhD club and how to become a student (requirement 8) (see fig. 40). My design decisions for how to structure the page of the PhD club are based on information I gained during the evaluation of the prototype. It should be noted that at the time of writing this report, the PhD section still lacks any actual content. My work on this particular area of the website was focused on developing the framework and the structure, determining where and what content will be positioned in the future.

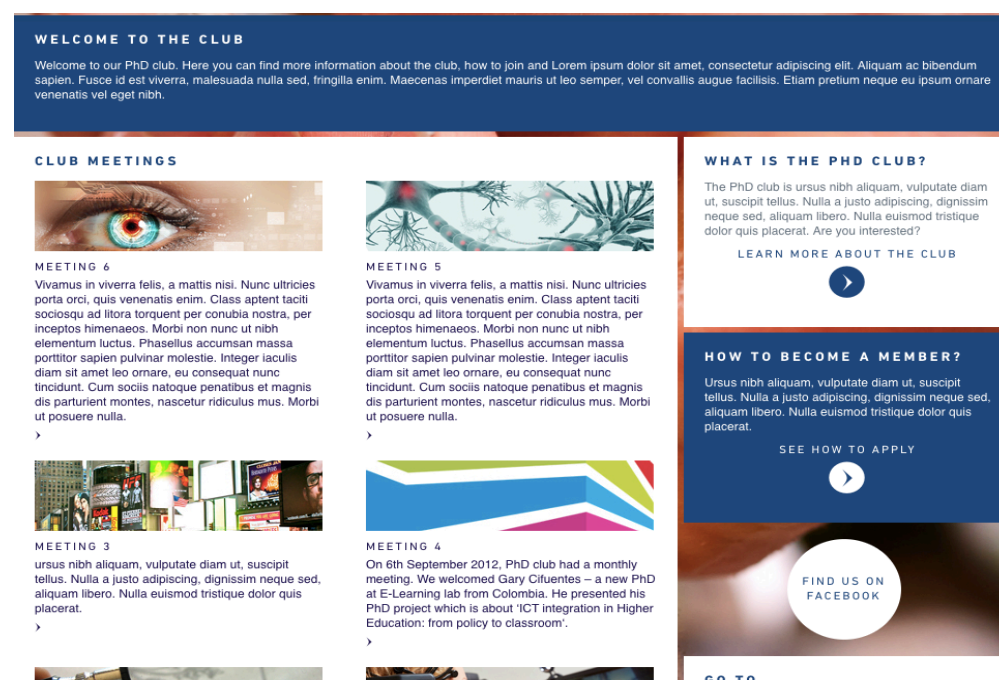


Figure 40. An excerpt from the PHD page in the prototype



Figure 41. The background image for the website prototype

Another area of the prototype that I would like to point the attention to is the background image. As the background is one of the few elements that can be customized, and have a significant impact on the overall feel and impression when using the website, I consider it to be an important part of the design, that requires careful consideration. It is an element of the design that sets the stage, and provides the atmosphere for the rest of the content. In this regard, it is one

of the crucial design elements that can be used to differentiate the e-Lab and show that even though part of AAU, this is an independent organization (requirement 12).

In my view, the image that I have currently chosen (see fig. 41) captures the 'spirit' and the essence of the e-Lab. It is taken in the design laboratory, during a workshop, and stands to show the innovative and out of the box way of thinking and working that can be related to the e-Lab. Of course above all, it is just a design alternative.

During the evaluation workshop were expressed concerns that the image might not be clear enough, in conveying the message of expressing the 'spirit' of the e-Lab, as users who are not aware of the e-Lab might not understand it. In this sense, I consider that the image that should be used as background in the final product still has not been found or captured.

Another requirement that was expressed by Marianne during the interviews, was that the website should clearly show the research areas of the e-Lab, its

scope and perspective (requirement 9). My initial plan was to present that information on the homepage, due to it being classified as important. In the prototype, however, I have positioned it in the “About” page (see fig. 42), as I believe it is more logical place to be found in, and also because this way the interface is kept more focused and simple (requirement 5).

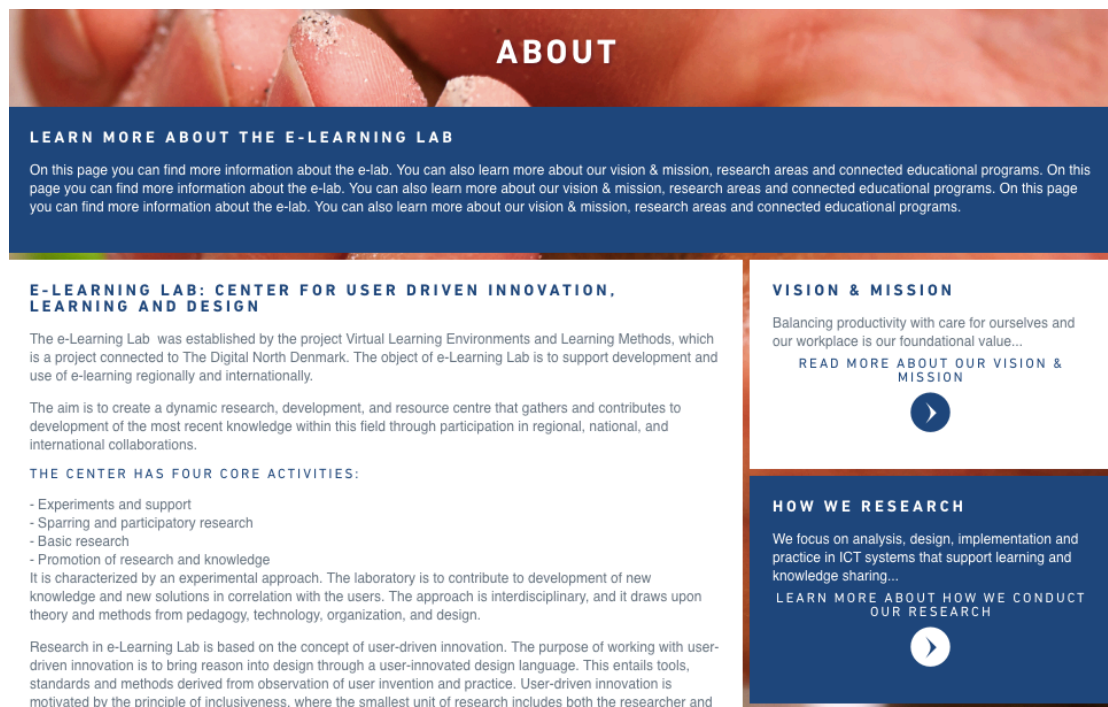


Figure 42. Excerpt from the "about" page in the prototype. Here can be found more information in regard to the areas of research, the scope and the perspective of the e-Lab

Also in line with this requirement, an important consideration that I had to make when designing the prototype was whether to focus on automatic integration with VBN, which would lead to reduced need for maintenance, but also limit the possibilities for customization of how content is presented; or to focus on modeling the layout and the appearance of the website, which allows for more flexibility, but would require a lot of work on maintaining the website in the long run.

In order to take a decision based on the users' needs, the initial prototype that was used for the evaluation workshop, featured two different design alternatives, each reflecting the requirements of the users and the context, respectively.

One of the design alternatives was developed to be in line with Marianne's requirement, for the website to clearly show the different research areas in a topical manner, apart from listing the actual research projects and publications that the researchers from the e-Lab are involved in. This requirement was reflected in the prototype, by including sections offering the users to browse content in relation to these areas, in both the "People" and "Research & Publications" pages (see fig. 43 and 44). Unfortunately, in relation to the limitations of the CMS, this way of presenting content requires manual adding and categorization that is maintained locally for the website.

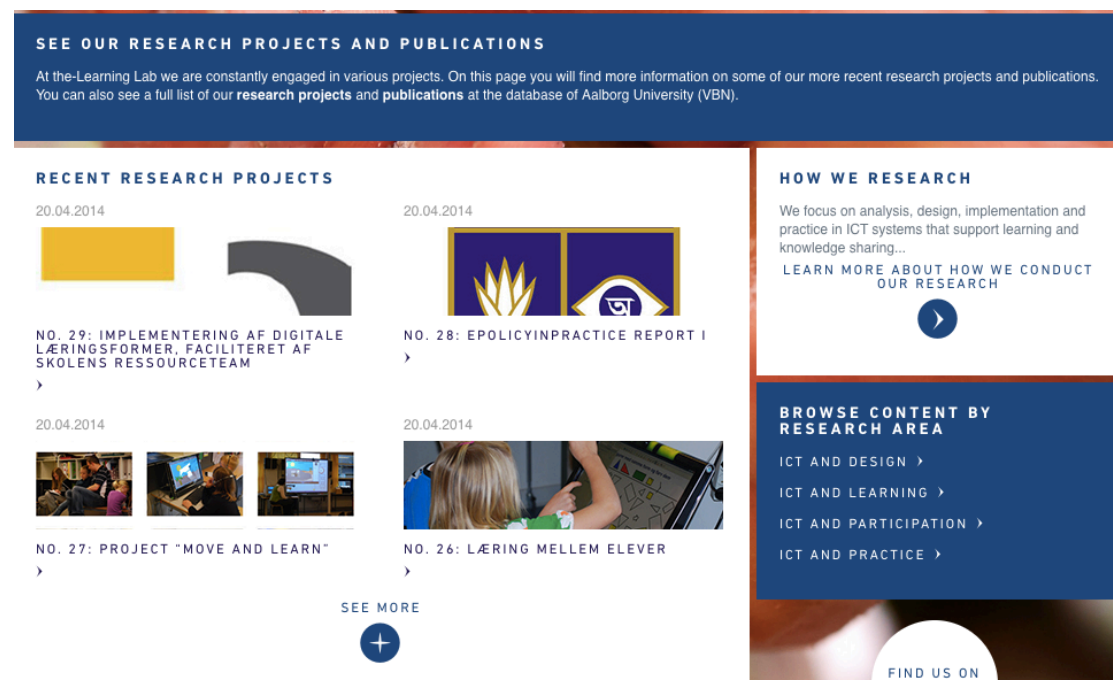


Figure 43. An excerpt from the "Research & Publications" page in the initial prototype, featuring categorization of content based on research areas (bottom right)

The other alternative was developed in relation to the new design guidelines, where content is stored and maintained in one centralized place (VBN) and extracted from there. In this regard, the content is simply presented as a list of information with no option for categorization or change of its visual representation (see fig. 34).

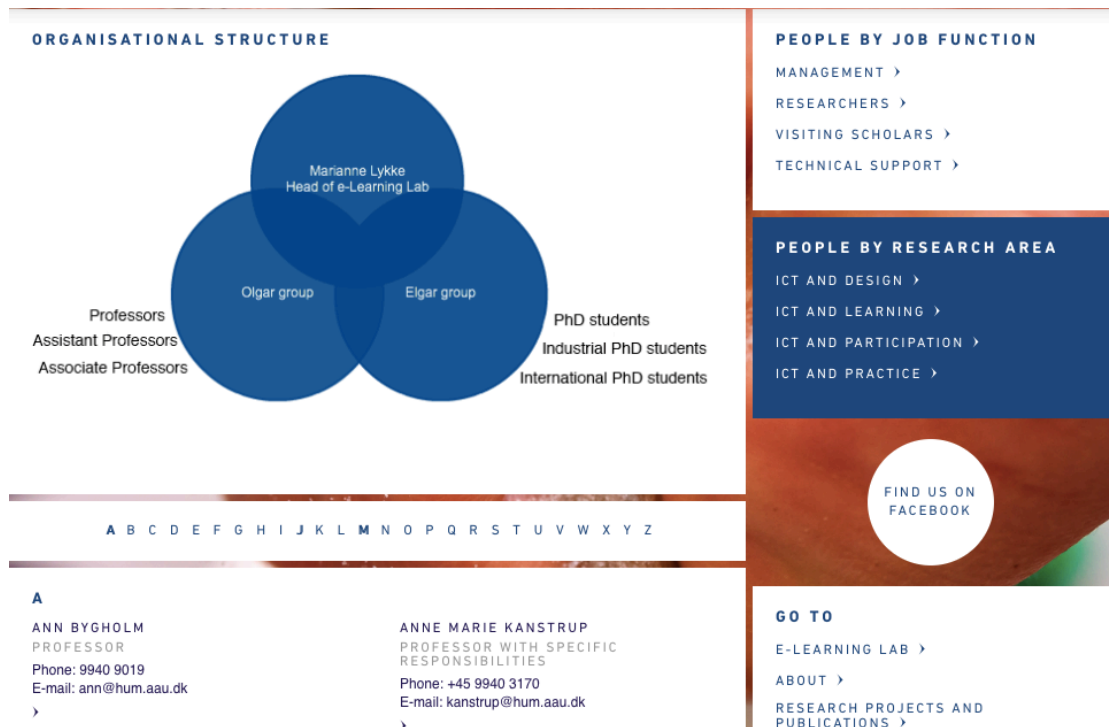


Figure 44. An excerpt from the "People" page in the prototype, featuring categorization of people based on research areas (right)

Being introduced to the two design alternatives, the participants in the evaluation decided that ease of maintenance is more important, than the possibility for categorazation of content based on topics. This was a compromise that had to be made, due to the misalignment between the users' needs and the contextual requirements (limitations).

In this line of thinking, the prototype still provides a connection between researchers and content, as it leads to the VBN website, which provides that functionality (requirement 10). However, as mentioned earlier, this way of transferring the user to a different websites does not provide for an optimal experience.

Another aspect in the prototype that I would like to point the attention to is the use social media buttons. While the current e-Lab website does integrate social buttons, and has a Facebook page, from the traffic report in Google analytics it was obvious that not much traffic is being generated through the social channels. In this regard, the new prototype integrates social buttons more aggressively (see fig. 38). I acknowledge that this measure by itself would not produce

considerable results, and more aggressive use of social media as a whole is required, where news and upcoming events related to the e-Lab are posted.

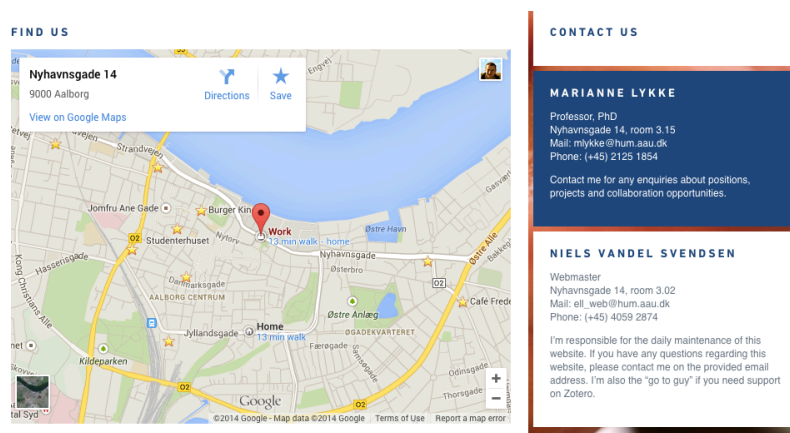


Figure 45. An excerpt from the "About" page, showing contact information and an interactive map with the location of the e-Lab

Based on my observation of the current website, and the conclusions in the students led evaluation study, I saw as a requirement that contact information is easy to find on the

website (requirement 14). Even more, because of the earlier discussed issue of the new CMS always showing contact information for the main campus. To ensure that contact information is easy to find in the new prototype, every page ends with a local footer containing the contact information of the e-Lab. Additionally the contact page now contains an interactive map showing the location of the e-Lab, instead of a static picture (see fig. 45).

The last two requirements in the requirements list are based on the unfortunate tendencies of a decrease in the amount of monthly visits, and high bounce rates, observed in Google analytics (requirement 15 and 16). I believe that addressing those issues is a matter of a complete restructuring and redesign of the website, as well as a change in the practices of how the website is maintained. In this regard, my design decisions in relation to the prototype, apart from complying with the requirements of the context, and the other issues addressed so far, were in an attempt to improve the overall usability and experience using the website, which would hopefully result in the website being used more by the users.

I would like to remind again, that the characteristics discussed above cover only a small portion of the changes, and the amount of work put into designing the prototype. They were presented because they demonstrate the actual design

implications, in relation to the gathered data, and the established list of requirements. To get a full impression of the prototype's look and feel, one has to see the website in an online environment. I would also like to note that the website is still a prototype that serves the purpose to give an idea of the structure of the organization, navigation and labeling systems. At this point in the design process, most of the content is still missing. The current version of the e-Lab website can be accessed on <http://www.ell.aau.dk> and prototype can be seen by going to <http://www.test.ell.ig2.portal.aau.dk>.

In relation to the overall design process, I see this project as currently being in the second design iteration. I have conducted an evaluation of the prototype at its stage during iteration one, which provided me with valuable data, some of which I have used in the design of the prototype discussed above. What lies ahead is to continue working on the prototype, adding more content, and polishing the details. This would allow me to use the prototype for a more thorough evaluation that includes both e-Lab members, but also the external end-users.

Chapter IV

Discussion and Conclusion

In chapter III, I looked into the practical process of redesigning the e-Lab's website in relation to the theoretical framework that was presented earlier in chapter II.

In this final chapter, I discuss and reflect on some of the more notable issues that I faced in this project. More specifically I elaborate on the difficulties related to including the users, the language barrier, and the conflicting requirements stemming from the various design determining factors.

In the last section of the report I conclude, summarizing the results of my practical and theoretical work, and argue for whether the methodology I have developed is able to answer the problem stated in my thesis statement.

Discussion

Including the users

The focus of this entire project is on developing a methodology for including the users in the design process, accounting for their needs, and subsequently designing for them. Yet in the design process discussed so far, I have not included the users as much as I would have liked to.

As I consider as users both those who the website is designed for, and those who it is aimed at, it could be argued that by focusing on accounting for the needs of the organization of the e-Lab, I have to an extent, or at least partially, accounted for them. After all, as the e-Lab is representative of both the organizational context and the users, it is only natural that it has been a subject of the main focus. Not only is the website being designed for the e-Lab, but it is also to an extent used by its members to keep track of what is happening there.

It could also be argued that I did in fact account (or at least attempted to) for the actual end-users, represented by the external, not affiliated with the e-Lab website users. I did intentionally use a variety of data gathering methods, in order to obtain a varied perspective, covering different areas, one of which being the external end-users. In this regard, my main goal with conducting the user opinion survey, apart from providing me with a broader reach to the requirements of the e-Lab members, was to allow me to gain an understanding of the needs and goals of the external end-users. Consulting Google analytics was also a great way for me to gain an understanding of how the website is being used by all users, including the external ones.

Having all that in mind, I still do not believe that the external end-users have been taken into account enough, in regard to the design process so far, especially considering the focus of this project.

I see the reason for this as twofold:

1) First, the 'useful' end-users are difficult to reach.

On one hand, due to the target audience being difficult to identify, as anybody can be a potential user, even though, some - as students and fellow researchers are more probable than others. At the same time, getting any meaningful feedback from the users would require having understanding or at least awareness of what the e-Lab is. Otherwise, the input from the users would be more general, rather than one based on real understanding of the matter. After all, the e-Lab's website is not really intended for the general public, as for example Amazon's website. In this sense I do not believe that including just any external user would produce fruitful results, in this particular case.

On the other hand, getting the feedback from the 'useful' users, who do visit the website, and thus, presumably have an understanding or an interest in the e-Lab and field, proved to be difficult, as can be seen from the results in the user opinion survey. This can be related to the high bounce rate, and percentage of users who exit the website within 10 seconds. In this regard it is difficult to expect that many people would invest their time in filling out a user opinion survey that takes a couple of minutes to complete.

2) Second, considering the specific case in this project, I do not believe that the prototype is developed enough to allow for a more full-scale end-user involvement yet.

If the focus of the design project was to first and foremost develop a website, in consideration of the users' needs, then the design outcome would have been to a greater extent based on the needs, goals and requirements of the users. As in this case, not only was the organizational context the main factor settings the stage for the rest of the design process, but also many of the design characteristics of the final outcome were preset in advance, I saw as necessary for the prototype to be concrete enough in its design, before the

users can be included to a wider extent. This is due to the assumption that involving the users at a more conceptual stage of the design process, would have resulted in getting a very broad and varied feedback that even if very insightful, might not necessarily be in line with the requirements of the organizational context. In this line of thinking, involving the users at a later stage, when the 'frame' has been set through a more concrete design alternative, as in the case of the current prototype, would allow me to account for the users to the extent possible, considering the rest of the factors determining the design. I see this course of action as optimal, in consideration of the different stakeholder.

In this regard I do not see the lack of thorough inclusion of the end-users in the design process so far as a mistake, or a drawback, as long as they do get included at a later point.

Language

Apart from the challenge of including the users, another obstacle that I faced during the design process was the language barrier. As an international student studying in an English led program in Denmark, working on this project proved to be challenging; due to a large part of the documentation, and some of the interface elements of the CMS that I had to use, being in Danish.

As the documentation was an important source of information used in the process of forming the requirements of the organizational context, ensuring that I was aware of all details, and not missing anything important, was of crucial significance. In this sense, not knowing the language appeared to be an obstacle, that even though not unexpected, required more time and efforts to address.

Conflicting requirements

As discussed earlier in this report, the new design from AAU is in many ways an improvement over the old one, being more flexible in technological aspect, introducing a level of consistency and integrity and bringing new, highly demanded features.

However, since the design is developed with a strong focus on AAU and its goals as a whole, and is still in the process of being implemented and further adjusted and refined, there are a variety of design characteristics that present incompatibilities between the contextual and the users' goals and needs that I faced during my work on redesigning the website of the e-Lab. Incompatibilities that resulted in the design outcome not being able to meet the goals and the needs of the users. In the following paragraphs I discuss some of these issues and reflect on their future implications.

- **Irrelevant design elements**

As already mentioned in chapter III, there are certain design elements that are always persistent and are not subject to change. Examples of these elements, some of whose shortfalls I have already discussed, are the service menu, AAU's logo, the global navigation menu and the footer. These elements have been designed in consideration of the goals of AAU, however, after obtaining a better understanding of the needs of the users, appear to be not so relevant in a context of an organization like the e-Lab that is positioned further down the structure of the University.

More specifically, in relation to the current case, even though the redesign clearly demonstrating that the website is part of AAU, is seen as a welcome change from the perspective of the e-Lab members, all these design elements as whole are of little contribution in the context of the e-Lab.

As this particular website is designed in English only, there is no use for the function of changing the language that if used, would only redirect the user to the main AAU website.

Even though developed to be in line with the goals of AAU, the global menu featuring the areas of "Education", "Research" and "Cooperation" is not relevant, in the context of the e-Lab, based on the assumption that users who do visit the website of the e-Lab do it for a reason different than finding out more about AAU

in general. In this sense, I see including the menu as a design element, as in pursuit of the pure interests of AAU, not the users.

Furthermore, all these elements combined steal the focus and take a considerable amount of screen real estate from the uppermost part of the screen. On smaller screen resolution, these would be the dominant elements that the user would see when visiting the page. This means the user would be required to scroll down on every page he visits, in order to see the actual content of the website that he intended to.

Even though I understand the reasons behind this design decision, the lack of possibility to customize its implementation, in cases where its presence is not so relevant, renders it a usability concern that is not in line with the needs of the users. Quite the opposite of users' needs, these design elements contribute for an increased complexity.

- **Limited local (global) menu**

Apart from AAU's global menu, the design allows for a local global menu that is to be used as the main menu on the various websites. However, as already mentioned, the way this menu functions is very limited in terms of its usability, which is not in line with the needs of the users for a more simplified, easy to use and navigate website.

Currently the global menu functions in a manner that when the user browses within the website further down the hierarchy, the menu changes to reflect where the user currently is, and what navigation options there are, at this hierarchical level. However, this way of presenting the navigation options effectively replaces the global navigation categories that were represented when the user was initially positioned on the home page. To select a different global category then, the user is required to go back the homepage. If the user is not sure where to find what he is looking for, he will have to perform an additional navigation step only to be able to see the rest of the main categories.

Shared by Susanne Togeby, (see meeting with Susanne, p. 126, Appendix A2) even though a seemingly small concern, due to it being related to such a crucial element as the global navigation menu of the website, this turns into a usability problem that requires an additional menu on every page that allows the user to find his way around the website's main categories. Ultimately this menu behavior results in a design outcome that is in contradiction to the user's requirement for a more simple and easy to navigate website.

- **Inconsistency between VBN and the new CMS**

Another issue with the new design that has not been discussed so far is the inconsistency between the data formats that can be imported from VBN. The new design is structured around the premise that data should be stored and maintained on one centralized location, (VBN) from where it could easily be fetched when needed. This is more efficient and convenient, than the current practice of having to keep information up to date on VBN and the different websites separately.

However, in relation to research units like the e-Lab, there seems to be an incompatibility between the data formats that VBN contains, and the ones that the new CMS system is able to fetch. While VBN holds information on researchers, publications, projects, activities and press clippings, the CMS can fetch information on staff, projects, publications, news and events. Out of these five, only two (projects and publications) function as expected in the context of the e-Lab, whereas, while the system can fetch information about individual employees, it cannot be configured to automatically fetch information about the e-Lab's employees as an organization. In this regard, one of the most useful and requested features that would allow the website to require less maintenance, appears to be implemented in a way that greatly limits its functionality, and does little to meet the users' expectations.

- **Limited customization**

Apart from the inconsistency issues discussed above, another concern expressed by the e-Lab members, is in relation to how content is presented when it is being fetched.

During my work on this project I came to realize that for the people working at the e-Lab, one of the most crucial requirements for the website is to ensure that it presents them, their work, and the e-Lab in general in the best possible way. What this would mean is presenting the information in an aesthetically pleasing form that provides for a good user experience. Having the ability to automatically fetch content from VBN is an advantage.

In this regard, if the website does not provide for any benefit in the way information is presented, it might as well be seen as redundant, as all major information can already be accessed through VBN. In this sense, the role of the website becomes much more than a plain information stand, but a port of connection, and an expression of the e-Lab as a concept. This is why it is of such a significance, how the content is presented on the website. In this regard, the lack of customization options in terms of how content is represented visually, when it is being fetched from VBN, is another point of conflict between the needs of the users, and the requirements of the organizational context.

While the e-Lab members consider the possibility for automatically fetching data from VBN as very important, their expectations for how the fetched data is presented were not met. Based on the data gathered during the evaluation workshop, the researchers did not like the very monolithic and text-heavy manner in which information is presented, when being extracted from VBN. Due to the CMS not allowing for any customization options in this regard, the requirements of the users could not be met.

The issues and concerns discussed above should not be taken too critically, as the redesign and implementation process of AAU's new design is a big and complex project that is still in its early stages of deployment. However, these

issues should serve to point out that further adjustments should be made to the design, in order to allow it to better account for the needs of the different stakeholders. Currently, the new design imposes contextual requirements that cannot be met without infringing the interests of the users.

The design process in perspective

Taking a step back and looking at my design process in perspective, I now see having a user-centered approach to design, as taking the hard, but also the right way. Undoubtedly, the practical work of redesigning the website of the e-Lab could have been done faster, and with less efforts involved, if the goal was to simply comply with the new requirements of the context.

Following this line of action the content of the old website would have simply been transferred into the CMS, ensuring that all contextual requirements are met. However, this would have resulted in a design outcome that does nothing in consideration of the actual goals and needs of the users who visit the website.

Taking a user-centered perspective required me to invest considerable amount of time and effort, in studying and trying to understand not only the contextual requirements, but also the users. It allowed me to take design decisions that were based on my informed understanding of what would be most beneficial for them. It also allowed me to elicit certain issues with the new design that might require revising on the side of AAU, if the University is to develop a design solution that better fits in the use contexts of the different organizations within its structure.

Conclusion

In this project, in relation to my theoretical problem, I developed a methodology for designing websites, focused on achieving a balanced and sustainable design outcome that is in line with the goals and needs of both the organizational context and actual website users. While I see the methodology as the main outcome of this project, the goal of developing the methodology was to provide me with support, and guide my practical work in the process of redesigning a website.

The methodology has its philosophical origins in the fields of hermeneutics and phenomenology, and is based on the user-centered, simple interaction design lifecycle model, and its four core activities of establishing requirements, designing alternatives, prototyping, and evaluation. In this regard, the methodology provides for a design process, governed by an iterative cycle of activities that focus on obtaining a better understanding of the goals and needs of the users, and subsequently designing in consideration of them. And while its user-centered nature suggests for an expert mindset view on the users throughout the design process, where they are to be seen as subjects that are being studied, analyzed and designed for, the phenomenological orientation expressed through some of the data gathering methods allows for eliciting, experiencing and understanding the users' reality on a different level (Rogers et al., 2011; Sanders, 2008; Van Manen, 2014).

I acknowledge that apart from the users, there are other areas that have to be taken into account, if the goal is to achieve a balanced and sustainable design outcome, that is in line with the needs of the different stakeholders. To provide for this broader perspective, the methodology incorporates the model of balanced approach to research by Morville and Rosenfeld. In addition to the *users*, the model points out, as important areas that should also be considered during the design process, the *context* (the organization) and the *content* (the "stuff on the website") (Morville & Rosenfeld, 2007).

Depending on the specific case, the focus when designing websites can be on either the context or the users. Typically in a user-centered approach, the design process is focused on understanding and designing for the users (Rogers et al., 2011). However, based on the assumption that in terms of organizations, websites are normally designed to first and foremost fulfill the requirements of the organizational context, the goals and the needs of the users can easily be overlooked. In this regard, my aim when developing the methodology, also in relation to the current case of redesigning the website of the e-Lab, was to enable it to account for the users' goals and needs, even if only within the boundaries preset by the organizational context. This is also the reason why Morville and Rosenfeld's model is such an important part of the methodological framework, as by informing the design, in relation to the different areas that should be considered, it allows to obtain an understanding on how the different requirements and design factors can be combined in an optimal and meaningful way.

Additionally, a third perspective to the methodological framework, is supplemented by Garrett's (2011) model of *the elements of user experience* that points out the different aspects and elements constituting a webpage, in relation to the user experience (Garrett, 2011). As the user experience is an important part that is to be considered when designing in consideration to the users, the model provides for good framework that can be used to discuss and identify possible issues in relation to it.

Together, the three models form a comprehensive methodological framework, which provides for a broader perspective and a more balanced approach to design, by accounting for both the requirements of the organizational context, and the needs and goals of the users, better than any of them individually would.

In relation to my practical problem, by following the methodology, I developed a prototype of the e-Lab's website focused on accounting for the needs and the goals of the users, within the limitations expressed by the organizational context, represented by AAU. The prototype was developed by using the new CMS and in

accordance with the design guidelines from AAU. At the same time many of my design decisions were made in consideration of the needs of the e-Lab members, and the external end-users, elicited through the user-centered design process.

Developing the methodological framework was a necessary requirement in order to answer the problem stated in my problem formulation. However, developing the website prototype allowed me to exemplify and reflect on how successful the methodology is in fulfilling its goal of enabling me to design an organizational website, in consideration of the contextual requirements of the organization that it represents, while still accounting for the needs and goals of the users.

It is my view that answering this question requires further research, where the framework is thoroughly tested and used in a variety of different case scenarios. The methodology is still in an early process of being developed and further refined, and as such a definitive answer cannot be given. However, based on the theoretical foundations behind the framework and in consideration to my work on this project so far, I have no reason to believe that it would not be successful.

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Appendix

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Interviews and Meetings (notes)

Interview questions

Goal of the interview: to give me a better understanding of the e-lab context - work, needs, goals and mission and how the website does (or does not) facilitate them. Areas that the interview will try to cover are related to understanding how the website is being used by the e-lab members in relation to the organization's goals, and how that can be improved. What works and what doesn't. Which are the areas where improvement is required.

Target audience: Researchers and members of the e-lab

Method: Semi-structured interview

Areas to cover:

E-lab as an organization – general information, goals, mission.

The current website – usage and opinion

The new design – opinion, ideas, etc.

1. E-lab as an organization

Can you tell me a bit about yourself?

What is your position in the organization of the e-lab and what kind of work does that involve?

Can you describe how does a usual day working here goes for you?

Can you tell me more about the e-lab as an organization?

What kind of organization is it?

Do you know if there are other organizations like the e-lab within the structure of Aalborg University?

Where I am going with this question is that I am trying to understand if it is a typical organizational practice for Aalborg University as a structure to consist of other sub-organizations like the e-lab.

Are there clear defined goals and mission that the organization follows?

Can you tell me more about them?

2. The current website

Are you familiar with the current e-lab website?

How often do you visit it?

What do you usually use the website for personally?

Can you tell me more about the purpose of the website on an organizational level?

Who is the website aimed at?

Do you visit the website as part of your work routine?

If yes, could you please describe the process in more detail?
What is your personal opinion about the website right now?
Anything in particular that in your experience is good?
Anything that is bad?
Do you have any ideas or suggestions on what can or needs to be improved? Anything that you believe that should be kept when redesigning it?

3. The new design

Why do we need a new web design and a new website?
What is the reason for this project?
What will make this project successful for you?
Are there any critical issues that should be addressed with the redesign?
What is the most important thing I should do?
Do you have any information in regard to reasons and goals that the University has for incorporating it?
The new design is already incorporated on the main page of AAU. What is your opinion about it?
In your opinion, when working on redesigning the website, are there any areas that require additional consideration and more focus?
If yes, which areas do you think deserve more attention?
Are there any other projects in the organization that can impact this one?

Meeting with Susanne

Susanne can help me with practical questions when it comes to the new web design.
Susanne refers to the websites <http://aau.designguides.dk> and <http://www.webdesign.aau.dk> to describe the requirements for the new design.
There isn't much more information available that she knows about when one has to design a website.

(4:15) Her understanding is that the purpose of the new design is “to have a corporate identity for Aalborg University” or to “strengthen the global identity”. She doesn't know if that is what the designers intended, but notices that it is very clear how we have some global elements on every page (logo, menus, etc.).

(5:45) The user has to use InfoGlue CMS and system in itself is very restrictive in what you can do.

There is a predefined set of options and types of components to choose from for each page. According to Susanne some of the elements in the global menu are not necessary on department level pages but the system does not allow for changes of this kind.

(7:22) She gives an example with the option for changing the language that is available in the global menu. A problem with the usability is that it always refers to the main AAU page, and not to the specific page that the user is on when he presses the button (which would make more sense). She has to make a separate menu for the English version of the department page (which in her opinion is not logical).

(8:05) She also mentioned that because the elements are global, the contact information for address that is shown refers to the main campus address and not the department address (which again makes no sense).

(9:10) The new design has to be done in InfoGlue. That is a requirement.

(9:48) Content will probably have to be transferred manually as the system does not support transferring content even from an old version to a new one. This makes it even less probable that it would allow to transfer content from another CMS.

(14:00) There is also a contradiction in the sense that the new design is structured around the understanding that there should be one centralized source where information is edited (and that is VBN) and that information should then be fetched where necessary, but InfoGlue itself does not have the same information formats that VBN does.

(14:52) In her opinion the way information is presented when it is automatically imported doesn't look aesthetically pleasing either.

(15:06) Another usability problem with the way menus are structured is that if you select a subpage to go to and then decide that you want to visit another subpage of the same website you have to click to go back in order to have the option to select that subpage from the menu.

Some design requirements that she mentioned are:

The research units (like the e-lab) have to be built as part of the department website, but you don't necessarily have to use the design of the department page

(21:21) There is a background image that you have to choose (or a solid color)

You can pick only one color from the image that is the theme cover. That is how you recognize the site.

(25:48) InfoGlue can't import publications related to specific researchers (relate people to content and vice versa).

(27:40) If we want a more comprehensive presentation of people, they have to be manually maintained, instead of having the imported automatically.

Interview with Marianne

(1:11) Marianne Lykke is a professor at the department of Communication. She is also a knowledge group leader. She mentions that the department has been divided in 8 research (13 administrative) knowledge groups, each focusing on a specific topic. The knowledge group is a group of people focusing on the same research area.

(1:37) e-Learning Lab consist of 36 people. 22 of them are PhD students, 5 professors, 2 associate professors and 4 assistant professors.

(2:05) The e-Learning Lab as a group is special compared to the other knowledge groups, because it has so many PhD students.

(2:12) Marianne explains that the main difference between PhD students and professors is that PhD student are mostly concerned with research, whereas professor are also teaching. PhD students mostly have 3 year positions so they are only there for a while. Most of the PhD students leave after the period, but some of them stay as assistant professors

(2:56) Another thing that is special for this knowledge group is that it has a rather large group of foreign PhD students not speaking Danish. There are also a lot of PhD students coming from other institutions that are part of the ell only for a limited period.

(3:53) Marianne agrees that they have special needs for the website. For example because the website is targeted also to the employees at the e-Lab it should be in English. She mentioned that most of the websites of the other research groups are in Danish.

(4:29) Another challenge is that there are just a few people in the e-lab that have responsibilities to AAU, while a lot of the people in the e-Lab come from and have responsibilities in other institutions. This is a challenge because many of these people are not physically in the e-lab so they use it as a way to check up what is happening at the e-lab. Because they are many and so diverse, people don't know each other that well. Or at least when you are a newcomer.

(5:56) Marianne agrees that the point of the website is to be used as a communication tool between the members. She mentioned that the website should be targeted at both students, but also colleagues at other universities (on a national but also international level) and perhaps enterprises that might want some service from the e-Lab, like consultancy. In general the target audience is diverse and broad.

(7:12) Marianne says that the e-lab has a special need in comparison to the other groups that the website also has to communicate to the employees. She says that normally in such a website, the target group is external, but in this specific case, she sees the target group as a mix of internal and external people. She specifies that the external group consists of students, enterprises and other researchers (colleagues)

(8:50) As a professor Marianne has 3 main duties: to teach, supervise and research. As a knowledge group leader she is responsible for the research of the people at the e-Lab and up-keeping with the teaching norms.

She mentioned that there has been an exponential growth in the number of students in this department in the last couple of years and this is the reason why the department is structured in this way of knowledge groups. This is not unique for the department of communication but is not implemented everywhere.

e-Lab (e-Learning Lab) focuses on analysis, design, implementation and practice in ICT systems that support learning and knowledge sharing(look at PowerPoint presentation)

Marianne mentions that in that regards the e-Lab has a very clear scope (primarily ICT for education) but also very broad perspective on e-Learning.

(21:30)Marianne would like that it would be clear from the main site that the e-lab is divided/structured in regard to its scope and perspective (scope: ICT for: Learning, Design, Practice and Participation in the perspective of: Health and Rehabilitation, School and education, Knowledge sharing and collaboration, Organization, Implementation Development, Identity & Formation.

Marianne agrees that I should have this research question as the focus of my master thesis - How to plan a participatory design process when we have these constraints. Then this redesign project is just a case study where i try my considerations. It is just empirical data.

(29:50) In her view in the workshop we should look at what is in the existing website. Have a discussion of what should we keep and what is not important. But not just include what is good, but also innovate.

She would plan a process where she looks at what are the constraints. Benchmark and look at what have others done. Look at what we already have. Innovate.

She mentions future workshop, card sorting.

(33:44) She is not visiting the website very often, because she doesn't have it as her main entrance. The reason is because the website is in the process of redesign and not much is being changed or updated before the new design comes into place. Before that she used to visit it every day.

(34:31) She used the website to see what is going on in the e-lab. News, events, conferences, publications. She used it as a tool to keep updated on the activities.

(35:43) She thinks that most important group to aim at is the external group of users (not affiliated with the e-lab). She sees the new design of the university websites as a new general communication strategy. She also thinks that it is an important internal tool (because of all the international PhDs).

(37:00) Marianne thinks that when we redesign the website we should scope it so that it is understandable for people outside. She doesn't think that the website should be separated by user groups, because the content is of interest to both external and internal users.

(38:45) Marianne thinks that it is good that the current website features all the different categories for displaying different kinds of recent activities (recent events and activities, publications, posts, etc.) She also likes the tag cloud.

(39:40) Marianne thinks that we should try to use automatic data fetching from VBN as much as possible, so that the data is in one place. Currently some of the content is automatically imported, but some has to be manually updated. She thinks that it's not the automation that is important, but that the information is only updated in one place.

(44:35) Marianne thinks that we should make sure that information is in one place, and the units presented on the website should be very intuitive and well defined.

Marianne also agrees that SEO optimization is important to make sure the website can be easily found.

(46:52) She thinks that it is important to show the persons and the activities. That should be clear. Also what is the topical focus. So showing what the e-lab is doing and who the members are. Not only academic, but also in regard to consultancy.

(48:05) Marianne agrees that we should try to simplify the website

(48:40) Marianne thinks that we need a new design because right now it's confusing and needs updating, also in regard to content and navigation structure.

(49:18) This project would be successful if both external and internal stakeholders visit the website (increase in visitors on the website). Also increasing the average visit duration.

(50:30) The most critical thing when redesigning it so make sure that the website reflects better what the e-Lab is doing and who they are.

Interview with Sandra

(0:36) Sandra is a teaching assistant professor. It's a combined position. She is 60% PhD student and 40% assistant professor and has 5-year contract. So her work is about teaching and research but also supervising. She is involved in a large EU project with the Danish military defense. She has a background in persuasive design.

She mentioned that IA might be important for this project, but it could be interesting to look at IA and Persuasive design together, as IA gives a framework for how to structure content, but doesn't tell us what content will have what influence.

Sandra thinks that I should use the User experience model with the different layers of a website. I should go into a discussion of whether or not I agree with the model. The challenge is how to create the balance between my conceptual and practical level.

Socially the e-Learning Lab is a very active group. Every day is different.

The social aspect of the e-Learning Lab is very important. In many ways it is a community of practice.

(14:15) The e-Lab consists of different groups. Marianne is the spiritual leader and head of administration. She keeps the direction but is also the contact to the rest of AAU organization. Marianne is also head of the OLGAR group (professors' group). There is also a large group of PhD students, which are also split in different groups. There are traditional 3 years PhDs; a group of international PhDs; a group of industrial PhDs. They all have different requirements and needs. The 3 year PhDs are integrated part of the group, whereas the international and industrial PhDs also have responsibilities towards the institutions where they come from and will have to go back. It is a very diverse group. There is also administrative personal, however they work individually and work with many knowledge groups.

(17:03) What makes the e-Lab very diverse is that the group of the professors is much smaller compared to the PhDs. This means that they got many inputs, but also challenging, because PhDs are here only for 3 years, so it is more of an in and out kind of process. That makes it challenging to put a fixed description on what the e-Lab is.

The common physical space is the OLGAR group. Marianne covers information architecture, Anne Marie works with participatory design, and Thomas is working on Learning. They set out the basics.

(18:22) e-Lab is described metaphorically as a safe harbor. Everyone can go out and work but they the e-Lab is like a foundation to return to whenever one needs help or to feel safe. There are smaller groups within the e-Lab that work very specifically

(22:33) Sandra thinks that the e-Lab is one of the more diverse groups. One of the biggest knowledge groups.

(23:15) What most knowledge groups need is to make whatever they are doing visible. People need to see and feel their work represented and part of the knowledge group, because that gives them a sense of belonging. Because the e-Lab is a rather diverse group, it is difficult to give everyone that feeling of being represented.

(27:09) The e-Lab has a strong focus on improving teaching, develop courses and the ways they teach.

(33:51) Sandra visits the new website very rarely. For Sandra the website is a way to make what she does visible (and also the other members). She missed that opportunity before because she was just recently added to the website. She also personally hasn't had the time until now to use the website. She misses having the opportunity to be able to easily edit her information on the website. She also thinks that a website is a better way to present her work than a VBN profile. She would like to be able to use the website as part of her business cards where she can show her work and who she is.

(40:00) What Sandra used the website latest is to get a description for her supervisor. But she hasn't used the website much other than that. She does not believe that the other researchers used the website on daily basis either. For her what the website does right now is to present who they are to the outside world. When they need to communicate they do it on e-mail.

(41:19) Sandra shares that the PhD group would like to have a PhD blog, where they can take turns writing about what is going on in the PhD group. They would like to make the PhD club more visible. She would like to show that they have an active PhD club. She thinks that

most people would like a website where they don't have to do a lot of work, but they can go and find information and be confident that if someone from the outside wants to learn more about us they can visit the website and it will look all right. Most people are too busy to have to maintain a website themselves.

(45:18) She thinks that one of the things that are hard to get on a website is the sense of community that is welcoming and accessible to both members but also people from the outside world.

(48:00) Sandra talks about the need for a good connection between content and people on the website. She believes that not that many people would go and search for a person on the website (statistics prove that wrong), but would just Google a name. She believes that people would go to the website to learn about a project and it would be good if it is easy to see relevant information from there (like authors).

Sandra mentions that because of the limitations of how the menu hierarchy is presented in the new design it might be a good idea to limit the number of submenus.

I also talk about how the new design was made with a great focus on the main webpage and AAU in general, and not so much in consideration with the way departments and groups within would use it (and what their needs are).

(56:36) Sandra says that this makes one of my challenges very clear, because when everything is so structured how do you get the e-Lab represented. Pictures is something that I should really consider in that regard, because it is one of the few things I can change.

(57:40) The purpose of the website is visibility. Part of what the people at the e-Lab do and what they have to do is tell the world what they are doing. Tell about research, results. Be visible. They want something that requires very little maintenance. The website is about making visible what they are doing and making it possible for others outside.

(59:25) Sandra's opinion is that when someone from within the e-Lab wants to contact someone else that use e-mail and VBN. They don't use the website (at least not her). So in that sense the website is aimed at the outside world. Other universities, peers from conferences. The website users are mostly outsiders. The e-Lab members are also users of the website in the sense that the website is their face to the outside world.

(1:03:13) Sandra likes that the current website is colorful and stands out. This removes some of the generic aspects. But she also finds it difficult to navigate. It is difficult to find the information she needs. Sandra agrees that more work needs to be done on the structure and the labeling system.

(1:07:00) Sandra thinks that the events and activities section is too dominant. It is good that it shows new books and presentations which proves how active the group is, but maybe is not exactly what people are mostly interested in when coming on the website (outsiders) (confirmed through analytics).

(1:08:00) Sandra would like to have more focus on the research areas of expertise within e-Lab. In that way you can choose a specific area of design and then you will be presented with researchers and projects in that area. She think that research projects look very boring right now.

(1:15:07) We need a new design because visibility and showing affiliation is important. Showing who we are and what we do in the best possible way.

(1:16:40) For Sandra the website would be successful if it is a place where she can make her work more visible in a more appealing way than the VBN site. She would like a nice and visual website. Also if the website is a place where her affiliation is represented well.

(1:17:30) The most critical issue is about finding out how to categorize the content. Finding out how can we represent the core of the e-Lab and showing how they belong there.

(1:18:49) Sandra thinks that the most important thing when working on the new site is the look at the categorization of the content. It is not so much about the person but about the research. So the research projects are more important than the people. What should shine through is the work and research of people and how they relate to the larger research projects.

(1:24:45) For Sandra the reasoning behind the new design is to show that as much as the university has grown in the last few years, they are still one organization, one unit and one structure connected in a meaningful way. So that is why the static banner is a good idea, because you never leave that design. It can be disturbing but in many ways it's a good thing.

(1:26:52) Sandra likes that the new design doesn't look information heavy, she gets the feeling that this is a website that is difficult to navigate. That she needs to know exactly what she is looking for in order to find it.

(1:30:35) Sandra thinks that the background image is too dominant sometimes. It should be light images.

Interview with Niels

Hi Niels and thank you very much for agreeing to conduct this interview. Your help as a person who has a sound understanding of both the e-lab and the website will be of great benefit for this project. The goal of the interview is to help me understand the practical aspects of the website management. What has been tried in the past and what hasn't. What works well and what doesn't. What to keep in mind when working on this project. Questions that I am specifically interested in are 5,7 and 8.

Goals of interview:

- to gain a better understanding of the way the website is managed
- to obtain valuable insights on what works well and what doesn't based on actual experience
- to reveal any important considerations that have to be made when working on the redesign

Type of interview: Structured interview conducted via e-mail

Questions:

What is your name?

Niels Vandel Svendsen

What is your current job/position in relation to Aalborg University and the e-Learning Lab?

I am currently employed as student worker at e-Learning Lab.

For how long have you been a Webmaster of the e-lab website?

1 year and 8 months.

Can you tell me more about your work as a Webmaster of the website of the e-Learning Lab? What kind of work, duties and responsibilities does that involve?

I am responsible for maintaining and updating the website. This involves posting news about research and the activities of the professors and PhD-students that are affiliated with e-Learning Lab. The maintenance is more about keeping staff profiles up to date, removing any spam-comments, making sure everything looks nice and tidy, and doing various design-updates.

During the time that you have been in charge of managing the website and its content have there been any significant changes or alterations of the website visual layout and structure? If yes – why and what kind of?

There have not been any significant changes to the layout, although we have discussed various ideas a couple of times. The structure has seen some changes. I spent a lot of time simplifying the structure of the website, since there was lots of drop-down menus and content that needed to be removed. A student-led study concluded that the visitors never really saw any of this content, and the drop-down menus were the primary reason for this. For this reason the menu is much more simple today.

Can you tell me more about the process of adding new content to the website? Are you the one in charge of this task? Do other members of the e-lab add content individually?

I am the only one who adds new content to the website. Two other people have the ability to do so; one of them is not responsible anymore, since I took over from him. The other was only responsible for 4-5 months, since I went to Costa Rica to study.

I am in charge of adding new content. Whenever someone (i.e. a professor) wants something added (i.e. profile-changes or news updates), they contact me with information about what they want to update and then I update it as soon as I am able. The usual update is news updates, in which professors will write the text and send me pictures and links, and then I will put it on the website and make sure it is tagged correctly.

Can you tell me more about the e-lab as an organization? What is the e-lab in your view? How do you see the website fit in the context of the e-lab? Does it support the e-lab's function, mission and goals and how? Do you see any further improvements that can be done in that direction?

In my view the e-Learning Lab is an institution on Aalborg University that focus on research on learning with or through various interactive digital technologies, such as touch boards, virtual reality sets, robots, and so on.

I see the website as a window into the research that is being conducted at e-Learning Lab. This is the place where you can see who is doing what and how to establish contact. The website should provide a simple but thorough overview of past and present research projects, as well as activities of the researchers.

I think there is always room for improvement. Since we're working in WordPress, I would really like to explore new design-templates, because I feel the current template is too restrictive in some areas. Some templates are more flexible and have more design-elements that you can change without editing the code-layer. I have no problem editing the code-layer, but I am restricted from doing so, since that is up to the IT department at the University. Therefore, it would be great with a more flexible template.

What is your opinion about the current website? Is there anything in particular you think works great as it is? Are there any areas that more works should be done? What do you think should be kept and what redesigned? Can you elaborate on that?

I think that the main page is as simple as it can be within the current template. It gives you a quick look at the latest news and provides links to recent activities and publications, which I believe is one of the most wanted features from fellow researchers abroad. I think a new and more "clean" or "modern" design with some other typography could do a lot to present the content in a better and more simple way. The PhD club area should not just be a list of content but present the PhD-students and their current activities at the e-Learning Lab to better promote how it is to be a PhD fellow at e-Learning Lab.

Are you familiar with the new design that AAU is incorporating on all websites that belong to the structure of the University? What is your opinion about it?

Yes I have seen it. It is more in line with what I have in mind for another template for e-Learning Labs website, however, it should be a bit different and stand out in order for the user to understand that e-Learning Lab is part of the university, but that it has its own "space" within the organization.

I think the new AAU design has a lot of usability bugs, which ruins the experience. Especially the way the background picture stutters around when you scroll up and down. That's just horrendous.

What do you think is the most important thing to keep in mind when re-designing the e-lab website?

The most important thing to keep in mind is presentation. We really need to be clear about how we present the content, not just visually, but also content-wise. There should be consistency – and the writing should be clear. Academic websites have a habit of being very text-heavy and difficult to read. I don't believe this helps anyone. The content does not

become more valid or effective through heavy texting – I think it's just the opposite way around. It would also help us reach out to the students.

Is there anything that I should be aware of when working on this project? Do you have any advices?

I think you should consider doing a face-to-face interview, because it will allow you to make follow-up questions to the replies you get. The replies I have provided you with just now, are set in stone, and your chance to ask further into the matters have passed. Let me know if you would like to do such an interview – it's a bit more work-heavy, because you have to transcribe it afterwards, but the data will be more complete. Also consider other persons of interest.

E-mail conversation with Line

From: gmarch12@student.aau.dk

To: liho@adm.aau.dk

Hi Line,

my name is Georgi Marchev. I am a student at Aalborg University and I am currently working on my master thesis which is related to a project of redesigning the website of the e-Learning Lab in the department of communication and psychology (<http://www.ell.aau.dk>) in accordance with the new design rules (<http://aau.designguides.dk/webdesign.aspx>). I talked with the Web consultant at my department (Susanne Togeby) and she suggested I contact you this regard. Since I am writing a master thesis about the new design and implementing it I thought it would be really beneficial for my project if I have some background information when it comes to the new design. More specifically I am interested in finding out more about the reasons behind the new design and whether there are any clear defined goals and vision that the University is going after with it. Perhaps its part of a new corporate image and tries to introduce a level of consistency and modernization? Or maybe something else? I hope that you can give me more information about it or point me to the right direction.

Thank you so much for your help in advance,

best regards,

Georgi Marchev

Master Student

Human Centered Informatics

Aalborg University

gmarch12@student.aau.dk

From:liho@adm.aau.dk
To:gmarch12@student.aau.dk

Hi Georgi

Overall business target

Aalborg University's digital channels (aau.dk) should increase the knowledge in the target audience about AAU's:

- Educations
- Research
- Study Form
- Cooperation (especially cooperation with the business environment in Denmark)

The more concrete goals are:

- 1) 30 % of the overall pageviews at AAU.DK should include pageviews from the three categories "Education(uddannelser) ", "Research (Forskning)" and "Cooperation (Samarbejde)".
- 2) AAU.DK should be the best university website in Scandinavia (Norden).

Kind Regards Line



AALBORG UNIVERSITY
DENMARK

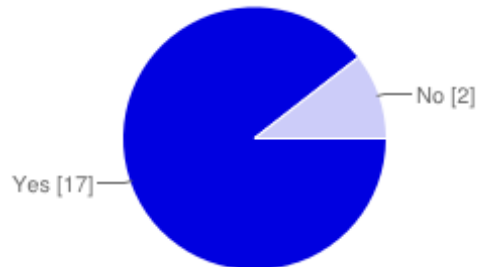
Line Horndal Hjørne

Webmaster | AAU Communication

Phone: (+45) 9940 9481 | Email: : liho@adm.aau.dk | Web: www.en.aau.dk
Aalborg University | Fredrik Bajers Vej 5 | 9220 Aalborg East |

Online Survey

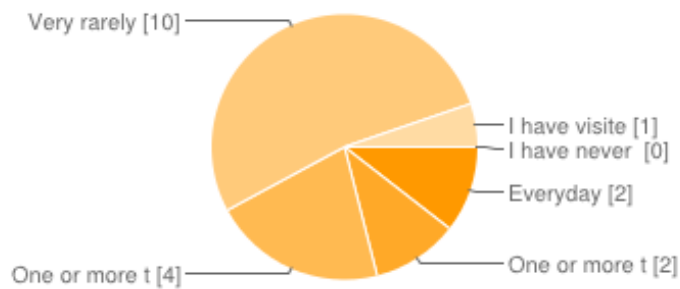
Are you affiliated with the e-Learning Lab?



Yes 89%

No 11%

How often do you usually visit the e-Learning Lab website (<http://www.ell.aau.dk>)?



Everyday 11%

One or more times per week 11%

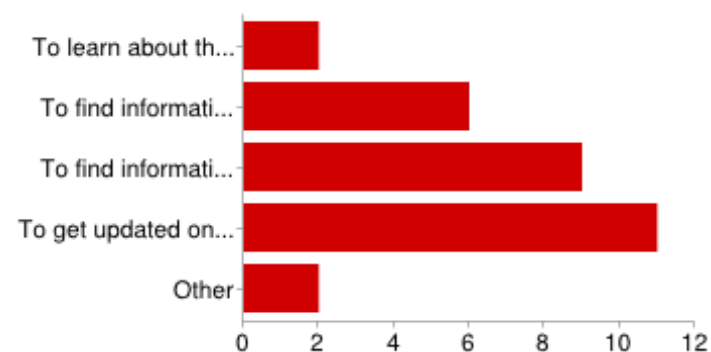
One or more times per month 21%

Very rarely 53%

I have visited the website only once 5%

I have never visited the website 0%

What is/was the reason for your visit(s)?



To learn about the e-Lab

7%

To find information about people working at the e-Lab

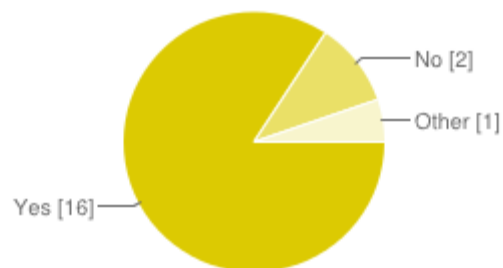
20%

To find information about publications and/or research projects

30%

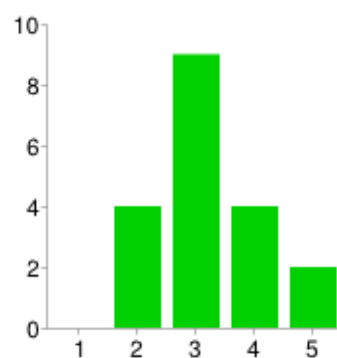
To get updated on what is happening at the e-Lab	37%
Other	7%

Are/were you able to easily find the information that you need?



Yes	84%
No	11%
Other	5%

What is your opinion on the current website (www.ell.aau.dk)?



1	0%
2	21%
3	47%
4	21%
5	11%

Do you have any ideas, suggestions or comments on what can be improved?

- I suggest that the website is designed in a way that makes it dynamic (= update new content/activities - as is now for feeds etc. from VBN). The staff has been not-updated for a year. I think it is taken care of now but maybe this could be dynamic also (e.g. following updates from the Department website so that we do not have to do it manually).
- Various social networking platform where the eLLs are more frequent and share research and other knowledge - can be integrated by using social network plugins etc. The idea is that the site can work as information hub. Else I just know know that

those kind of updates are not there. Hope I could convey the message about the design idea :-)

- I am not sure we have to follow the official guidelines when we are a knowledge group - but that's another discussion
- Well, I think the webpage contains lots of information (which is good), but at the same time it seems a little too 'heavy' using very much text and mostly small texttypes. It could be a challenge for a webdesigner to differ and show the difference between very important and minor important informations. Good luck!
- The website should be updated on a regular basis.
- I like the website but it has not been maintained in more than a year, hence it is dead for me as for now

CD