

Heuristic evaluation of the appointment booking process on the
Finnish Student Health Service's (FSHS) website: An approach based
on a revised set of minimalism heuristics for improved user
experience (UX)

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Abstract

The purpose of this master's thesis is to evaluate a newly redesigned set of minimalism heuristics developed by Jenni Virtaluoto, Tytti Suojanen and Suvi Isohella (to be seen in a forthcoming article)—with the initial purpose to be used in the minimalist documentation process by technical communication professionals—in the design of a healthcare service's website rather than traditional technical documentation. Based on these minimalism heuristics derived from minimalism principles, solutions and recommendations were applied to usability issues found in the content of the Finnish Student Health Service's website (or Ylioppilaiden Terveystieteiden keskus in Finnish) in the appointment booking process in order to improve the user experience. The results were conclusive and offer a better user experience with enhanced focus on core tasks and goals, accessibility, and error management. The revisited set of heuristics proved to be a versatile practical tool for the evaluation of a website meant to instruct users, but that is, nonetheless, very different in essence from traditional technical documentation.

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1 Introduction

Designing products and information in a simple, logical and comprehensible manner is easier said than done. The proof surrounds us in our everyday life. The value of time is higher than ever in this fast-paced 21st century life, but it seems that, even though we strive for simplicity by cutting corners and taking shortcuts to save this precious time, the end result is far too often bad design that will achieve the exact opposite. This inability to find the information we are looking for or fulfil a specific task often leads to frustration and even to self-blame; both Don Norman (2013) and Karen A. Schriver (1997) explain that users need to stop blaming themselves for not being able to do something, and that we should rather establish bad design as the culprit.

Bad design comes in all shapes and sizes. It can be as mundane as a confusing door that gives no clear indication as to if it should be pulled or pushed (Norman, 2013). Struggling with what should be a straight-forward action can be both irritating and embarrassing. But what if the problem was not the user who could not decipher at first glance how the door opens? Don Norman (2013) explains how the design of the door could be improved immensely just by having a “push” or “pull” tag on it. It’s a quick, simple, and inexpensive solution that enhances the user experience. Norman (2013) also adds that one of the biggest problems behind all these design issues is how the people in charge of the design process fail to shift their perspective to the user’s; an engineer might look at the door and think that, if one can see the hinges on the side, then it is obvious that one needs to pull the door to open it. However, it might not be as obvious for everyday users. From an engineer’s point of view, the functioning of a device or a software they developed might seem completely logical, but they rarely are the end users for these products and do not always keep in mind that these end users are not just clients, but also humans. Therefore, it is especially important to have good documentation written by language experts to pair with the product and enhance usability; most products cannot be used to their full capacity without their documentation.

Failure to focus on user experience in the design process is a common mistake. This can be noticed in the design of objects themselves, as mentioned above, but it is important to add that these same arguments also apply to anything related to language. Documentation is what will help users understand a product or a service and it is commonly found in the form of instruction manuals, error messages displayed on electronics or software, online troubleshooting sections, etc. The field of technical communications is the link between engineers, designers, and the end users. Outstanding language skills are a must for an efficient technical communication specialist; they allow for an accurate translation of the technical information into language that can be easily grasped by the target audience. Even though this type of documentation is found everywhere in our everyday life, documentation design for different audiences still needs improvement (Shriver, 1997). Moreover, creating good documentation is a challenge, but an even greater one is to get users to read it; when presented with the opportunity to avoid reading, most people will take it (Shriver, 1997).

Technical writers translate the engineer's technical language into the "common tongue" of the users, using their expert language skills to ensure a better user experience by using clear and concise language. This is the reason why, as an English philology student, I feel it is important to stress that the field of technical communications benefit greatly from the skills language graduates have acquired throughout their studies. In my opinion, cultural knowledge gained in English philology courses helps gain a deeper understanding of humanity in the design of user-centred information, and this is why I believe that, with the power of language and human skills, English philology students can provide insight to improve user experience while not necessarily having any specific training in engineering or user experience-related fields.

Different kinds of user-centred design methodologies can be used to produce documentation tailored to users' needs. In the book *The Design of Everyday Things*, Don Norman (2013) states human-centred design (HCD) as one solution. Human-centred design is a design philosophy that focuses on the human perspective rather

than seeing the end users as clients. Additionally, to produce adequate documentation, one must study their users through user research, and understand the circumstances around the situation the users are in, especially in cases like this thesis where health is in question.

The internet has revolutionized the way we can search for and find information. Such a revolution would be expected to bring an incredible and unprecedented speed and ease to the information gathering process, but unfortunately, it seems that the curse of bad design has not spared the world wide web. Coders and web designers are also guilty of not always keeping the end users in mind during the design process. One would think that web design is rather easy of approach nowadays and that almost anyone can create a decent user-friendly website on a relatively small budget, or even for free; however, such quality websites are surprisingly hard to find and most are unnavigable clutters of confusing information. Unfortunately, healthcare websites that should be providing crucial information clearly are no exception to this bad design trend.

There are many approaches technical writers can take to evaluate and refine documentation—or websites—and the one I am particularly interested in in this thesis is the minimalist approach that was first introduced by John Millar Carroll (1990). The core goal of minimalism is to optimize instruction by using concise information, focusing on getting users to work quickly on relevant tasks, and by providing ways to prevent, correct, and understand errors (Carroll, 1998). Minimalism is mostly known for being used when creating instruction manuals, but it is also relevant when evaluating a website, as the information on it should guide the user into achieving a task in a simplified way (Moran, 2015a). Moreover, it is such a flexible concept that it suits much more than just the documentation purposes it was originally intended for. Minimalism in web design is strongly user centred and its goal is “to present content and features in a simple, direct way by providing as little distraction from the core content as possible” (Moran, 2015, “The Roots of Minimalism in Web Design”, para. 4).

For the purpose of this master's thesis, I have chosen to evaluate the user experience on the English version of the Finnish Student Health Service's website and see how a revised minimalist approach (Virtaluoto, Suojanen & Isohella, forthcoming) could enhance its usability. To limit the scope of this evaluation, I will focus on information regarding booking an appointment at the FSHS.

First, as an immigrant studying in a Finnish university, I know that the adaptation process to a new country with a different language and culture can be overwhelming. What can be even more stressful, intimidating, and confusing is the thought of having to deal with an unfamiliar type of healthcare system. If a healthcare organization's website is not user friendly, it can lead to a lot of insecurity and frustration for the student in addition to the existing stress of dealing with a health-related issue. From my own perspective, I have found the FSHS's website to be difficult to navigate due to the large amount of information that is not always located and displayed in a clear and comprehensible manner. While I will be the expert evaluating the website, I also have the user's experience, as I have myself struggled to find information about appointments in the past on the FSHS's website.

My goal is to see if, by using my English language and communication expertise combined with a revised set of minimalism heuristics developed as a practical review tool (Virtaluoto, Suojanen & Isohella, forthcoming), I can find solutions to how the website could be decluttered, reorganised and provide a better user experience with an increased usability. This thesis will have several uses. It will not only help provide tools for the FSHS to improve the user experience on their website, but it will also be beneficial for students and provide them with a smoother experience with the healthcare system in general if the changes were ever to be applied. Additionally, it will be a great opportunity to put this freshly revised set of minimalism heuristics developed by Finnish researchers to the test for a second time after its creation, and to see if it can also successfully apply to other purposes than technical documentation, in this case web design.

2 Description of the research material

The Finnish Student Health Service (FSHS), or in Finnish, Ylioppilaiden Terveystieteidenkeskus (YTHS), is a health organisation for students of Finnish universities and other institutions of higher education. By paying the student union membership fee, students have the right to use the FSHS's various health services including dental and mental healthcare. The main goal of their website is to both inform the students about the services they offer and how to use them, and to promote a healthy lifestyle through articles, guides, and events. The primary version of their website is in Finnish, but it has been translated into both English and Swedish. After just a quick overview, it can be noticed that the number of sub-sections in the English version of the website is larger than in the original Finnish version. However, after some more browsing and skimming through the sections, it quickly becomes clear that even though their number is smaller on the Finnish version, their quality is far superior. Due to the limited scope of this thesis, I will focus on the English version of the website instead of doing a comparison with the others.

Following is a short description of what the FSHS's website looks like to English-speaking users along with screenshots from the homepage and the main sections for visual support. The following description of the FSHS's website corresponds to the state it was in on the 16th of April 2019.

The basic skeleton of the website is rather simple and straightforward. The language tabs are at the top right, as is it the case for many websites, and a list of tabs placed right under leads to the main categories of the website: *Services*, *Health information and research*, *FSHS*, *Feedback*, and *Contact details*. Following is a box with six different quick links and a "FSHS Units" drop-down list (see Figure 1).

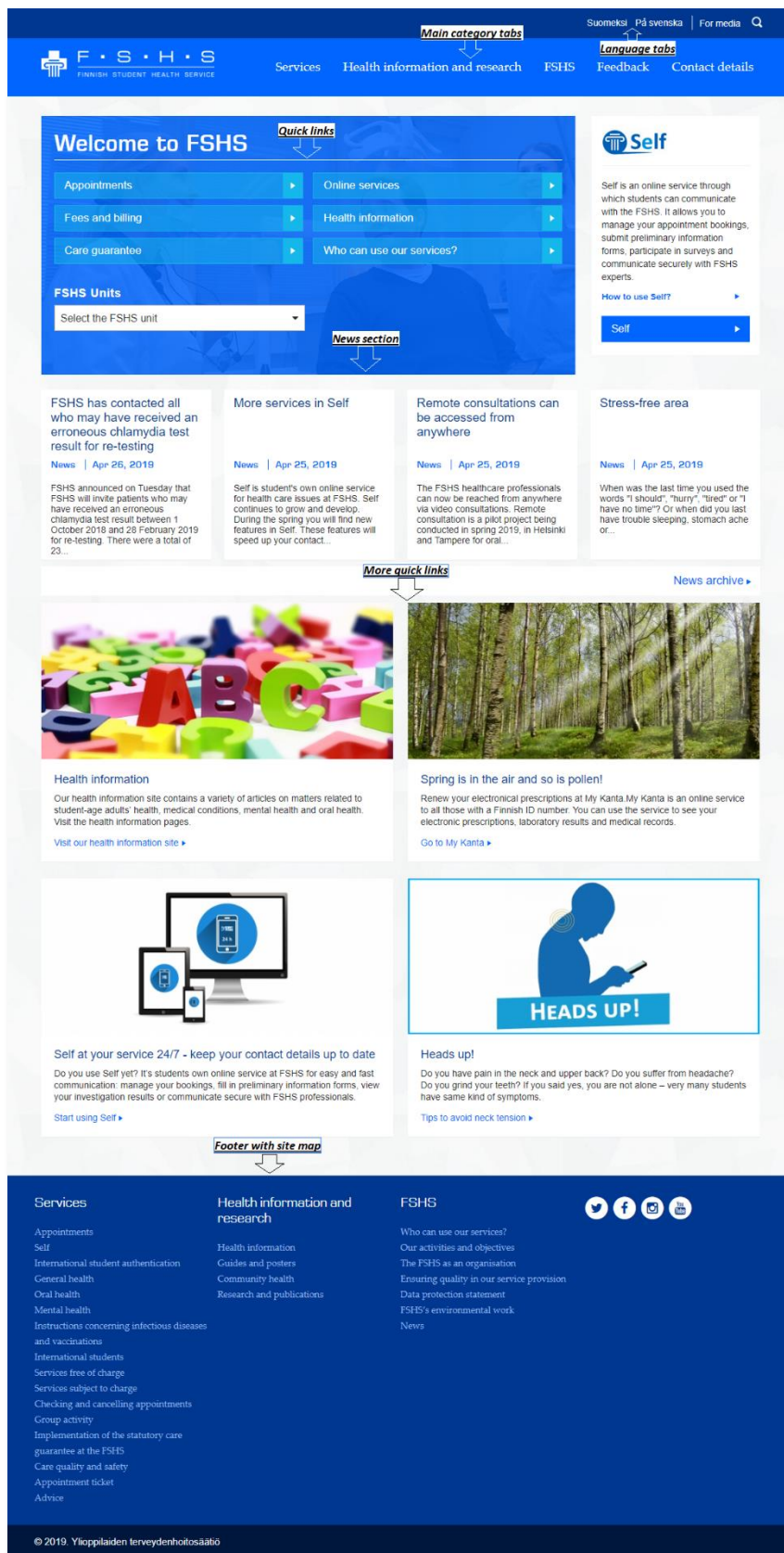


Figure 1. Annotated screenshot of the homepage of the FSHS taken on the 16th of April 2019

A short news section that gives a preview of the four most recently published news follows below the box with quick links. Another set of quick links to other topics the FSHS seems to believe students might want to find quickly is placed after the news section. Finally, the bottom of the page features a footer with a somewhat complete site map of all the main sections and sub-sections that can be found on the website.

The *Services* section (see Figure 2) gives an overview of the FSHS's mission, and a list of links on the left leads to pages with information about their various offered services (the footer of the following screenshots has been cropped for the sake of brevity).

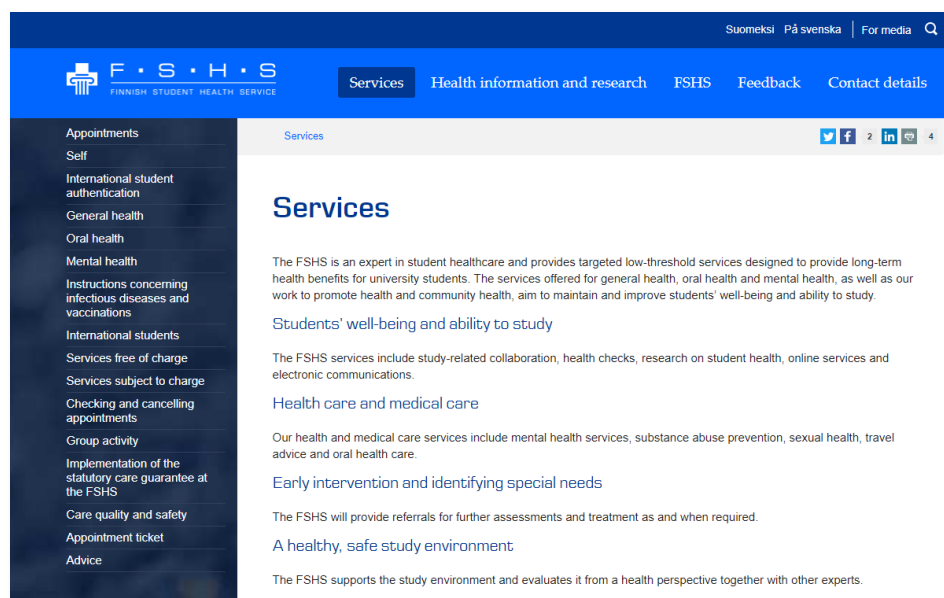


Figure 2. Services section

The *Health information and research* section (see Figure 3) contains a brief description of the FSHS's goals, health-related articles, guides and posters, and a page with brief information about their research protocols.

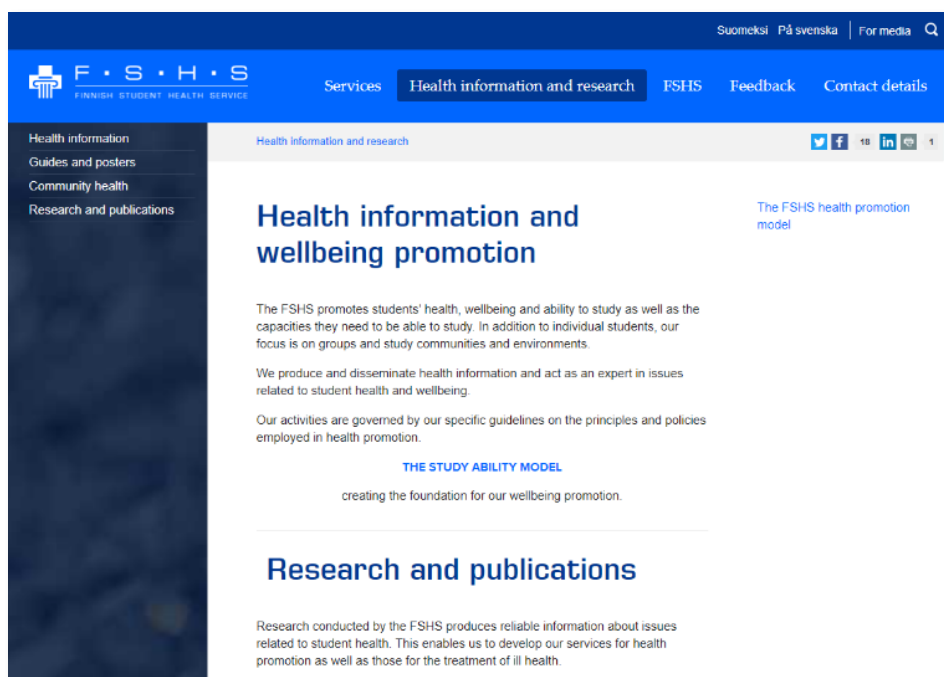


Figure 3. Health information and research section

The *FSHS* tab leads to a page with more thorough information about the goals of the FSHS (see Figure 4), as well as information about the organisation itself, such as how it is organised, the quality of their services, and data protection information.

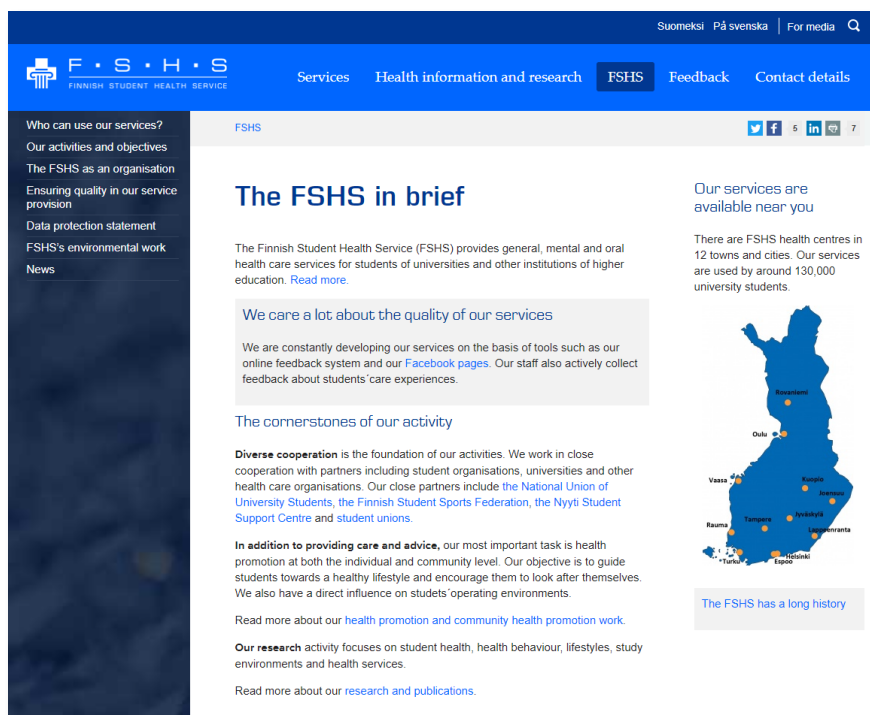


Figure 4. FSHS section

As the name suggests, the *Feedback* tab takes users to a page where they can leave feedback about their experience with the FSHS (see Figure 5).

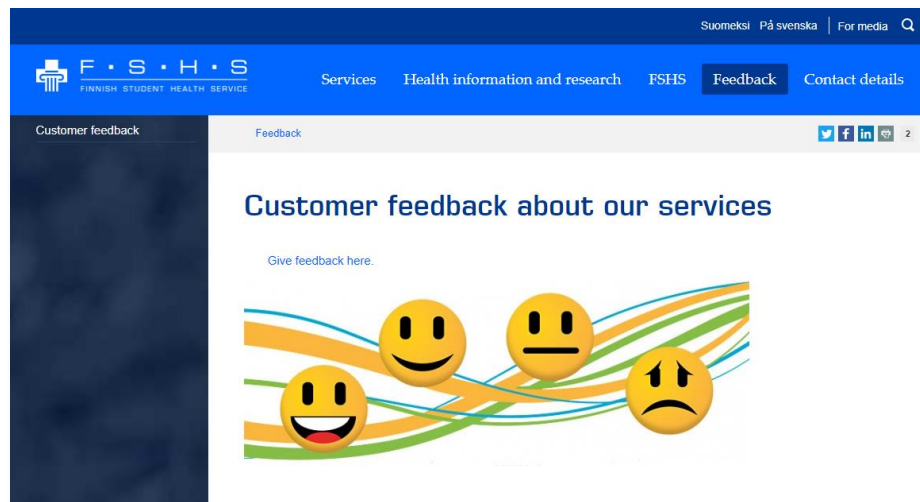


Figure 5. Feedback section

The final tab, *Contact details* (see Figure 6), explains the two possible ways to contact the FSHS, electronically or by phone, and gives some additional details about the physical locations of the clinics. A few extra links that are not related to contact details are also found in the list of quick links on the left.

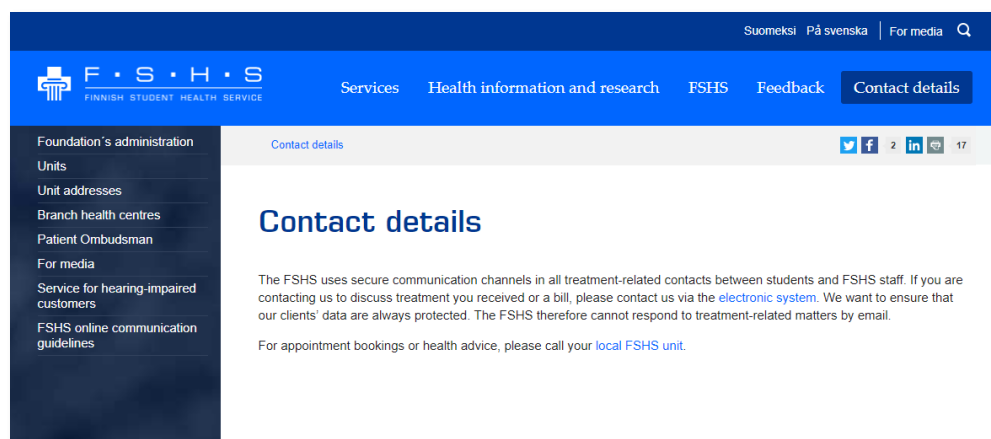


Figure 6. Contact details section

3 Minimalism and other user-centred methods in technical communication

We need some level of guidance in almost every action we take every single day, or at least on the first few times. Technical communications are the link between the products—and the team of people who developed the product— and the users. The product information that is presented to users is designed and created by technical documentation specialists (Abdallah & al., 2005). They are language experts who can use their language skills to translate the technical information into clear and understandable documentation. As the name states it, it is a type of writing that “deals with topics of technical nature” (Blake & Bly, 1993, p.3), and in this context, the word *technical* refers to dealing with “specialized areas of science and technology” (Blake & Bly, 1993, p.3). Before computers and the internet became so widespread, technical writing was very closely related to all kinds of engineering (Blake & Bly, 1993). The most common association with technical communications is probably instruction manuals that come with items to help users understand how they work. However, technical writers do more than just user guides, they are also the people behind quick start guides, tutorials, frequently asked questions sections (FAQ), product descriptions, and more (STYV, 2019). A *good* instruction manual is a set of instructions that is concise, clear, and easy to use is one that will leave a pleasant impression on users.

There are of course several sub-branches in technical communications such as information architecture, technical writing, technical editing, technical illustration, instructional design, information design, user experience design, translation and localization (TechWhirl, 2019). This is not a complete list of the disciplines that are generally associated with technical communications, but it gives an overview of what type of tasks people working in technical communications might come across. The focus of this thesis is on user experience online, so I will only expand on related sub-branches of technical communications; first, I introduce will user-centred design methodologies including human-centred design (HCD) and user research. Then, I will discuss user-centred design in a healthcare environment, and on the internet. The

following section will introduce user-centred evaluation methodologies, and more precisely the minimalism theory and its principles and heuristics. I will finally present the main tool of this thesis: a revisited set of minimalism heuristics that I will put to the test to evaluate and improve the user experience on a healthcare service's website.

3.1 User-centred design methodologies

The term *user experience* (UX) was made popular by Don Norman in the 1990s (NNgroup, 2016) and has since been used in different fields. Successful design often comes from when the designer establishes a close connection by spending plenty of time with the users to properly understand their learning and working patterns (Hackos & Redish, 1998). The essence of user experience is about giving a pleasant experience to the user by taking all their needs into account while designing the tools or environment they will use; everything is centred on the user. User experience is the cumulation of several different elements of an interface and include “layout, visual design, text, brand, sound, and interaction” (UXPA, 2020, para. 1). The user interface, the way the information is presented, and the ease of use of the product and its documentation will all ultimately have an impact on the user experience. User-centred design is all about understanding the users and it “focuses on the skills that users possess, along with other user characteristics” (Allen, 1996, p. 15). In short, user-centred design is about keeping the user's needs in mind while giving them the solutions they need.

According to Don Norman, a company that aims for high-quality user experience must provide a “seamless merging of the services of multiple disciplines, including engineering, marketing, graphical and industrial design, and interface design” (Norman & Nielsen, n.d., para 1). Technical communicators do play a role in the creation of a pleasant experience for the users by using their extended knowledge of language to tailor documentation that will suit users best and cater to their needs.

User experience has its roots in several different fields that vary from marketing to computer sciences, human sciences, and even art as Quesenbery shows in Diagram 1 (Redish, 2010, p.192). The fields of user experience and technical communications have been related to one another since at least the 1970s, as even before computer manuals made their appearance, document usability was a concern in for example “brochures, fact sheets, leases, regulations, utility notices, and more” (Redish, 2010, p. 192).



Diagram 1. Quesenbery's origins of user experience (Redish, 2010, p. 192)

Karen A. Schriver (1997) explains that the rhetorical tradition that has perpetuated and evolved ever since Aristotle's time provides three important pillars to contemporary design, both written and graphical: “audience, invention, and heuristics” (p.58). Hackos and Redish (1998) interpret these three elements as “understanding who you are communicating with (users), figuring out how to communicate with them (design), and having guidelines for doing so (heuristics)” (p. 16). A technical communicator's goal is to ultimately contribute to a positive user experience by finding the right ways to communicate information with the help of heuristics.

3.1.1 Human-centred design

While user-centred design and human-centred design might be extremely close concepts, there are still a few details that justify the use of those separate two terms. Like it was explained above, user experience is the overall experience for users while using a product or a service. The usefulness, the usability, the findability, and the satisfaction that this product or service provides will determine the type of user experience. On the other hand, human-centred design does the same thing, but it does so while paying particular attention to psychological and cognitive details that help predict human behaviour.

In design, even when human-centred design is not the chosen process, its principles still apply (NNgroup, 2018). Don Norman describes those three principles as keeping the focus on the people, solving the right problems, and thinking of everything as a system (NNgroup, 2018). First, he stresses the importance of being mindful about everyone. Taking the FSHS's website as an example, this would mean to not only take both Finnish and foreign students into account, but also the staff and nurses answering the calls and even maybe the people in charge of updating the website. A human-centred strategy would ensure a smooth process that gives a clear and positive user experience to the students, which would consequently make the work of the FSHS's staff easier, as they do not have to deal with confused students who should not have called in the first place had they been able to self-assess their situation properly. The second principle is about going to the very root problem instead of trying to solve the problems that emanate from it, or as Don Norman calls them: the symptoms (NNgroup, 2018). However, he explains that trying to solve the fundamental problem can be extremely time- and resource-consuming, hence dealing with the symptoms is sometimes the only realistic option (NNgroup, 2018). For the FSHS, this could mean to redesign completely the website instead of doing minor changes whenever some information needs to be added or updated. The whole system needs to be rethought, but just like in any typical documentation process, the idea of starting over is overwhelming and the easier solution is to keep on building from what exists already. The third principle is closely related to the second one. Don Norman stresses the

importance of looking at the big picture and seeing everything as interconnected (NNgroup, 2018). Like previously mentioned, battling the symptoms can be an adequate temporary solution, but “optimization of the local does not mean global optimization” (NNgroup, 2018, 1:46). In this case, “looking at the big picture” would mean to question the purpose of the FSHS’s website. One possible answer could be that the goal is to give a smooth and straightforward experience to the students in order to reassure and inform them in order to simultaneously help optimize the working time of the medical staff by reducing unnecessary visits and phone calls.

Human-centred design says it in its name: it is all about the human aspect. While it is very closely related to user-centred design, its focus is on designing while keeping humans as the reason why the product exists, and not simply as its users (NNgroup, 2018). The empathy with users is a key factor, and it is especially important in websites like the FSHS’s. While designing the website, it is crucial to keep in mind that the people visiting this website are possibly not in their normal state. Someone with medical issues can be quite distressed and having to understand a complicated website in that state of mind can lead to a very negative experience. Moreover, the FSHS’s goal is not to make profit, but rather to help students, which means that focusing on a human-centred design strategy during the making of their website would be the most logical way to proceed.

3.1.2 User research

Having a good knowledge of the users of the product being designed is very important to be able to provide them with a good experience. Product designers need to know how the users behave, think, feel, and what their interests are (Goode, 2014). This information will then allow them to build something that caters very specifically the needs of the users because successful writers keep their focus on their audience (Redish 2007). Technical communicators have strong audience analysis skills that allow them to write and organize information specifically for this audience (Redish 2010) This is why user research is as important to the designers of the products itself as to the writers who will create the documentation about it; both the product and

the documentation are aimed at the users, and a product is rarely usable to its full potential without proper documentation.

It is possible that not every company, especially smaller ones, has staff trained in user research or the funds necessary to hire a contractor from the outside to take care of it. User research is not necessarily a priority when designing a small website. A lot of the budget, if there is any, might be spent on the visual appearance of the website, and that does not directly benefit the company in the end, as a visually-pleasing website does not necessarily mean it successfully providing users with clear information. There are several different ways to conduct a user research and the following section will give a few examples of how to gather and use information from users to get a clear understanding of their background and needs.

To really understand users, observing what they do on a regular day could give profound insight on who they really are. The term *contextual inquiry* is described by Jesse James Garrett (2002) as a set of methods apparent to ones used in anthropology that gives a comprehensive understanding of how users behave in their everyday lives. In fact, both anthropology and ethnography, the study of a culture through an immersion in it, have methods apparent to what is used in user research (Hackos & Redish, 1998). They are all about observing people and their ways of living and working, their culture, and their surroundings with respect (Hackos & Redish, 1998). While contextual inquiry is a time- and resource-consuming strategy, it can provide a deep understanding of users that could possibly not be achieved otherwise (J.J. Garrett, 2002). However, actual anthropological techniques are in reality too rigorous for the purpose of web design. In general, it is more appropriate to use other methods such as task analysis or the creation of personas. The essential is to keep the philosophy of anthropology in mind while conducting user research to ensure respect and open-mindedness.

Task analysis is quite similar to contextual inquiry, but its focus is more on specific tasks, as the name suggests (J.J. Garrett, 2002). It is a very versatile method that can be applied to the design of practically anything from manuals to websites or objects,

just to name a few (Hackos & Redish, 1998). Understanding how the users' personality and habits affect the way they accomplish tasks is a key element in good design (Hackos & Redish, 1998). Hackos and Redish (1998) describe this understanding in a list of six aspects:

- What users' goals are; what they are trying to achieve
- What users actually do to achieve those goals
- What personal, social, and cultural characteristics the users bring to the tasks
- How users are influenced by their physical environment
- How users' previous knowledge and experience influence how they think about their work and the workflow they follow to perform their tasks
- What users value most that will make a new interface be a delight for them (speed? accuracy? help in recovering from errors? human contact? fun? a challenge?) (Ch. 1, n.p.)

It is very difficult for companies to design products and documentation that will be used the way they intended it to be by users; more often than not, users will interpret the information differently and use the products in surprising ways (Dumas & Redish, 1999). Finding answers to the questions listed above will give profound insight on the users' environment and behaviour and allow for accurate and customised tasks.

Often, problems with the interface are what hinders users the most (Hackos & Redish, 1998). In the case of this thesis, task analysis could mean, for example, to ask a student to find a piece of information from the FSHS's website and to analyse what the student does during the whole process to see, for example, where they click, what they read, what mistakes they make, and what confuses them. This examination can be done through interviews after the test, as users report what they have done, or simply by being present while the test is conducted (J.J. Garrett, 2002). When it comes to web design, it might be more useful to have a direct view on the users during the test, as they could easily forget small mistakes they quickly recovered from or hesitations and concerns they might have had for a brief moment. Browsing a website is a very automatic action nowadays, and it can be difficult for users to recollect every one of their moves. Additionally, Hackos and Redish (1998) stress that users who are used to

doing a specific task cannot easily articulate their actions. This is especially true for internet browsing considering how mundane it has become. However, even users who can skilfully verbalize their actions during a think-aloud test might turn to silence or verbal fillers at one point or another (Cooke, 2005). Eye-tracking technology can be a useful method to see exactly where the user is looking for the desired information (Cooke, 2005).

According to Garrett (2002), the most popular way to do user research is user testing. At first glance, it might seem very evident that having users test a product to get feedback is a very important step of product design, but unfortunately, it is often seen as a very costly process and is sometimes even skipped completely. Jakob Nielsen (2000) claims that, getting the best results comes from “testing no more than 5 users and running as many small tests as you can afford” (para. 1). Iterative design is all about going through a cycle of designing and testing and analysing to starting again with greater knowledge about what works and what does not. Doing many small tests as Nielsen (2000) recommends helps to stay within budget and to maximise the feedback from the testers. Large numbers of testers are not necessarily helpful, as the same types of results will tend to eventually resurface and will not provide any new insight (Nielsen, 2000). User testing is an excellent way to do user research when designing content for the web and it can easily be adapted to the needs and resources smaller companies have. Garrett (2002) explains that there are many ways to conduct user testing and that they do not necessarily need to be done through a direct interaction with the product. For instance, the card sorting method can be useful to see how users categorize information (Garrett, 2002). This method could be especially beneficial to help declutter and reorganize a website. In the case of the FSHS’s website, this could mean to make physical cards with information found on their website (articles, sections, titles, etc.), and to ask users to group them in a way that feels most natural to them. Sorting that information afresh provides a new point of view and a chance to break from that mould the website might have been stuck in for a long time. Total makeovers are not very common in design, as they can be expensive and tedious, but card sorting can provide some help to sort what is important from what is superfluous or redundant.

Finally, a popular and relatively simple and affordable method to do user research is to create personas. They are also sometimes called user models or user profiles (Garrett, 2002). Kim Flaherty (2018) describes personas as “fictional representations and generalizations of a cluster of your target users who exhibit similar attitudes, goals, and behaviours in relation to your product” (para. 2). This method consists of creating profiles for people who are expected to be target users. This would mean, to name a few examples: to give them a name, a picture, and describe what their daily life and goals might be like. Having visual representations of these fictional people helps connecting what has been learned through user research into one tangible result. Also, this clear image of a person helps keeping the users in mind while designing products (Garrett, 2002). However, a possible problem with personas is that the information collected during the user research is not analysed properly and thus left unused (Flaherty, 2018). For the FSHS, this could mean to create, for example, a persona for an exchange student from a European country, a persona for an exchange student from Asia—as cultural differences might be more prominent—and one with poorer English skills. Then of course there should be a persona representing a Finnish student, perhaps one for a freshman who is new to the university life; and one possibly for a student with special needs like someone with young children or in the process of planning a family. Even just this small set of personas could help discover what the users’ true needs are and what the content of the website should be to fulfil them.

3.1.3 User experience and healthcare

The biggest reason behind investments in ways to improve user experience is the desire to increase profit—happy customers mean good business—and therefore there is a strong lack of motivation in public healthcare organisations to do the same (Bate & Robert, 2007). Healthcare providers should actively try to put more effort into human-centred and user-centred design even if it does not seem to immediately be cost-effective. Bate and Robert (2007) argue that “humanistic and cultural considerations are far more important, especially in a context where people are obviously not there for pleasure or enjoyment but for essential, sometimes life or death, clinical reasons” (p. 2). Whitney Quesenberry and Christy Mylks have held a

workshop in 2008 called *Models of Healthcare Consumers' User Experience* whose goal was to gather information about consumers' special usability needs and about how the healthcare context affects them by getting user researchers to share detailed results from different projects. Similarly to what Bate and Robert explained, the participants in the workshop agreed that a major part of understanding users in the context of healthcare as opposed to other fields is that users are generally in a position where they are forced to rely on the healthcare system (Quesenbery & Mylks, 2008). It is worth noting that students do not always have the luxury to pick a private healthcare provider, as their budget might only allow for the healthcare service included in the tuition fees.

Several emotional factors need to be taken into consideration in healthcare interactions: emotions may be out of control due to fear and uncertainty; and mixed with the possible urgency of the situation, overreactions are likely (Quesenbery & Mylks, 2008). Additionally, the need for support is much stronger than in a regular troubleshooting or customer service situation (Quesenbery & Mylks, 2008). The healthcare context includes important additional factors that must be addressed such as regulations, privacy and safety (Quesenbery & Mylks, 2008).

While it is uncertain if improving the FSHS's website would have any direct economic repercussions, it could still mean an improvement in the user experience and a stronger relationship of trust with the students. In the realm of possibilities, this could maybe even mean a more positive view of Finland's healthcare system for foreign students and lead to higher rates of skilled potential employees staying in the country after completing their studies.

3.1.4 Web usability and user interface design

Jakob Nielsen was a pioneer in the field of usability heuristics, but it became obvious that, even though his famous set of 10 usability heuristics (Nielsen, 1995a) could be used as guidelines when designing websites, new guidelines should be created specifically for testing the interface usability of websites.

Even an untrained eye with no previous experience with technical communications could tell that there exists a noticeable gap in web design when speaking of usability. Every internet user has encountered at one point or another a website that left them confused and unable to achieve the task they came to do. The coders make the code, the graphic designers make the graphics, but it seems that there is little or insufficient attention paid to the user interface and user experience. Usability specialists and language experts are not consulted, and the users' point of view is neglected and almost forgotten. Web usability is about "taking the frustration out of the user experience, making sure things work intuitively, eliminating barriers so that users accomplish their goals almost effortlessly" (Ryan, 2016, p. 42).

One way to counter this downside is to apply user-centred design principles. To achieve this, users are involved at an early stage of the development to make sure the product will be adapted to their needs and fulfil their expectations regarding its functionality (Head, 1999). This works well for designing software, but it can also be applied to websites. In this case, Nielsen and Loranger (2006) recommend giving users tasks to achieve on the websites that need to be tested, and then observing the users' interaction with them. For example, this could mean asking users to look for the opening hours of a company on a specific day or to book a room from a hotel and then analysing how users have interacted with the website to achieve this specific task.

In the context of this thesis, web design will refer to interface and information design, as there will only be an analysis of what can be seen and used by the user rather than focusing on backend development aspects. Designing an interface means to aim for a result that is easy and pleasant to use, as well as productive (Galitz, 2007). This of course applies to the quality of the information presented on the website and not just to its appearance. User interface design belongs to the field of human-computer interaction (HCI), which studies, plans and designs how users' needs are efficiently satisfied through their work with computers (Galitz, 2007). A well-designed user interface is primordial because it is through it that users will ultimately achieve tasks (Galitz, 2007). For the FSHS, having a website with a user-oriented interface would mean that users can find health-related information with ease, such as learning more

about a health issue or how to book an appointment with a nurse. In *The Essential Guide to User Interface Design: An Introduction to GUI design principles and techniques*, Galitz (2007) presents a list of general principles that are at the core of design and implementation of interfaces on the web. These principles are derived from other works by Galitz (1992), IBM (1991,2001), Lidwell et al. (2003), Mayhew (1992, 1995, 2001), Norman (2013), Open Software Foundation (1993), Verplank (1988), and the World Wide Web Consortium (2001). The list includes: accessibility, aesthetically pleasing, availability, clarity, compatibility, configurability, consistency, control, directness, efficiency, familiarity, flexibility, forgiveness, immersion, obviousness, operability, perceptibility, positive first impression, predictability, recovery, responsiveness, safety, simplicity, transparency, trade-offs, and visibility (Galitz, 2007). I will not further describe each of these principles individually, but they are all important in web design and if those elements are respected, the result should be a website that provides excellent user experience. They are explained in detail by Galitz (2007) in *Introduction to GUI design principles and techniques*. While this exhaustive list provides excellent ideas, a shorter set of heuristics would be much easier to work with.

The minimalism theory can of course be applied to web design. In fact, several of the modern design trends have found their roots in minimalism (Moran, 2015a). The application of minimalism to web design focuses on the visual appearance of the web site and not as much on the content. This is the reason why I will attempt to apply minimalism heuristics intended for technical documentation to the content of a website to look farther than just at its appearance and examine the quality and usability of the information displayed.

3.2 Evaluation methodologies

Jakob Nielsen is the co-founder and principal of the Nielsen Norman Group. As described on their website, this consulting firm researches user experience and offers their services to organizations all around the world to help them overcome user experience challenges (Nielsen Norman Group, 2019). Nielsen has set the cornerstone

in the domain of heuristic evaluation in the 1990s with his book *Usability Engineering*—cited by more than 15 000 scholarly articles—followed by his famous set of 10 heuristics that has been popular for several decades now (Nielsen Norman Group, 2019; Nielsen, 1995a). Nielsen describes these heuristics as “broad rules of thumb and not specific usability guidelines” (Nielsen, 1995a, para. 1). Heuristic evaluation can be defined as a usability engineering method applied by evaluators, and its purpose is to determine the flaws of a user interface design (Nielsen & Molich, 1990; Nielsen & Mack, 1994). Using heuristics as an evaluation method to target usability issues is very typical in user-centred design (Rosenbaum, Rohn, & Humburg, 2000). As explained earlier, technical communications and usability have had close relations for decades (Redish, 2010), and it is natural for usability heuristics to be great tools for technical writers to assess the usability of their content.

When looking for usability problems, it is recommended to have several evaluators to enhance the success rate (Nielsen, 1995c). This allows to broaden the perspective on the problems. Additionally—to ensure a thorough assessment of the usability problems—it is also recommended to alternate heuristic evaluation and user testing to guarantee an optimized success rate, as it allows to find problems evaluators might have accidentally overlooked (Nielsen, 1995b). The set of 10 heuristics mentioned in the paragraph above consists of: *Visibility of system status*; *Match between system and the real world*; *User control and freedom*; *Consistency and standards*; *Error prevention*; *Recognition rather than recall*; *Flexibility and efficiency of use*; *Aesthetic and minimalist design*; *Help users recognize, diagnose, and recover from errors*; and finally *Help and documentation* (Nielsen, 1995a, n.p.). These rules of thumb are most often used when designing user interface for software, but they can also be applied to websites. The following section will give a brief explanation or example for each usability heuristic (Nielsen, 1995a).

- 1) *Visibility of system status*: Users need to know what is happening. For example, if a page is loading, users need to be informed about it and possibly even about the expected waiting time.

- 2) *Match between system and the real world*: The language used by the system should be understandable by users.
- 3) *User control and freedom*: Users should have the possibility to undo actions easily.
- 4) *Consistency and standards*: The meaning of the words used and the result of performed actions need to be consistent to avoid confusion.
- 5) *Error prevention*: Users should be warned before confirming changes or actions in general to lower the chances of errors.
- 6) *Recognition rather than recall*: Information should be readily available and visible; users should not have to memorize it.
- 7) *Flexibility and efficiency of use*: Not all users will have the same level of expertise, but all of them should be able to use the system with ease. To enhance efficiency, “accelerators” should be provided to more advanced users. For example, this could be a keystroke shortcut to fulfil a certain task.
- 8) *Aesthetic and minimalist design*: Only necessary information should be visible to users; irrelevant information will only hinder visibility.
- 9) *Help users recognize, diagnose, and recover from errors*: Error messages should be clear and propose a solution.
- 10) *Help and documentation*: Help and documentation should be easily accessible for users to seek a solution to a problem.

This set of heuristics might be over 20 years old, but these guidelines are still very relevant nowadays despite the substantial evolution technology has gone through in the past decades. However, with the internet becoming so common and accessible in the 1990s and the 2000s, it became clear that the creation of new guidelines specifically for the design of user interface on websites was needed.

3.2.1 Minimalism

Because of their close relationship, technology and the field of technical communications grow and evolve side by side; but just like any other discipline closely related to business, it is constrained by factors like time and money. Companies strive to find ways to save money wherever they can, and documentation is not spared from this process. There are many different strategies to evaluate documentation, and one of them is the minimalism theory. While minimalist documentation can initially be expensive to produce, its quality and durability will be financially beneficial in the long run (Carroll, 1998).

Minimalism has been around in technical communications for almost three decades, but as pointed out by A.H. Anson (Carroll, 1998), its spread has been rather slow. Hans van der Meij and John M. Carroll (1998) explain that a common misconception—most probably stemming from the name itself—is that minimalism is only about *slashing the verbiage*, an iconic expression often used in minimalism to refer to keeping a text brief. While minimalism does indeed recommend using only the necessary amount of words, there is much more to it. Minimalism is very flexible and needs to be adapted to every different situation, and this is why minimalism theory speaks of “principles and heuristics rather than of norms, standards, guidelines, criteria, rules, or prescriptions” (Carroll, 1998, p. 20) that should be followed to the letter. Some of the key ideas of minimalism are to focus on users and engage them in real tasks as quickly as possible (Carroll, 1998). In *Minimalism beyond the Nurnberg Funnel* (1998), van der Meij and Carroll describe minimalism with four main principles and their corresponding heuristics (p. 21):

Principle		Heuristic	
1	Choose an action-oriented approach	1.1	Provide an immediate opportunity to act.
		1.2	Encourage and support exploration and innovation.
		1.3	Respect the integrity of the user's activity.
2	Anchor the tool in the task domain	2.1	Select or design instructional activities that are real tasks.
		2.2	The components of the instruction should reflect the task structure.
3	Support error recognition and recovery	3.1	Prevent mistakes whenever possible.
		3.2	Provide error information when actions are error prone or when correction is difficult.
		3.3	Provide error information that supports detection, diagnosis, and recovery.
		3.4	Provide on-the-spot error information.
4	Support reading to do, study and locate	4.1	Be brief; don't spell out everything.
		4.2	Provide closure for chapters.

Table 1. Set of principles and their heuristics by Hans van der Meij and John M. Carroll

This set of principles and heuristics clearly emphasises the importance of brevity, error prevention and getting into action from the beginning already. The first principle is all about getting the user started without giving them an overwhelming amount of information. The style is more of a guided exploration where the user is given some tool but is encouraged to try things by themselves without being explicitly instructed how to do so step by step (Carroll, 1998). The second principle sets the focus on real tasks that reflect real occurrences users will face while using the product. The third principle encourages the prevention of errors as much as possible, and explanations to the user about what exactly went wrong, so they are not left wondering why

something is not behaving how they expected it to. The last principle reminds that brevity is always to be favoured over extensive explanations. Short sections of information are preferred, as they give the users the impression that it is not too time and energy consuming and maximise the energy and motivation (Carroll, 1998). Also, the efficiency often improves if the explanation is presented after the task has been completed (Carroll, 1998).

Carroll (1998) claims that “people want to learn by doing, but this inclines them to jump around opportunistically in learning sequences” (p. 6). Schriver (1997) reinforces this statement by adding that this opportunistic behaviour is characterised by readers deciding “not only *whether* to read, but also *how* to read” (p. 164). They will choose to quickly read something, browse through something else, skip sections completely, or scrutinize a paragraph that has piqued their interest (Schriver, 1997). When given the opportunity to take the easy way out and avoid reading, users will take it (Schriver, 1997).

This type of behaviour is very common online. Users land on a web page and jump soon after onto another without reading more than a few words or sentences. They want to quickly find a way to the information they need but rarely take the time to do so in an orderly manner. The instantaneity of the internet has created a world full of impatient users who want to immediately get what they came for. This can be observed in an eye tracking study by Jakob Nielsen (2006) where they studied the reading patterns of 232 users reading content online. The result was a dominant pattern roughly shaped like the letter F (Nielsen, 2006). Users will start by reading the content from the upper part of the page from left to right, then they will continue downwards and do a second horizontal reading a bit lower, and in the end they will do a vertical scan of the content on the left (Nielsen, 2006). Eye-tracking tests first and foremost show that users do not read content thoroughly and opt for a lighter scan of the information available on the screen (Cooke, 2005; Nielsen, 2006). Studying users’ eye movement can reveal precious information about the usability of a product that could not be noticed in normal circumstances (Cooke, 2005). This reinforces one of the core ideas of minimalism, which is that people want to quickly get to work without

having to read extensive instructions or extra information they do not absolutely need.

In a newsletter, JoAnn Hackos (2008) sums the main reasons that draw people to a minimalist approach according to workshop participants she has worked with. Unsurprisingly, translation costs are at the top of the list (Hackos, 2008). Fewer words and simplified information would mean saving on translation costs. One other economic reason is that many companies try to keep their number of employees to a strict minimum, and this means a larger workload for a smaller workforce (Hackos, 2008). With an ever-growing documentation set, writers struggle to both keep pace with the work but also to maintain the quality (Hackos, 2008). Another reason is that sales and support teams report that users do not seem to even read the manuals, some say because there are too many, others because they are too complex (Hackos, 2008). On the other hand, Hackos (2008) also underlines important counterarguments brought by participants. For one, they stress the fact that the customer is king and if some require large amounts of information, they should be able to get it (Hackos, 2008). Additionally, some tasks are just too complex to be simplified; reducing the information would only lead to confused users that will require more assistance from support teams (Hackos, 2008). Also, there is rarely enough resources for user research, and the result is companies with only a vague idea of their customers and who are not sure what is too much or not enough information, as their customers' needs have not been thoroughly assessed (Hackos, 2008). The ultimate counterargument is that writers are afraid to become obsolete if the amount of documentation decreases too much (Hackos, 2008). In the case of this thesis, it is important to mention that it was suggested already over two decades ago already that minimalism could be useful for other spheres of communication as well (Manning, 1998). Information design for websites is certainly is a way to communicate information and minimalism principles could be applied to the process.

3.2.2 Revised set of minimalism heuristics

The set of minimalism heuristics I will be using for this research has been created in a joint effort by Virtaluoto, Suojanen, and Isohella (forthcoming) and it is based both on a literature review and on what are considered best practices in technical communications. Additionally, it was tested in the field in a case study with a company to prove its efficiency. While the goal of these heuristics is to evaluate a documentation process, I will use them in a slightly different way—to assess the usability of a website—in order to suit the topic of my study. Arguably, one could say that information online about how to book an appointment does resemble an instruction manual and hence qualifies as a type of documentation to which minimalism heuristics can be applied. Money- and time-efficient solutions are a must for any company, and this is exactly what this revised set of heuristics strives for.

The idea for a revised set of minimalism heuristics came from a combination of noticing how absent real-life cases where minimalism would be used in recent publications, and wanting to enhance the idea of user-centredness from an already existing set principles by van der Meij and Carroll (Carroll, 1998) (Virtaluoto, Suojanen & Isohella, forthcoming). Indeed, Virtaluoto, Suojanen, and Isohella (forthcoming) have found that the currently available literature about minimalism fails to provide detailed information on how to conduct a heuristic evaluation, and this brought them to seek for other guidelines from fields like usability research. Additionally, a literature review focusing on recent articles—between 2014 and 2019—published in six different technical communication journals (IEEE Transactions on Professional Communication, Information Design Journal, Journal of Business and Technical Communication, Journal of Technical Writing and Communication, Technical Communication, and Technical Communication Quarterly) brought no instance of cases where minimalism would have been put to the test (Virtaluoto, Suojanen & Isohella, forthcoming). This lack of real-life cases resulted in the creation of a new set of guidelines to be applied while designing documentation. As mentioned above, these newly redesigned set of principles has its foundation in the set of principles by

van der Meij and Carroll (Carroll, 1998) described earlier in section 3.2.1. Interestingly, Virtaluoto, Suojanen, and Isohella (forthcoming) have chosen to omit the principle of guided exploration from their revised heuristics. The reasoning behind this choice is that, considering the numerous advancements of technology in the past three decades, people's relationship with technology has evolved too, and they are much more comfortable using it (Virtaluoto, Suojanen & Isohella, forthcoming). Janice Redish points out that guided exploration has always been one of the problematic principles of minimalism, for there are no clear guidelines as to how much information should be given to the users to keep them motivated to explore by themselves, but also to avoid them getting lost and confused from the lack of explanations (Carroll, 1998). While talking about guided exploration, it is worth mentioning that this technique only works with users who are adventurous enough to feel inclined to explore by themselves, and those who are not and who prefer to be taken by the hand and walked through every step have great difficulties using minimalist instructions (Carroll, 1990; Carroll, 1998). Removing this principle from the set might help making the minimalist strategy more suitable for a larger audience. Moreover, guided exploration is not a good fit for the heavy industry or hardware products and that it might be even considered as patronizing in the context of a software (Virtaluoto, Suojanen & Isohella, forthcoming). Redish (Carroll, 1998) mentions that Carroll himself had admitted that "invitation to act" (p. 229) might be a more suited term for this guided exploration. This way, the message it implies is more about motivating the user to safely practice new skills, rather than trying to explore unknown territories with little to no support. This heuristic is underlined by several co-authors of *Minimalism beyond the Nurnberg funnel* (1998) as one of the problems why minimalism has not gained as much success as it was expected to. The vagueness of the heuristic makes it difficult for writers to apply it with confidence and ease. In the light of these arguments, the decision of Virtaluoto, Suojanen, and Isohella to not include this principle could lead to a more attractive and usable set of principles for writers to follow, and documentation that is less confusing and easier of approach for users of all learning styles.

The revised set keeps many of the original principles and heuristics by van der Meij and Carroll (Carroll, 1998), but they have been reorganized under three main principles instead of four (see Table 2). The first one, *Core tasks and goal-orientation*, is divided into three sub-categories of heuristics. *Core tasks* focuses on making sure the documentation is truly useful to the users and that the information it contains genuinely reflects their reality. *Getting to work immediately* promotes an action-oriented approach that would allow users to avoid wasting time reading unnecessary information. And *Immediate assistance* is about being certain that users get what they need when they need it. The second principle, *Accessibility*, is divided into four sub-categories of heuristics. *Content* refers to the need for concision in the selection of the content. *Findability* emphasises the importance of consistency throughout the documentation, as well as the importance of clarity of information to allow users to intuitively browse and navigate through it. *Understandability* focuses on the way the information is written; if the vocabulary is appropriate for the users and if the length of the tasks and explanations is not excessive. As the name implies, *Visuals* is about how the information looks, and more precisely, how it affects readability, relevancy, clarity, and consistency. The third principle is named *Error management* and englobes four sub-categories of heuristics. First, *Preventing errors* questions if the opportunity was taken to prevent errors whenever possible. *Warnings and notes* makes sure legal regulations related to warnings are followed and questions the necessity and location of the said warnings and notes. Next, *Error recognition* stresses the documentation's ability to offer error information. This information includes what went wrong, why, and what should be done to solve the problem. Moreover, it verifies if the error information is in the vicinity of the error. Finally, *Troubleshooting* evaluates whether there is a troubleshooting section and its visibility, clarity, and efficiency. As explained below the table of revised heuristics (see Table 2), the numbers following the revised heuristics refer to the corresponding original minimalism heuristic as described by van der Meij and Carroll (Carroll, 1998), which are presented in Table 1 in section 3.2.1.

As it has been discussed earlier, minimalism principles are not rules to be followed strictly (Carroll, 1998). The principles and heuristics are meant to be adapted to each and every case; they need to very carefully cater to the needs of the users and be

adapted to the specifics of the product documented. Additionally, it is worth stressing that the line between these heuristics can get easily blurred. Several different heuristics could be applied to one single problem or situation, which makes it difficult to separate examples into distinct categories in this thesis; so ultimately, if one example is listed under a certain heuristic, it does not exclude the possibility for it to apply to several other heuristics.

This thesis will serve as an experiment to see if this revised set of principles and heuristics can be adapted to web design. The product here is a healthcare website, which in a sense is a type of documentation for users. Naturally, it is unlike traditional user manuals that would, for example, come along with new software or a new kitchen appliance, but my expectation is that most of the principles and heuristics can be adapted to web design, especially in the case of the FSHS's website, and help find solutions to improve its usability. Having been a user of the FSHS's website in the past, I will both have the experience of a user, and of an expert to provide a thorough evaluation.

MINIMALISM HEURISTICS

1 CORE TASKS AND GOAL-ORIENTATION	
Core tasks	1.1 Does the documentation concentrate on the user's core tasks? (OH2.1)
	1.2 Does the documentation reflect the real-life structure of each task? (OH2.2)
	1.3 Does the documentation explain why the task is done, in addition to how? (OH2.2, Extended)
Getting to work immediately	1.4 Can the users start working on real-life tasks immediately? If the documentation contains general information, prefaces, or introductory information before the steps, is the information concise and necessary? (OH1.1; OH4.1 Extended)
Immediate assistance	1.5 Is the documentation available when needed? (OH1.3)
	1.6 Does the user get targeted instructions at the relevant touch points on the user journey? (OH1.3, Extended)
2 ACCESSIBILITY	
Content	2.1 Is the documentation as concise as possible in its overall selection of contents? (OH4.1)
Findability	2.2 Is the overall structure of the documentation logical and consistent? Are all topics/sections structured in the same way? (OH4.2, Extended)
	2.3 Do the users find what they are looking for? Does the documentation contain: (OH3.1, Extended) <ul style="list-style-type: none"> • a clear and precise table of contents • a clear and intuitive index • clear, intuitive headings and keywords • an accessible and intuitive search functionality for online or electronic documentation?
Understandability	2.4 Is the information in the documentation easy to understand? Does the documentation contain: (OH3.1, Extended) <ul style="list-style-type: none"> • long tasks broken into shorter sequences • clear, action-oriented steps • short, simple sentences • verb forms relevant to the information type • terminology that is appropriate to the user group • clear, simple language?
Visuals	2.5 Is the documentation visual? <ul style="list-style-type: none"> • Have graphics, images, videos, etc., been used where appropriate? • Are the visuals relevant? • Are the visuals used consistently? • Are the visuals clear and readable both online and in print? • Are the visuals clearly labelled (titles, figure numbers, etc.)? • Are the images and text in the documentation clearly connected using callouts, for example?
3 ERROR MANAGEMENT	
Preventing errors	3.1 Have errors been prevented? (OH3.1)
Warnings and notes	3.2 Have all the applicable safety standards and legislation (e.g. the Machinery Directive) been taken into consideration in the documentation? (OH3.1, Extended)
	3.3 Are all the warnings and notes necessary? (OH4.1)
	3.4 Are the warnings and notes located next to the relevant procedure? (OH3.4)
Error recognition	3.5 Does the documentation offer error information: recognition, diagnosis, solution? (OH3.3)
	3.6 Is the error information located close to the relevant procedure? (OH3.4)
Troubleshooting	3.7 Does the documentation contain a troubleshooting section? (OH3.1, Extended) <ul style="list-style-type: none"> • Is the troubleshooting section clearly visible in the table of contents? • Does the troubleshooting section contain the problems most often faced and/or reported by the users of the product?

Table 2. Revised minimalism heuristics. In the table, OH followed by a number refers to the corresponding original minimalism heuristic as presented in Table 1 (Virtaluoto, Suojanen, and Isohella, forthcoming)

4 Analysis

My original idea was to analyse the FSHS's entire website, but the limited scope of a master's thesis forced me to keep the focus on a smaller portion of the website, or in this case: on a user task. One of the issues I noticed right from the beginning was that the large amount of information on the website was, in my opinion, not always necessary; and this is the main reason why the whole website is not fit to be analysed in this thesis. Instead, I decided to focus on a specific task: booking an appointment. I think it is safe to assume that a fair number of people who visit a healthcare provider's website do so to find information about how to book an appointment with a professional. I have not enquired users about the motives of their visit on this precise website, but I nonetheless believe that booking an appointment with a nurse or a doctor is a very important task for users and therefore should be made as easy as possible to fulfil. With the help of the revised set of minimalism heuristics (see Table 2), I will evaluate how the process of booking an appointment is presented on the website, and suggest ways based on these heuristics to improve and simplify the appointment booking task in the ultimate goal of providing a better user experience. While the set of heuristics was developed as an evaluation tool for documentation process, I believe it will provide useful insight on how to design a better, clearer website that will leave users satisfied. In a way, the FSHS's website is similar to an instruction manual; it is where students go when they have a problem or question and they generally consult the website for an answer. It is possible, however rather unlikely, that someone will browse a healthcare provider's website simply to explore and learn; they usually come with a task or a problem in mind. Just like a minimalist manual, the website should be able to cater to both people coming for the first time and familiarizing themselves with the information, and to people using it as reference material where they can come and quickly find the information they are looking for. It should also take into consideration the varying English skills of the users. For each heuristic, I will give examples from the FSHS' and show how they respect it or not; and whenever possible, I will provide a minimalist solution with recommendations or an improved version of the same example.

4.1 Core tasks and goal-orientation

This first set of heuristics is to ensure that the focus of the documentation is on the users' goals and that the tasks presented are relevant and help the users achieve these specific goals as quickly as possible.

4.1.1 Core tasks

Documentation should not get lost in infinite details users have no use for in their task. Minimalist documentation is aware of what users are trying to achieve and will go straight to the point and avoid any unnecessary detours.

- 1.1 Does the documentation concentrate on the user's core tasks? (OH2.1)

As mentioned in the analysis' introductory paragraph, the core task of the users, as seen from the point of view of this thesis, is to successfully book an appointment, or at least to learn how to do it. The information should be clear and lead to this outcome without users getting lost in confusing information on the way. Figure 7 shows the very first encounter users have with the word "appointment". It is positive that it is high on the page, as users will not need to scroll through the long homepage.

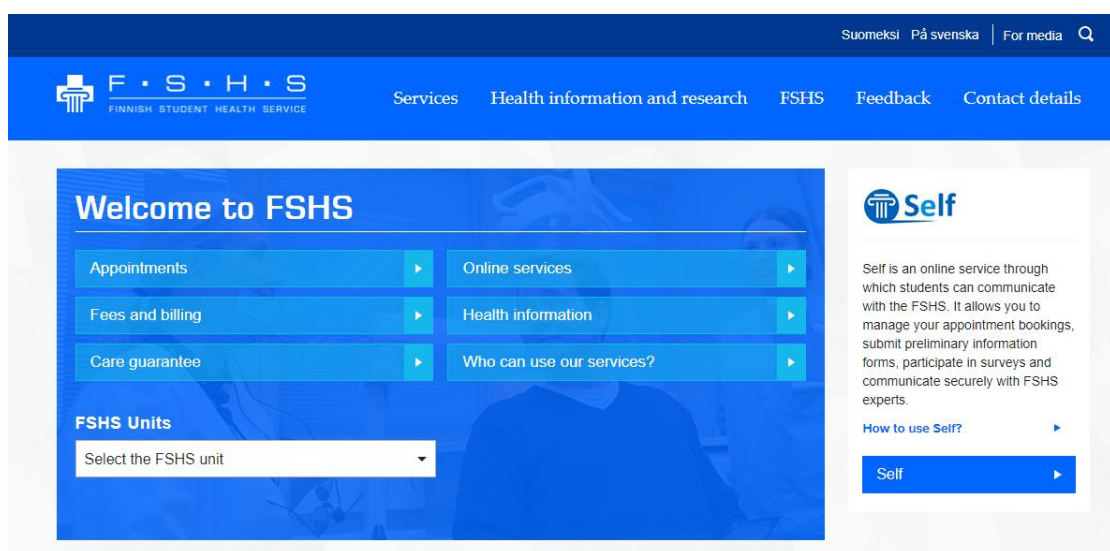


Figure 7. Top of homepage

However, after landing on the *Appointments* page, the focus on the core task gets partially lost. First, there is emphasis on how students must be certain of the subject of their inquiry, and if they are eligible or not to the FSHS's healthcare services before proceeding to the appointment booking process. Indeed, once the user lands on the *Appointments* page, the very first paragraph—circled in red for clarity in Figure 8— instructs users to evaluate the nature of their medical problem or interrogation, and make sure they are eligible before calling to get assistance.

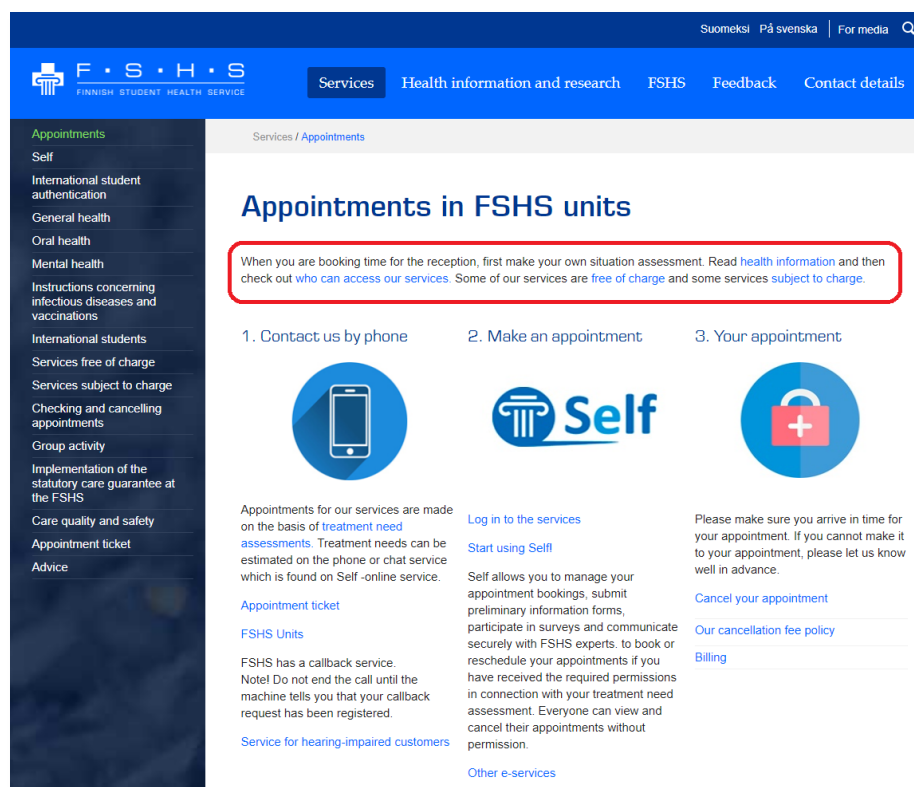


Figure 8. *Appointments page*

Assuming users do pay attention to the two small rows of text before the list of steps, they will click on the first link in hope of getting information on how to perform an early self-diagnosis; and unfortunately, the *health information* link leads to a page with an error message stating that the page cannot be found. There originally was a focus on the core task, but it is diverted from it with as many as four links in the short introduction. From here, there is no clear information about phone numbers that would help keep the focus on the task for users who are not first timers and wish to proceed faster.

Upon clicking the second link of the introduction paragraph, *who can access our services*, users are taken to a page with detailed information and several notes concerning the eligibility of students for the FSHS's services. The inconsistent use of bullet points and of notes makes the text difficult to browse through and understand quickly. The notes will be discussed further in section 4.3.2. These inconsistencies hinder the appointment booking process, and more importantly, this page feels like a dead-end, as there is no obvious link to take users back to their core task: booking an appointment.

- 1.2 Does the documentation reflect the real-life structure of each task? (OH2.2)

In this case, we can think of the first task as a phone call. It is a straightforward task; however, the unclear instructions fail to point the user into the right direction. An instructional video showing how to make an appointment to see a doctor can be found behind the link *Start using Self!* (visible in Figure 8, under step 2). While it might be easier for some users to learn how to use the services from a video, it is unlikely that many will watch it. The video shows a student calling the FSHS to enquire about a doctor's appointment because she still suffers from migraines despite her medication. She dials the number and instantly gets answered by a nurse. In reality, one has to go through a series of pre-recorded messages to finally learn that a nurse will call back during the day. Based on this video, one cannot say that the documentation reflects the real-life structure of the task. What would be more useful for the user is to have a list of the steps to be expected on the phone. This would ease the task for users who might not be comfortable with oral comprehension in English over the phone. Being able to read the full process beforehand helps to reduce anxiety and be more prepared to pick the right options without having to call twice in case of a missed word.

Another issue with this instructional video is that it is found behind the link called "Start using Self!" and thus, is expected to instruct users on how to use the *Self* service. However, as explained in the previous paragraph, the video is mostly showing the interaction between a student and a nurse over the phone. The very short segment

towards the end of the video where the student uses the *Self* service on her phone is mostly out of focus and the video finally ends after users get a very short glimpse of a clear shot of *Self*. Unfortunately, this clear shot of *Self* is probably only visible when viewing the video on full screen mode on a computer, as it is too small to show any details on mobile devices or even on the regular-sized video that has not been expanded to fit a whole computer screen. This documentation is a good idea, but it fails to reflect the real-life structure of the task.

- 1.3 Does the documentation explain why the task is done, in addition to how? (OH2.2, extended)

The *Appointments* page offers a three-step list under the preliminary instructions before booking an appointment described under the heuristic 1.1. The first step, as seen below in Figure 9, instructs users to initiate contact by phone.

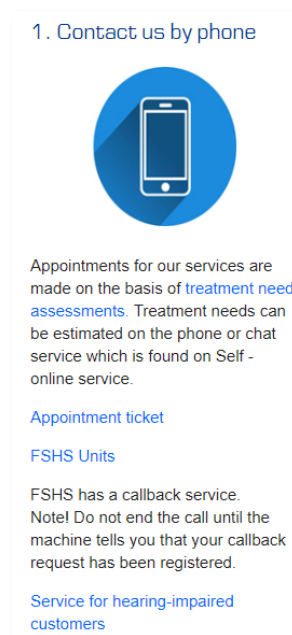


Figure 9. Step 1 on the Appointments page

First, it is not specified that during the initial phone call, users will not make an appointment, but instead, will get the authorization to make an appointment

themselves online through the *Self* service. However, they do mention that users need to have their situation assessed in order to proceed to the appointment booking phase. In the case where a user would want to learn more about this assessment (*why* and *how* that task is done), a link to more information is provided at the end of the first sentence. The first confusing element to the user is that the page they land on does not have the same name as the link they clicked on (see Figure 10).

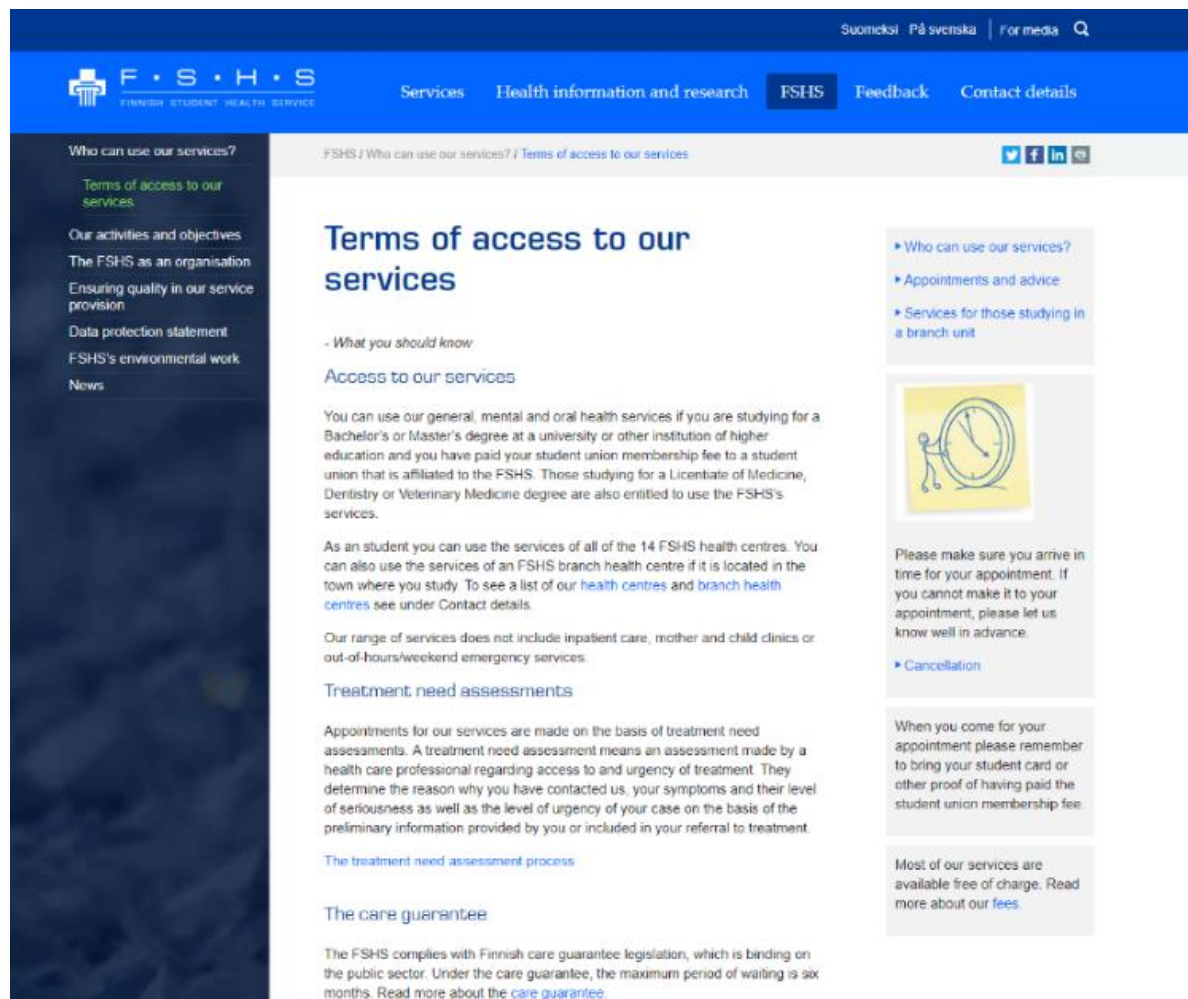


Figure 10. When clicking on "treatment need assessments", users land on a page called "Terms of access to our services"

Instead of finding more information about the assessment for the need of treatment, users are first presented the exact same piece of information they were presented in the introduction to the three steps on the previous page. The *Treatment need assessments* section can be found about halfway down the page. It provides a detailed description as to *why* the assessment needs to be conducted: it helps determining the

urgency and the seriousness of the case; and a link lower on the page named *The treatment need assessment process* sends users to another page that would seemingly explain *how* the assessment is done. However, following this link leads to the *Services* (see Figure 2 for reference) page and fails to provide further details about *how* the assessment process is done. Instead, it gives very broad information about the services offered, which is not relevant in this situation where users want to know how the assessment process goes, as the link they clicked implied. In the end, there is absolutely no information about how this said assessment is conducted. Users are taken through a total of three different pages with the help of two links that both seem to promise more and more precise information, but the result is that the information from the first page is simply repeated in long and laborious sentences in the second page, and the third page fails to provide any relevant clarifications about how the assessment process is done.

While they encourage users in the introduction to assess their own situation by consulting the *health information* section, I believe it is wiser to leave it out, as the section is of overall poor quality and self-diagnosis is rarely effective and can result in a deeper state of stress. A minimalist solution could be to simply “slash the verbiage”, as it is commonly said in minimalism, and reduce the first paragraph of step 1 to just one sentence and two options:

Before you can book an appointment, you must contact a nurse and get your situation assessed by either:

Calling [your local FSHS unit](#)

OR

Using the online chat service on [Self](#)

Figure 11. Improved text about how and why users must contact the FSHS

This short bit of text explains clearly *why* one must contact a nurse (to have their situation assessed), and *how* (over the phone or online). The first link would lead to the contact page with all the necessary phone numbers, and the second link would lead to the *Self* login page. This way, the focus stays on the core task the whole time. A fully improved step 1 can be seen in Figure 27.

4.1.2 Getting to work immediately

In order to get the core tasks done, minimalism condemns the use of extensive introductions or anything superfluous and strives to get users to achieve their goals as quickly as possible.

- 1.4 Can the users start working on real-life tasks immediately? If the documentation contains general information, prefaces, or introductory information before the steps, is the information concise and necessary? (OH1.1; OH4.1 Extended)

As mentioned in section 3.2.2, one situation might call for the help of several different heuristics. It is the case for this heuristic, which is closely related to the “Core tasks” heuristic described in the previous section.

In the case where users would click on *Appointments* on the homepage, they would be taken to the page shown in Figure 8. One positive point that follows the minimalist strategy is the rather short introduction under the title. A short introduction means getting to work faster. However, this brevity is counterbalanced by a very heavy use of links to other pages. It is worth noting that this high number of links in a very short paragraph is not necessarily a negative strategy. In a way, it reduces the amount of text on the page by hiding all the extra information on other pages of the website. This layering technique is especially useful in the design of reference material or expert users. Here, it means that it will accelerate the information finding process for users who already have the necessary knowledge about all the pre-requirements for booking appointments. The downside of these links is that the information behind them fails to effectively provide what they promise to deliver. As mentioned earlier,

the first link in the introduction paragraph of the *Appointments* page (see Figure 8), is called “health information” and its name implies that it will provide additional health-related information that would help users determine the acuteness of their need for treatment. Instead, it leads to an empty page with an error message in Finnish saying that the page cannot be found (see Figure 12).

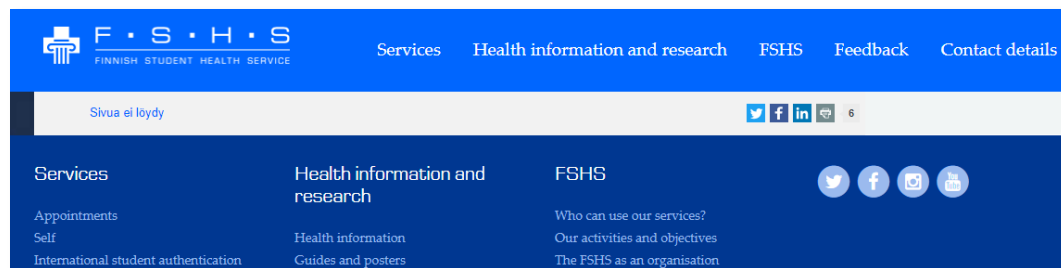


Figure 12. Broken link to “health information” leads to an error page

This dead-end is rather perplexing for new users, as it immediately breaks the flow and stops them from getting to work. Here, users are left wondering where to find this so called “health information”. While the introduction to the list of steps is short, the usefulness of its content is questionable. Most of the information is more suitable as notes to be added at the bottom of the page.

Another example of an unnecessarily long introduction can be found on the *Checking, rescheduling or cancelling an appointment* page (see Figure 13), which can be

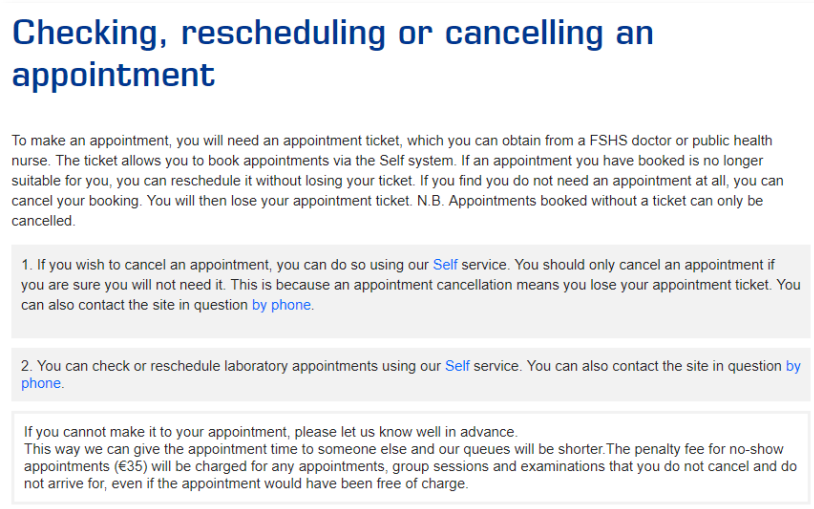


Figure 13. Example of unnecessarily long introduction

accessed from the link *Cancel your appointment* under step 3 (see Figure 8). The paragraph contains five lines of text, and more than half of it is about how to book an appointment, even though the name of the page clearly implies that an appointment has been booked already and now users come here to find information about how to modify or cancel this booking. This introduction is redundant and provides no relevant information with an exception of the note about the impossibility to reschedule an appointment that was booked without a ticket. Writing obvious facts like “if you do not need an appointment at all, you can cancel your booking” (FSHS, 2019) is unnecessary; it wastes the users’ time, and space on the page. The point of cancelling something is self-obvious and does not need an explanation. The information on the page can be shortened into a fraction of what it is, as most of the text is about calling or using the *Self* online service to do the rescheduling or cancelling.

My minimalist solution would be to remove the introductory paragraph completely. A fully improved version of this page without the superfluous information can be found in Figure 45 in section 4.3.3.

4.1.3 Immediate assistance

Minimalist documentation should not leave users confused and in need of help. The documentation should be designed so that it can be found easily whenever it is required.

1.5 Is the documentation available when needed? (OH1.3)
--

Whether or not the documentation is available when needed depends from which point of view the question is addressed. From a broad perspective, it is possible to say that yes, the documentation is available when needed, as it can be found on the internet, which is almost always accessible providing the website is up and running. Another way to answer this question is to consider the online chat service as a type of documentation that provides answers to users’ questions. This chat service with a

nurse is available from Mondays to Fridays from 13.00 to 14.00. The time window is very short, but there is indeed immediate assistance available during those few hours every weekday.

However, one way to argue the availability of the appointment booking documentation is to stress that its poor findability diminishes its immediate availability greatly. Findability will be further discussed in section 4.2.2.

1.6 Does the user get targeted instructions at the relevant touch points on the user journey? (OH1.3, Extended)
--

On most occasions, the timing of the information presented is not optimal. The journey from the moment users land on the front page of the website until they learn how to book an appointment and finally find the appropriate phone number is rather long if they do not happen to click on exactly the right links at the right time to shorten the process. From the front page, if users proceed to the *Appointments* page, they will find useful phone numbers under the seventh link presented on the page. While the title of the first step to book an appointment is “Contact us by phone”, there is no clear indication as to where the numbers can be found. Those phone numbers are in fact behind the link called “FSHS Units”, but the name fails to provide a clear indication that is it indeed where the contact information is displayed. Providing a clear and quick way to the contact information should be one of the basic services available on the *Appointments* page, as it is how students are expected to contact the FSHS. This could be improved by moving the link higher up in the page so that users would find it early on in the reading process, and also by rephrasing the title of the *FSHS Units* link into something more informative like “Call your local FSHS unit”.

4.2 Accessibility

This set of heuristics evaluates the quality of the information presented. The information must be written clearly and without any unnecessary words, it must be easy to locate, as well as properly supported with visuals if needed.

4.2.1 Content

In minimalism, documentation content should be kept to a strict minimum; brevity and quality are core values, as they allow for concise and efficient documentation.

2.1 Is the documentation as concise as possible in its overall selection of contents? (OH4.1)
--

Content is one of the most important issues on the FSHS's website; the lack of conciseness is flagrant on almost every page. For one, the *Health information* section that users are encouraged to browse to make their own situation assessment is the host of several examples where concision would clearly help keeping users motivated and active. The *Health information* section is the FSHS's own health encyclopaedia with an array of articles about health issues.

For example, the *General advice on contraception* entry in the health encyclopaedia (see Figure 14) shows well the dreaded information dump minimalism wishes to avoid. By simply cutting the text into smaller sections and using bullet points, the chances users would read the text would quite likely increase. This article is divided into three very large paragraphs that make it very difficult to quickly scan through. At the sight of such a page, users might be tempted to instantly give up and look for information elsewhere. "Slashing the verbiage"—a motto in minimalism—would be very effective in this case, as the long sentences do not necessarily provide more details than what users need. This general advice applies to all the lengthy health articles, which I will not rewrite for the sake of brevity. If none of the text can be removed, an effort should be made to reorganise the very long paragraphs into shorter ones with headings that would help users to quickly scan through the page.

General advice on contraception

Everybody, both women and men, has the right to reliable contraception when a pregnancy is not desired. When used correctly, modern contraceptive methods allow reliable birth control. Condoms are extremely valuable as they protect against STD infections. In terms of contraception, however, they are not as effective as hormonal contraceptives or intrauterine devices (IUDs, also known as coils). The most suitable contraceptive method is chosen individually. The choice of method depends on your own wishes and those of your partner, sometimes your attitudes, life situation, the type of contraception required, how regularly contraception is required, your current and previous health, and factors such as smoking. When considering the choice of contraceptive method, it is therefore important that you have sufficient information on the different methods and guidance on how to use them. You are most likely to use contraception correctly if both you and your partner are happy with the method you are using. It is up to the doctor to make sure that the method chosen is suitable for the woman's health and safe for her. If you wish, your partner is also welcome to accompany you and discuss contraception during a visit to a doctor or public health nurse.

Hormonal contraception is a good option for a healthy young woman who has not given birth. The term combined hormonal contraception refers to oral contraceptives ("the pill"), contraceptive patches and vaginal contraceptive rings, all of which contain both oestrogen and progestogen. Progestogen-only pills ("mini pills"), contraceptive implants and hormonal intrauterine devices (hormonal IUD, hormonal coil) only contain progestogen and are therefore known as progestogen-only contraceptives. Combined hormonal contraceptives have been available for more than 50 years and have become the preferred contraceptive method especially for women who have not given birth. When used correctly, their contraceptive efficacy is good and the woman's menstrual periods are regular and can be controlled. Combined hormonal contraceptives can also be used to treat conditions such as heavy menstrual bleeding, menstrual pain, polycystic ovary syndrome (PCOS), endometriosis and acne. Hormonal contraception is medication, and a doctor is responsible for its use and follow-up. For health reasons, combined hormonal contraception is not suitable for all women - even those who are young. The woman may also have to discontinue its use because of adverse effects or changes in health during use ([oral contraceptives](#)). It is important that hormonal contraception is followed up and the woman has good and confidential contact with health care professionals.

Progestogen-only contraception can often be used by women who, for health reasons, cannot use combined hormonal contraception. Progestogen-only contraceptives cannot be used to time menstruation; menstrual bleeding occurs individually in those using mini pills and contraceptive implants. The woman's periods may also stop, which is not dangerous to health and does not signify impaired effect, actually quite the contrary. In those using a hormonal coil, menstrual bleeding usually becomes much lighter and stops completely in a large proportion of users. The use of coil (IUD) contraception has increased, even among women who have not given birth, and several studies have shown that the method is also suitable for this group of patients. The increase in the risk of pelvic inflammatory disease has turned out to be lower than expected, since the risk mostly depends on the woman's sexual behaviour and not on her contraceptive method. A woman who has not given birth can use a coil if her womb is of normal structure and large enough for a coil and if she needs regular contraception, preferably in a long-term relationship. Both copper and hormonal coils are used for five years. Copper coils are particularly important if the woman wants a reliable nonhormonal contraceptive method for health reasons or for other reasons.

This article was written by
SV, 21 Nov. 2013

Figure 14. Entry about "General advice on contraception" in the health information section

Going back to Figure 2, a link named "Appointment ticket" is found under the first of the three steps. At a quick glance, the length of the page the link leads to seems reasonable (see Figure 15). However, there is no real need to have this information on a separate page. The content could have been reduced to a single sentence—as most of it is a repetition of what can be found on the *Appointments* page—and added to step 1 on the *Appointments* page to avoid going back and forth between different pages. An improved version of the first step including the appointment ticket information can be found in Figure 27. Reducing the amount of text explaining what appointment tickets are and how they work would also increase understandability, which will be discussed further in section 4.2.3.

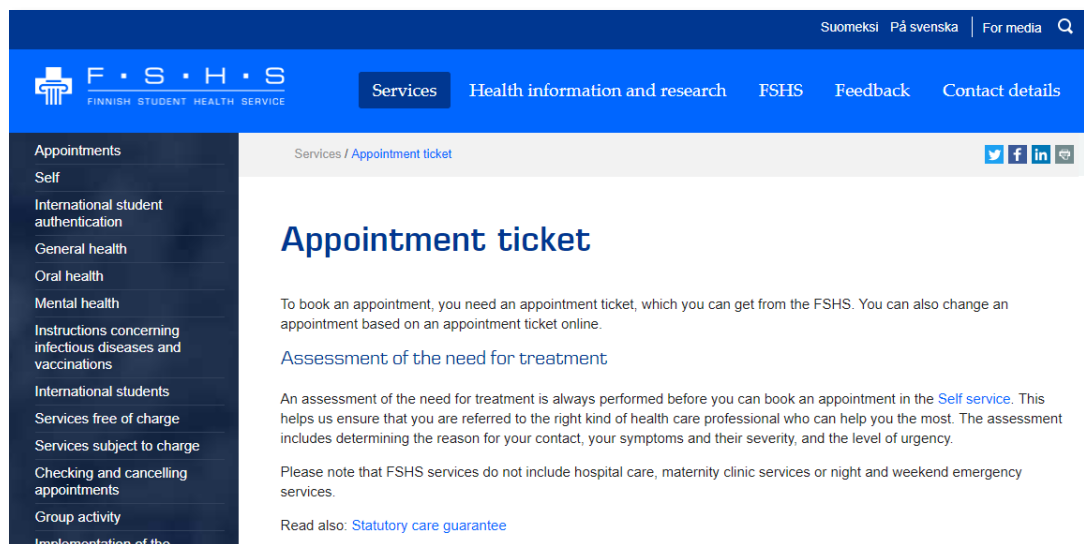



Figure 15. Appointment ticket page

Another example of lack of conciseness can be found on the contact page. The following pages contain screenshots of the first three sections of the contact information page of the Oulu unit of the FSHS. While this only touches the first three sections, the same principles would apply to all the following sections about prescription renewal, oral health, and mental health below. For the sake of brevity, I will only suggest a solution for the first three sections: acute treatment (see Figure 16), laboratory and imaging examinations (see Figure 17), and non-urgent treatment (see Figure 18).


Suomeksi
På svenska
For media


F · S · H · S
FINNISH STUDENT HEALTH SERVICE

Services
Health information and research
FSHS
Feedback
Contact details

Foundation's administration
Units
Espoo
Helsinki
Joensuu
Jyväskylä
Kuopio
Lappeenranta
Oulu
Units administration
Patient Ombudsman
Requesting Patient Data
Rauma
Rovaniemi
Savonlinna
Tampere
Turku
Vaasa
Unit addresses
Branch health centres
Patient Ombudsman
For media
Service for hearing-impaired customers
FSHS online communication guidelines

Contact details / Units / Oulu



Oulu

Appointments and information by phone

General health

Acute treatment

Address: Yliopistokatu 1 A, Oulu

Treatment need assessments and appointments: Call 046 710 1063 from Monday to Thursday between 8.00 and 15.00 and on Fridays between 8.00 and 14.00. [Chat](#) is in online Self service. In acute cases we aim to receive you on the same day or no later than the following day depending on your illness or condition or advise you to go straight to your [local municipal health care centres's accident and emergency unit](#). Our public health nurse will assess your need for treatment, give treatment instructions. Read more about [treatment need assessments](#) and [a callback service](#).

How to cancel an appointment: Call 046 710 1063 during the service ours of our appointment reservations service, call our automated telephone service on 046 710 1064 or use the [appointment cancellation form](#). [Penalty for no-show appointments](#).

Exceptions to our regular service hours: If New Year's Eve, Maundy Thursday or 30 April falls on a weekday from Monday to Friday, our health centre closes at 13.00.

Where to call if our health centre is closed: If our health centre is closed, contact your [local municipal health centre](#) between 8.00 and 15.00 or call the emergency service of Oulu region on (08) 3152655 if you need help after 16.00 pm.

Other things to remember: In addition to Oulu, calls to our treatment need assessment and appointment reservations service may also be answered in Rovaniemi.

[Our acute treatment policy](#)

Laboratory and imaging examinations

Checking or cancelling appointments online

Other electronic services

Visiting address

Yliopistokatu 1 A
90570 Oulu

Malladdress:
PL 188
90014 Oulun yliopisto

OPENING HOURS:
Mon-Thu 8am-3pm, Fri 8am-2pm
Maundy Thursday and 30 April
FSHS unit is open 8am-12.30pm.
Patient office Mon-Fri 9am-11.30am

TREATMENT NEED ASSESSMENTS AND APPOINTMENTS:
general and mental health:
046 710 1063
oral health:
046 710 1065
Chat in Self Mon-Fri 1 pm-2 pm.

Cancellations of appointments, automatic tel. answering:
046 710 1064

Fax: 046 710 6547

Figure 16. Oulu unit: Acute treatment contact information

Units administration
Patient Ombudsman
Requesting Patient Data
Rauma
Rovaniemi
Savonlinna
Tampere
Turku
Vaasa
Unit addresses
Branch health centres
Patient Ombudsman
For media
Service for hearing-impaired customers
FSHS online communication guidelines

Acute treatment

Laboratory and imaging examinations

LABORATORY EXAMINATIONS

Address: Yliopistokatu 1 A, Oulu

Laboratory examinations: Laboratory examinations are only available if you have a referral by an FSHS doctor or public health nurse.

Exceptions to our regular service hours: If New Year's Eve, Maundy Thursday or 30 April falls on a weekday from Monday to Friday, our health centre closes at 13.00.

Laboratory tests and appointments: Laboratory appointments can be booked via the [Self-service](#). If this is not feasible for any reason, you can also call the site 046 710 1063.

To make an appointment, you will need an appointment ticket, which you can obtain from an FSHS doctor or public health nurse. The ticket allows you to book appointments via the [Self-service](#). If an appointment you have booked is no longer suitable for you, you can reschedule it without losing your ticket. If you find you do not need a laboratory appointment at all, you can cancel your booking. You will then lose your appointment ticket.

How to take cancel an appointment: When you have make reservation to an appointment you will get password with you can cancel or change your appointment.

Other things to remember: Laboratory examinations are only available if you have a referral by an FSHS doctor or nurse. Please note that you may have to fast before your laboratory test. If the test name code begins with the letter f (such as in fP-Gluk), you may not eat anything for 10-12 hours before the test.

IMAGING EXAMINATIONS

X-ray, ultrasound and other examinations are only available if necessary on referral by an FSHS doctor as separately instructed.

[General instructions: How to prepare for sampling](#)

Non-urgent treatment

Visiting address

Yliopistokatu 1 A
90570 Oulu

Malladdress:
PL 188
90014 Oulun yliopisto

OPENING HOURS:
Mon-Thu 8am-3pm, Fri 8am-2pm
Maundy Thursday and 30 April
FSHS unit is open 8am-12.30pm.
Patient office Mon-Fri 9am-11.30am

TREATMENT NEED ASSESSMENTS AND APPOINTMENTS:
general and mental health:
046 710 1063
oral health:
046 710 1065
Chat in Self Mon-Fri 1 pm-2 pm.

Cancellations of appointments, automatic tel. answering:
046 710 1064

Fax: 046 710 6547

Figure 17. Oulu unit: Laboratory and imaging examinations contact information

<ul style="list-style-type: none"> Units administration Patient Ombudsman Requesting Patient Data Rauma Rovaniemi Savonlinna Tampere Turku Vaasa Unit addresses Branch health centres Patient Ombudsman For media Service for hearing-impaired customers FSHS online communication guidelines 	<p>► Acute treatment</p> <p>► Laboratory and imaging examinations</p> <p>▼ Non-urgent treatment</p> <p>Address: Yliopistokatu 1 A, Oulu</p> <p>Treatment need assessments and appointments: Call 046 710 1063 from Monday to Thursday between 8.00 and 15.00 and on Fridays between 8.00 and 14.00. Chat is in online Self service. If your case is not urgent, please call after 9.00 a.m. Patient office opening hours are from Monday to Friday between 9 a.m. and 11.30 am. Read more about treatment need assessments and a callback service.</p> <p>How to cancel an appointment: Call 046 710 1063 during the service ours of our appointment reservations service or call our automated telephone service on 046 710 1064 or use the appointment cancellation form. Penalty for no-show appointments.</p> <p>How to get advice over the phone: Call 046 710 1063 from Monday to Thursday between 8.00 and 15.00 and on Fridays between 8.00 and 14.00. To receive your lab test results, preferably call in the afternoon. To speak to a physiotherapist call 046 710 6520 on Tuesday between 13.30 and 14.00.</p> <p>Exceptions to our regular service hours: If New Year's Eve, Maundy Thursday or 30 April falls on a weekday from Monday to Friday, our health centre closes at 13.00.</p> <p>Where to call if our health centre is closed: If our health centre is closed, contact your local municipal health centre between 8.00 and 15.00 or call the emergency service of Oulu region on (08) 3152655 if you need help after 16.00 pm.</p> <p>Other things to remember: In addition to Oulu, calls to our treatment need assessment, advice and appointment reservations service may also be answered in Rovaniemi.</p> <p>We email all first-year students a health inquiry form and invite them, if necessary, to a personal health discussion.</p> <p>First appointments and acute appointments with a physiotherapist are only available if you have a referral by an FSHS doctor or nurse. You can make an appointment for consultations such as posture advice, ergonomics and muscular care consultation or physical activity and relaxation consultation (referral not needed).</p> <p>► Prescription renewals</p>	<p>Visiting address</p> <p>Yliopistokatu 1 A 90570 Oulu</p> <p>Mailaddress: PL 188 90014 Oulun yliopisto</p> <p>OPENING HOURS: Mon-Thu 8am-3pm, Fri 8am-2pm Maundy Thursday and 30 April FSHS unit is open 8am-12.30pm. Patient office Mon-Fri 9am-11.30am</p> <p>TREATMENT NEED ASSESSMENTS AND APPOINTMENTS: general and mental health: 046 710 1063 oral health: 046 710 1065 Chat in Self Mon-Fri 1 pm-2 pm.</p> <p>Cancellations of appointments, automatic tel. answering: 046 710 1064</p> <p>Fax: 046 710 6547</p>
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Figure 18. Oulu unit: Non-urgent treatment contact information

The first obvious issue is the large amount of text with plenty of repetition. Every entry starts by stating the visiting address of the clinic, which is also displayed on the right. Considering the address is the same in every category, it would save space to only display it once on the right and remove it from every category. Additionally, the phone number, opening hours, and exceptional opening hours are also identical in all three sections; just like for the address, moving this information to the right would make the text lighter. Another large portion of the text is dedicated to repeating the instructions on how to book an appointment. This repetition could be avoided by adding a note at the top that would instruct users to visit the *Appointments* page and familiarize themselves with the three-step process. The following page (see Figure 19) features a minimalist solution to these three sections (acute treatment, laboratory and imaging examinations, and non-urgent treatment). It makes a better use of notes—which will be discussed further in section 4.3.2—avoids repetition, and overall enhances readability. The opening hours and contact information on the right will be discussed in section 4.2.2.

Oulu

General health

NOTE! If you are not familiar with the appointment booking process, please visit the [Appointments](#) page before calling.

Acute treatment

We aim to receive you on the same day or no later than the following day depending on your condition or advise you to go straight to your [local municipal healthcare centre's accident and emergency unit](#).

If our health centre is closed: Contact your [local municipal healthcare](#) centre between 8.00-15.00 or call the emergency service on (08) 3152655 after 15:00.

[Our acute treatment policy](#)

Laboratory and imaging examination

Laboratory, x-ray, ultrasound, and other examinations are only available if you have a referral by a FSHS's doctor or nurse.

To book a laboratory appointment: We recommend you do it on [Self](#). If that is not possible, please call us.

For test results: Please call in the afternoon.

NOTE! If your test name's code begins with the letter f (such as in fP-Gluk), you are not allowed to eat anything for 10-12 hours before the test.

[How to prepare for sampling](#)

Non-urgent treatment

Since your case is not urgent, please call after 9.00.

The patient office opening hours are found on the right.

NOTE! If you need to see a physiotherapist, you must first contact us and get a referral by a doctor or a nurse. However, you do not need a referral if you want a consultation about posture, ergonomics or muscle care, and physical activity and relaxation.

Figure 19. Minimalist solution with no repetition to the acute treatment, laboratory and imaging examination, and non-urgent sections on the contact page

4.2.2 Findability

It should be easy for users to find the information they are looking for in minimalist documentation. Consistency combined with clear headings and indexes help developing a mental image of the structure of a website and make it easier to quickly browse through it and spot the needed information.

2.2 Is the overall structure of the documentation logical and consistent? Are all topics/sections structured in the same way? (OH4.2, Extended)

An example of a consistency issue is how the format of the content of the articles in the health information encyclopaedia varies. Compared to the Finnish version of this section, the English one has only about one fourth of the number of articles the Finnish version does, and the choice of articles that have been translated into English seems aleatory. The structure, relevancy, length, and content of the entries varies greatly. First, the entries do not always even provide health-related information. The entry titled “Smoking” (see Figure 20) is a good example: it only provides very general legal information about smoking in Finland, as well as limited statistics about Finns’ smoking habits. The only information about the negative effects of tobacco is extremely vague and provides no true assistance to users; the entry only states that tobacco is a health hazard in Finland and that it “creates health problems which affect individuals, families, societies as well as national and international economies” (FSHS, 2019).

Smoking

[Do you want to stop smoking? Read more.](#)

Smoking is not allowed in public buildings, or public transport, and Finland has one of the world's strictest regulations against smoking in public. Always remember to check for the sign "Tupakointi kielletty", "Rökning förbjuden" (No smoking) before you light a cigarette. Smoking is not allowed in night clubs, dance restaurants, bars and pubs. In the cafés smoking is prohibited. At the University and at schools in Finland smoking is allowed only in areas specifically allocated for smokers.

The use of tobacco is a major cause of illness in Finland and world-wide. Smoking creates health problems which affect individuals, families, societies as well as national and international economies. In Finland about 30 % of men 20 % of women are daily smokers. However, among university students 80 % are non-smokers and only about 10 % are daily smokers.

Further information:

<http://www.exsmokers.eu/uk-en/index>

Article made by:

MD Mikael Nyström

Figure 20. Health information entry about smoking

Another example of lack of logic and consistency is the presence of empty articles. For instance, the entry named "Wisdom Tooth" leads to an almost empty page with the words "Further information on the topic" and a link to a second page called "The Wisdom Tooth", which in turn leads to an error message in Finnish stating that the page cannot be found (as seen earlier in Figure 12).

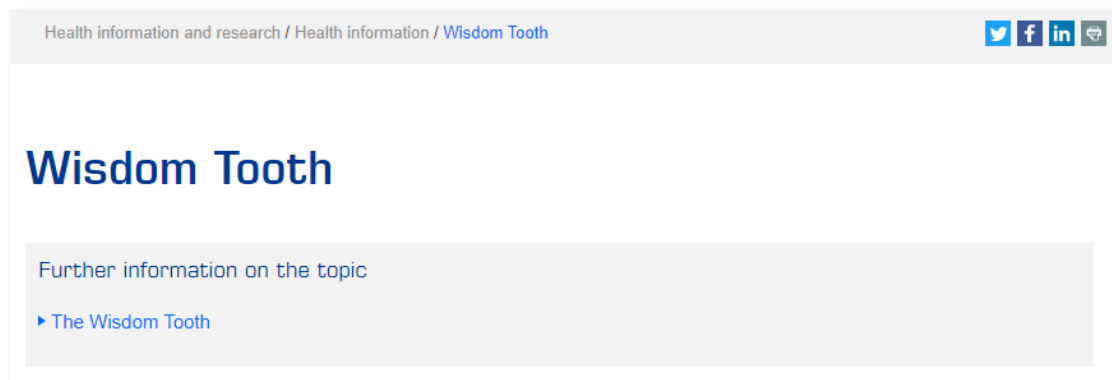


Figure 21. Health information entry called "Wisdom Tooth"

This sort of dead end is illogical and in no way useful to users who wish to understand how to book an appointment regarding wisdom teeth treatment issues. In the contrary, it halts the process completely and leaves users in a state of confusion.

Similarly, the *Masticatory system* entry only contains a link to another page named “Problems in the masticatory system”, which is an article classified under the *Services* tab and not an entry in the health information encyclopaedia. On top of being classified in the wrong category, this article is once again not very informative, and users must locate yet another link on the right-hand side that leads to another page called “Questions and answers about masticatory system complaints”. This labyrinth-like process finally takes the users to a page with relevant information about chewing and biting problems. Had this information been visible right from the very first click on *Masticatory system*, users would have saved a lot of time and energy, and possibly found information as to whether they should book an appointment with a dentist for treatment. The structure of this entry is significantly better, as it lists frequently asked questions with their corresponding answers, as well as specifications regarding if users should get in touch or not with a health professional. Rearranging the content of the health information encyclopaedia entries in this fashion would greatly enhance its usability. The titles of these pages bring some understandability issues, which will be discussed later in section 4.2.3.

Another consistency issue is noticeable on the contact page. The contact information on the right side of the Oulu unit page has low readability and has varying consistency issues (see Figure 22).

The screenshot shows the FSHS website for the Oulu unit. The header includes language options (Suomeksi, På svenska) and a search icon. The navigation menu on the left lists various services and units. The main content area is titled 'Oulu' and includes sections for 'Appointments and information by phone', 'General health', and 'Visiting address'. The 'Visiting address' section is highlighted with a red box and contains the following information:

Visiting address

Yliopistokatu 1 A
90570 Oulu

Mailaddress:
PL 188
90014 Oulun yliopisto

OPENING HOURS:
Mon-Thu 8am-3pm, Fri 8am-2pm
Maundy Thursday and 30 April
FSHS unit is open 8am-12.30pm.
Patient office Mon-Fri 9am-11.30am

TREATMENT NEED ASSESSMENTS AND APPOINTMENTS:
general and mental health:
046 710 1063
oral health:
046 710 1065
Chat in Self Mon-Fri 1 pm-2 pm.

Cancellations of appointments,
automatic tel. answering:
046 710 1064

Fax: 046 710 6547

Figure 22. Contact information for the Oulu unit

First, the font size and colour of “Visiting address” and “Mailaddress” [sic] do not match. It is a minor detail, but it affects findability. Secondly, there is an arbitrary use of capitalization; some text is completely capitalized—which makes it more difficult to read—and some completely lacks capitalization. Thirdly, while the time is written using the 12-hour time system in the section on the right, Figure 22 shows that the 24-hour time system is used in the *Acute treatment* section in the middle of the page. Using the 24-hour time system is clearer and, although unlikely, will prevent the misinterpretation of the time displayed. The special opening hours should be consistent and only be mentioned on the right instead of in every section as mentioned in 4.2.1.; the section in the middle states that the health centre closes at 13.00 on holidays, and the section on the right contradicts it and says 12.30. Following

is an example of a minimalist way to display contact information with more consistency:

Visiting address:
Yliopistokatu 1 A
90570 Oulu

Postal address:
PL 188
90014 Oulu University

Phone numbers:
General and mental health: 046 710 1063
Oral health: 046 710 1065
Cancel an appointment: 046 710 1064
Fax: 046 710 6547

Opening hours:
Mon.-Thur. 8.00-15.00
Fri. 8.00-14.00

NOTE! The patient office is open on:
Mon.-Fri. 9.00-11.30

NOTE! The health centre closes at 12.30 if New Year's Eve, Maundy Thursday (Thursday before Easter), or the 30th of April falls on a weekday.

Figure 23. Minimalist contact information

2.3 Do the users find what they are looking for? Does the documentation contain: (OH3.1, Extended)

- a clear and precise table of contents
- a clear and intuitive index
- clear, intuitive headings and keywords
- an accessible and intuitive search functionality for online or electronic documentation?

The section of the website that could use the most improvement in terms of clarity of indexes and headings is the *health information* section. As described earlier, it is a short health encyclopaedia with close to 40 entries. While sorting the entries in alphabetical order might increase findability in some cases, this encyclopaedia would have benefited from a categorisation based on the type of health problem. The names of the entries are neither logical nor consistent and it negatively affects its clarity and precision. For example, three different entries are about sprained ankles. First *Ankle*

sprain, exercises, then *Ankle taping in strains and sprains*, and finally *Sprained ankle*. The findability is very poor here, as one of the entries is almost at the bottom of the page because it starts with the letter “s”.

Moreover, regrouping the entries about the same topic under one same entry would make the health encyclopaedia much more concise and intuitive. Categorising the entries under tree-like menus with broader subjects would also benefit findability. For instance, the currently separate entries for *General advice on contraception*, *Oral contraceptives*, and *Progestogen-only contraception* could be reorganised in a two-level menu, the first level would be called *Contraception*, and under it would be all the entries regarding this topic.

A similar reorganisation would drastically improve the information available about neck and back pain. Currently, the encyclopaedia contains the entries *Back pain*, *Back pain (sudden, exercises)*, *Neck and back advice*, *Neutral position of the back, exercises*, and *Posture*. This information would be much easier to find if it were regrouped into one single page divided into three sections. One that would explain what might cause pain, one that would give treatment solutions for non-urgent situations, and one that would state what is an emergency that requires immediate attention from a healthcare professional. Regrouping information under clear headings would enhance usability greatly.

Unfortunately, the headings and keywords in the *health information* section cannot all be characterised as clear and intuitive. Ideally, the main idea of the title entry should be the first word in order to make it easier to find in the alphabetically sorted list. Names like *Neutral position of the back, exercises*, and *Upset stomach* [sic] are not easy to find because of the order of the words. Moving the main idea to the beginning and renaming the entries as, for instance, *Back problems (neutral position exercises)*, and *Stomach problems* would make those headings more intuitive and easier to find. The *health information* section is a good idea, but its poor execution leaves users with a difficult to browse, misleading, and incomplete encyclopaedia.

Another example can be found on the *Appointments* page where an index of links to other pages is found on the left-hand side (see Figure 24).

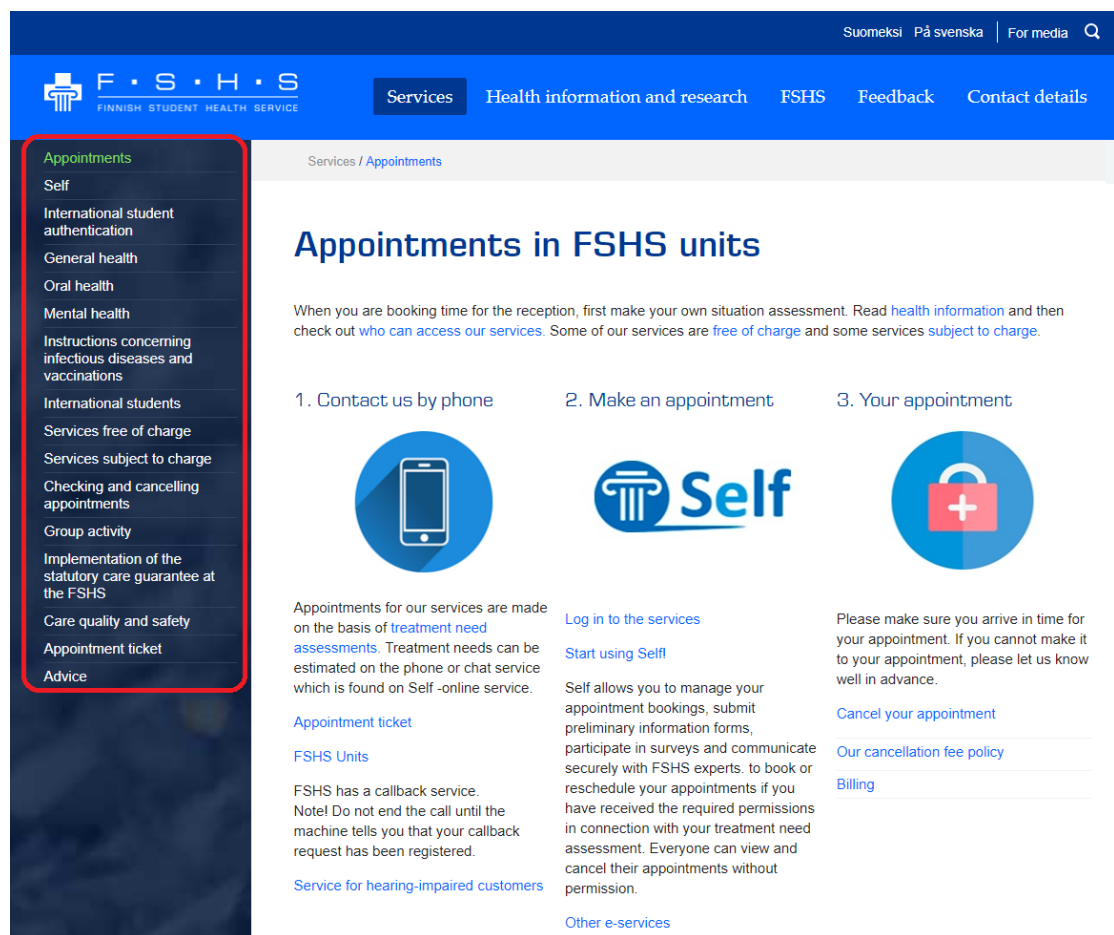


Figure 24. Highlighted index on the left of the “Appointments” page

This index of quick links is meant for navigating around and helping find information with minimal time and effort. The first obvious problem is that the list of links is unfortunately not alphabetized. The *Appointment ticket* link is almost at the complete opposite of *Appointments*, which is truly illogical as they are both related to one another, start with the same letter, and even with the same word. Secondly, the name of some of the links is too vague and fails to tell users what kind of information they will find if they click on it. The page about *International student authentication* is rather confusing, as there is no clear indicator as to what this authentication might refer to. After following the link, it becomes clear that it is information about international students having to provide a personal piece of identification for

appointments because of the lack of Finnish social security number. This information would benefit from being merged with the already existing page called *International students*. Spreading the information around makes it difficult to find.

Another page name that could use more clarity is the one called “Advice”. The title should be expanded into more than just one word to give an idea about the content of the page. It could be instructions about how to ask for advice from a professional over the phone or through the chat, or maybe even an array of general health advice to students; it is impossible to know for sure before visiting the page. Upon clicking it, users discover an empty page with only a link named “Travel advice”.

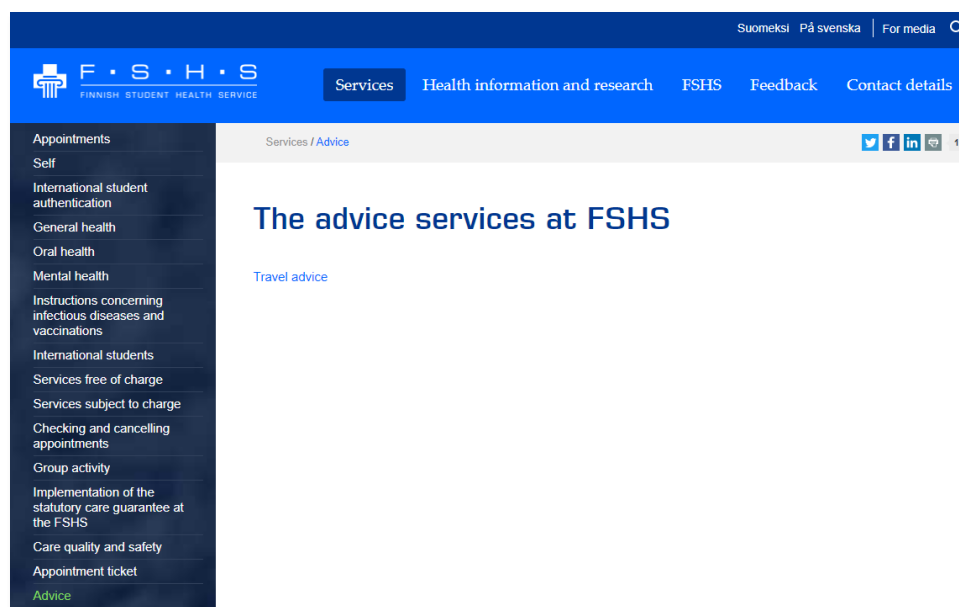


Figure 25. “Advice” page in the Services section

This unnecessary page clutters the index and only lengthens the time it takes for users to find what they are looking for. Clicking on the *Travel advice* link simply sends users back to a sub-category found under the *General health* link in the index on the left, making the *Advice* page virtually useless. This page is not related to the appointment booking process, but its vague name could fool users into looking for more information about appointments there, as “advice” could be about almost anything.

In conclusion, the indexes would benefit in some cases from alphabetisation, and entries could be renamed to clearly inform users about their content and improve their findability. Additionally, better grouping the categories and their sub-categories in a logical two-level tree menu would be a quick and easy fix that would dramatically improve the usability of the website. For the sake of brevity, I will not reorganize all 40 entries, as they are not in very close relation with the appointment booking process.

4.2.3 Understandability

As the name strongly hints, one of the key principles in minimalism is to keep the content brief and simple. Short tasks with a language level that is suitable for users of all levels provide documentation that is engaging and easy to understand.

2.4 Is the information in the documentation easy to understand? Does the documentation contain: (OH3.1, Extended)

- long tasks broken into shorter sequences
- clear, action-oriented steps
- short, simple sentences
- verb forms relevant to the information type
- terminology that is appropriate to the user group
- clear, simple language?

One could argue that there was an intent to break long tasks into shorter sequences when designing the *Appointments* page. Indeed, as seen on Figure 8, the process of booking an appointment has been broken into three steps. However, these three steps are made difficult with the display of unclear additional information under each one of them. Without clicking on any links displayed, the information is somewhat clear and offers action-oriented steps. The first two steps “Contact us by phone” and “Make an appointment” both have verbs in the imperative form, which help promoting action from the users’ end. However, the text under those steps is not very clear. In fact, it could be made much clearer by further breaking these explanations into sub-steps.

Logically, steps should be sorted in a chronological order after being broken into shorter sequences. When looking at the sub-steps under the first step, *Contact us by phone*, it appears that they are in a confusing and unnatural order. First there is mention of the treatment need assessment process, which is indeed the first step. However, the next piece of information is a link named “Appointment ticket”. Despite the short and simple name, it fails to clearly explain its purpose without a verb. The information on the *Appointment ticket* page is in fact about the *Self* service and should logically be found under the second step, as it is relevant only once the phone call has been made. Additionally, the content of the *Appointment ticket* page is redundant and has been discussed in section 4.2.1.

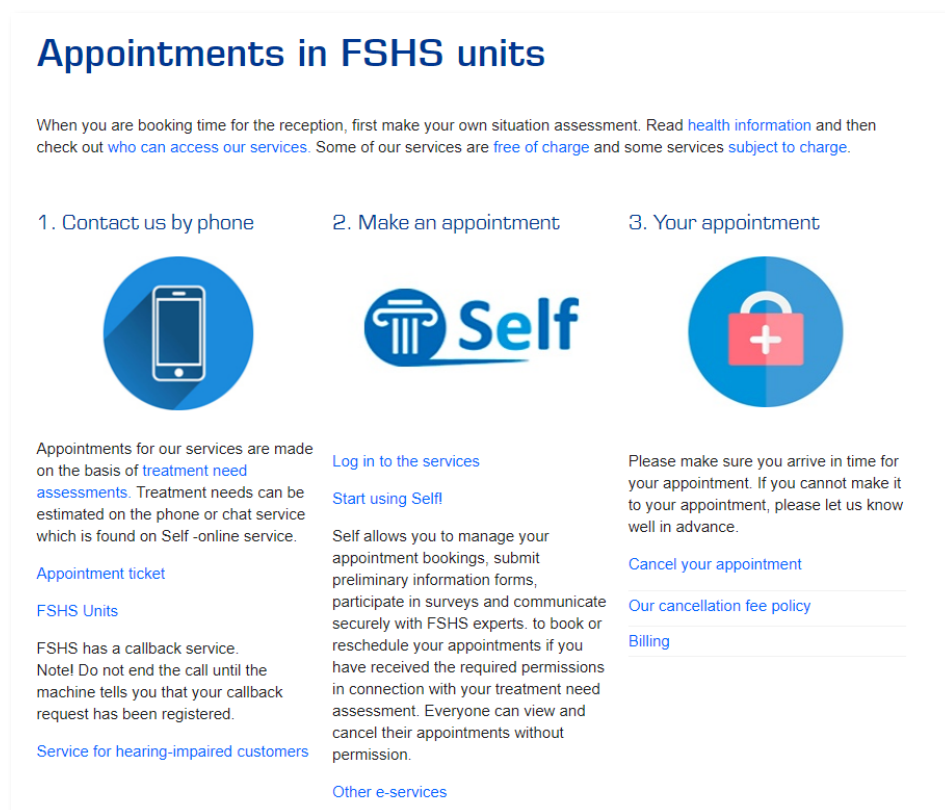



Figure 26. The original three steps of the appointment booking process

Another useful addition would be to add information to very short links; links with only one or two words do not always provide enough information to let users clearly know what kind of information they will find after clicking on it. For example, third sub-step of step 1 is a link named “FSHS units”. Changing it to a slightly longer version

that hints that users will find the contact information for their local FSHS unit would be clearer than the original “FSHS units”. Whenever possible, using the imperative form of the verb can help make users more prone to act and move forward with the task. Additionally, changing the title of step 1 into one that describes what will happen on the phone gives users a better idea of what to expect. Despite the added text, the result remains simple, and most importantly clear. Gathering all the ideas mentioned above, a new and improved minimalist list of sub-steps for step 1 of making an appointment could look like this:

1. Get your situation assessed



Before you can book an appointment, you must contact a nurse and get your situation assessed by either:

- Calling [your local FSHS unit](#)
- OR
- Using the online chat service on [Self](#)

Once your situation has been assessed by the nurse, you will be given an appointment ticket (permission to book a doctor's appointment on [Self](#)).

NOTE! FSHS has a call-back service. Do not end the call until the machine tells you that your call-back request has been registered.

[Service for hearing-impaired customers](#)

Figure 27. Suggestion for a reorganised and refined set of sub-steps for the step 1 of booking an appointment that follows minimalism principles

Using short and simple sentences is a good strategy to declutter a website and allow users to find what they are looking for with more ease. This strategy can be applied to almost every page of the FSHS's website without causing any harm to the information delivery process. Here are a few different examples of how this technique could be applied to alleviate the heavy amount of text.

First, there are instances where full sentences with extra information are not very useful to users. The page called "Billing" that can be found from the *Appointments* page under step 3 will serve as an example. The first paragraph jumps right into describing how users can make an e-invoicing agreement without first giving any sort of introduction to the topic. The text is displayed in one tight paragraph that cannot be skimmed through quickly. Ideally, it should be broken into short steps, and result in concise instruction about invoicing, without any unnecessary information.

Billing

To receive e-invoices you will need to set up an e-invoicing agreement with the FSHS through your online banking system. You will be able to do this already before you have received any paper invoice. Once you have set up an e-invoicing agreement, you will receive your invoices direct to your online bank, making it quick and easy for you to make payments to the FSHS. NB. International students can use e-invoicing provided that they have a Finnish identity code. The FSHS sends out invoices by mail or via e-invoices. Invoices will be sent into your Netposti if you are using the Netposti service. Invoices are sent on the next weekday after an appointment.

If you do not wish to set up an e-invoicing agreement, you will receive your invoices by mail.

Switch to e-invoicing

E-invoicing is easy, fast and environment-friendly:

- e-invoices reach you fast
- e-invoices will reach you even when you have moved (address in the FSHS data system are not automatically updated via the population register)
- invoice details are always correct (recipient's bank account number, total amount and reference number)
- invoices cannot get lost
- invoices are stored in your online bank invoice archive
- e-invoices are environment-friendly (the carbon footprint of an e-invoice is up to 70% smaller than that of a paper invoice)
- e-invoices also save money (sending paper invoices costs the FSHS per year as much as the salary of two public health nurses, including salary-related costs).

The practice of sending PDF invoices to students' Citizen's accounts has been replaced by e-invoicing. PDF invoices will no longer be available.

NB. The FSHS transfers unpaid invoices to the debt collection company [Visma Financial Solutions](#) for collection. The client is responsible for the payment of the costs incurred by the debt collection.

[Services and certificates subject to charge](#)
[Free services, certificates and vaccinations](#)

Figure 28. First half of the Billing page (second half left out for brevity)

Contrastingly, the list of arguments in favour of e-invoicing (as compared to traditional invoices sent on paper by the mail) in the middle of the page has been broken into shorter sequences rather than being presented as one long text. This list could however also use simpler and shorter sentences. Following is an example of how this page could be organised, following the minimalist principles described above.

Invoicing

Invoices are sent by default by the mail. However, we highly recommend you switch to e-invoicing, as it is **easier**, **faster**, **safer**, and more **environment-friendly**. Invoices will be sent into your Netposti if you are using the service. Invoices are sent on the next weekday after an appointment.

Switch to e-invoicing

- 1) Set up an e-invoicing agreement with the FSHS through your online banking system.
- 2) Invoices will now come directly to your online bank, making the payment process quick and easy.

NOTE! International students can use e-invoicing if they have a Finnish identity code.

Did you know?

- The carbon footprint of an e-invoice is up to 70% smaller than that of a paper invoice.
- Sending paper invoices costs the FSHS per year as much as the salary of two public health nurses, including salary-related costs.

Figure 29. Suggestion for reorganized and refined information on the Billing page

First, the title was changed to “Invoicing” to keep consistency throughout the page, as the word “billing” is not used anywhere else than in the title. Close to half the text was removed, and the order was slightly altered. It is more logical to inform users about the default way to send invoices and then to encourage them to opt for the e-invoicing alternative. Breaking the long paragraph about how to switch to e-invoicing into two short steps enhances its readability and understandability. Also, adding colour to the notes gives a strong contrast that draws users’ attention (notes will be further discussed in section 4.3.2). All the details about why choosing the e-invoicing method is beneficial are not useful to users; however, keeping the statistics visible might help

convincing them. Briefly enumerating the positive aspects of e-invoicing in the introduction is enough. The minimalism heuristics have only been applied to the first half of the page. The second half is a bit easier to read because it does not contain very long sentences, and the tasks have been broken into steps. For this reason, I will not suggest a minimalist solution for the rest of the page.

Finally, the terminology used can sometimes be over-complicated. For example, the *health information* section—the short health-themed encyclopaedia—contains an entry named “Masticatory system”. Considering there might be foreign students with different levels of English, a simpler term could be used. In this case, perhaps “Chewing problems” might be more straightforward and easier to understand. For the same reason, I have decided to add a clarification after the mention of “Maundy Thursday” in the special opening hours on the contact page; is it much easier to understand the name of the holiday if we add that it is the Thursday before Easter. However, the general level of the language used across the website is simple and should not pose a problem to the average user.

4.2.4 Visuals

2.5 Is the documentation visual?

- **Have graphics, images, videos, etc., been used where appropriate?**
- **Are the visuals relevant?**
- **Are the visuals used consistently?**
- **Are the visuals clear and readable both online and in print?**
- **Are the visuals clearly labelled (titles, figure numbers, etc.)?**
- **Are the images and text in the documentation clearly connected using callouts, for example?**

The use of visual documentation has been kept to a minimum on the FSHS’s website. This light use of graphics, images, and videos helps keeping the website light and free of unnecessary distractions, and the only video has already been discussed in section 4.1.1. There are a few irrelevant stock photos used on some pages, but their number is rather low, and they do not provide a negative impact to the overall experience. Their choice, however, seems to be arbitrary.



Figure 30. Example of inessential stock photo

In the case of Figure 30, a picture of a student identification card would be a better fit for the text. Moreover, the sight of a card might catch users' attention better, and quickly and efficiently remind them to take their student ID with them to an appointment. The stock photo of students standing in a row gives no hint about the importance of the student ID.

When it comes to readability, the contrast between the black or dark blue text on the white background makes it very easy to read. The occasional white text on a darker background is slightly more difficult on the eye, but it does not have a significant negative impact. The only section that could use a subtle alteration is the footer. Having a greater contrast between the light blue text and the dark blue background would improve readability (see Figure 31).



Figure 31. Poorer readability of the footer's text

4.3 Error management

Managing errors is a core idea in minimalism. Preventing them whenever possible will minimize the time spent trying to fix them, but if they were to happen, explanations and solutions should be provided to help users understand what happened in order to avoid repeating the same error later.

4.3.1 Preventing errors

Fixing errors can be time and energy consuming for both health professionals and their patients. Anticipating possible errors and informing users about them is a good way to avoid wasting resources.

3.1 Have errors been prevented? (OH3.1)

Overall, it seems that an effort has been made to try to prevent errors. The exhaustingly long procedures listed and the several links on the *Appointments* page all point to an attempt at preventing users from calling for a reason that does not require

the immediate attention of a health professional. They try to guide users to their *health information* section to help them assess their own situation and need for treatment.

Moreover, there is a separation of the information in several sections on the contact page—general, oral, and mental health—according to which department users should call to get the appropriate service (see Figure 32). This separation can help preventing users from calling the wrong number, but it might be a bit of a stretch to classify this as “error prevention”.

Oulu

Appointments and information by phone

General health

- Acute treatment
- Laboratory and imaging examinations
- Non-urgent treatment
- Prescription renewals

Oral health

- Acute treatment

Address: Yliopistokatu 1 A, Oulu

Treatment need assessments and appointments: Call 046 710 1065 from Monday to Thursday between 8 a.m. and 3 p.m., on Friday from 8 a.m. to 2 p.m. Chat service is in online Self service. In urgent cases please contact at 8 a.m. Patient office opening hours are from Monday to Friday from 9 am to 11.30 am. Read more about [treatment need assessments and callback service](#).

Check or cancel appointments at [yths.fi/en/appointments](#) or call our automated telephone service on 046 710 1064 to cancel your appointment. [Penalty for no-show appointments](#).

Exceptions to our regular service hours: If New Year's Eve, Maundy Thursday or 30 April falls on a weekday from Monday to Friday, our health centre is open from 8 a.m. to 1 p.m.

Where to call if our health centre is closed: At weekends and on public holidays, emergency dental care is available at the City of Oulu dental clinic, address Aapistie 3, from 10 a.m. to 12 noon, tel. 044 7036 426. At other times and in cases involving serious injury, please contact the Oulu region joint emergency duty service, tel. 08 3152 656. Please note that you will have to pay a fee for the services.

- Basic dental care and other necessary treatment

Mental health

- Crisis help
- Non-urgent treatment

Checking or cancelling appointments online

Other electronic services

Visiting address

Yliopistokatu 1 A
90570 Oulu

Mailing address:
PL 188
90014 Oulun yliopisto

OPENING HOURS:
Mon-Thu 8am-3pm, Fri 8am-2pm
Maundy Thursday and 30 April
FSHS unit is open 8am-12.30pm.
Patient office Mon-Fri 9am-11.30am

TREATMENT NEED ASSESSMENTS AND APPOINTMENTS:
general and mental health:
046 710 1063
oral health:
046 710 1065
Chat in Self Mon-Fri 1 pm-2 pm.

Cancellations of appointments, automatic tel. answering:
046 710 1064

Fax: 046 710 6547

Figure 32. Local unit's contact information

While this respects the error prevention heuristics, the way the information is presented is less than optimal. The line between the minimalism heuristics is often

blurred and they tend to merge because of complex situations. To add to the findability and readability problems, several issues with consistency are noticeable on this page, and they have been further discussed in section 4.2.2. Figure 19 shows an improved minimalist version of this page.

One successful example of error prevention is the additional explanation concerning the call-back service used by the FSHS. The initial call made by users is answered by an answering machine, and later a nurse will call back. The short message as seen in Figure 33 is clear and efficient; it warns users about how the call will not be considered if they end it too early. Messages like this are very important to avoid critical mistakes and will save users time and effort.

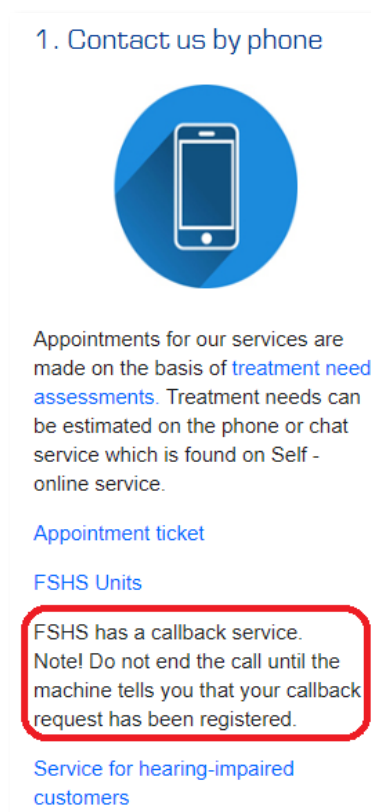


Figure 33. Error prevention for the call-back system

Finally, step 3 (see Figure 34) also features a type of error prevention message. By urging users to arrive on time for their appointment and to cancel their appointments well in advance if they cannot come anymore, the FSHS prevents wasting their personnel's and other users' time.

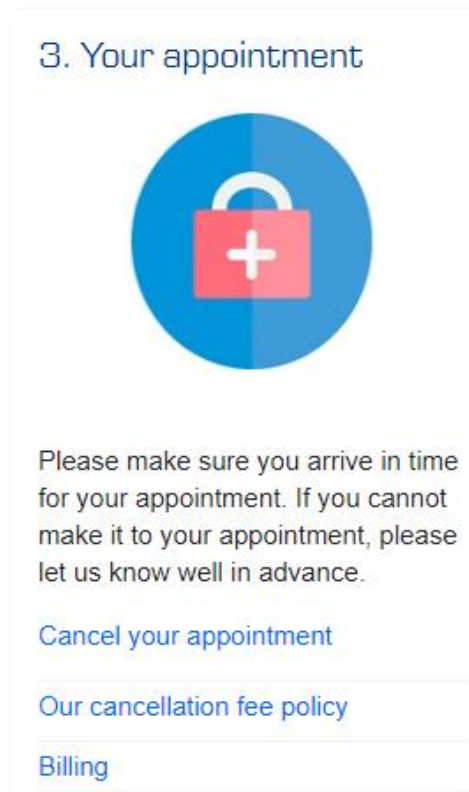


Figure 34. Step 3 of the appointment booking process


4.3.2 Warnings and notes

The goal of warnings and notes is to successfully catch users' attention. They are usually present for a specific and important reason and should by no means go unnoticed. Before proceeding to the warnings and notes heuristics, I will briefly discuss the format and visual aspect of the notes.

Several notes are found on the FSHS's website, but their format makes it difficult for users to locate them. It has been mentioned already that often heuristics get mixed together, and this is another example. The notes on the website have findability and

consistency issues. Important notes are not highlighted enough, and their format is inconsistent. They tend to go unnoticed, as they still somewhat blend into the page despite the announcement of a note. Following are examples of notes with those described issues:

1. Contact us by phone



Appointments for our services are made on the basis of [treatment need assessments](#). Treatment needs can be estimated on the phone or chat service which is found on Self -online service.

[Appointment ticket](#)

[FSHS Units](#)

FSHS has a callback service.

Note! Do not end the call until the machine tells you that your callback request has been registered.

[Service for hearing-impaired customers](#)

Figure 35. First example of note format

Who can use our services?

You can use our services if you are studying for a Bachelor's or Master's degree at a university or other institution of higher education and you have paid your student union membership fee to a student union that is affiliated to the FSHS. Those studying for a Licentiate of Medicine, Dentistry or Veterinary Medicine degree are also entitled to use the FSHS's services.

Student unions pay a health care fee to the FSHS for each of their members. Similar to an insurance contribution, the fee per student is currently €57. Please note that the fee is not a separate payment to be made in conjunction with the student union membership fee.

How long can you use our services?

You can use the FSHS services as long as your student union membership is valid.

- If you have paid your student union membership fee for the full academic year, your right to use the FSHS services starts on 1 August and ends on 31 July.
- Autumn term membership starts on 1 August and ends on 31 December.
- Spring term membership starts on 1 January and ends on 31 July.

NOTE! The membership fee must be paid before an FSHS appointment even if your appointment is before the date your membership fee is due. Information that you have paid your membership fee will be transferred to the FSHS within a few days after the payment. Be prepared to prove that your student union membership is valid with either a valid student card, a certificate of student status from your university or with receipt for paid student union membership fee.

NOTE! You cannot use the Self service either if you have not paid the membership fee.

If you are studying for two degrees,

one of which is a basic degree and the other a post-graduate degree, you have the right to use all of our services once you have paid your student union membership fee.

Student unions only pay one health care fee to the FSHS for each of their members. In case of any uncertainty about your status, please contact your student union. The FSHS does not pay any health care fee refunds.

The FSHS's partner student unions

► Services and fees

► Electronic communications



When you come for your appointment please remember to bring your student card or other proof of having paid the student union membership fee.

Figure 36. Second example of note format

Checking and cancelling appointments Twitter Facebook 5 LinkedIn Print 23

Checking, rescheduling or cancelling an appointment

To make an appointment, you will need an appointment ticket, which you can obtain from a FSHS doctor or public health nurse. The ticket allows you to book appointments via the Self system. If an appointment you have booked is no longer suitable for you, you can reschedule it without losing your ticket. **If you find you do not need an appointment at all, you can cancel your booking. You will then lose your appointment ticket.** N.B. Appointments booked without a ticket can only be cancelled.

1. If you wish to cancel an appointment, you can do so using our [Self](#) service. You should only cancel an appointment if you are sure you will not need it. This is because an appointment cancellation means you lose your appointment ticket. You can also contact the site in question [by phone](#).
2. You can check or reschedule laboratory appointments using our [Self](#) service. You can also contact the site in question [by phone](#).

If you cannot make it to your appointment, please let us know well in advance. This way we can give the appointment time to someone else and our queues will be shorter. The penalty fee for no-show appointments (€35) will be charged for any appointments, group sessions and examinations that you do not cancel and do not arrive for, even if the appointment would have been free of charge.

Figure 37. Third example of note format

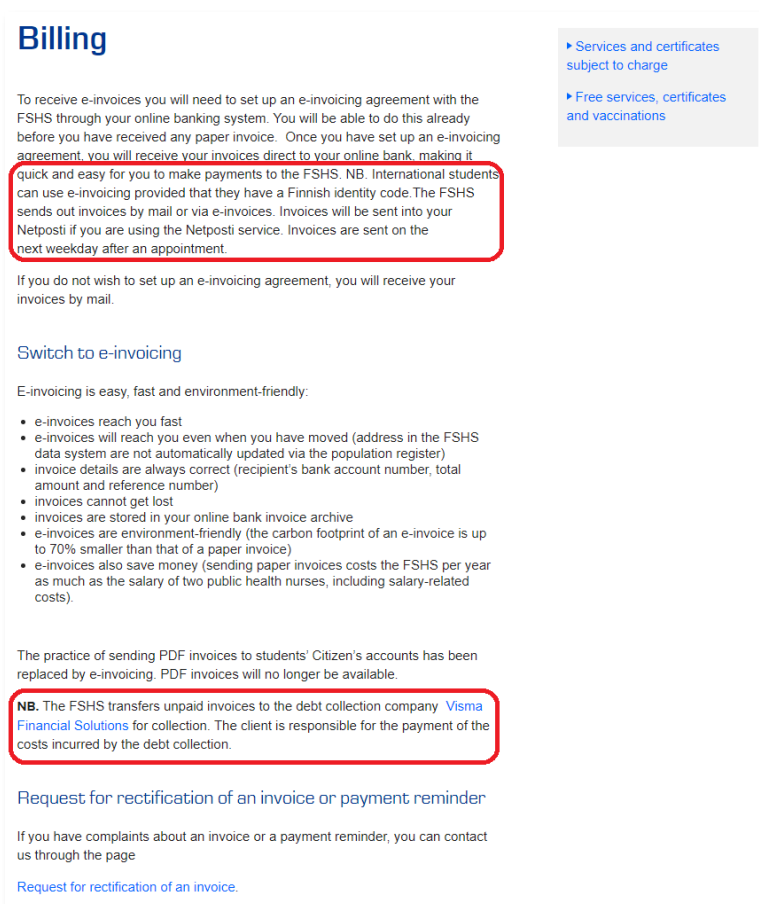


Figure 38. Fourth example of note format

The examples above show a wide variety of ways to introduce notes on the FSHS' website. The first one features "Note!", the second one "NOTE!", the third one "N.B." as well as an unintroduced note, and finally the fourth screenshot features a combination of "NB." and "**NB.**". For the sake of clarity, it is probably wiser to use the word "Note" rather than NB. (*nota bene*), as it might be easier to interpret for a wide international audience. Should they still rather use *nota bene*, a choice must be made with punctuation and capitalization for consistency. As seen in earlier minimalist solutions, this would be, in my opinion, the optimized version: a bolded, red, and capitalized "note" with an exclamation mark at the end (**NOTE!**). The wording is clear, and the boldness and the red colour of the font work as attention grabbers.

3.2 Have all the applicable safety standards and legislation (e.g. the Machinery Directive) been taken into consideration in the documentation? (OH3.1, Extended)

At first glance, this heuristic might seem to only apply to instruction manuals of equipment dangerous to handle; however, it can be adapted to many other situations. The FSHS does make use of notes to provide additional legal information. For example, Figure 38 shows a note at the bottom explaining what happens legally when invoices remain unpaid. This use of notes was well-thought and serves its purpose by explaining the process of the debt transfer and collection with a short and simple note.

Perhaps one warning could be added close to the text that encourages users to assess their own situation by browsing the *health information* section (see Figure 39); it is rather unusual for a health centre to encourage patients to make their own diagnosis without warning them about possibly being wrong.

Appointments in FSHS units

When you are booking time for the reception, first make your own situation assessment. Read [health information](#) and then check out [who can access our services](#). Some of our services are [free of charge](#) and some services [subject to charge](#).

Figure 39. Users are encouraged to conduct a self-diagnosis

I have shown earlier in Figure 11 a version of these instructions that did not feature this recommendation at all, but if the FSHS were to absolutely want to keep it, my suggestion would be to add a short warning to hopefully prevent users from self-diagnosing the wrong issue and creating an unnecessary state of panic:

NOTE! Only a health professional can give you a proper diagnosis. This bank of articles is only to give information on a known health issue.

Figure 40. Suggestion of warning about self-diagnosis and usage of the health information section

3.3 Are all the warnings and notes necessary? (OH4.1)

Excessive numbers of warnings and notes may hinder their findability. If they are too frequent, users might start to think they are unnecessary and will possibly ignore them. The FSHS's website contains notes and warning in various places, but their number is usually not overwhelming, and the information presented is relevant.

3.4 Are the warnings and notes located next to the relevant procedure? (OH3.4)

As seen in the examples of warnings and notes in Figures 35, 36, 37, and 38, the content of the said notes is related to the text around it. Their only problem is that they tend to blend into the rest of the text, and some are rather lengthy, but those issues are more related to content and understandability.

4.3.3 Error recognition

Acknowledging the occurrence of an error is crucial to keep users informed about what is happening. Everybody has at one point experienced trying to submit a form online only to be bounced back to the same page again but with no indicator as to what piece information was wrong or missing. In minimalism, a great emphasis is put around error recognition, diagnosis, and solving.

3.5 Does the documentation offer error information: recognition, diagnosis, solution? (OH3.3)

One of the most common errors one can make while booking an appointment in a health centre is to book it for the wrong time or day. Naturally, there should be information available about how to cancel or reschedule appointments.

The first information about appointment management is found under step 2 on the *Appointment* page:

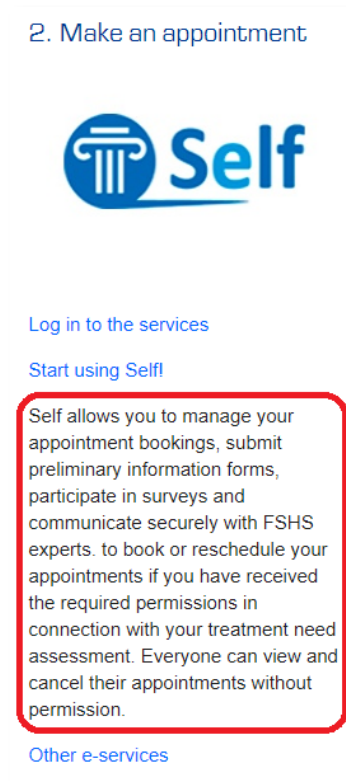


Figure 41. Lengthy explanation about appointment booking management

While there is mention of the possibility to reschedule an appointment through the online *Self* service, the long paragraph is more confusing than helpful. The faulty use of punctuation in the middle of the sentence makes it difficult to understand, and users are left wondering if those are two different sentences with missing capitalization at the beginning of the second one. Users will need to read this paragraph at least twice simply because of a small typographical error. Moreover, this long paragraph only repeats information that can be found behind the *Start using Self* link above it. For the sake of brevity, my suggestion would be to completely remove the text, rename the two first links, and remove the last one. The last link takes users to a page with a panoply of other services, which are not necessarily related to booking appointments and it is therefore illogical to place it there. An improved minimalist version of step 2 is displayed in Figure 42 on the following page.

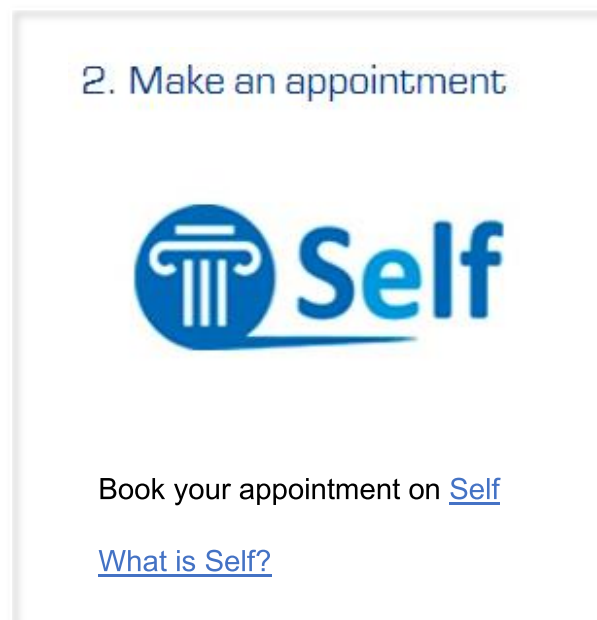


Figure 42. Improved step 2 with less text and clearer links

A separate page dedicated to informing users about checking, rescheduling and cancelling appointments can be found behind a link named “Cancel your appointment” in step 3 (see Figure 34). First, the incompleteness of the link’s title is misleading, as it only advertises information about the cancellation of an appointment and does not match the title of the page it is linked to (see Figure 43). While these issues are discussed here in the *Error recognition* section, it is worth noting that they impact both the findability and understandability of the content. An easy fix would be

Checking, rescheduling or cancelling an appointment

To make an appointment, you will need an appointment ticket, which you can obtain from a FSHS doctor or public health nurse. The ticket allows you to book appointments via the Self system. If an appointment you have booked is no longer suitable for you, you can reschedule it without losing your ticket. If you find you do not need an appointment at all, you can cancel your booking. You will then lose your appointment ticket. N.B. Appointments booked without a ticket can only be cancelled.

1. If you wish to cancel an appointment, you can do so using our [Self](#) service. You should only cancel an appointment if you are sure you will not need it. This is because an appointment cancellation means you lose your appointment ticket. You can also contact the site in question [by phone](#).

2. You can check or reschedule laboratory appointments using our [Self](#) service. You can also contact the site in question [by phone](#).

If you cannot make it to your appointment, please let us know well in advance. This way we can give the appointment time to someone else and our queues will be shorter. The penalty fee for no-show appointments (€35) will be charged for any appointments, group sessions and examinations that you do not cancel and do not arrive for, even if the appointment would have been free of charge.

Figure 43. Checking, rescheduling or cancelling an appointment page

to have the link and the title of the page match, and the rest of the information as a note:

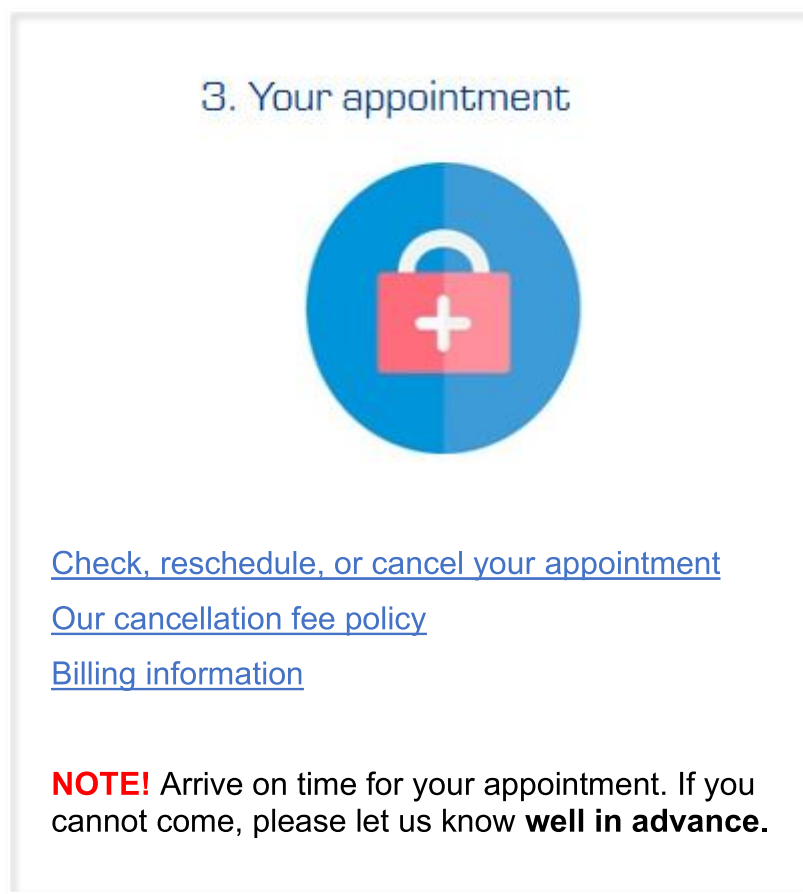


Figure 44. Minimalist Step 3 with diagnosis, recognition, and solution to an appointment booking mistake

Then, the *Checking, rescheduling or cancelling an appointment* page could also use a minimalist makeover, including the suggestions found in section 4.1.2 where I recommend removing the introduction and any other superfluous information. The result (see Figure 45) is a successful minimalist page that allows users to quickly understand how to recover from the mistake of booking an appointment on the wrong time or day. Additionally, writing three different notes catches the users' attention and avoids having one thick paragraph under one note that users might be tempted to skip reading because of its length.

Checking, rescheduling or cancelling an appointment

- To check an appointment:
Log into [Self](#) to find all the details about your booking.
- To reschedule or cancel an appointment:
Call [your local FSHS unit](#) or log into [Self](#) to change it online.

NOTE! If you cancel your appointment you will lose your appointment ticket.

NOTE! Appointments booked without a ticket cannot be rescheduled.

NOTE! You will be charged a €35 penalty fee if you not come to your scheduled appointment, group session, or examination.

Figure 45. Improved minimalist version of the Checking, rescheduling or cancelling an appointment page

3.6 Is the error information located close to the relevant procedure? (OH3.4)

If we keep in mind that the most common possible error for users on the FSHS's website is to book an appointment for the wrong time or need to reschedule or cancel it for other reasons, it is fair to say that the error information is indeed located close to the relevant procedure on the website. In this case, the procedure is to book an appointment, so it would be logical to have information about how to change or cancel and appointment close to where one would get information about the booking process, and two mentions of the possible of cancelling appointments are found on the *Appointments* page. Once under step 2 (see Figure 41), and a second time under step 3 (see Figure 34). Additional information on how to improve the understandability and findability of this error information has already been discussed under heuristic 3.5.

4.3.4 Troubleshooting

While it is good to prevent errors whenever possible, sometimes it will be necessary to have a dedicated troubleshooting section to quickly answer questions many users might have.

3.7 Does the documentation contain a troubleshooting section? (OH3.1, Extended)

- **Is the troubleshooting section clearly visible in the table of contents?**
- **Does the troubleshooting section contain the problems most often faced and/or reported by the users of the product?**

FAQ (frequently asked questions) sections, or troubleshooting sections, are very common in instruction manuals as well as on the internet in general. They allow users to quickly find the answer to a question they suspect might be frequently asked by other users. Unfortunately, the FSHS's website does not have a FAQ section. I strongly believe that a FAQ section would be beneficial for the FSHS because a very large amount of information is scattered all over the website. One section regrouping the most important information in the form of questions, especially about how to book an appointment, would avoid a lot of going back and forth between links and pages that have not been organised logically.

The online chat the FSHS offers counts as a type of troubleshooting tool; however, it is only available from Monday to Friday between 13.00 and 14.00. This very short time window allows for little to no flexibility for users who might have work or study obligations during that time of the day. Moreover, the duration is so short that users might have to wait in the queue for a long time for their turn to ask questions to a health professional because of the heavy flow of requests. Formulating and typing questions in English about intricate health issues can prove to be difficult and slow for non-natives, and unfortunately it is not possible to start typing the question ahead of time in order to be ready to send it when connection with a nurse is finally established. One must also consider the fact that the nurse answering might not be a native speaker either and might need time to formulate a clear answer. Additionally, the waiting time displayed while in the queue does not get updated as times goes by and

users might have to wait half an hour even if the estimate shows 15 minutes. An online chat is an excellent troubleshooting tool, but its availability should be greatly extended for it to be truly useful.

5 Conclusion

Website design is accessible to most people nowadays, but designing a good website requires not only technical skills to display the information correctly, but also excellent language and human skills to truly understand the users' needs and behaviours. Ultimately, the user experience will depend on all these factors, but mostly on the latter, as a beautiful, yet incomprehensible website is impractical.

The health sector offers unique circumstances and emotional factors that make user experience design a complicated task, and catering to international users whose native language does not match the one of the healthcare provider's website increases the challenge. For these reasons, I chose to look at the English version of the website of the Finnish Student Health Service (FSHS), or in Finnish, Ylioppilaiden Terveystieteidenkeskus (YTHS) and put its usability to the test. My usability analysis was based on the minimalism theory from technical communications, but more precisely on a revised set of minimalism heuristics developed by Virtaluoto, Suojanen, and Isohella (forthcoming). To narrow down the topic, I chose one main user task to analyse: booking an appointment. The analysis part of this thesis consisted of examples from the FSHS's website for each heuristic either accompanied with an improved version of the same examples that follows the minimalism principles as described by the heuristics of Virtaluoto, Suojanen, and Isohella (forthcoming), or with recommendations if improved examples were too laborious to create for this thesis.

The revised heuristics proved to be a versatile tool that does not only apply to traditional documentation—as already proven by Virtaluoto, Suojanen, and Isohella (forthcoming)—but also to web design. They have given insight on how to improve the FSHS's website through the focus on core tasks and goals, on findability, understandability, and content for improved accessibility; as well as on error management through error prevention, diagnosis, and recovery. These simple and clear heuristics led to the creation of improved examples of the information found on the website, and their ease of use makes them suitable for anyone to work with; even

someone with no background in technical communications could possibly use this set of heuristics to improve any kind of information meant to instruct users. This shows the versatility and flexibility of minimalism and that good design on the web can be achieved without the use of expensive tools or extensive training. A table of findings featuring the most important problems featured in the thesis can be found in the appendix, along with their corresponding heuristics and minimalist recommendations.

The notes and warnings heuristics were slightly less useful in the context of the FSHS's website as there were no forms to fill or any chances for error messages to pop up, but they still helped provide insight on how notes should be better displayed. Perhaps the addition of a heuristic under the *findability* principle that focuses on navigation problems could be added, as online documentation is more and more common nowadays. Such a heuristic could resemble: Is navigation through the online documentation easy? This new heuristic would evaluate if pages are linked together logically, minimizing the amount of going back and forth between pages. Otherwise, I have found all the already existing heuristics useful and relevant in the evaluation of the usability of the FSHS's website, and I would recommend it as an evaluation tool for online content.

To further test the usability and versatility of this set of heuristics, it could be interesting to see how someone with no background in technical communications would do if they were handed this set of minimalism heuristics to evaluate the content of a website. Considering the high understandability of these heuristics, they could help just about anyone who wishes to evaluate the content of their website without the help of a professional.

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Appendix

Problem	Heuristic	Recommendation
Too many links before the three steps	1.1, 1.4, 2.1, 2.4	<ul style="list-style-type: none"> Remove the broken links and shorten the introduction
Unhelpful instructional video on how to use <i>Self</i>	1.2	<ul style="list-style-type: none"> List the pre-recorded messages expected on the phone Show actual footage from <i>Self</i>
Long and confusing 3-step process	1.3, 1.4, 1.6, 2.1, 2.3, 2.4, 3.1, 3.5	<ul style="list-style-type: none"> Shorten the introduction and make contact information accessible faster Keep a chronological order Break steps into shorter sequences with short and simple sentence Clearer titles for short links Make notes and warnings stand out. More precise information about cancelling or rescheduling an appointment (clearer link title)
Too much text on the <i>Checking, rescheduling or cancelling an appointment</i> page	1.4, 2.1, 2.3, 2.4, 3.5	<ul style="list-style-type: none"> Remove redundant introduction and obvious facts Add notes for special situations and consequences after cancelling an appointment
Impractical online chat	1.4, 1.5, 3.7	<ul style="list-style-type: none"> Extend availability of the chat Allow for users to start typing their question before being connected Add a FAQ section for when the chat is not available
Inconsistent and confusing <i>Health information</i> section	2.1, 2.2, 2.3, 2.4, 3.2	<ul style="list-style-type: none"> Make the content consistent; add content to the empty articles and shorten the lengthy ones Remove duplicate articles (or merge the ones with very similar topics) Make the content relevant; no general information that is not related to health Use simple terminology Rename the articles and place the important information first

		<ul style="list-style-type: none"> • Sort the articles according to their content instead of alphabetically • Add a warning about self-diagnosis
Redundant <i>Appointment ticket</i> page	2.1	<ul style="list-style-type: none"> • Shorten the page to one sentence and move the information under step 1
List of quick links on the left in the <i>Services</i> page difficult to navigate	2.3	<ul style="list-style-type: none"> • Sort alphabetically • More descriptive titles
Heavy repetition and inconsistency on the contact page	2.1, 2.3, 2.4	<ul style="list-style-type: none"> • Move the repeated information to the right, outside of each section • Shorten the sentences • Add notes for special holidays • Use consistent time system, punctuation, capitalization, and layout • Make notes and warnings stand out
<i>Billing</i> page too heavy to read	2.4	<ul style="list-style-type: none"> • Consistent vocabulary; use invoicing instead of billing • Shorten introduction • Short clear steps • Additional inessential information under a “Did you know?” section
Irrelevant pictures	2.5	<ul style="list-style-type: none"> • Use a picture related to the context instead of a general stock photo