

Improving the Usability of Fhp's Website

By Designing a Navigation Concept

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Abstract

The Fhp website provides access to different kinds of information. Whether users want to learn more about the organisation, look for some info-services, need the course catalogue, or access to a specific department, they depend on the site navigation. Ideally, its interface design should help them to find what they are looking for. However, the analysis of Fhp website has shown, that the navigation works »well enough«, allowing students to access what they need to – but after some struggle. For that reason, this project outlines some of these navigation problems, makes suggestions to improve user experience and information architecture. The thesis ends with a visualisation about an alternative navigation system in comparison with the current menu flow.

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I. Introduction

In the increasingly digital world, it has become ever more critical, that design decisions focus on the user experience (UX). Imagine the negative first impression of an institution, digital product or service, where the user experience is quite frustrating because people cannot find the information they are looking for.

One of the biggest causes of user trouble is when objects are not locatable on the website. Whether it is in the form of a breadcrumb menu, a dropdown or tabs, every page needs to have a navigation structure that effectively guides a person to achieve their goals.

»A well-designed business program must make its structure and organization as clear as possible. Users don't want to waste time solving the mystery of where resources and information are hidden.« [3] Alan Cooper (2008, May 15)

Without well thought out navigation concept, people will have difficulties and thus a negative experience using the website. Consequently, navigation design is an essential part of developing the product, because it ensures that people can explore and enjoy a product.

A. Problem Description

Frequently, the webpage of the Fachhochschule Potsdam (Fhp) causes trouble for its audience. As an example, people always get very frustrated to use the main navigation, by the reason it is interacting as a hover menu with users. Every time, when the user is opening the menu, he could not intuitively move the mouse directly to a submenu item, because this will accidentally close the menu. That menu behaviour makes looking for information hard and annoying for everyone.

Another significant pain for users is that objects are not locatable. The sites offer categories which are not always comprehensible for students and people with no academic experience because its structure does not match with their mental models. Additionally, users cannot discover some relevant content, because it deeply rooted in the hierarchy of the website or hidden in unfamiliar menu sections. Moreover, when users look for content through the search function, they often can not find the according page because it does not work effectively. These usability issues waste time and energy of people. Navigation on Fhp's website can no longer be an annoying experience and requires optimisation.

B. Research Question

The thesis addresses the user experience by navigation on websites. The central question to answer is: How can we improve the usability of the Fhp website by adjusting the navigation elements and the information architecture (IA) to the end that we optimise the user experience (UX)?

C. Thesis Overview

This thesis begins with an introduction of the theoretical principles of user experience (UX) design and relevant tools and methods. It includes the User-Centered design process, factors, which influence the user experience, the definitions of usability, navigation design and information architecture (IA).

Then, the research tool will be presented and the methods that have been used in this project. The next chapter presents the developed persona and use cases. It also demonstrates the analysed problems of the current navigation design and information architecture (IA) structure. Additionally, researches about other university sites will be shown.

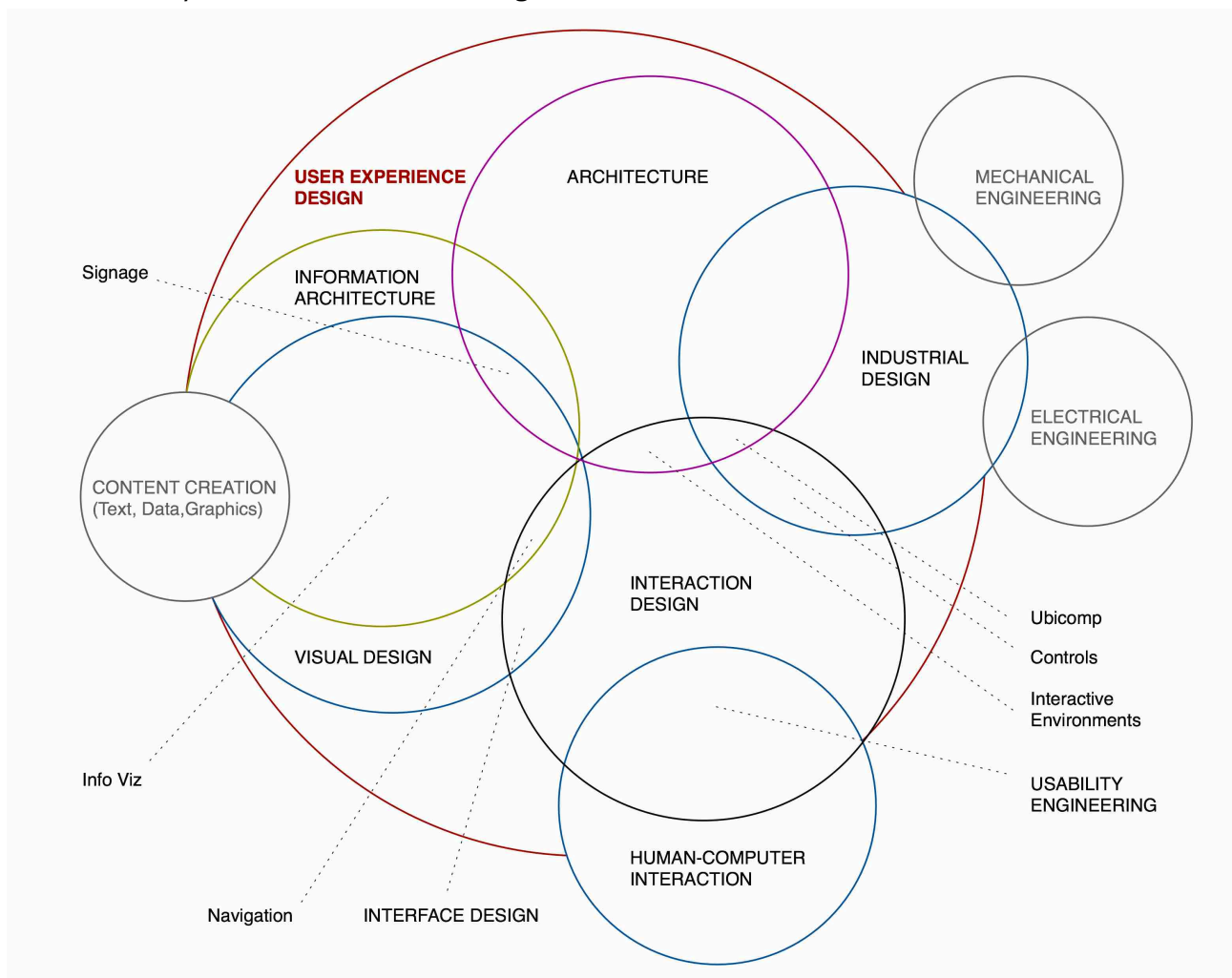
In the following part outlines the concept and the design. This part has different focus points: User experience (UX) design, navigation optimisation and visualisation of (IA) structure. It also discusses the dilemma by developing a new navigation concept. The chapter about the design is concluded with comparisons of the new design implementations and the current navigation experience.

The thesis ends with a conclusion of the project by summing up the result, review and reflexion of the work and process, and gives an outlook of further developments.

II. Theoretical Background

A. User Experience Design

User experience (UX) design is a growing field that can be confusing for beginners. Because it covers many areas like Project Management, Design Research, Usability Evaluation, Information Architecture (IA), User Interface design, Interaction Design (IxD), Visual Design, Content Strategy, Accessibility Testing and Web Analytics, among others. Some of these fields overlap, while some of them complement one another. It is necessary to define fundamental principles of what the term »user experience« means in a design context.



Graphic [54]: CUBI UX - User Experience Model

What Is User Experience?

User experience (UX) is all about to get a better understanding of the end user. The UX approach focuses on what the users need, what they value, their abilities, and also their limitations. [12] usability.gov (n.d.) It concerns all elements that make up the interface, including layout, visual design, text, brand, sound, and interaction. [23] Usability Body of Knowledge (n.d.) Also, UX development includes business goals and objectives of a project. [38] UXPA (n.d.) It is crucial to understand that the central goal of UX design is to improve the quality of the user's interaction, the perception of the product and it is connected services. [12] usability.gov (n.d.)

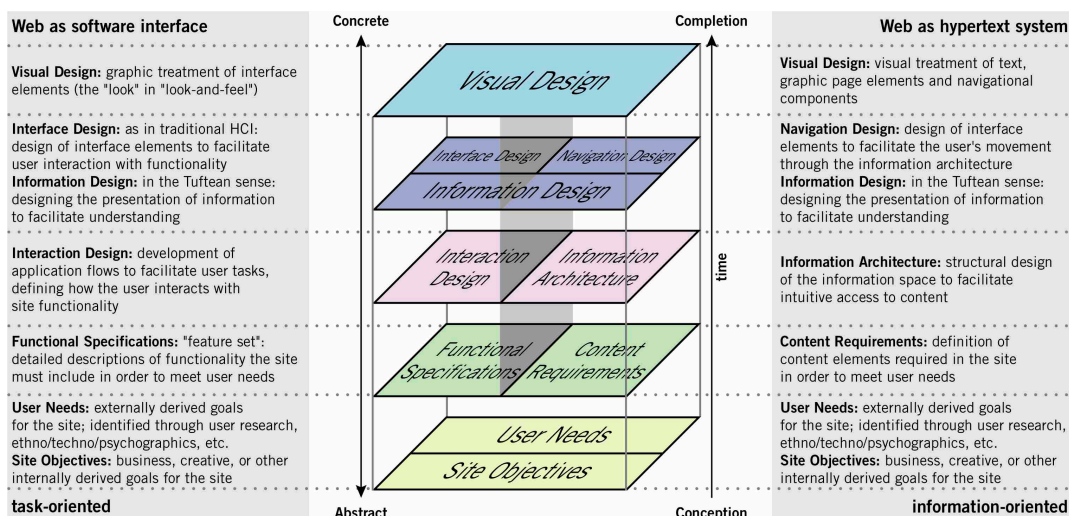
Mostly, the term user experience design (UXD) is used with technology-driven products, such as websites, applications or other computer-based systems. However, it can be integrated into the development process of any product or service – for example, by designing the concept of a museum exhibition. [45] Interaction Design Foundation (n.d.)

Complexity and Perception

For a holistic understanding - why user experience matters, it is important to understand the evolution of web technologies in the first decades of this century.

Dan Saffer describes in his book “Designing for Interaction” that the technologies have become increasingly complex and the functionality of applications and websites has become far broader and far more intricate in the recent years. He explains that the web initially based on static HTML documents, which had been only accessible experts and curious searchers. By the time this hyper-textual information space has developed to high interactive websites. [48] Dan Saffer (2010)

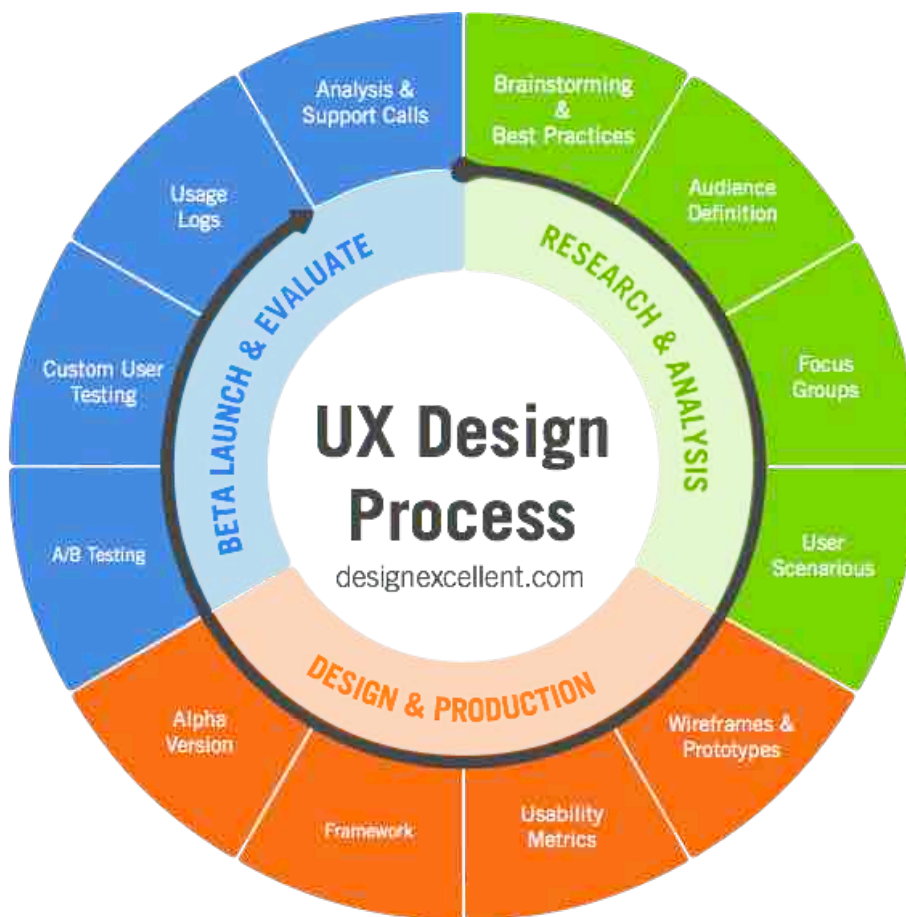
Additionally, Jesse Garrett outlines the dual nature of the web with front- and back-end technologies. The user interface has benefited from more complex technologies a lot. On the other hand, it has caused much confusion among user experience professionals. Therefore Jesse Garrett made a diagram to define user experience elements, illustrate in a context and clarify their relationships with each other. [5] Jesse James Garrett (2000, March 30)



Graphic [51]: the Elements of User Experience; Jesse James Garrett (2000, March 30)

A Typical UX Process

In the UX development process, the UX activities are broken down into different phases. The beginning is always an analysis and research to understand the project vision, its business model and users' perspective. The results of the first phase are also quite helpful to define the business strategy. Next step of the process is about design and production. In this phase, the team collects and validates ideas to develop wireframes and interactive prototypes. Ideally, the outcome of the second phase are visual designs based on information architecture. However, the process does not end with the User Interface design. It is also about evaluation, user testing, and making ongoing adjustments even after the launch. In the last step of the UX process, the product is used in practice. It is essential to test the usability to identify and fix problems early. [4] DEX (n.d.) Furthermore, providing a great user experience is a continuing process of optimisation.



Graphic [66]: UX Process Diagram

The UX development process is divided into three phases in the graphic above. Depending on the project needs and resources the process can be more complicated and several steps in more detail. As an example provides the User Experience Professionals Association (UXPA) a list with the following UX development stages:

Analysis Phase

- Meet with key stakeholders to set vision
- Include usability tasks in the project plan
- Assemble a multidisciplinary team to ensure complete expertise
- Develop usability goals and objectives
- Conduct field studies
- Look at competitive products
- Create user profiles
- Develop a task analysis
- Document user scenarios
- Document user performance requirements

Design Phase

- Begin to brainstorm design concepts and metaphors
- Develop screen flow and navigation model
- Do walkthroughs of design concepts
- Begin design with paper and pencil
- Create low-fidelity prototypes
- Conduct usability testing on low-fidelity prototypes
- Create high-fidelity detailed design
- Do usability testing again
- Document standards and guidelines
- Create a design specification

Implementation Phase

- Do ongoing heuristic evaluations
- Work closely with delivery team as design is implemented
- Conduct usability testing as soon as possible

Deployment Phase

- Use surveys to get user feedback
- Conduct field studies to get info about actual use
- Check objectives using usability testing

[38] UXPA (n.d.)

B. User-Centered Design

The main methodology to ensure the user experience in most projects is User-centred design. [44] Interaction Design Foundation (n.d.)

User-centred design (UCD) is an additional product development approach that focuses on the end users. The basis for many UCD methodologies is the international standard of human-centred design for interactive systems:

»ISO 9241-210:2010 provides requirements and recommendations for human-centred design principles and activities throughout the life cycle of computer-based interactive systems. It is intended to be used by those managing design processes, and is concerned with ways in which both hardware and software components of interactive systems can enhance human-system interaction.« [8] ISO 9241-210:2010 (n.d.)

In other words, the standard defines a general development process including human-centred (User-centred) activities throughout a product life-cycle that focused on the user but does not specify exact methods or tools. Further, the authors of the book »Understanding Your Users« explain, that the user-centred perspective helps to develop a product that suits the user, rather than making the user suit the product. [40] Kathy Baxter, Catherine Courage (2015), Page 7



Graphic [61]: the User-Centered Design (UCD) Process

User-Centered Design Process

The User Experience Association and the Usability government provide a resembling model about the User-Centred design process.

They depict the phases of the UCD development cycle with the following words:

Specify the Context of Use

Identify the people who will use the product, what they will use it for, and under what conditions they will use it. [38] UXPA (n.d.), [29] Usability.gov (n.d.)

Specify Requirements

Identify any business requirements or user goals that must be met for the product to be successful. [38] UXPA (n.d.), [29] Usability.gov (n.d.)

Create Design Solutions

This part of the process may be done in stages, building from a rough concept to a complete design. [38] UXPA (n.d.), [29] Usability.gov (n.d.)

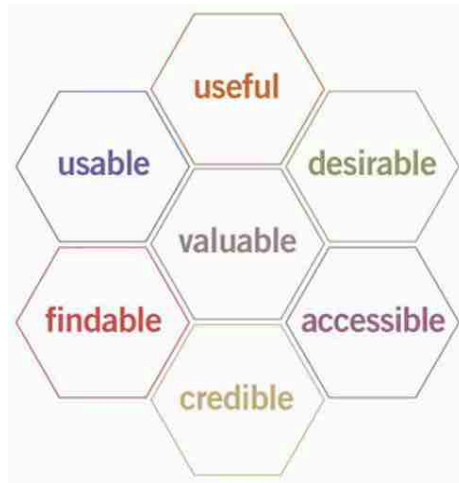
Evaluate Designs

Evaluation - ideally through usability testing with actual users - is as integral as quality testing is to good software development. [38] UXPA (n.d.), [29] Usability.gov (n.d.)

C. Factors That Influence User Experience

User Experience (UX) is critical to the success or failure of a product in the market. All too often UX is confused with usability, which describes how easy a product (software, hardware or anything else) is to use. [23] Usability Body of Knowledge, Glossary (n.d.)

The Interaction Design Foundation explains that the UX discipline has its origins in thinking about usability. A growing field, UX has accommodated much more factors which affect the user experience. [45] Interaction Design Foundation (n.d.)



Graphic [57]: User Experience Honeycomb

According to Peter Morville, seven factors describe user experience. He arranged these elements into the »User Experience Honeycomb«. His model became an essential tool from which to understand UX design. [28] usability.gov (n.d.) In the following is Morville's explanation of each quality that influences the user experience:

Useful

The content should be original and fulfill a need.

As practitioners, we can't be content to paint within the lines drawn by managers. We must have the courage and creativity to ask whether our products and systems are useful, and to apply our knowledge of craft + medium to define innovative solutions that are more useful. [10] Peter Morville (2004, June 21)

Usable

The product or service must be easy to use.

Ease of use remains vital, and yet the interface-centered methods and perspectives of human-computer interaction do not address all dimensions of web design. In short, usability is necessary but not sufficient. [10] Peter Morville (2004, June 21)

Desirable

Image, identity, brand, and other design elements evoke emotion and appreciation.

Our quest for efficiency must be tempered by an appreciation for the power and value of image, identity, brand, and other elements of emotional design. [10] ; Peter Morville (2004, June 21)

Findable

Content needs to be navigable and locatable onsite and offsite, especially key informations of product or service.

We must strive to design navigable web sites and locatable objects, so users can find what they need. [10] Peter Morville (2004, June 21)

Accessible

Product or service needs to be accessible to people with disabilities.

Just as our buildings have elevators and ramps, our web sites should be accessible to people with disabilities (more than 10% of the population). Today, it's good business and the ethical thing to do. Eventually, it will become the law. [10] Peter Morville (2004, June 21)

Credible

Users must trust and believe the informations which product or service is providing.

Thanks to the Web Credibility Project, we're beginning to understand the design elements that influence whether users trust and believe what we tell them. [10] Peter Morville (2004, June 21)

Valuable

The informations must be meaningful and valuable.

Our sites must deliver value to our sponsors. For non-profits, the user experience must advance the mission. With for-profits, it must contribute to the bottom line and improve customer satisfaction. [10] Peter Morville (2004, June 21)

D. Definition of Usability

Usability and user experience (UX) are not the same things: the usability of a product is a crucial part that shapes its UX. While many might think that usability is solely about the 'ease of use' of a product, it is more than that. The ISO 9421-11 standard about usability describes it as:

The extent to which a product can be used by specified users to achieve specified goals, with effectiveness, efficiency and satisfaction in a specified context of use. [7] ISO 9241-11:2018 (n.d.)

Usability matters because if users cannot achieve their goals efficiently, effectively and satisfactorily, they are likely to seek an alternative solution to reach their goals. If the product is not usable, its UX will be wrong, and users will leave for competitors. [44] Interaction Design Foundation (n.d.), Page 28

Especially for digital products like websites and apps, alternative solutions are abundant and easy to find. For economic objectives, as well as environmental sustainability, UX experts need to ensure that products are usable, as an outcome of the User-centred design process.

The interaction design foundation refers to a study, in which the Huff Industrial Marketing, KoMarketing and BuyerZone on B2B web users showed that 46% of users leave a website, because they cannot tell what the company does (i.e., a lack of effective messaging), 44% of users leave due to lack of contact information, and 37% of users leave due to poor design or navigation. [44] Interaction Design Foundation n.d.), Page 29 This example shows how crucial usability for a website is.

The 5 Characteristics of Usable Products

The usability expert Whitney Quesenberry has defined five dimensions that a product must meet to be usable. Her principles are helpful to identify and understand what usability means.

Effective

The completeness and accuracy with which users achieve their goals.

If a user cannot actually do the thing he or she set out to do, it probably doesn't matter whether the experience was short or long, easy or hard. In the end, they have failed to complete their tasks or meet their goals. If we want to be able to measure effectiveness, we have to how people define success or usefulness, whether this is relatively straight forward or more subtle. [47]

Whitney Quesenberry (2003), page 3-4

Efficient

The speed (with accuracy) with which this work can be done.

Efficiency may be something that is carefully defined, for example in a call center where operators are measured on the number of calls they can handle in a day. It may be a subjective judgement of when a task is taking "too long" or "too many clicks." [47] Whitney Quesenberry (2003), page 3-4

Engaging

How pleasant, satisfying or interesting an interface is to use.

“Engaging” replaces “satisfaction,” looking for a word that suggests the ways that the interface can draw someone into a site or a task. It also looks at the quality of the interaction, or how well the user can connect with the way the product is presented and organized. [47] Whitney Quesenbery (2003), page 3-4

Error Tolerant

How well the product prevents errors, and helps the user recover from any that do occur.

It would be lovely to say “error free” or “preventing errors” but mistakes, accidents and misunderstandings will happen. The cat nudges the mouse as you click. You misread a link and need to find your way back, or enter a number with a typo. The real test is how helpful the interface is when an error does occur. How well the product supports both initial orientation and deeper learning. A product may be used just once, once in a while, or on a daily basis. It may support a task that is easy or complex; and the user may be an expert or a novice in this task. But every time it is used, the interface must be remembered or relearned and new areas of the product may be explored over time. [47] Whitney Quesenbery (2003), page 3-4

E. Navigation Design

Helping users to navigate should be a high priority for almost every website. After all, even the coolest feature or the most compelling content is useless if people cannot find it. Moreover, even if the site has a search function, it does not help users to orientate on the site.

From the article »Usability: Navigation is More Important Than Search« by Gerry McGovern, I decided to focus on navigation design than on search optimisation. Gerry's arguments based on user task testing with a technical audience. His researches showed that 70 % started the task by clicking on a link, 30 per cent used search. Therefore McGovern states that people rely on navigation first because it is easier and faster to click on links than to use search. He explains that when the words of the link match what people are looking for, the more likely it is that they will click on the link. However, if there are too many links, if they are poorly organised, or confusingly named, people are deterred from using links. He ends the article with: »Clear menus and links are the foundations upon which all great websites are built.« [2] CMS Wire; Gerry McGovern (2010, April 26)

Principles of Navigation

While this is an important rule to follow to design effective navigation, it is not the only one. Additionally, the following principles are relevant for developing enjoyable navigation experiences:

The Consistency of Visual Elements

For example, all primary navigation items should link to landing pages, or all should be section headers for secondary navigation links. When only some of the primary navigation items are links, users will try to click on non-links, feel confused and frustrated when no page loads.

In that case, Stephanie Lin recommends in the article The Rules for Modern Navigation, to indicate with the visual design whether the primary navigation items are links or are only headers - »if they are not links, the font style or colour should be different.« [33] Stephanie Lin (2017, January 31)

Clear Interactions of Functionality

When users do not know which items are interactive, or what interactions to expect, it will confuse them. The platform UX Booth underlines to »combat this confusion by thoughtfully designing interactions to be clear and understandable.« [33] Stephanie Lin (2017, January 31)

For example, swapping an expand icon for a collapse icon indicates that something has changed, and how to reverse the change. When the icon does not update, users may miss the result.

Regarding that rule, it is essential to make menu links look interactive. Users may not even realise that it is a menu if the options do not look clickable.

Individual Design for Each Level

Users should be able to quickly scan the navigation and understand which links are primary, secondary, and tertiary navigation items. For that reason, placement and grouping of the links should establish this hierarchy.

To ensure quick navigation onside, Stephanie Lin advice to give visual design elements (such as font styles, font sizes, font weights, and font colours, among others) a unique style. For best user experience »they should all establish the different navigation levels and should be consistent across the navigation.« Moreover, she says »if secondary navigation is implemented, the design should also clearly differentiate between parent/child and sibling links and be cohesive with the primary navigation.« [33] Stephanie Lin (2017, January 31)

Communication of Current Location

Kathryn Whitenton outlines, on the platform Nielsen Norman Group, that it is important for successful navigation to tell the users where the currently visible screen is located, within the menu options. Users rely on visual cues from menus and other navigation elements such a breadcrumb for their orientation. Also, she explains that failing to indicate the current location is probably the single most common mistake which is made on website menus. [20] Nielsen Norman Group; Kathryn Whitenton (2015, January 4)

Clear Wording and Readability

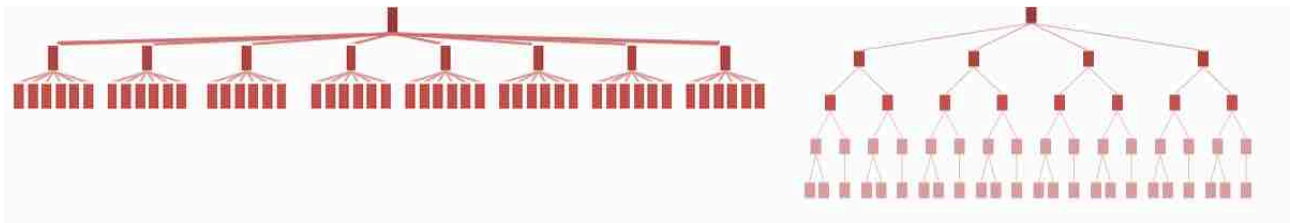
One basic rule is to use right link labels that are understandable for the target audience. In that case, Kathryn Whitenton advises to figure out what users are looking for, and use category labels that are familiar and relevant. She emphasised that: »Menus are not the place to get cute with made-up words and internal jargon. Stick to terminology that clearly describes your content and features.« [20] Nielsen Norman Group; Kathryn Whitenton (2015, January 4)

Another factor regards the readability of menu items. Link labels need easily to scan. Nielsen Norman explains that left-aligned vertical menus and front-loading key terms make the reading of menu items more efficient and more comfortable for users. [16] Nielsen Norman Group; Jakob Nielsen (2008, 28. April)

Avoiding Deep Navigation

This Rule based on the information architecture (IA) and the hierarchy of a website. Striving for flat navigation is the key that users can access the most profound nested page in the site within one to two clicks.

Raluca Budiu, another author from the Nielsen Norman Group, points out, that although flat navigation is ideal, it is also wrong to believe that due to limited short-term memory, menus must be short. The goal for a menu, as he states, is for people to »rely on recognition rather than recall,« so menus need to be short enough to scan, but long enough to be clear. [11] Nielsen Norman Group; Raluca Budiu (2014, July 6)



Graphic [57]: Flat Vs. Deep Website Hierarchies

The site hierarchy ultimately determines the number of levels within the navigation. Kathryn Whitenton explains in an additional article that ideally the fewer levels people need to click through, the quicker and least confusing it should be for them to access what they want. She says: »The deeper a hierarchy becomes, the more likely visitors are to become disoriented.« [19] Nielsen Norman Group; Kathryn Whitenton (2013, November 10)

The most often used hierarchies for websites have three or four levels. This structure keeps things accessible while making sure the site navigation is not too broad.

Design for Responsive Compatibility

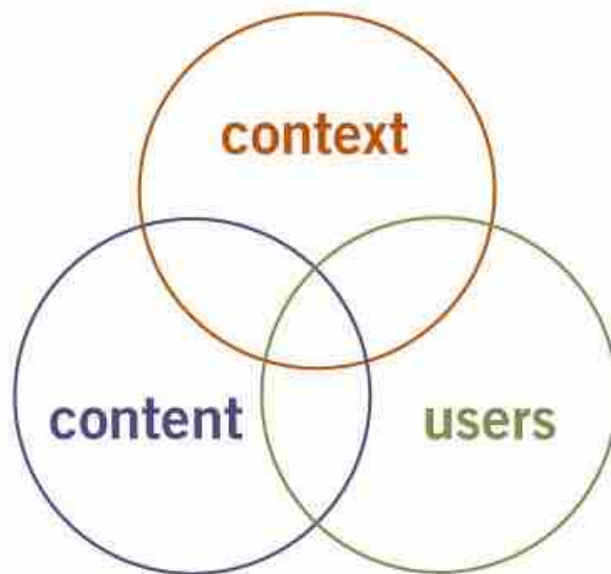
Tablets and smartphones have become the default choice for connecting to the internet. Certainly, the small screen sizes of mobile devices require responsive design solutions. For that reason, it is essential to design navigation that works across all devices. When the information architecture is too complex, the UX team needs to consider two similar navigations that don't require people to adjust to a different mental model when moving from desktop to mobile. [35] UX Booth (2015, December 22)

There are several guidelines for usable navigation menus. So, the list of rules might not be complete. It should give a broader understanding of navigation design and show what needs to be considered for the optimisation of Fhp website.

F. Information Architecture

According to the Information Architecture Institute, the practice of information architecture concerns:

- The structural design of shared information environments.
- The art and science of organising and labelling websites, intranets, online communities and software to support usability and findability.
- An emerging community of practice focused on bringing principles of design and architecture to the digital landscape.

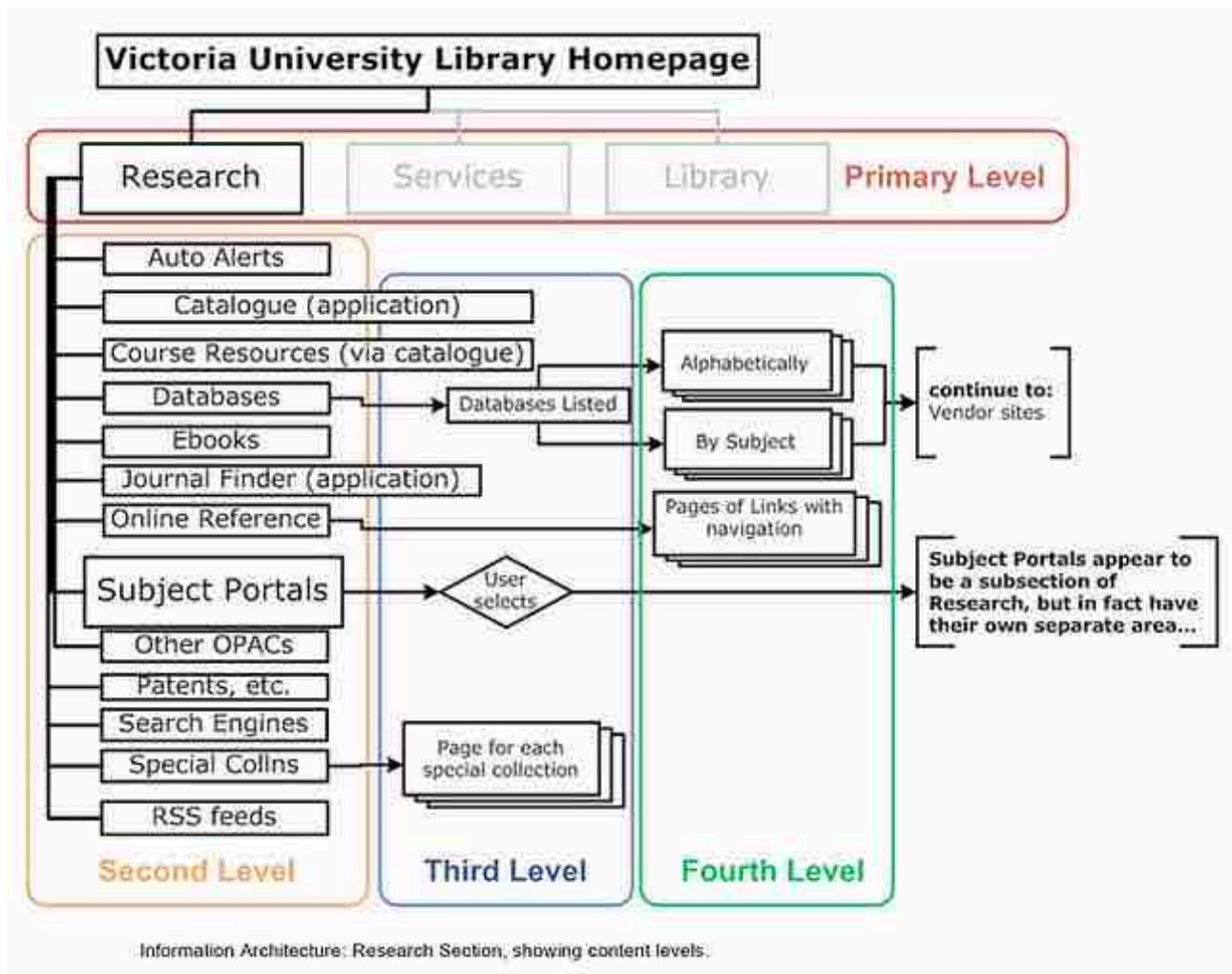


Graphic [12]: Three Circles of Information Architecture

Besides, they explain that » Information architecture is about helping people understand their surroundings and find what they are looking for — in the real world as well as online.« [6]

Information Architecture Institute (2013)

That means information architecture is the creation of a structure for a website, application, or other projects. This structure empowers people to locate themselves onsite. Due to that users can comprehend where they are, and where the information they want is related to their position. Essential components of the IA are sitemaps, hierarchies, categorisations, navigation, and metadata. By developing these structural elements, the Information architect must take into account several things, like the target audience, the technologies related to the website, and the data that will be presented through the website. Often designers, developers, and content strategists develop the IA structure together in an IA team. Their typical tasks can be user research and analysis, navigation and hierarchy creation, wireframing, labelling, grouping taxonomies and metadata, or data Modeling. However, regardless of who takes on the task, IA is a field of its own, under the influence of library science, cognitive psychology and architecture. [35] UX Booth (2015, December 22)



Graphic [62]: Example of a Library IA Structure

III. Research Methods & Tools

The authors of the book »Understanding Your Users« note, that for developing products or optimise their quality, the most critical activity is to understand who the users are and what they need and to document the learnings. [40] Kathy Baxter, Catherine Courage, Kelly Caine (2015), Page 35

The process often begins by developing user profiles. On this basis, the UX designer built up personas, scenarios and use cases (or equivalent methods) to get a holistic view of the user. [40] Kathy Baxter, Catherine Courage, Kelly Caine (2015), Page 35

A. Persona

The purpose of personas is to create realistic representations of the target audience as a reference. Ideally, these representations should base on qualitative and some quantitative user research and web analytics. Personas can inform product functionality, help uncover gaps, or highlight new opportunities at the early stage of a project. The usability.gov provides the following list for characterising personas.

Effective Personas

- Represent a major user group of a product or service
- Express and focus on the major needs and expectations of the most important user groups
- Give a clear picture of the user's expectations and how they are likely to use the site
- Aid in uncovering universal features and functionality
- Describe real people with backgrounds, goals, and values

[25] Usability.gov (n.d.)

How To Develop a Persona

Personas development is a part of the analysis phase of a project. The goal of personas is not representing all audiences or address all needs of the website, but instead to focus on the significant needs of the most important user groups. Usability.gov advise creating only three or four personas for one project. Also, they recommend focussing on the main audiences instead of trying to meet the needs of everyone.

Elements of a Persona

In short, personas should broadly include the following fundamental pieces of information:

- Persona Group (i.e. students, employees or applicants)
- Fictional name
- Job titles and major responsibilities
- Demographics such as age, education, ethnicity, and family status
- The goals and tasks they are trying to complete using the site
- Their physical, social, and technological environment
- A quote that sums up what matters most to the persona as it relates to the site
- Casual pictures representing that user group

[25] Usability.gov (n.d.), [40] Kathy Baxter, Catherine Courage, Kelly Caine (2015), Page 40-44

B. Use Case

The primary function of use cases is to analyse from a user's perspective the system's behaviour as it responds to a request from the user's perspective. Use cases are detailed descriptions of all the steps a user has to do to achieve a specific objective. That chain of actions always begins with the definition of a user's goal and ends when that goal is fulfilled. So, use cases help to evaluate how users will perform tasks when they use a product. [27] usability.gov (n.d.)

Elements of an Use Case

In a nutshell, Use cases should generally be written down and contain a combination of the following elements:

- Primary Actor – Who is using the system (i.e. website)
- Stakeholder – Someone who is interested in the behaviour of the system
- Goal - What the user wants to do
- Preconditions – what must happen before and after the use case runs
- Triggers – this is the event that causes the use case to be initiated
- Chain of action - The steps the user takes to accomplish a particular task
- Main success scenarios [Basic Flow] – use case in which nothing goes wrong.
- Alternative paths [Alternative Flow] – these paths are a variation on the main theme. These exceptions are what happens when things go wrong at the system level
- Systems behaviour - How the product should respond to an action

[27] Usability.gov (n.d.)

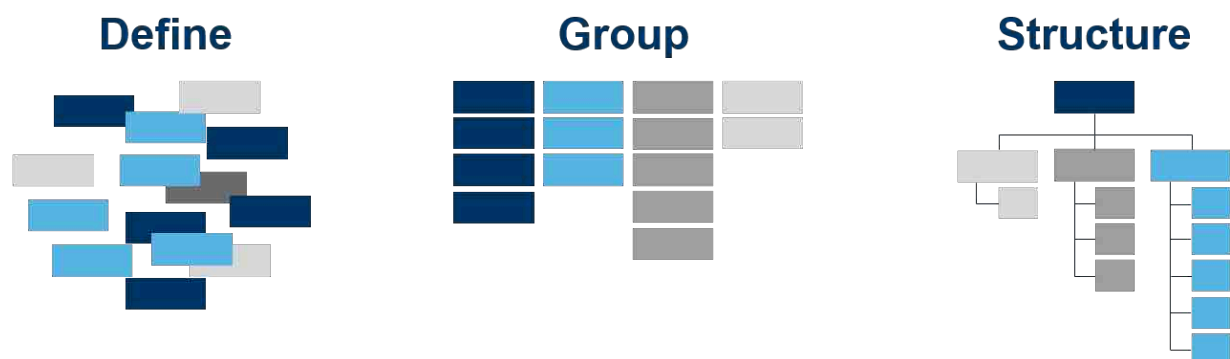
C. Card Sorting

Card sorting is a technique in user experience design in which a person tests a group of subject experts or users to generate a dendrogram (category tree) or folksonomy. It is a useful approach for designing information architecture, workflows, menu structure, or website navigation paths. [39] Wikipedia (2018, February 5)

Card sorting uses a relatively low-tech approach. The person conducting the test (usability analyst, user experience designer, among others) first identifies concepts and writes them on index cards or Post-it notes. Test subjects, individually or sometimes as a group, then arrange the cards to represent how they see the structure and relationships of the information. [14] Nielsen Norman Group; Jakob Nielsen (2004, July 19)

Groups can be organised as collaborative groups (focus groups) or as repeated individual sorts. The literature discusses appropriate numbers of users needed to produce trustworthy results. [14] Nielsen Norman Group; Jakob Nielsen (2004, July 19)

A card sort is commonly undertaken when designing a navigation structure for an environment that offers a variety of content and functions, such as a website. In that context, the items to organise are those, which are significant in the environment. The way the items are organised should make sense to the target audience and cannot be determined from first principles. [1] Boxes and Arrows; Donna Spencer (2004, April 7)



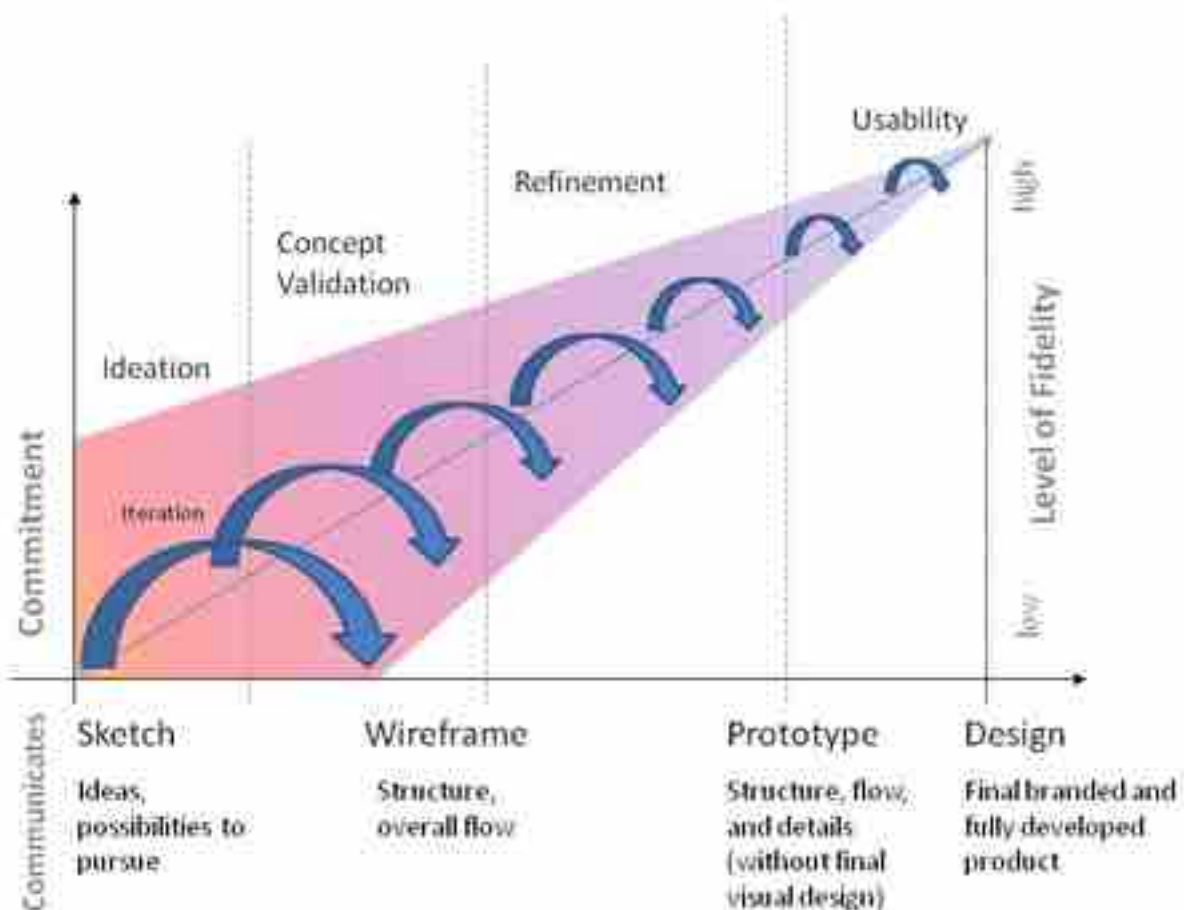
Graphic [52]: Card Sorting

D. Prototyping

A prototype is a draft version of a product that allows exploring the idea of a product. Its function is to show the intention behind a feature or the overall design concept. Usually, prototypes are drafted in the design phase of a project. Depending on the stage of the project, it can be anything from paper drawings (low-fidelity) to something that allows click-through of a few pieces of content to a fully functioning site (high-fidelity).

Usability.gov recommended designing prototypes as soon as possible in the process to get early feedback from the users before investing too much time and money. Saving resources are the most important benefit of prototype development. [26] Usability.gov (n.d.)

Moreover, the Nielsen Norman Group has found that the biggest improvements in user experience come from gathering usability data as early as possible. He notes that it is cheaper to make changes before any code has been written than to wait until after the implementation is complete. [13] Nielsen Norman Group; Jakob Nielsen (2003, April 14)



Graphic [55]: the Sketch to Design Continuum

IV. Analysis

A. Persona Development

The persona based on the developing methods which have been described in the previous chapter. This persona works as an example user for the whole project. Its character is shaped by realistic intentions and needs of a student of the Fhp website.

Answers for Designing the Persona

OBJECTIVE	ANSWERS
Purpose/ Vision of Website	<ul style="list-style-type: none">- Provide informations for design students, applicants, staff- Organise and guide students for their course of studies
User Description	<p>PERSONAL</p> <ul style="list-style-type: none">- Average age: 26- Gender: Female and male- Average level of education: Fachhochschulreife <p>PROFESSIONAL</p> <ul style="list-style-type: none">- Work experience: 0 - 3 years- Professional backgrounds: Design student, working student, intern, apprentice or freelancer- User goals: Inform about news, dates, organizational matters, course catalogue, examination regulations, web-mail, library catalogue ...- Second platform for informations: fhp.incom.org- Users access: Desktop from home, or mobile during transport, no specific time <p>TECHNICAL</p> <ul style="list-style-type: none">- Technological devices: Laptop, computer or smartphone- Software: Safari, Google Chrome, Firefox (Internet browsers)- Web time: 150 - 300 min <i>Statista: Average Web time 149 min, ARD/ZDF online survey, 2017</i>
User Motivation	<ul style="list-style-type: none">- Motivated by course of study and degree- Looking for information- Needs easy and quick access to dates, news and organizational matters ...

Note: The answers focused on students of the design department.

The Persona

The persona represents an average Fhp design student. The information base on statistics provided by university statistics and personal experience as a design student.



Persona	Interface Design student of Fachhochschule Potsdam
Fictional name	Julia Schulz
Job title/ responsibilities	Design student Working student
Demographics	26 years old Single Residing in Berlin Living in an apartment-sharing community
Goals and tasks	<ul style="list-style-type: none">- She is focused, goal-oriented within a strong affinity for design.- Moreover she is interested for other cultures and traveling.- One of her concerns is to achieve Bachelor degree during half-time working in design agency .- Spends much time for transportation. For visiting university courses she spends over 6 hours for public transport per week.- Loves the cultural opportunities of Berlin.

Environment

- She is digital native and using computer and mobile phone every day.
- She refers to herself as a heavily Internet user.
- She uses Safari and Google Chrome as main internet browsers.
- She has professional skills with Adobe Creative Suite and is speaking English well.
- During public transport, for quick informations and social media activities her main devices is the smartphone.

Quote

»Choose a job you love, and you will never have to work a day in your life.«

B. Use Case Development

Describing Use Cases

Below are the uses cases of the evaluation. For each use case, we wrote down the several steps the actor is going to do on the website of FH Potsdam. To identify problems and give them a structure, the UX models of Peter Morville and Whitney Quesenberry has been used.

The following steps delineate how we have developed the use cases of the project:

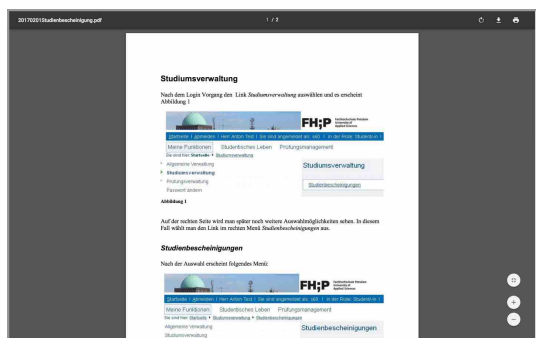
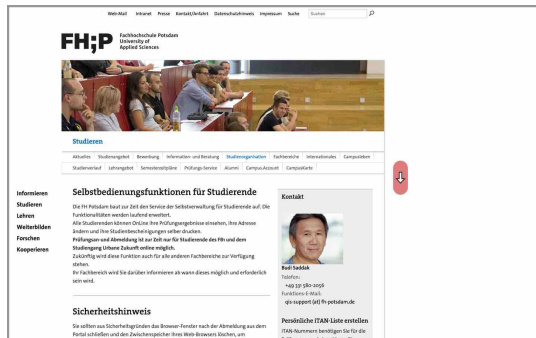
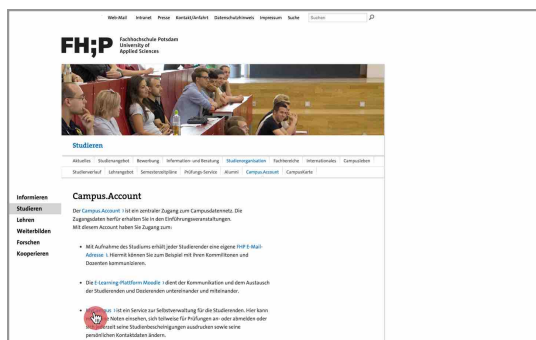
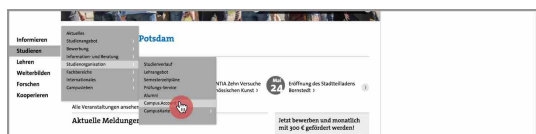
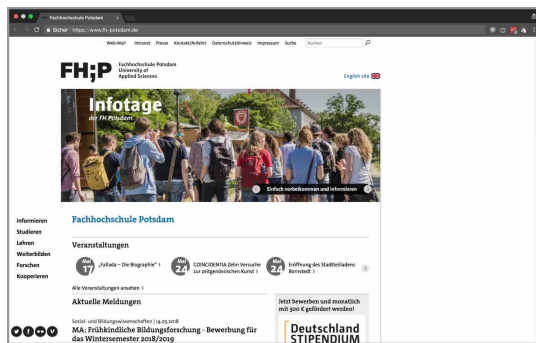
1. The first step was to identify who is going to use the website.
2. Next, the primary actor of those users has been defined.
3. After that, the user's goals need to be defined. So for each objective the user does on the site a particular use case has been developed.
4. Then, the decision has been taken for each use case the regular chain of actions (basic flow).
5. After that, all steps has been described in detail for the basic course. That description included all terms of what the user does and what the system does in response.
6. From the main course, the alternative courses of events has been considered to extend the use case.
7. Finally, we looked for everyday troubles among the use cases and extracted these for the problem analysis.

Use Case Certificate of Study

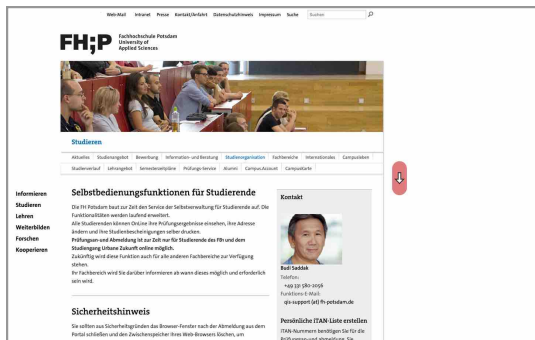
Use Case 1 Studienbescheinigung	
Actor	Julia Schulze
Goal	Log-in on My.Campus to download the certificate of study (Studienbescheinigung) for a job as a student employee.
Description	Julia Schulze needs a certificate of study for her job as a student employee. With the begin of every new semester, she is looking for that download function. So, Julia always forgets how it works, because she is visiting that specific site not more than two times a year. She is not aware that My.Campus has a different domain than FHP homepage.

Certificate of Study

Basic Flow



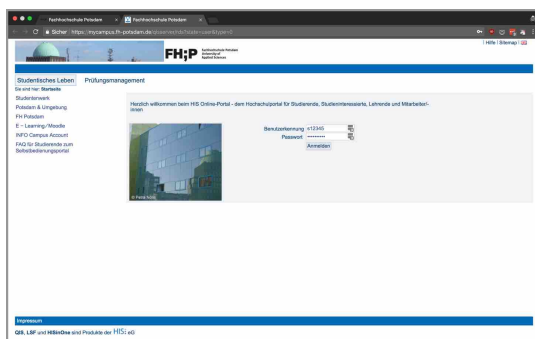
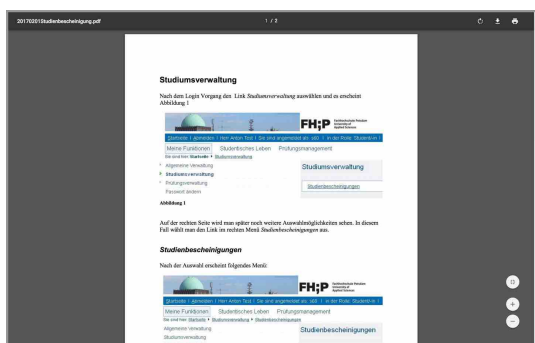
1. Julia is going to start page of FH Potsdam <https://www.fh-potsdam.de/> with Google Chrome web browser.
2. She remembers that she has to log-in with her university ID at My.Campus
3. First of all, she is looking at the header for that log-in function, because there are Web-Mail and Intranet links.
4. After that, she is looking at the left sidebar, where is the main menu of the homepage.
5. It is a hover menu, and she is going to > Studieren > Studienorganisation > Campus.Account
6. This page is the guide for the Campus. Account (with no log-in).
7. She is clicking on the Link MyCampus
8. This site provides general information about Studienorganisation
9. She is confused and scrolling down on that page.
10. In the middle of that page, she is finding short info about Studienbescheinigung.
11. She is clicking on the link Hier to get more information
12. That page is a pdf is a guide to download the certificate when the user has been already logged-in at My.Campus



13. She gets frustrated and is going back to the page before.

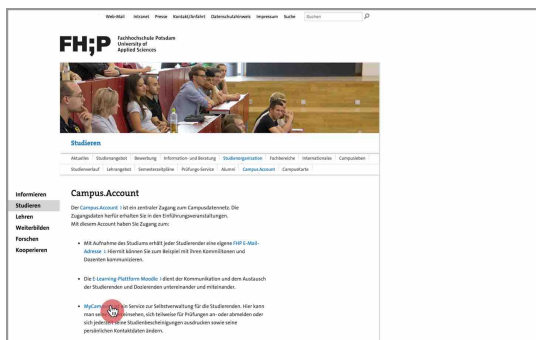
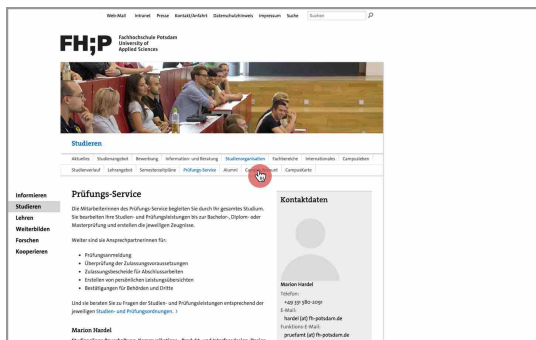
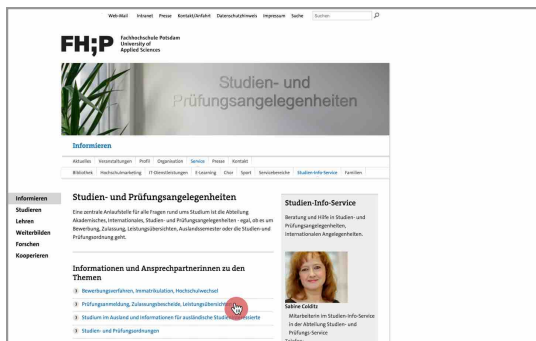
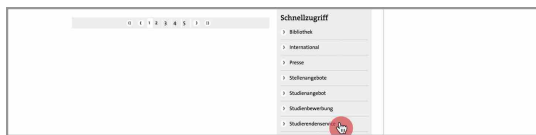
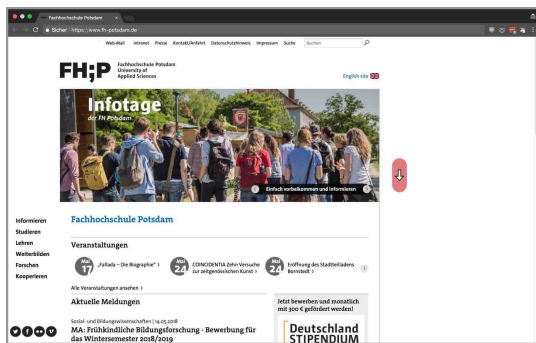
14. After clicking through several other menus, she is spotting URL: <https://mycampus.fh-potsdam.de/qisserver/> which is embedded in the short info about Leistungsübersicht on the site Studienorganisation

15. She finally can log-in on My.Campus to download her certificate of study.

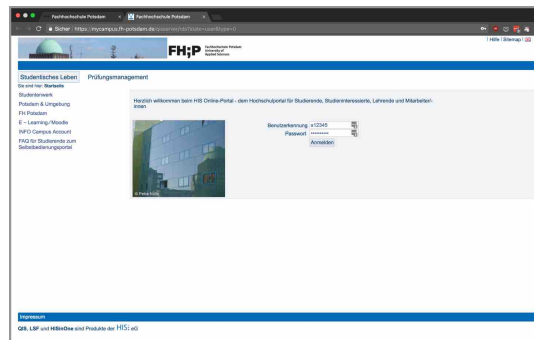
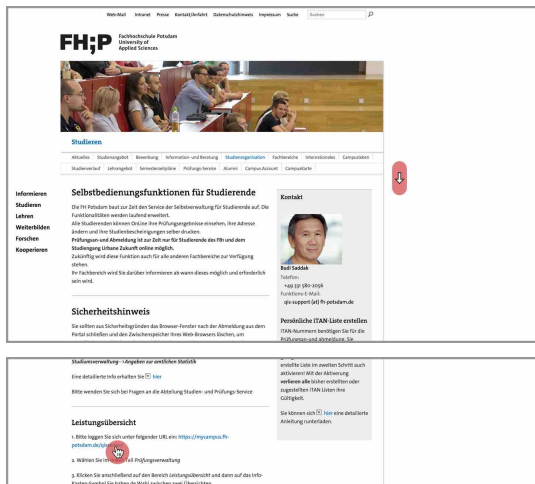


Certificate of Study

Alternative Flow 1



2. After that, she is scrolling down, and spots on the left side a list with links for quick access (Schnellzugriffe).
3. She is clicking on the link Studierendenservice
4. The page Service provides another list with service topics, to find specific information and contact persons.
5. Julia is clicking on the link Prüfungsanmeldung, Zulassungsbescheide, Leistungsübersichten
6. It navigates her to the specific side about Prüfungs-Service which doesn't fulfil her needs. Sie is frustrated.
7. In the menu bar above the article, she spots the item Campus.Account.
8. She is clicking on the link Campus.Account

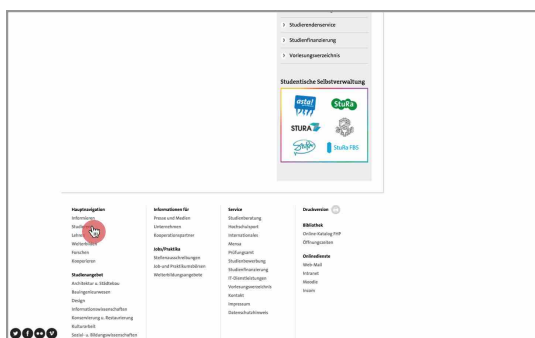
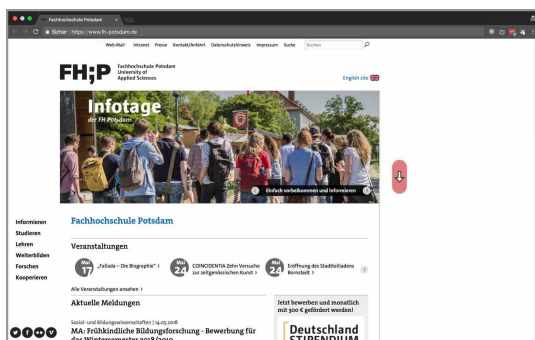


9. Julia ends up at the page which provides a guide for the Campus.Account (with no log-in)

10. Alternative Flow 1 continues with Basic Flow 7 – 15

Certificate of Study

Alternative Flow 2



6. Basic Flow 1 - 4

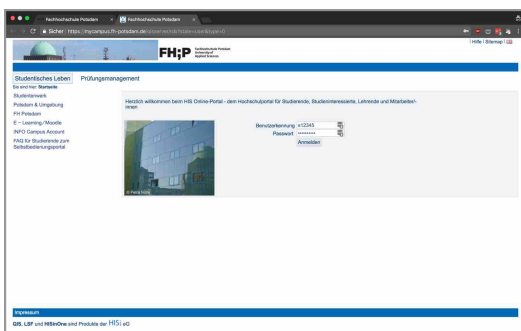
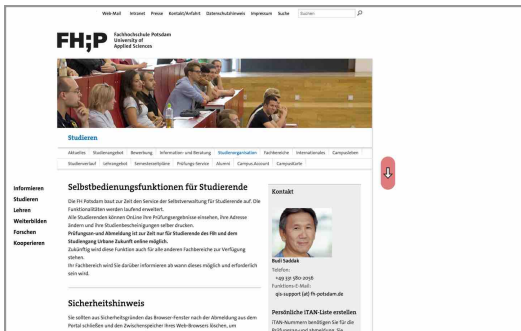
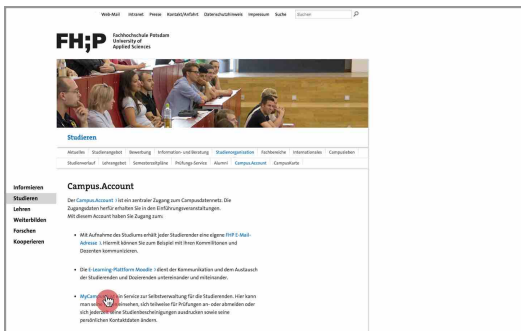
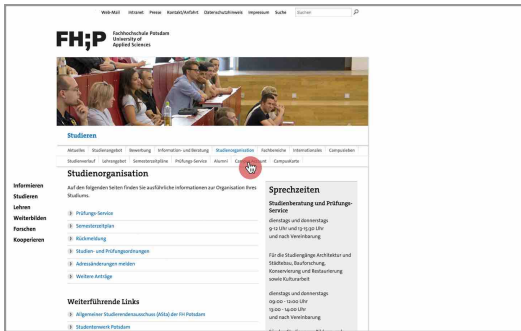
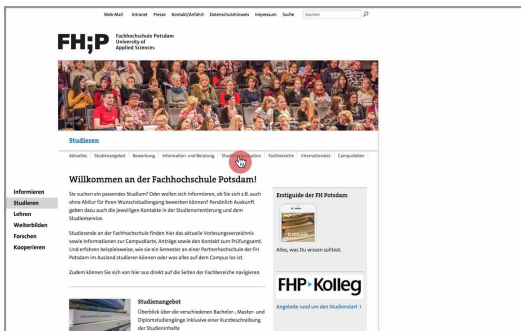
7. After that, she is scrolling down, to go to the footer menu.

8. At the footer, she finds another link for the online platforms (Onlinedienste): Web-Mail, Intranet, Moodle and Incom - but nothing about My.Campus

9. Alternative Flow 2 continues with point 4 of Basic Flow or

10. point 2 of Alternative Flow 1

11. Basic Flow 5 – 15 / Alternative Flow 2 - 10



Certificate of Study

Problem Dokumentation

Factors of UX
(Peter Movill)

Use Case 1:
Certificate of study

Useful

- The Content of the FHP website does not fulfil the user's needs for information.

Usable

- The user does not achieve her objective effectively and efficiently.
- It is very complicated to find information about downloading the certificate of study.
- She loses her path during main navigation hover menu several times.
- The navigation flow to My.Campus is too long and costs much time.

Findable

- The menu structure is not well organised onsite.
- The information about My.Campus is not well located and difficult to find.

Credible

- The user trusts the information of the side.

Desirable

- The aesthetic meet users expectations of institutional websites.
- Layout and typography are clean and comfortable to read.
- Graphics and photos are less emotional.

Accessible

- The content is accessible to the user.

Valuable

- The experience does not improve users satisfaction with the institution.

Use Case Library Catalog

Use Case 2 Online Bibliothekskatalog aufrufen

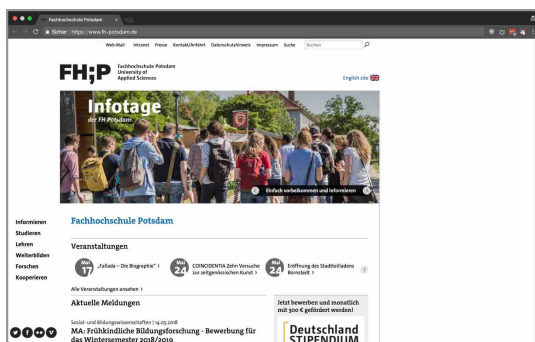
Actor Julia Schulze

Goal Navigating to the FHP liberal catalogue

Description Julia needs for her researches the library catalogue. She has never used the library catalogue before, during working from home with her Macbook.

Library Catalog

Basic Flow



1. Julia is going to start page of FH Potsdam <https://www.fh-potsdam.de/> with Google Chrome web browser.
2. She is looking for the menu item library.
3. Because she does not find a link in the header menu, she is looking for it in the main menu at the left sidebar of the homepage afterwards.
4. It is a hover menu - but she does not see an item for the library in the secondary menu hierarchy.
5. Her next idea is, to search library link item in the primary menu item Studieren
6. The search is unsuccessful what is quite frustrating for Julia.

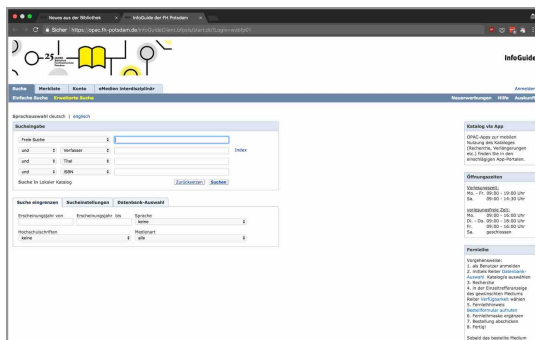




7. After a period, she discovers the library link in menu structure Informieren > Services > Bibliothek

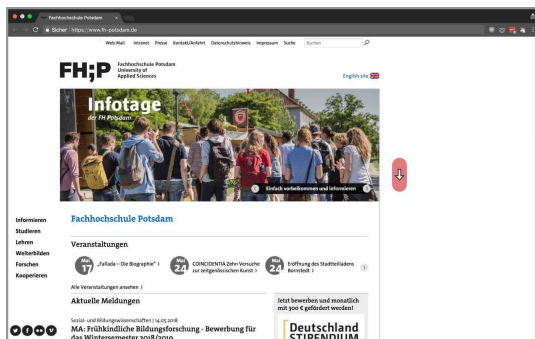
8. It navigates her to the main page of the library (which is not visibly embedded in the primary menu and secondary menu items Informieren and Services)

9. From there she is quickly moving ahead to the library catalogue, finally.

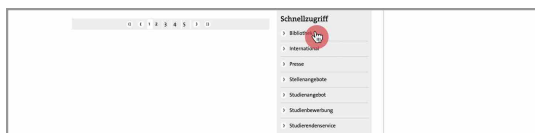


Library Catalog

Alternative Flow 1

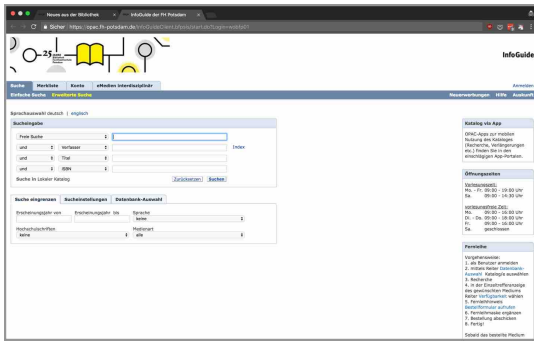


links for quick access (Schnellzugriffe).



1. Basic Flow 1 - 6

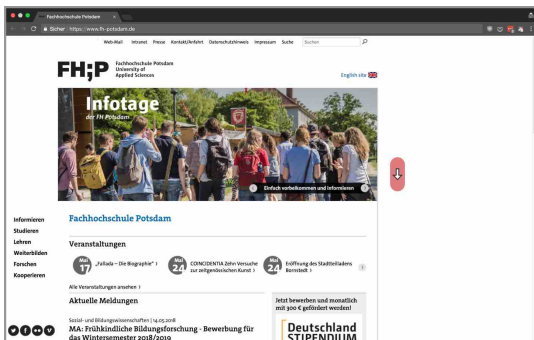
2. After that, she is scrolling down, and spots on the left side a list with



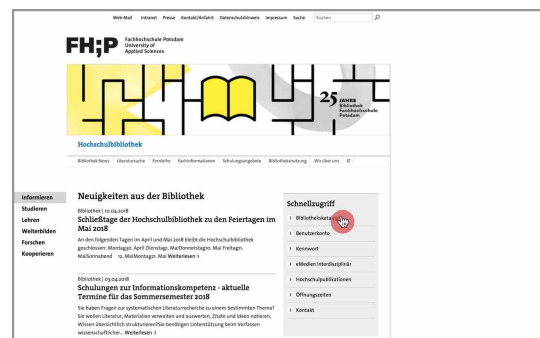
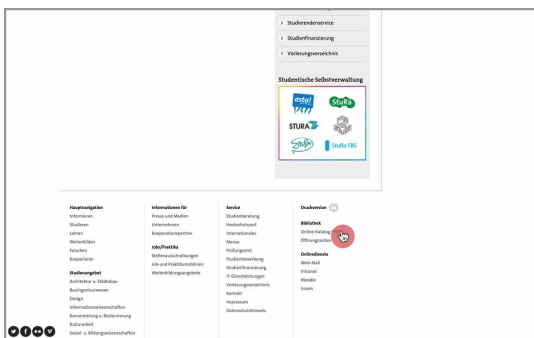
3. She is clicking on the link Bibliothekskatalog which quickly navigates her to the library catalogue.

Library Catalog

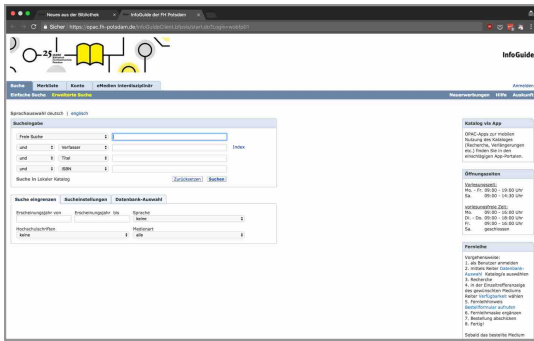
Alternative Flow 2



3. At the footer, she finds the link Online-Katalog FHP which quickly navigates her to the library catalogue.



1. Basic Flow 1 - 6
2. After that, she is scrolling down, to go to the footer menu.



Library Catalog

Problem Dokumentation

Factors of UX Use Case 2:
(Peter Movill) Library catalog

Useful

Usable

- The user does not achieve her objective effectively and efficiently.

Findable

- The library is not well located on the main menu.

Credible

- The user trusts the information of the side.

Desirable

Accessible

- The quick access to the library catalogue has too many steps.

Valuable

Use Case Course Catalogue

Use Case 3 Vorlesungsverzeichnis aufrufen (Mobile/Desktop)

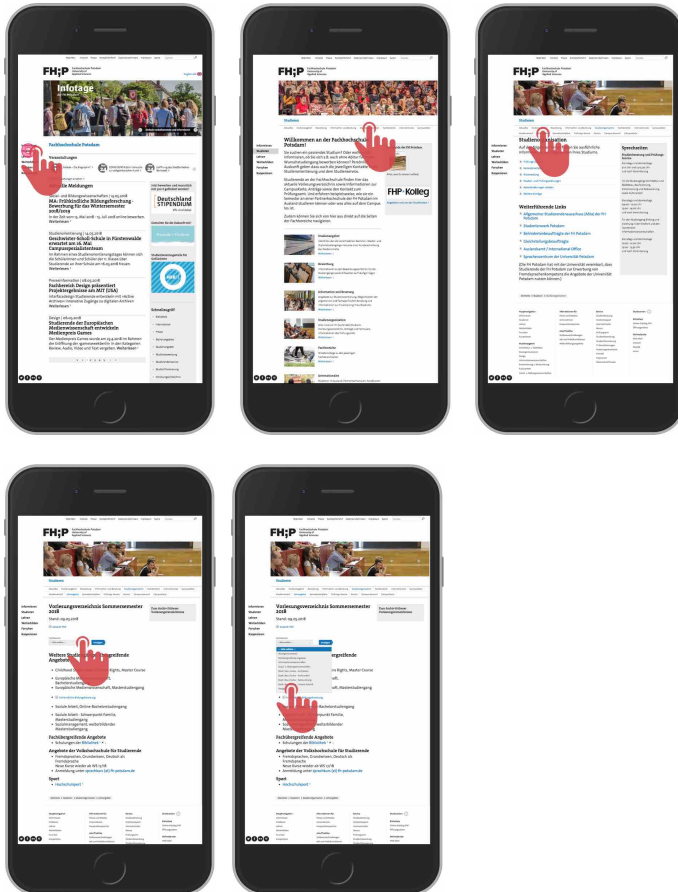
Actor Julia Schulze

Goal Reeding course catalogue with a mobile phone.

Description The new semester is starting, and Julia like to inform herself about new courses. She is using her mobile phone to read the course catalogue on the train.

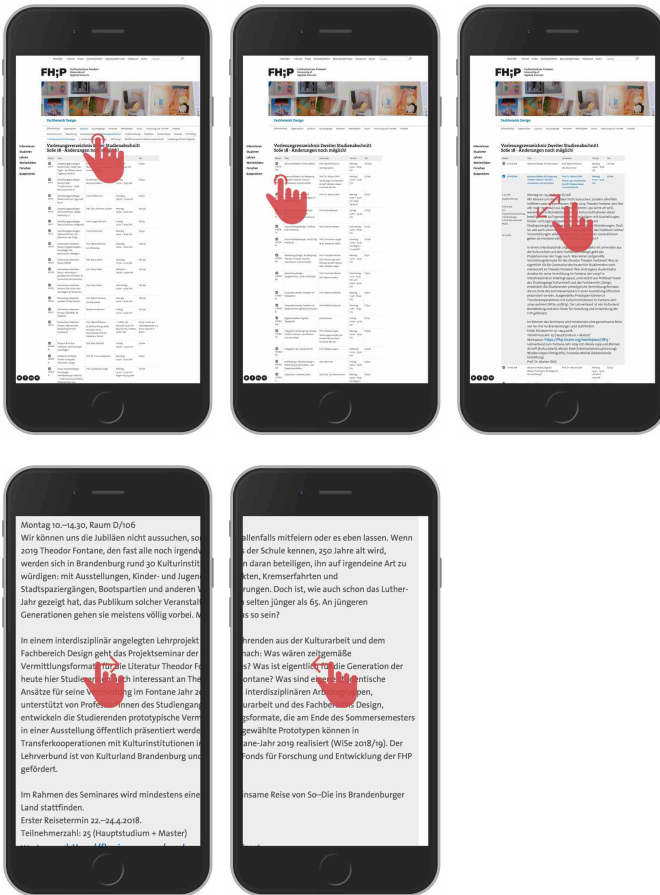
Course Catalogue Mobile

Basic Flow



3. Then Julia is clicking on the main menu topic Studieren, what navigates her to a general site about studying at FHP.
4. After some time of searching, she finds in the top menu bar the item Studienorganisation, what opens a side about study organisation.
5. Her next step is clicking on the item Lehrangebot in the submenu of Studienorganisation.
6. She ends up on another page, where she has to select in a minimal extended menu Design.

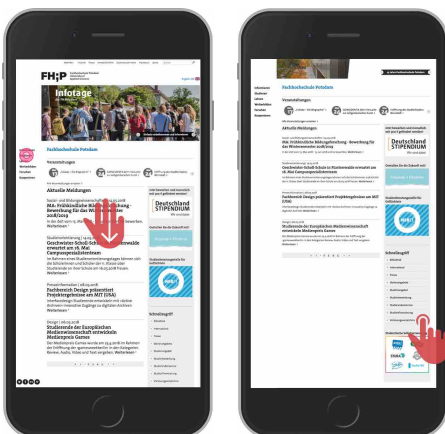
1. First of all, Julia is going to start page of FH Potsdam <https://www.fh-potsdam.de/> with Safari mobile web browser.
2. She is looking at the left sidebar, where the main menu of the homepage is located.



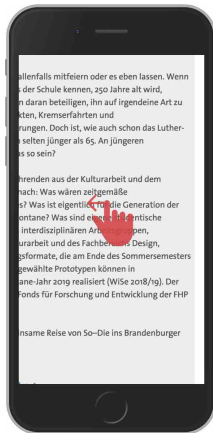
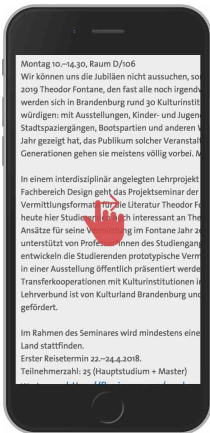
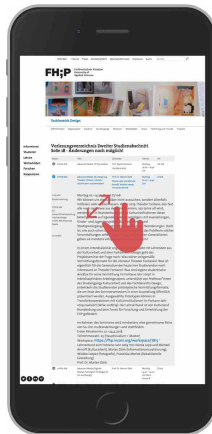
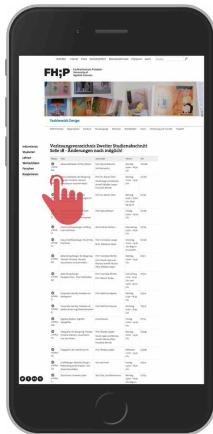
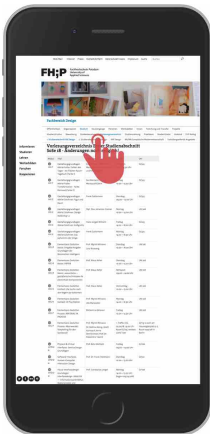
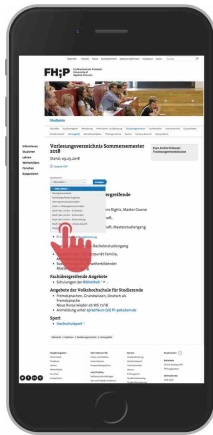
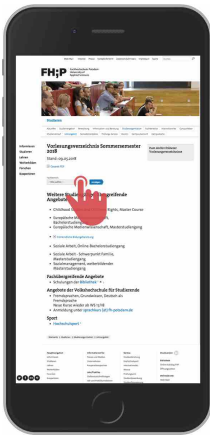
7. Now, Julia is on the site of the course catalogue of the design department for the first stage of studies.
8. Because she needs information for the second stage, she has to click on 2. Studienabschnitt BA Design in the tertiary top menu bar.
9. Finally, she is on the page course catalogue to read the information.

Course Catalogue Mobile

Alternative Flow 1

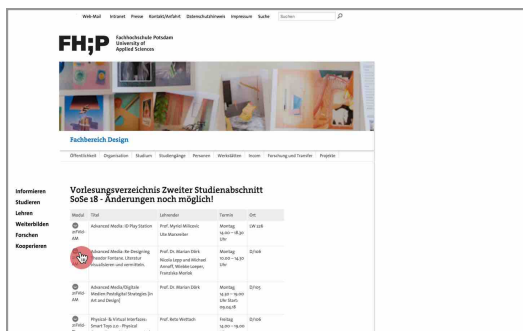
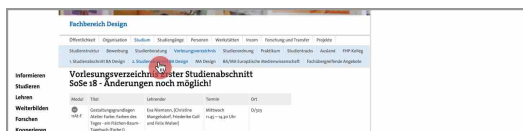
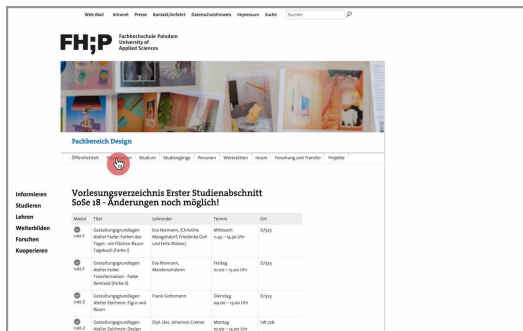
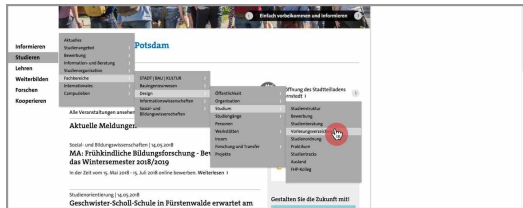
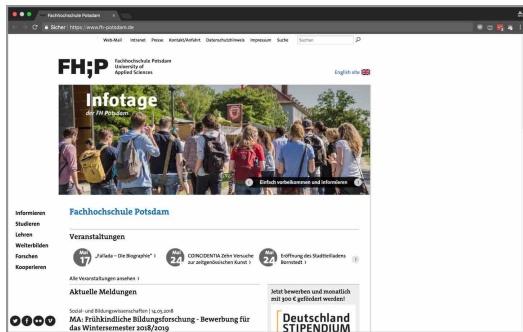


1. Basic Flow 1
2. After that, she is scrolling down, and spots on the left side a list with links for quick access (Schnellzugriffe).
3. She is clicking on the link Vorlesungsverzeichnis
4. Alternative Flow 1 continues with point 6 of Basic Flow
5. Basic Flow 6-9

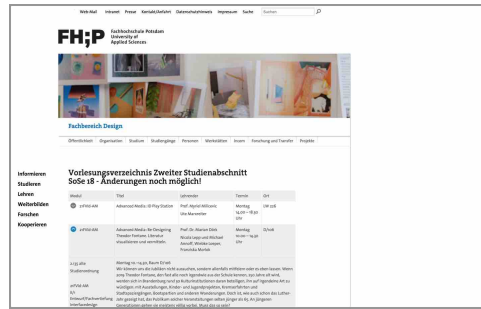
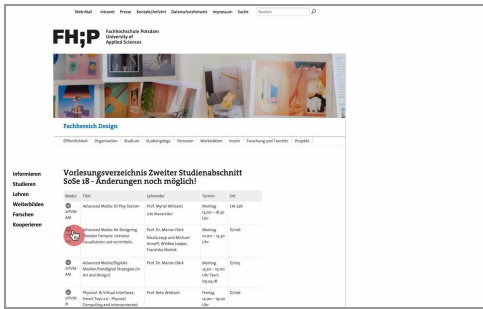


Course Catalogue Desktop

Alternative Flow 1



1. Julia is at the university campus and using her MacBook, yet. She is loading to start page of FH Potsdam <https://www.fh-potsdam.de/> with Google Chrome
2. After that, she is looking at the left sidebar, where is the main menu of the homepage.
3. It is a hover menu and she is going to > Studieren > Fachbereiche > Design > Studium > Vorlesungsverzeichnis
4. Now, Julia is on the site of the course catalogue of the design department for the first stage of studies.
5. Because she needs information for the second stage, she looks for another link in the top menu bar, which interacts like an over the menu.
6. She navigates from to the catalogue of her objective by hovering > Studium > Vorlesungsverzeichnis > 2. Studienabschnitt BA Design



Course Catalogue Mobile

Problem Dokumentation

Factors of UX
(Peter Movill)

Use Case 3:
Course catalogue mobile

Useful

- The Content of the FHP website fulfils the user's needs for information.

Usable

- The website is not responsive and optimised for touch screens, what negatively affects the user experience.
- The user does not achieve her objective effectively and efficiently.
- The navigation flow to course catalogue is too long and costs much time.

Findable

- The menu structure is comprehensive but complicated to find.
- The Course catalogue is well located.

Credible

- The user trust the informations of the site.

Desirable

- The design elements are undersized.
- Layout and typography are challenging to read on a small screen.

Accessible

- The content is not good accessible for the user with a mobile device (smartphone).

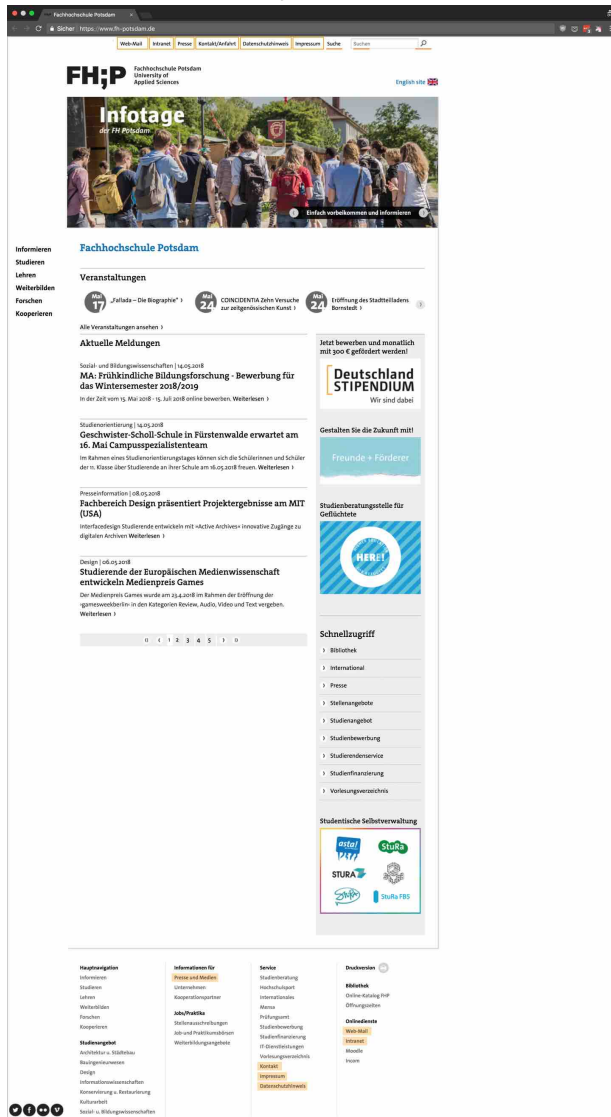
Valuable

- The experience does not improve users satisfaction with the institution.

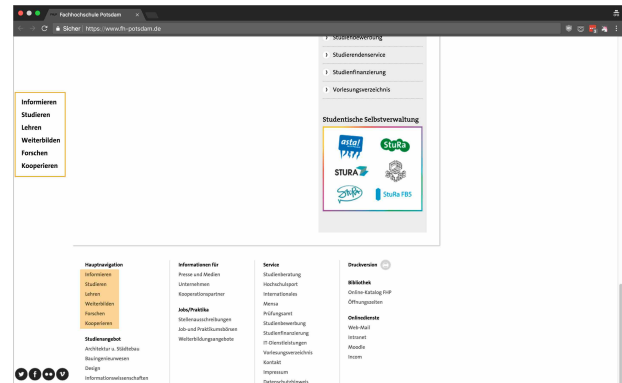
C. Problem Analysis

After outlining specific UX issues of the use cases, it is necessary to address some general problems of the FHP website. To identify problems and give them a structure it has been used the model of factors that describes User Experience from Peter Movill and The five Characteristics of Usable Products from Whitney Quesenberry.

General Usability Problems

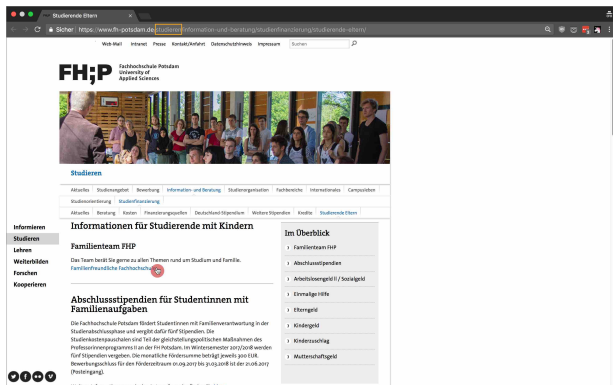


Redundancies of Head Bar and Footer Items.

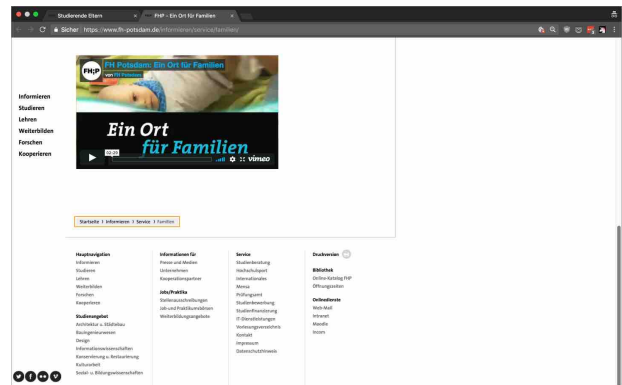


Redundancies of Main Navigation and Footer Links.

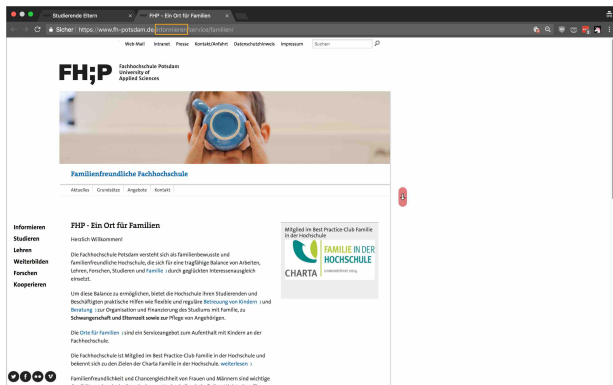
The FHP website has many usability issues which adversely affect the user experience. One fundamental problem underlines the design of user navigation. There are many redundancies, which we identified in the head bar, the main menu and the footer links. These are the links: Web-Mail, Intranet, Presse, Kontakt/Anfahrt, Datenschutzhinweis, Impressum represented in head bar and footer. Also redundant is the second main menu list in the footer, because the webpage has an interactive main menu that is sticky and follows the user along scrolling on its left side. The screens below illustrate two examples of the outlined redundancies.



The User Is Looking for Information About Family Issues in the Main Category »Studieren«. He Clicks on the Link To Get More Information.



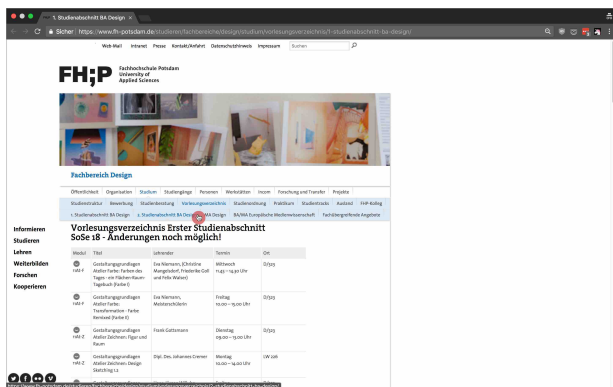
The Breadcrumbs Are Hidden Because They Are Placed in the Main Category »Studieren«. He Clicks on the Link To Get More Information.



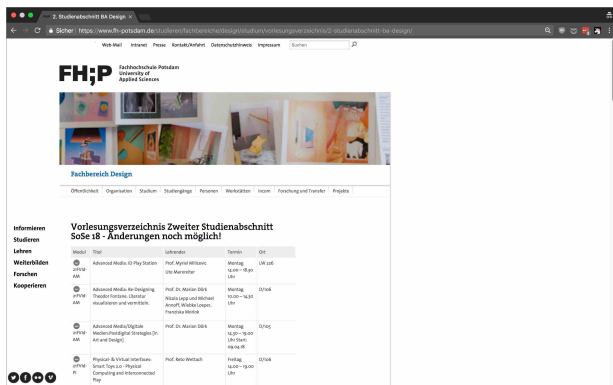
The Link Directs to New Subject »Familie« That Is Located in the Category »Informieren«. Site. However, It Is Not Visible Where That Subject Is Located on the Side.

The user's navigation needs to be more effective. Therefore the structure of main and submenu needs to be reconsidered, to reduce the number of steps and make things more findable. Also, it is necessary to evaluate the selection of head bar items, quick access links and footer information.

Another Problem dresses the orientation during navigation. In some cases, the links direct to a different main category. In that case, the users are losing their orientation because no apparent reference indicates the new location. So, the place of the breadcrumbs below the article is not optimal. For that reason, they need to place visible when the user is just landing on a new site. Otherwise, it is necessary to find a different solution to that problem. The screens below exemplify the point.



Poor Legibility of Lined Menu Items in the Submenu.



No Apparent Interaction of Location on Side When of Menu Bar Disappeared.



View of the Website on Mobile Screens.

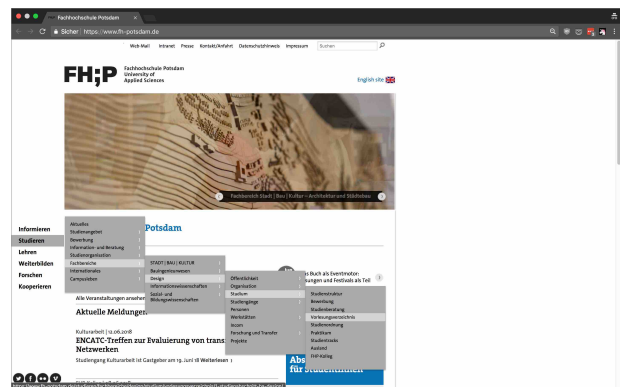
The following problem regards the design of the submenu. The readability of the second and third items is difficult because they are aligned from left to right. Also, the hovering character of the submenu makes it more complicated to navigate and affects the users' experience negatively. The argument based on the fact that users often lose the track what costs time and makes the navigation less efficient. Moreover, there is no obvious indicator where the side is located, when the menu bar disappears. The communication about the location in the article's title is not clear enough. The screens below demonstrate the problems of readability, efficiency and orientation described above.

Moreover, the development of more meaningful and easier to understand menu labels (words) would be essential for an efficient navigation flow. So, the menu structure could be less intuitive for users without academic experience.

The second crucial issue regards the usability with mobile devices. The evaluation has shown that the website is not responsive and optimised for touch screens. The interaction is worse with small smartphone displays, and pieces of information are not readable. This issue has a significant impact on the users' satisfaction.



Not Noticeable Quick Links on Start Page Without Scrolling Down Onsite.



Hover Character of the Main Menu Makes Searching for Users More Difficult.

An additional matter regards the interaction of the main menu that is located on the left side and follows the user by scrolling the page down. The problem concerns its behaviour as hovermenu. During the researches, we lost very often the navigation path and had to move the cursor again through the whole menu. This menu behaviour cost the user much time and needs to be redesigned for that reason. The next screen illustrates our case.

Another factor for users' engagement matters the aesthetics. Better graphic design elements would make the website more pleasant and gratify to use. However, looking likeable is not everything. Ease of navigation, precise wording, responsive layouts and readable typography all come together and shape the user experience of FHP website.

Furthermore, the menu bar for quick accesses has to be more visible and needs the other spot onside. Currently, it does not benefit the user's interaction when he does not know about its existence. The following screen demonstrates our matter.

Besides that, the start page could better be optimised for this main target groups to increase the accessibility. Further user researches and usability tests are necessary to identify and clear more existing problems.

D. Researches About University Websites

During the design process the following questions have occurred:

- What are the most common items for quick menu access (Schnellzugriff) of university websites?
- How is the footer designed at other university sides?
 - Which pieces of information are contained?
 - Which menu items and links are contained?
 - Which graphics are contained?
- How is the header designed at other university sides?
 - Which pieces of information are contained?
 - Which menu items are contained?
- How are the menus designed for other university sides?
 - How do they look? (Visual Design)
 - How do they interact with the users? (Interaction Design)
- Which navigation structure have equal sides? (Information Architecture)
 - How is the primary and submenu hierarchy constructed?

For that research, the platform StudyCHECK.de has been used to compare state-owned websites of several universities (Fachhochschulen).

Footer Design

List most common footer elements:

- | | |
|--|---------------------------------------|
| - Copyright link | - Navigation |
| - Sitemap link | - Social Icons / Widgets |
| - Privacy Policy link | - Login |
| - Terms of Use link | - Press link |
| - Contact | - Site Search Tool |
| - Address and Link to Map / Directions | - Graphics of Awards / Certifications |
| - Phone / Fax numbers | - Logos of partners |

Additional UX and Usability elements:

- Button to go up quickly
- Map for directions

Header Design

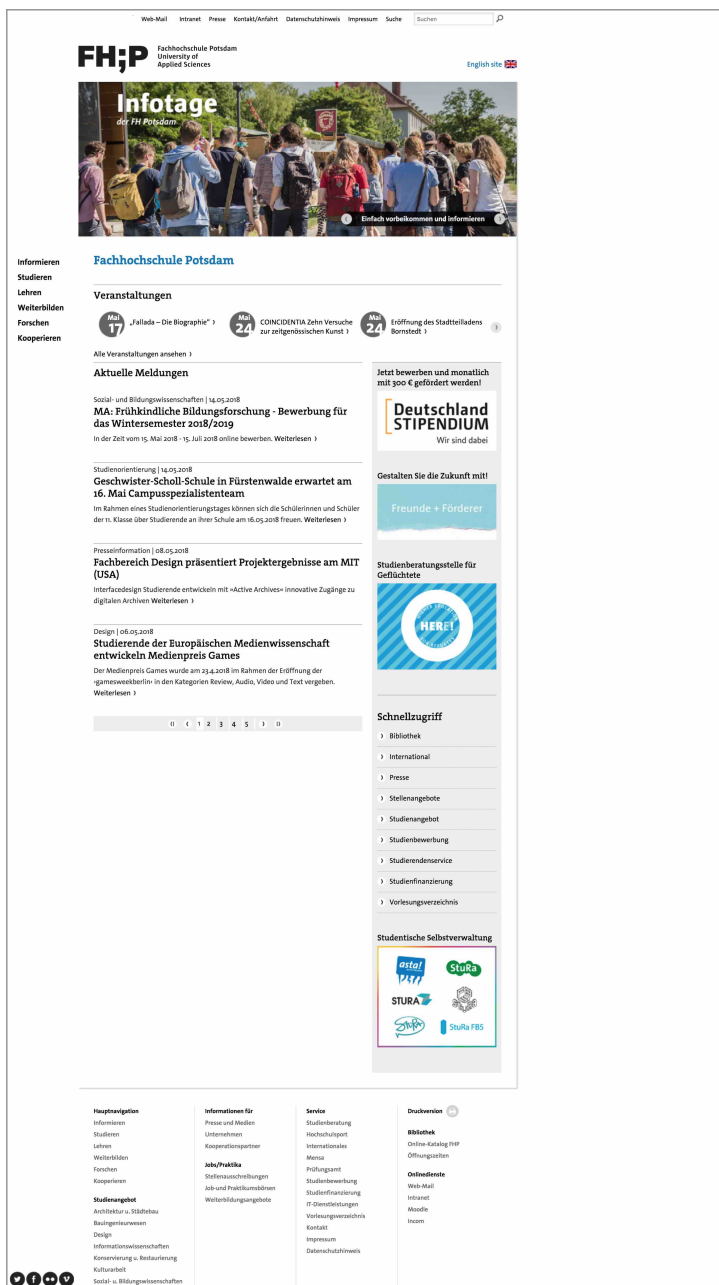
Additional UX and Usability elements:

- Button to go up quickly
- Map for directions
- Header Design
- List Most common header elements:
- Search bar / icon
- Contact / directions link
- Language link/icon
- Quick-link menus /link
- Social Media icons
- Login asset
- Start page link/icon
- Intranet link
-

V. Concept & Design

The design process of the project has been divided into three phases:

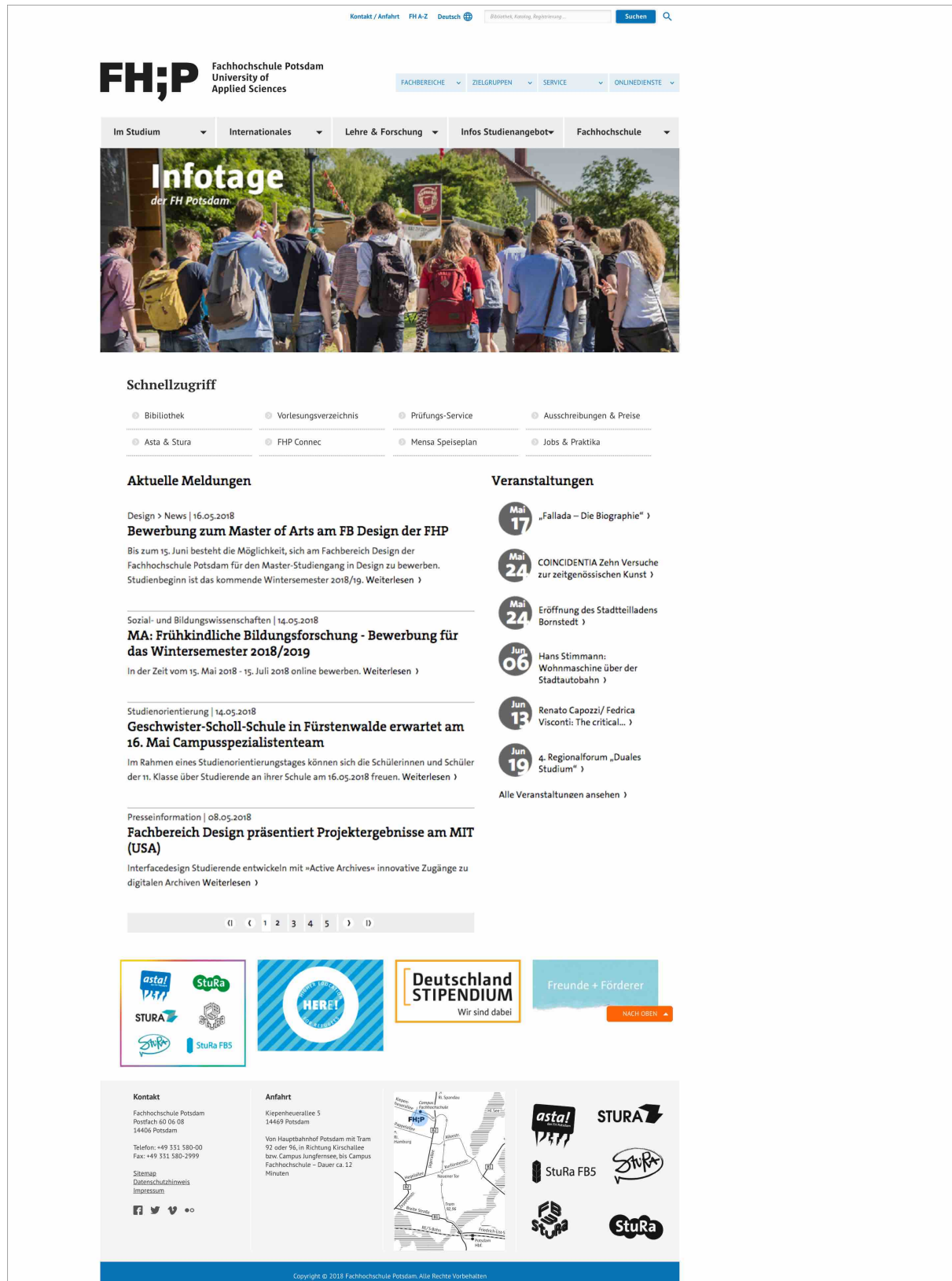
1. **User experience focus**
Minimal invasive design inventions
2. **Navigation optimisation focus**
New concept of menu design
3. **Information architecture focus**
Visualization of target group navigation



The Current Design of Fhp Website (May 2018).

A. User Experience Focus

The design process started with the focus of user experience design elements, like head bar, main menu, footer and other features, as well as, the development of a mobile prototype with a responsive layout and navigation concept for small screens.



Removing Hover Menu

One of the worse things about the current Fhp menu is that it forces the user to move their mouse through hover tunnels to click an item. From my point of view, the hover menu on the left side does users more annoying than good, because it makes navigation harder and slower. When the hover menu opens, users cannot move their mouse to the item they want in a straight line. If they do, their mouse will fall off the hover path and close the menu.

Another problem is from my perspective that items closest to the menu edge are more difficult to click. Users have to slow down their mouse movement otherwise they miss the item and land outside the menu, resulting in a menu close.

During my researches, I encountered the trouble of menu closing very often. In my opinion, there is no reason why stakeholders of Fhp website should have to work this hard to navigate on site.

For that reason, it is essential to develop a more user-friendly menu design. To avoid these problems, I recommend a menu that opens on click instead of on hover. According to my expertise menus should open when the user has decided to open it. That clear decision is in the form of a click. When a site behaves the way users want it to, tasks are quicker and easier to complete.

Placing of Navigation and Menu Items

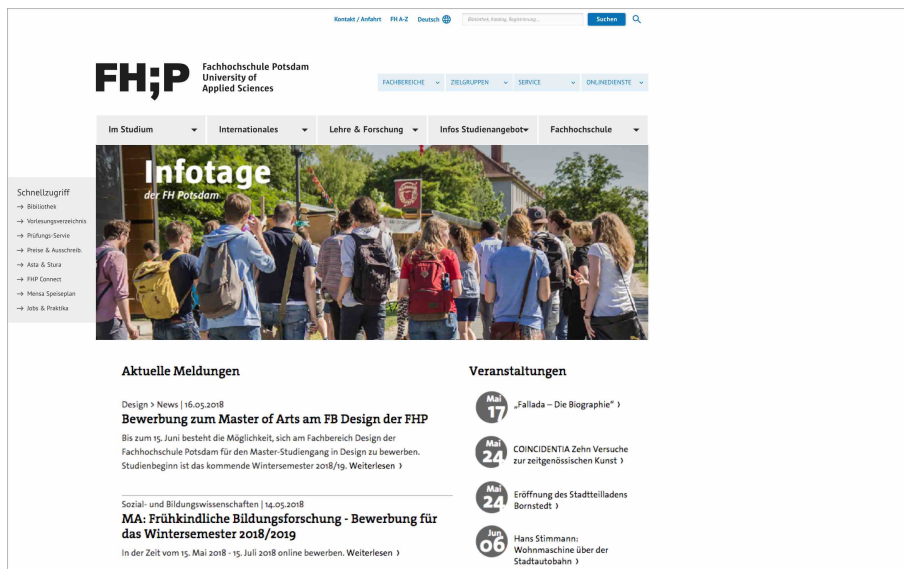
In my perspective, the position and the alignment of the Fhp navigation menu are also crucial. There are two reasons for that.

First of all, people tend to follow specific patterns when they first take in on a website. According to Jakob Norman, our attention on websites follows the pattern of the letter F. This means users focus the most on the top of a website and on the left side from where we briefly scan the main elements in the content area. [16] Nielsen Norman Group; Jakob Nielsen (2006, April 17) Also users avoid to scroll down a page wherever possible, which means they mainly focus on content that is positioned above the fold.

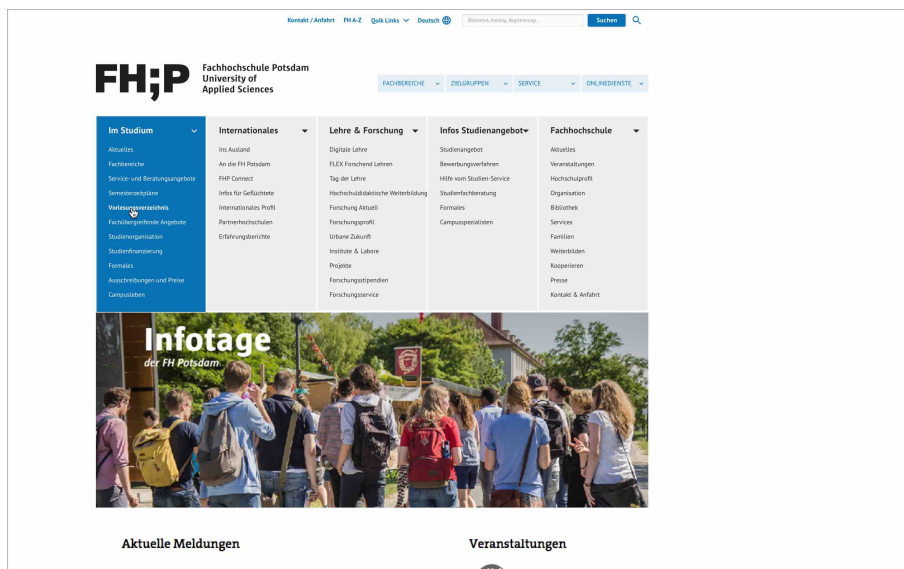
Second, the head is a familiar location for main menus. Users expect to find navigation elements where they have seen them before on other sites. To follow the users' reading pattern and meet their expectations, I placed the main navigation at the top above the header image. Also, I aligned its main items horizontal in a row, from left to right. Also, the box of quick access links has been positioned new in the area directly under the header image.

Moreover, I developed an alternative concept with an additional submenu during the design process. The menu bar is right aligned and placed above the main menu. Its items meet the students' needs of quick access to departments, service contacts and online accounts.

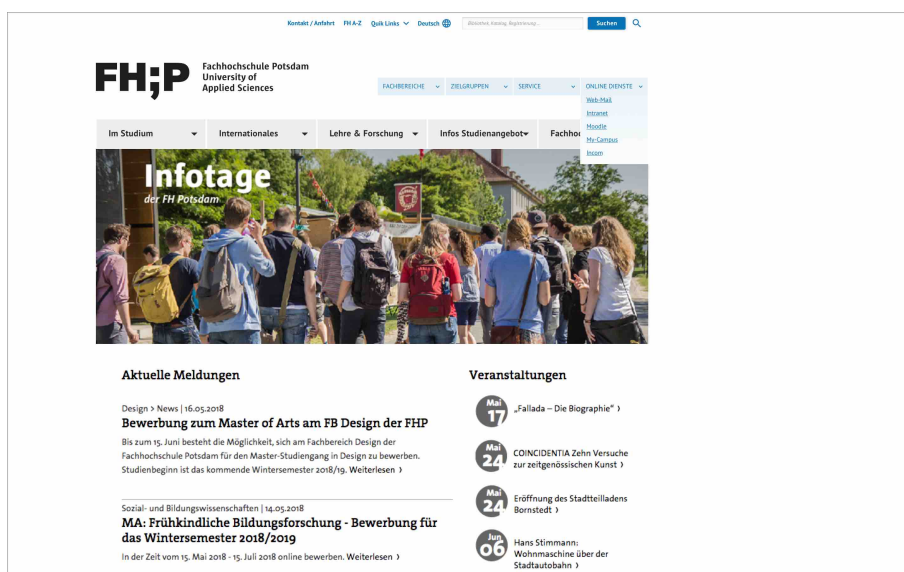
Other ideas regard the box of quick access links. This element needs a more visible location on the start page because it is currently hidden and users have to scroll down to recognise these links. One solution is to position the box directly under the header image. My second idea is to establish a widget (with these links) on the left side, that follows the users on the page



Widget for Quick Access Links



Main Menu Interaction Design



Sub Menu Interaction Design

Interactive Design of the Main Menu

Another important detail of a new menu design regards its interactive look. For that reason, I added arrow icons next to the title (of the main category) and ensured that these menu elements have enough visual weight and contrast. From my point of view, it is essential to add visual hints that users can realise it is a menu which opens. If the options do not look clickable users will struggling.

Following the F pattern users read the page's content in a vertical movement after they scanned horizontal align elements. For these readability reasons, I ordered the menu's sub items in a list positioned under the main category when it is open. Besides, I used colour highlights as an indicator of which menu category is active.

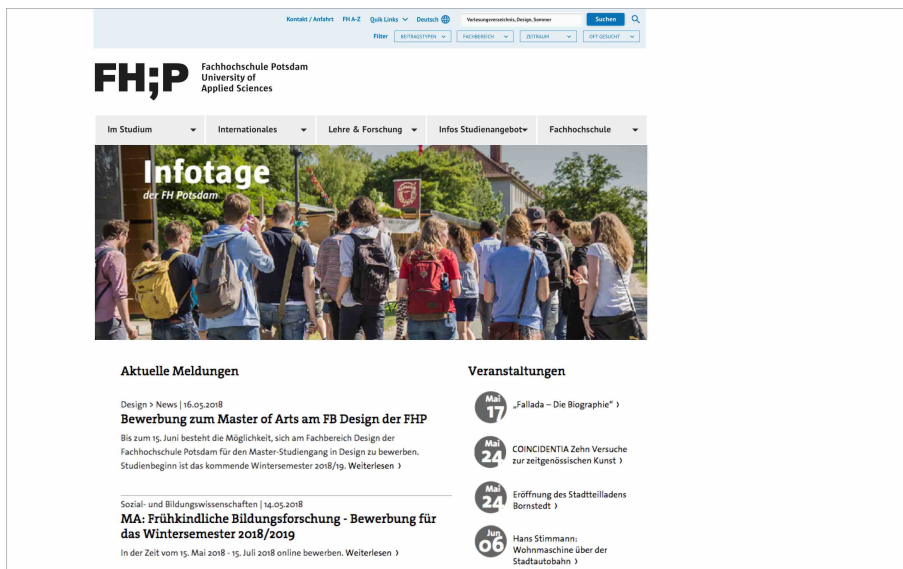
Informative Header and Footer

Besides the main menu, header and footer elements of Fhp webpage convey essential information for navigation matters, too. Considering the overall usability, I think it is necessary that these elements be also effective, usable and organised.

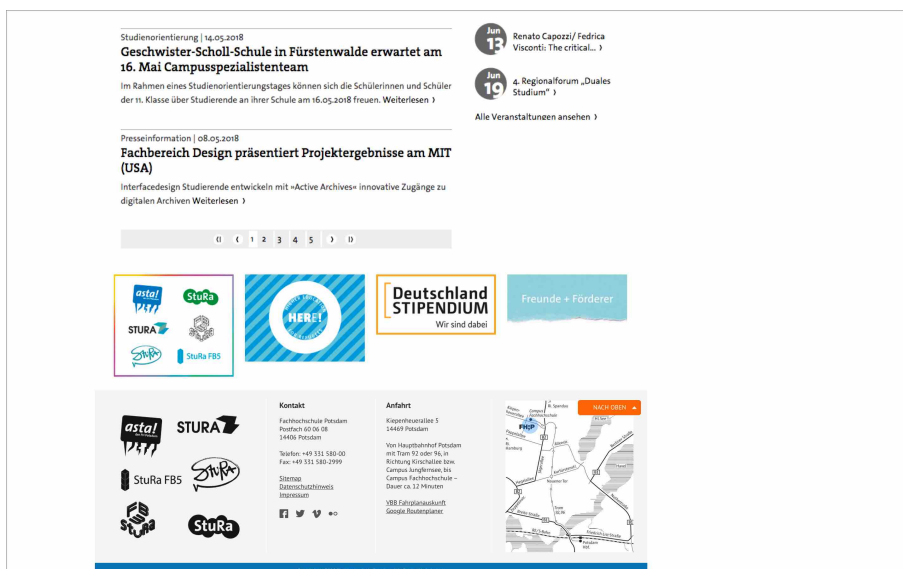
Head Bar Elements

Regarding the head bar, I reduced the elements and developed a more effective search function. The new header design contains the elements: Language selection button, search box element, contact and index page links.

From my perspective, it is very convenient for users to have an overview page – like sitemap or index page of the website's content. Whether it is a page with lists divided into categories (sitemap) or lists sorted alphabetically (index). These lists are small elements that often go unnoticed developing a website, but are occasionally useful to someone. During my analysis, I missed the benefits of a sitemap (and index page) very much, because it tells a user precisely what pages and information can be found on the website, and provide quick access to those pages. Therefore providing sitemap and index page of Fhp website in the header (or footer) would improve its usability a lot.



Search Box in Interaction With Filter Function



New Footer Design Concept

Search Box Design

Search is central for complex websites with information for different stakeholders. The new search box design includes a more significant glass icon to make it easier noticeable. I added a search button because it helps people recognise that there's an additional step to trigger the search action - even if they decide to do this by pressing Enter. The input field has been enlarged too, by the cause of a study. [21] Smashing Magazine; Dmitry Fadeyev (2009, September 24) A rule of thumb is to have a 27-characters text input (it would accommodate 90% of queries). [34] UX Booth; Nick Babich (2017, May 2) Additionally, I think sample words in the search field are helpful to suggest what queries can be used. Finally, the idea of filters and examples for frequently used queries makes searching more efficient and effective for users. For these reasons, I developed a more effective search box design in the header.

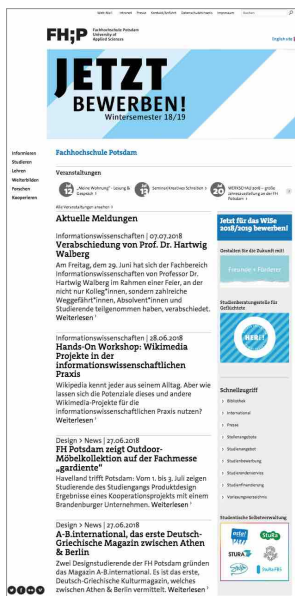
Footer Elements

The following discussing regards the footer look and elements. In the new design concept, the footer area has a light grey background to make sure, that the content area is separated. It is reduced to the primary elements: Contact information, a street map, links of public transportation services and Fhp sitemap, logos of student councils, button up and obligatory requirements like copyright, imprint and privacy statement links.

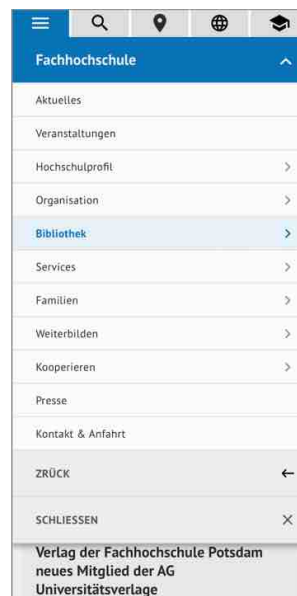
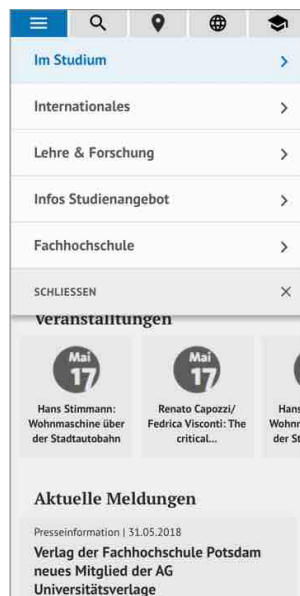
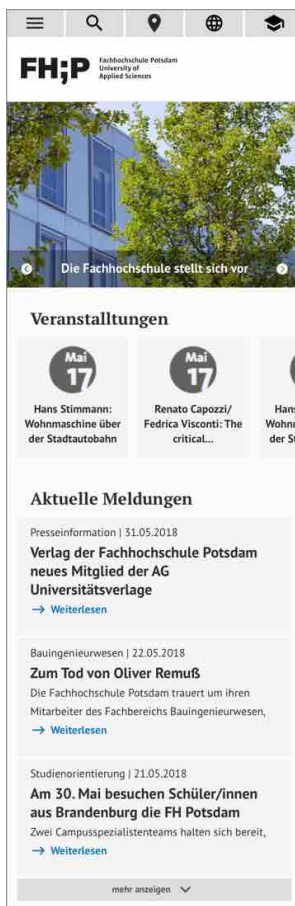
Usually, when people are looking for contact and address information of an institution, they often scroll to the footer. Putting pieces of information there is a convenient service for Fhp's stakeholders. Additionally, route directions, city map and links to public transportation make it even more accessible to navigate to the campus. I had wished to get more rapid access to AStA and Design StRa site during my studies. Therefore, I placed the logos as a feature item in the new footer.

Another useful new element in footers is the »back to top« button. When a user scrolls down to find information in the footer, it will cost them time to scroll up to the header part. A »back to top« button saves them time and is in my perspective one of those small details that go a long way in enhancing usability. Finally, as already stated, the added link of the sitemap page onside is very important from my point of view.

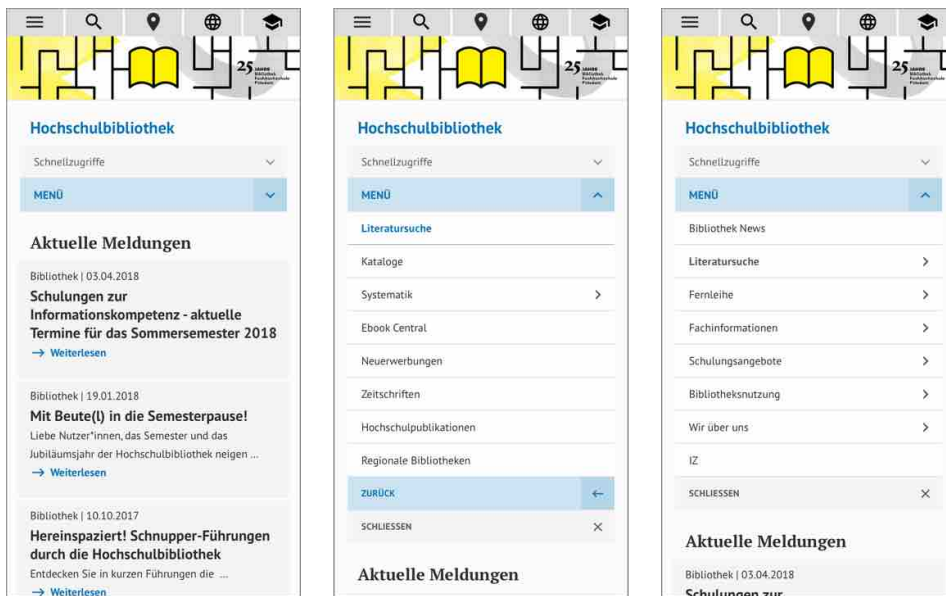
Responsive Navigation Design



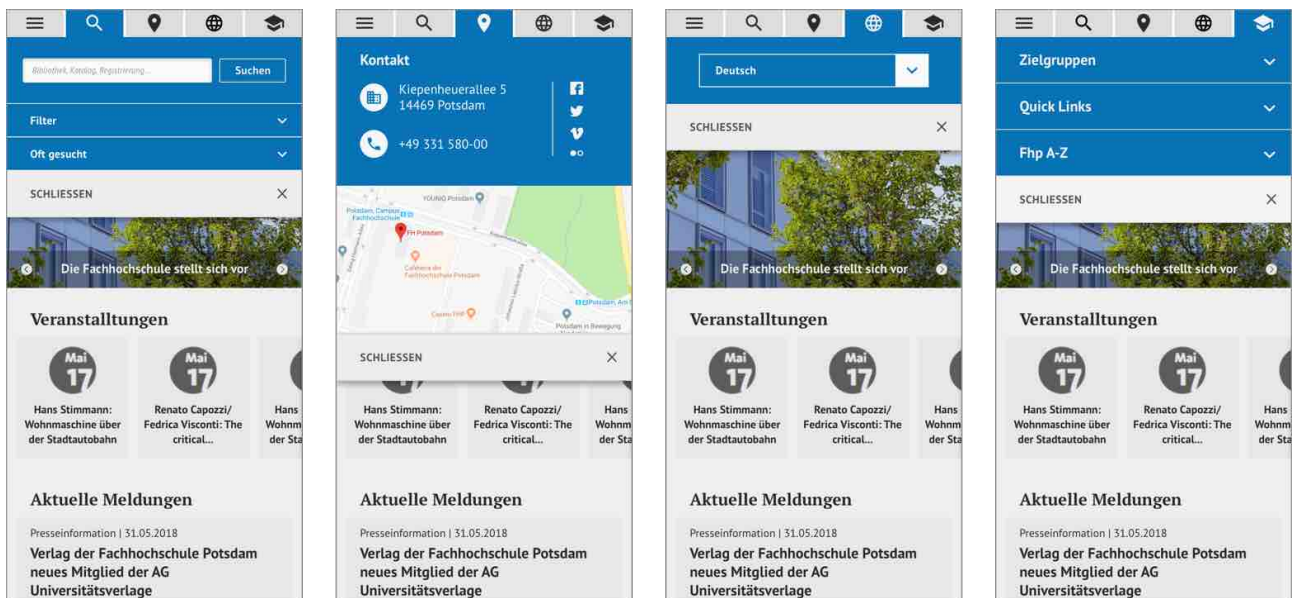
Current View of Fhp Homepage With Mobile Phone (July 2018)



Redesign of Fhp Homepage and New Menu Concept for Mobile Devices (320x640px)



Navigation Concept for Category Page on Mobile Devices (Example of Fhp Library Page)



Head Bar Navigation Elements

B. Navigation Optimisation Focus

In the second phase of the design process, I focussed on the menu design and its information architecture (AI) with its several items and structure, to come up with a new navigation concept. In my perspective, the key to an effective navigation menu is to keep it simple. The website of Fhp university is very complex with its many content categories and different pages, which need to link together. Further, not every stakeholder is familiar with its terminology and organisation (especially interested and new students). Therefore, the optimisation of navigation was the most tricky part of your whole design.

The design process started by grouping content items and defining new categories for the design department, from my developed persona. Next stage considered the whole IA of Fhp website. The projects' goal was to come up with a new concept that focusses on students needs, interests and mental schemata.

It is important to state, that for both stages the same UX techniques have been used. I started with the design department because it was easier to focus on a smaller scope (design department) of a project fist. After I had got familiar with the project's requirements, I focused on the whole IA of Fhp navigation.

Design Department Navigation

At first, I documented the information architecture (IA) and hierarchy of the design department navigation with screenshots and structured its items and subitems in a list. After that, I worked with the UX technique card sorting to figure out a new menu structure.

Öffentlichkeit	Organisation	Studium	Studiengänge	Personen	Werkstätten	Incom	Forschung und Transfer	Projekte
Interfacedesign	Kommunikationsdesign	Produktdesign	Design MA	Europäische Medienwissenschaft BA	Europäische Medienwissenschaft MA			
Profil Interfacedesign	Fachgebiete	Forschung	Berufsbild	Studienverlauf	Fragen zum Interfacedesign	Projekte		

Screenshot of Current Design Department Menu (May 2018)

ÖFFENTLICHKEIT	ORGANISATION	STUDIUM	STUDIENGÄNGE	PERSONEN	WERKSTÄTTE	FORSCHUNG	PROJEKTE
News	Dekanat	Studienstruktur	Interfacedesign		6/1-17 360°-Lab	Forschungs- und Entwicklungsprojekte	
Termine	Fachbereichsrat	Bewerbung	Kommunikationsdesign		Buchbindewerkstatt	Interaction Design Lab	
Pressepiegel	Prüfungsausschuss	Studienberatung	Produktdesign		Buchdruckwerkstatt	Publikationen	
Auszeichnungen	Stura und Asta	Vorlesungsverzeichnis	Design MA		Computerlabore	ZeM	
Publikationen	Praktikumsbeauftragte	Studienordnung	Europäische Medienwissenschaften BA		Digitaler Modellbau		
Applaus	BAföG-Beauftragte	Praktikum	Europäische Medienwissenschaften MA		DTP, Digitaldruck, Colormangement		
Designhaus		Studientracks			Fotostudio und -labore		
Geschichte		Ausland			Holzwerkstatt		
Kontakt		FHP-Kolleg			Interface-Werkstatt		
					Materialdatenbank		
					Modellbau-, Lackier- und Metallwerkstatt		
					Modellierwerkstatt		

List of the Current Design Menu Items (May 2018)



Photo of Design Process Card Sorting

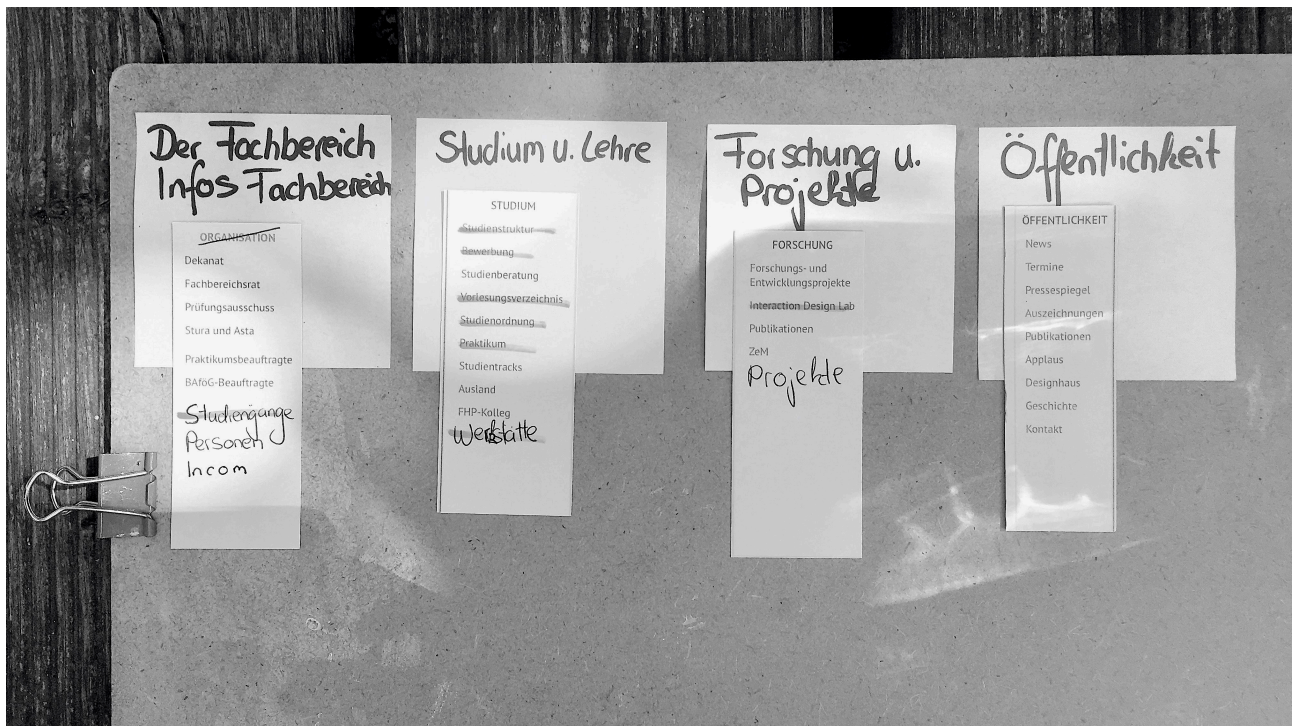
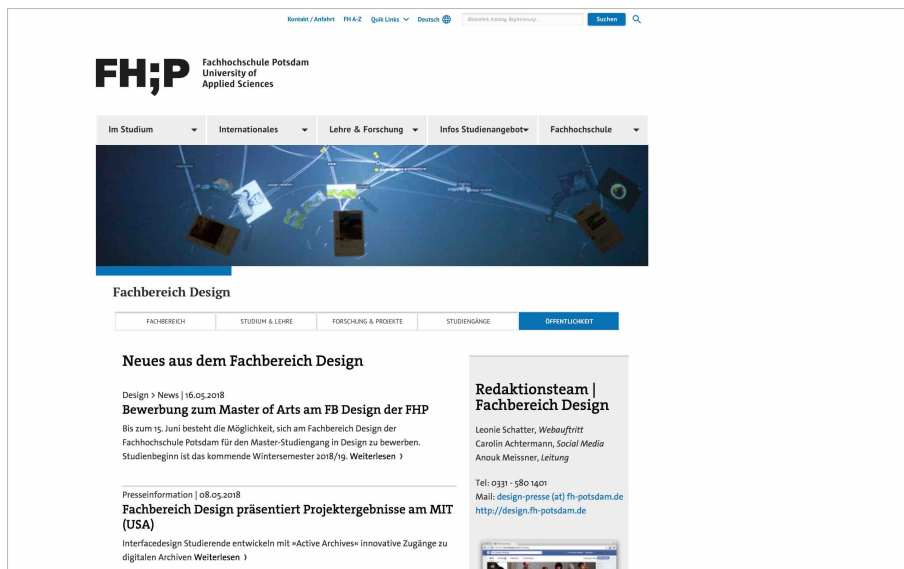
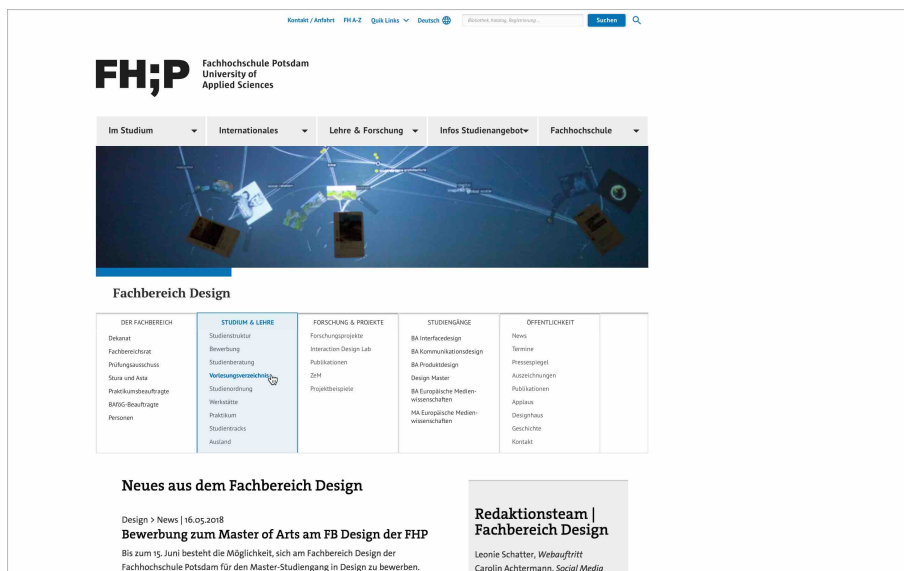


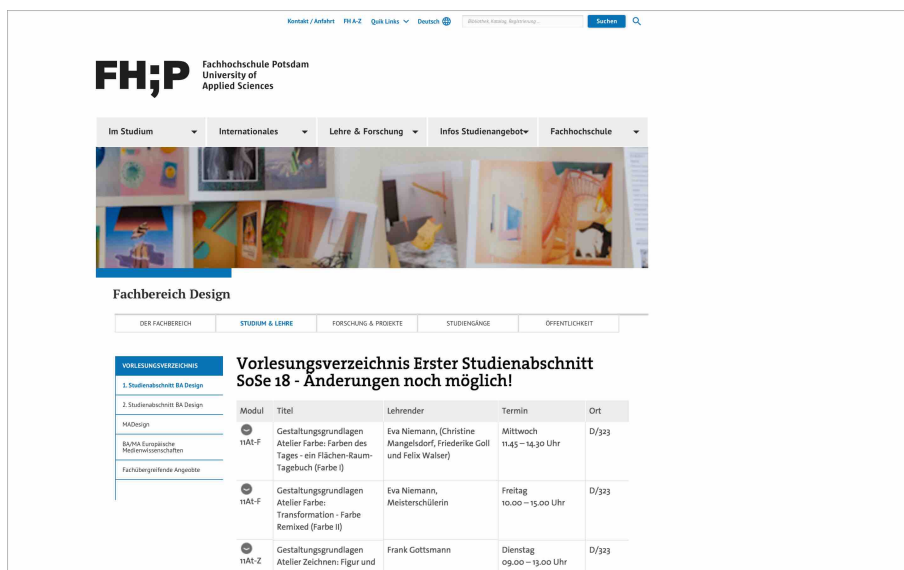
Photo of Developing New Navigation Structure of Design Department



Menu Redesign of Category Page (Example of Fhp Design Department Page)



Interaction Concept for of Category Page Menu



Sub Menu Design of a Category Page

One fundamental question was: How many categories should the main menu of design department have? Depending on the content and purpose of the page section, I decided to reduce the categories from nine to five main items. In my opinion, this minimalist presentation helps users quickly understand what's available and select the right section. Moreover, Kathryn Whitenton recommends in her article Top 3 IA Questions about Navigation Menus, that five categories are perfectly adequate to provide users with a good overview of the site, and quick access to all the different types of content. [20] Nielsen Norman Group; Kathryn Whitenton (2015, January 4)

Other questions were: What wording should the category labels have? And in what order should these categories be listed? Because wording plays an essential role in the effectiveness of the navigation menu, I chose a terminology that is simple and descriptive: Studium & Lehre, Der Fachbereich, Forschung & Projekte, Öffentlichkeit.

Base on students' interests, I placed the most relevant menu option Studium & Lehre first and ordered less used items afterwards.

My design solutions about category number, wording and order are to be understood as a proposal. In my perspective, only a user survey can answer these three questions final.

To keep the navigation system consistency, I established the same interaction behaviour for the design department menu, as the already discussed main navigation. After clicking on a subitem of one main category, users currently land on the first article of this subcategory. For that instance, Jakob Nielsen advocates implementing category landing pages that merely offer links directly to individual pages within a section. [16] Nielsen Norman Group; Jakob Nielsen (2008, April 28)

I think this additional page costs the users an extra click and page loading time. It might be redundant when the submenu is displayed on side that hat gives users a section overview. To offer a solution that is bests for the users, I consider a usability test is necessary in this particular case.

However, the current submenu design has problems regarding its usability. All sub items are complicated to read because they are aligned horizontally in a row under the row of the main categories. In my perspective, that alignment displays more block element than separate items. Therefore, I developed a different submenu concept from Jakob Nielsen's study about the scannability of navigation menus [16] Nielsen Norman Group; Jakob Nielsen (2008, April 28). In my new design of a submenu page, the menu items are left-aligned in a list and much easier to scan for the users.

IA Concept of Fhp Navigation

The new universal menu concept was developed with the same approach, as the submenu of the design department described in the paragraph above. The concept and design decisions based on students interests. To figure out what is the best number of categories, the wording of labels and order of items, I asked the same questions during the process.

The Fhp website has a complex structure of many pages about several contents. My approach to developing a new navigation concept and IA hierarchy based on categorising its pages into groups and distinct subgroups. In the process, I asked the same questions (like for the design department's submenu as previously described), to figure out the best number of categories, the wording of label and order of items. All design decisions based on students interests.

The result is a new navigation concept and adapted IA hierarchy for the content of Fhp website. I used a dendrogram (tree diagram) to illustrate the arrangement of the cluster for the new IA structure.

Organisation im Studium	Internatio- -nals	Lehre u. Forschung	Infos zum Studienangebot	FH stellt sich vor
1. Aktuelles 2. Studienverlauf 3. Lehrangebote 4. Semesterzeitpläne 5. Prüfungs-Service 6. Beratung 7. Alumni 8. Campusleben 9. Campus. Karte 10. Job und Praktikums- börse 11. Bibliothek	1. Ins Ausland 2. An die FH P 3. Infos für Geflüchtete 4. Internationales Profil 5. Partnerhoch- schulen 6. Erfahrungs- berichte	1. Aktuelles 2. Forschungs- profil 3. Urbane Zukunft 4. Institute / Labore 5. Projekte 6. Forschungsli- pendien 7. Forschungs- service 8. Digitale Lehre 9. Flex 10. Tag d Lehre 11. Hochschuldidakti- sche Weiterbildung	1. Studienangebot 2. Bewerbung 3. Studienberatung 4. Fachbereiche *5. Services	1. Aktuelles 2. Veranstaltungen 3. Profil 4. Organisation *5. Services 6. Presse 7. Kontakt 8. Weiterbilden 9. Kooperieren *10. Fachbereiche

Sketch of Main Menu Items for Developing a New Navigation Structure of Fhp Website

	1st	2nd	3rd	4th	5th
Informieren					
Studieren					
Lehre					
Weiterbilden					
Forschen					
Kooperieren					

Color Matrix of Current Fhp IA Structure

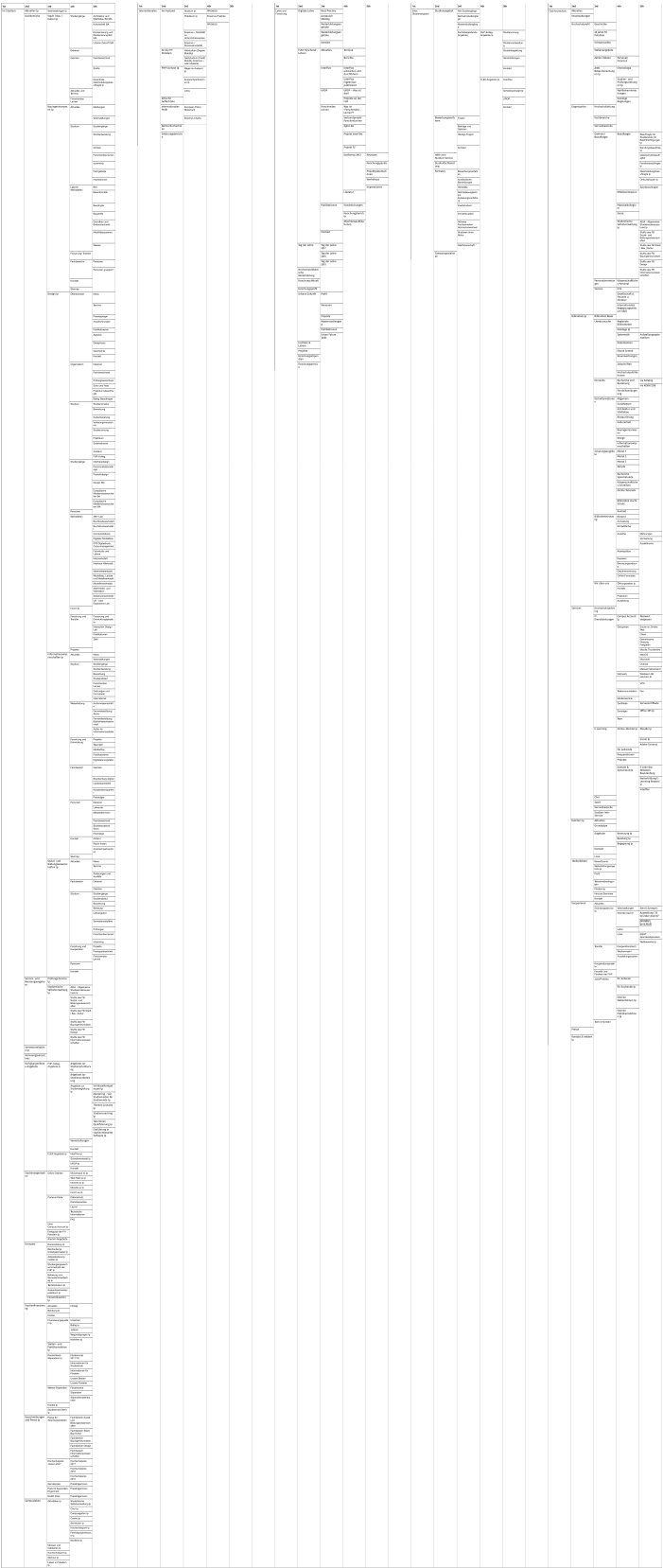
IM STUDIUM	INTERNATIONALES	LEHRE & FORSCHUNG	INFOS STUDIENANGEBOT	FACHHOCHSCHULE
Aktuelles	Ins Ausland	Digitale Lehre	Studienangebot	Aktuelles
Fachbereiche	An die FH Potsdam	FLEX Forschend Lehren	Bewerbungsverfahren	Veranstaltungen
Service- und Beratungsangebote	FHP Connect	Tag der Lehre	Hilfe vom Studien-Service	Hochschulprofil
Semesterzeitpläne	Infos für Geflüchtete	Hochschuldidaktische Weiterbildung	Studienfachberatung	Organisation
Vorlesungsverzeichnis	Internationales Profil	Forschung Aktuell	Formales	Bibliothek
Fachübergreifende Angebote	Partnerhochschulen	Forschungsprofil	Campuspezialisten	Services
Studienorganisation	Erfahrungsberichte	Urbane Zukunft		Familien
Studienfinanzierung		Institute & Labore		Weiterbilden
Formales		Projekte		Kooperieren
Ausschreibungen und Preise		Forschungsstipendien		Presse
Campusleben		Forschungsservice		Kontakt & Anfahrt

Sketch of Main Menu Items for Developing a New Navigation Structure of Fhp Website

The first table above displays a color matrix that based on the current IA of the Fhp website. The second table below shows the new main menu categories and its subitems. I used colors to make the changes of the menu design transparent and comprehensible. So, the colors of the menu items mark their origins.

Visualization of New IA Structure

The first column (on the left side) of each dendrogram, represents the main category of the menu structure, and the remaining columns represent the cluster to which the subcategories belong. To shows their connections, the particular pages are linked with lines.



Dendrogram of New IA Structure of Fhp Website

C. The Navigation Dilemma

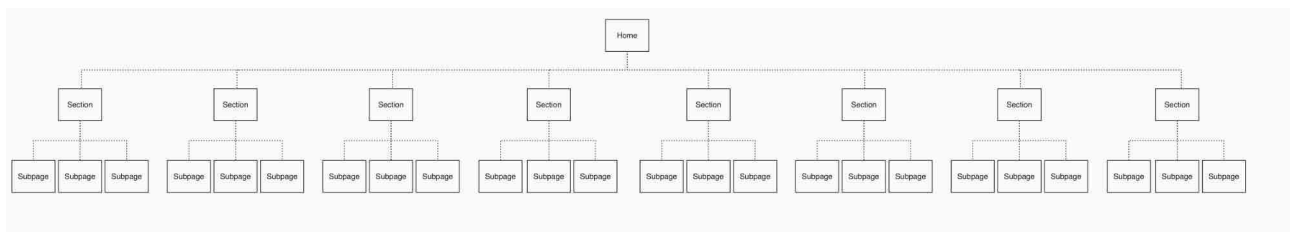
Ideally, the fewer menu levels people need to click through, the quicker and least confusing it should be for them to access what they want. However, the Fhp website's information architecture is complex and often non-transparent. In my analysis phase, I determined its hierarchy has until five numbers of levels, what makes content less accessible for users.

Kathryn Whitenton describes, in the article *Flat vs Deep Website Hierarchies*, the coherence of sites' hierarchy and accessibility. She says: »The deeper a hierarchy becomes, the more likely visitors are to become disoriented.« [19] Nielsen Norman Group; Kathryn Whitenton (2013, November 10)

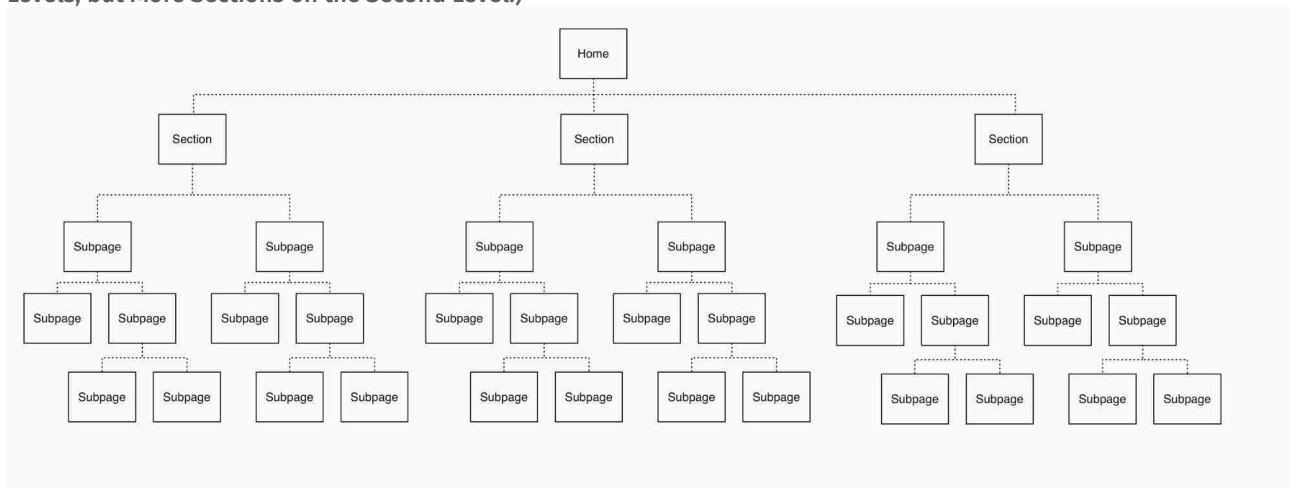
To solve this problem, Stephanie Lin recommends in the article *The Rules for Modern Navigation*, to strive for a flat navigation concept, where users can access the deepest nested page in the site within one to two clicks. [33] UX Booth; Stephanie Lin (2017, January 31)

The dilemma limiting the number of hierarchy levels increases the number of category sections what influences the usability also. On the one hand menus with many categories, sections are less easy to scan, although menus with many hierarchy levels are less accessible for users. So the Fhp menu needs to be short enough to scan, but long enough to be clear.

The graphics below might help to understand the problems described above. The first example represents a flat navigation structure with few vertical levels but several main categories. In comparison, the graphic illustrates a deep hierarchy with more vertical sub-levels but less main categories. Although both structures represent the same amount of information and show how the content of a website organised, the end user's experience of browsing these two hierarchies will be very different.



[65] Graphic: the Rules for Modern Navigation: Flat Hierarchy (Example of a Flat Hierarchy With Only Three Vertical Levels, but More Sections on the Second Level.)



[64] Graphic: the Rules for Modern Navigation: Deep Hierarchy (Example of a Deep Hierarchy With Up to 5 Vertical Levels, but Fewer Sections on the Second Level.)

In the situation of the Fhp page's content, there are too many categories to show them all at one level. By tackling those difficulties, I developed the concept of a second navigation system based on the stakeholder perspectives, besides the universal main menu.

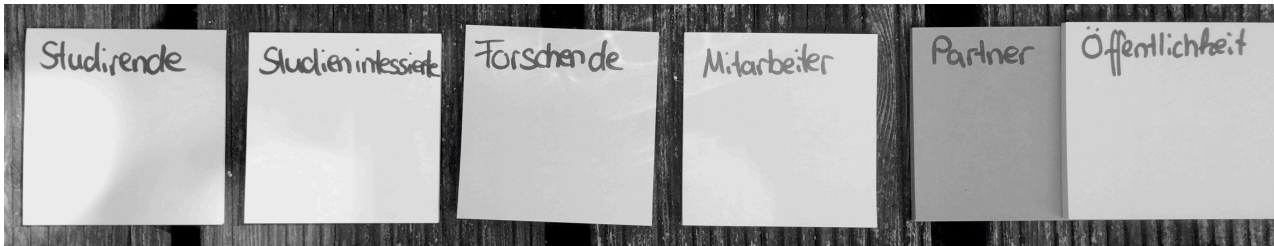
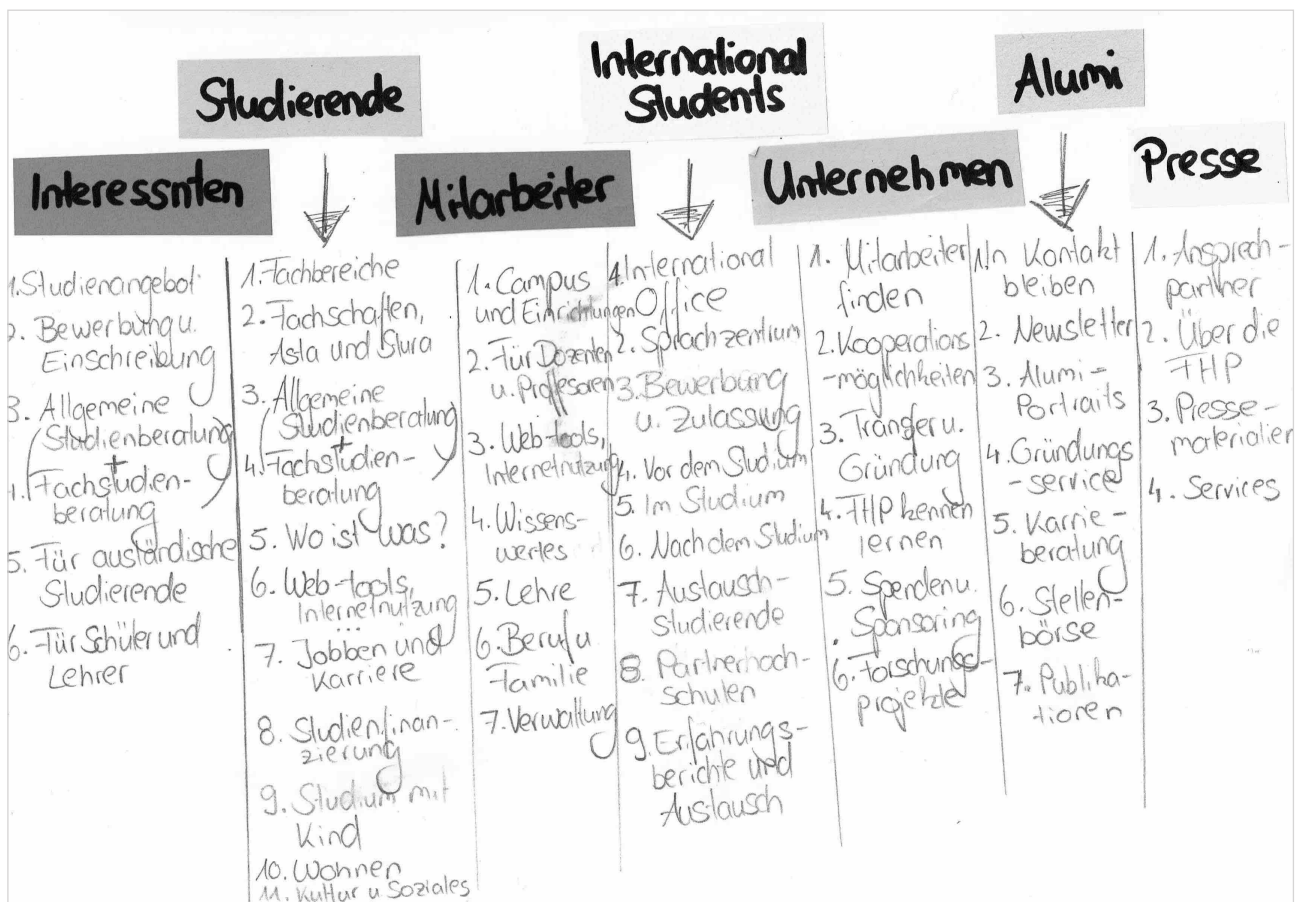


Photo of Developing Process Stakeholder Navigation



Sketch of Concept for Stakeholder Landing Page

Target Group Navigation

For the project, I focussed on the target group students and their most important objectives on Fhp website. Therefore, the design concept is limited for this stakeholder group and serves as an example for the whole navigation system. It includes an outline of the main categories (topic pools) with their subitems, navigation hierarchy tree, and wireframes of the landing page.

The idea is to offer users an alternative navigation structure beside the main menu navigation. This navigation system based on several landing pages with a flat hierarchy, which guide the users to their objectives onsite. These particular pages are designed from the perspective of a specific target group, like students, and based on the principle of reduced options for navigation. Therefore it displays only menu items, which are relevant for the target group the user belongs to. For example, students are less interested in standards for research proposals, than information about Bafög requests.

The labels for pool categories and subitems consist of describing text when it is necessary for intelligibility reasons. This decision should provide that the wording is to abstract and not understandable for the users. For example, instead of the label »IT & Web Services« it is better to use »Help for IT and Web Services problems« when the topic pool is about helping people for specific problems and not only about links for these service pages.

Moreover, if an item fits in more than one category, the landing page structure can include multiple parents for that item to avoid losing users.

It is important to note, that pool item of landing page works as an access point to the current page content. The interface design of the website will not be different, as with navigation by the main menu. Therefore, the landing page navigation does not limit users, to dive into deeper levels of website hierarchy, after clicking on subitem. Best case users are directed to their object immediately, without clicking through several menu levels. Otherwise, they navigate to an intersection point of the field about their request.

Fachbereiche	Plattformen zur Studiumsverwaltung	Dokumente	Oft kontaktierte Organe	Wo ist was? Ort, Lage und Öffnungszeiten	Studienorganisation und Formales	Services- und Beratungsangebote	Campus Leben
STADT BAU KULTUR	MyCampus	Lageplan FH Potsdam (PDF)	Allgemeine Studienberatung Sabine Golditz	Kontakt- und Anfahrtsbeschreibung	Amtliche Bekanntmachungen	Prüfungs-Service	Aktuelle Veranstaltungen
Bauingenieurwesen	Web-Mail	FHP Campusplan (PDF)	Hochschulbibliothek +49 331 580 2211 Öffnungszeiten Vorlesungszeit	Lage- und Campusplan	Semesterzeitpläne	Studentische Selbstverwaltungen (Asta und StuRa)	Hochschule
Design	Intranet	Semesterbeurlaubung (PDF)	Prüfungs-Service Marion Hardel Telefon	Bibliothekskatalog	Vorlesungsverzeichnis	Beratung zu Fragen der Studienfinanzierung	Mensa
Informationswissenschaften	Moodle	Rückerstattung des Semesterticketbeitrags (PDF)	ASta Büros befinden sich im Haus 17 +49 331 580 1008	Hochschulbibliothek (Öffnungszeiten und Lage)	Rückmeldung	International Office und FHP Connect	Ausschüsse und Projekte
Sozial-/ Bildungswissenschaften	Incom	Angebote FHP-Kolleg auf einen Blick (PDF)		Mensa Öffnungszeiten	Studien- und Prüfungsordnungen	Gleichstellungsbeauftragte	Aktivitäten Studenten
				Cafeteria Öffnungszeiten	Urlaubssemester beantragen	Familienbeauftragte und FAMteam	Wie kann ich einen Wohnplatz bekommen?
				ASta Büro (Lage, Sprechzeiten und Sitzungen)	Befreiung vom Semesterticketbeitrag	Beauftragte für Studierende mit Beeinträchtigungen	Wohnplatz Studierende Potsdam
				Übersicht der Studierendenräte (StuRa)	Adressänderung melden	Hilfe bei Konflikten von unseren Ombudspersonen	Online-WG-Su
				Studentenwerk Potsdam Öffnungszeiten und Sprechzeiten	Studiengangwechsel innerhalb der FHP	Psychotherapeutische Beratung	
				Standorte der Studentenwerk Potsdam	Teilzeitstudium	Schreibberatung und Schreibwerkstatt	
				Erstiguide der FH Potsdam	Exmatrikulation	Gründungsservice	

Table of Items for Target Group Landing Page for Students

Leben, Lernen und Wohnen	Soziale Aktivitäten und Kulturangebote	Fachübergreifende Angebote	Studienfinanzierung	Jobben und Gründungsfragen	Hilfe zu Auslandssemester und Praktikum	Hilfe bei IT-Fragen und online Diensten	Studium mit Kindern
Elles und Installationen	Projekte und Angebote des AStAs	FLEX Lernen durch eigene Forschung	Finanzierungsquellen (Unterhalt, BAföG oder Jobben)	FHP Stellen- und Praktikumsbörse	Infos zum Auslandsaufenthalt (Wege ins Ausland)	Anleitung zum Campus.Account	Familienfreundliche Hochschule
Schulbibliothek	FHP Chor	InterFlex Interdisziplinäre Lehrveranstaltung	Übersicht der Beratungsangebote	Studentenwerk Potsdam Jobbörse	Praktikum im Ausland	Häufige Fragen zur FH E-Mail	Beratungs- und Unterstützungsangeboten
a Speiseplan	Campusgarten	Offene FHP-Schreibwerkstatt	BAföG-Beratung	Externe Stellenbörsen	Studienaufenthalt im Ausland	Unterstützung bei Moodle, Incom und Adobe Connect	Betreuungsangebote für Kinder
Schreibungen Preise	Casino	UROP Einstieg in Forschung	Deutschland-Stipendium	Externe Praktikumsbörsen	AnsprechpartnerInnen	Einrichtung des Wireless LAN eduroam	Orte für Eltern mit Kinder an der Hochschule
itäten für Eltern	Hochschulmagazin Semikolon	FHP-Kolleg Studienbegleitung für Erstsemester	Förderwerke, Stipendien und Stipendiendatenbanken	Service bei Gründung und Selbstständigkeit	Befreiung vom Semesterticketbeitrag	Microsoft Office 365 WebApps kostenlos nutzen	Finanzielle Subventionen für studierende Eltern
omme ich an a Heimplatz?	Hochschulsport	Schlüsselkompetenzen	Liste von Wettbewerben				Linksammlung für studierende Eltern
anlagen des entenwerks lam	Fremdsprachenkurse	Mentoring von und für Studierende	Überblick Studienkredit und Kreditinstitute				
e-Portalen zur uche	nextbike	Themen Lectures	Fördermöglichkeiten für studierende Eltern				
	Leben in Potsdam	Studiencoaching	Vergünstigungen und Nothilfen				
		TutorInnen Qualifizierung	ISIC Vergünstigungen				
		Einführung in studienrelevante Software					
		Weitere Weiterbildungsangebote					



Aktuelle Meldungen

Design > News | 16.05.2018

Bewerbung zum Master of Arts am FB Design der FHP

Bis zum 15. Juni besteht die Möglichkeit, sich am Fachbereich Design der Fachhochschule Potsdam für den Master-Studiengang in Design zu bewerben. Studienbeginn ist das kommende Wintersemester 2018/19. Weiterlesen >

Sozial- und Bildungswissenschaften | 14.05.2018

MA: Frühkindliche Bildungsforschung - Bewerbung für das Wintersemester 2018/2019

In der Zeit vom 15. Mai 2018 - 15. Juli 2018 online bewerben. Weiterlesen >

Studienorientierung | 14.05.2018

Geschwister-Scholl-Schule in Fürstenwalde erwartet am 16. Mai Campusspezialistenteam

Im Rahmen eines Studienorientierungstages können sich die Schülerinnen und Schüler der 11. Klasse über Studierende an ihrer Schule am 16.05.2018 freuen. Weiterlesen >

Presseinformation | 08.05.2018

Fachbereich Design präsentiert Projektergebnisse am MIT (USA)

Interfacedesign Studierende entwickeln mit »Active Archives« innovative Zugänge zu digitalen Archiven Weiterlesen >

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Veranstaltungen

Mai 17 „Fallada – Die Biographie“ >

Mai 24 COINCIDENTIA Zehn Versuche zur zeitgenössischen Kunst >

Mai 24 Eröffnung des Stadteilladens Bornstedt >

Jun 06 Hans Stimmann: Wohnmaschine über der Stadtautobahn >

Jun 13 Renato Capozzi/ Fedrica Visconti: The critical... >

Jun 19 4. Regionalforum „Duales Studium“ >

Alle Veranstaltungen ansehen >



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14469 Potsdam

Von Hauptbahnhof Potsdam mit Tram
92 oder 96, in Richtung Kirschenallee
bzw. Campus Jungfernsee, bis Campus
Fachhochschule – Dauer ca. 12
Minuten

VBB Fahrplanauskunft
Google Routenplaner



Benefits of Stakeholder Landing Pages

The landing page navigation has seven major categories, which represents seven different target groups (stakeholders) of Fhp institution, but only two vertical levels underneath. The major categories of stakeholders are Studieninteressierte, Studierende, International Students, Alumni, Mitarbeiter, Unternehmen, Presse. The next levels are pools of specific topics of interests. These pools contain links for objectives - like questions, contact persons, services or other requests that the focus group is usually interested in. For example, students need quick access to the course or library catalogue, frequently have questions about examination times or are interested in news and events of their campus life.

In my perspective navigation by particular landing pages with a flat hierarchy will improve the usability of Fhp homepage. One significant user benefit is that its content will be more discoverable for users when it is not buried under multiple intervening layers. I have made the experience that some offerings and activities are so deeply rooted in the hierarchy of the website, that people will never make use of them.

If categories are ambiguous, locating items into multiple pools improves their findability. I think this option can provide much frustration for the users if researches have shown they associate different categories for one item.

Also, the landing pages only display topics that are relevant to their perspective of the stakeholder group. Therefore reduced content and navigation options will make the user experience more effective and efficient.

The subcategories (landing page pools) can be more specific and do not overlap what makes them easier to understand. Using more descriptive and colloquial terms can improve the intelligibility because labels will be less abstract for the users.

Due to that, they cover a more extensive range of particular objectives and requests, what makes the page also more usable. For providing that the users do not get overwhelmed with too many categories, the side has enough space for a graphic that illustrates the pools' topics.

D. Information Architecture Focus

The final part of my work is about the visualisation of the new navigation concept and information architecture (IA) of the Fhp homepage.

The two navigation systems represent different perspectives of the website. On the one hand, the main menu shows the public face of the university. This view is directed from the institution inside to the outside (public). In contrast, the landing page navigation shows the perspective of one stakeholder and his interests in the university services.

Both navigation systems (landing page and main menu navigation) base on the same IA structure of Fhp's homepage and have same interfaces of search results for the users, although their guiding paths are organised quite differently.

So, my visualisation intends to outline that both systems roots on the same data, but have different characteristics of navigation.

Visualization of Intersection Points

During the process, I was aware that decisions about exactly how content should be grouped, can have dramatic consequences for the usability. To figure out a new structure that is comprehensible and will work for users had been difficult at first glance. For that reason, I created a visualisation that shows how the different pages of a site relate to each other, as well as the intersection point of the new landing pages and main menu navigation.

For developing my graphic, I was inspired by tree diagrams, flowcharts and architecture data models. The factors that influenced my decision based on researches about data visualisations in the field of computer science and software engineering.

The visualisation displays the cluster and hierarchical (tree-structured) content of the Fhp homepage. Its concept bases the dendrogram that I developed previously (see chapter IA concept) for the new IA structure of the Fhp homepage.

Both graphics versions are designed with the same framework. Likewise, each branch of the tree diagram covers a content area, which is then segmented by smaller sections (sub-branches). Although both graphics have the same basic structure, this version has a different focus on data visualisation.

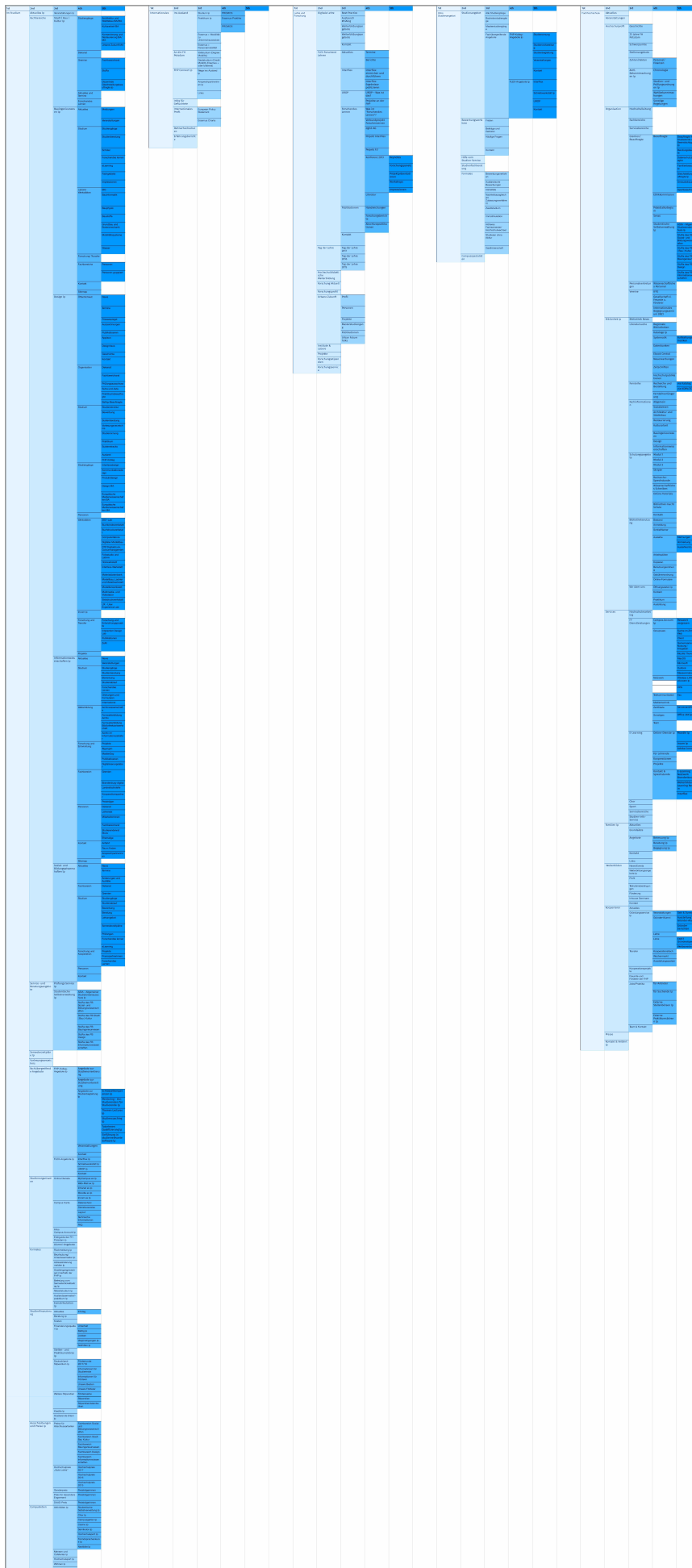
Through the use of colour, it shows the content size of each main category. For separating the levels of the IA hierarchy, the segment has a different saturation of a coloured. The deeper a particular subpage is nested in the IA structure, as darker is their colour.

Comparison of Main Menu and Landing Page Navigation

The two visualisations on the next pages outline the different perspectives of the main menu and landing page navigation. In contrast to the first graphic, the second graphic shows the amount of information which the user will not have to interact with by using landing page navigation. It demonstrates an example, how students could enter page content by intersection points and feel less overwhelmed onsite.

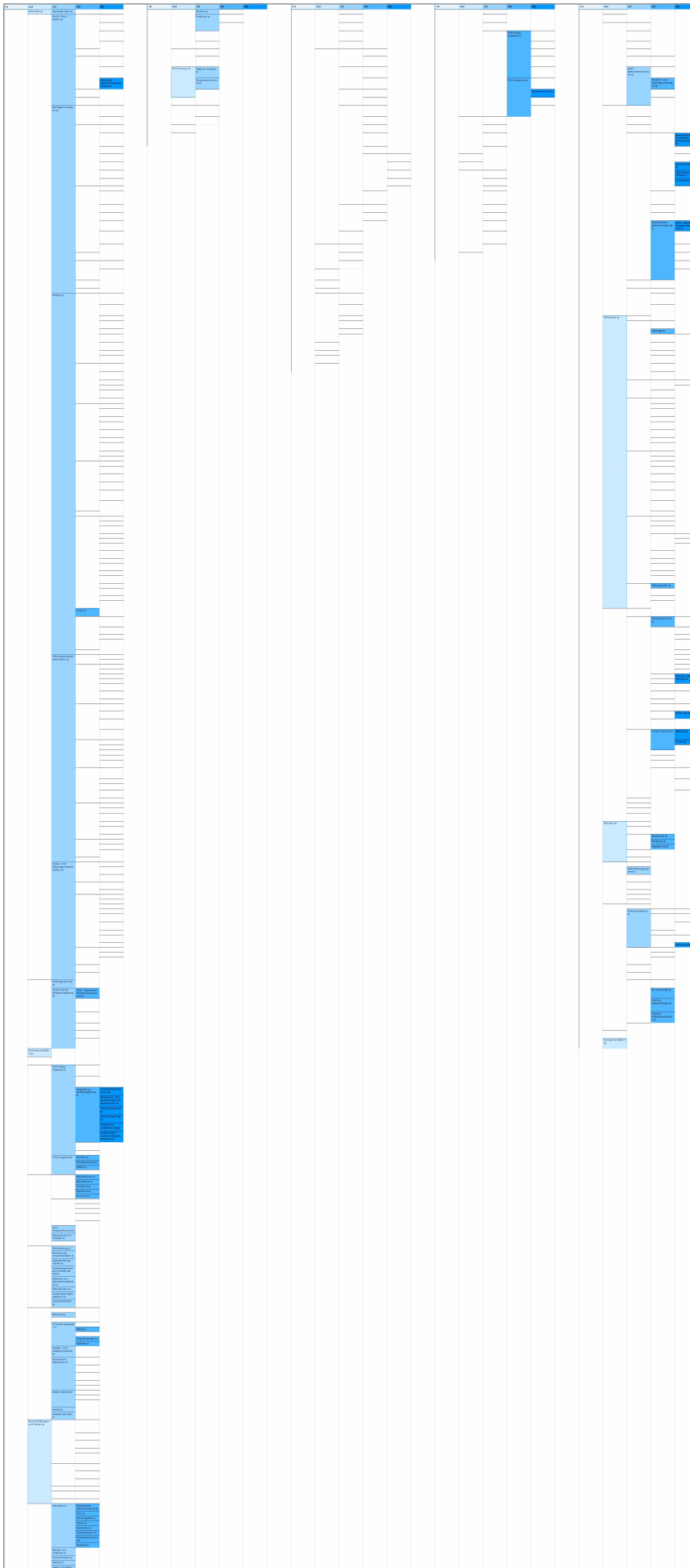
Further, the comparison of both graphics helps also to understand which informations are interesting for one particular stakeholder. In this example, the second visualisation demonstrate which areas the webpage content is most relevant for students.

Both graphics are necessary to visualise, how the new navigation concept works as an alternative interface by offering access to the same information onsite. It also shows that the students' landing page base on the same data and IA structure like current the navigation system.



Visualization of Main Menu Content With all Navigation Options

The first graphic represents the inside view of the institution. It shows all navigation options of the Fhp homepage, by covering the whole menu and its content.



Visualization of Student Landing Page Content With Reduced Navigation Options

The second graphic represents the outside view of the target group students. It displays reduced navigation options of the stakeholder landing page, by showing only relevant menu items and their regarding intersection points.

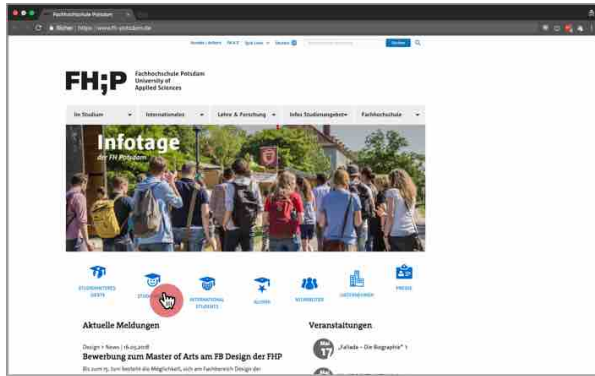
E. Comparison of New and Old Navigation

Finally, I need to demonstrate the consequences of the new design concept for my persona Julia. For that reason, the following visualisations compare the navigations of current web design with the new landing page for students. To make the example comprehensible, I used the discerned use cases.

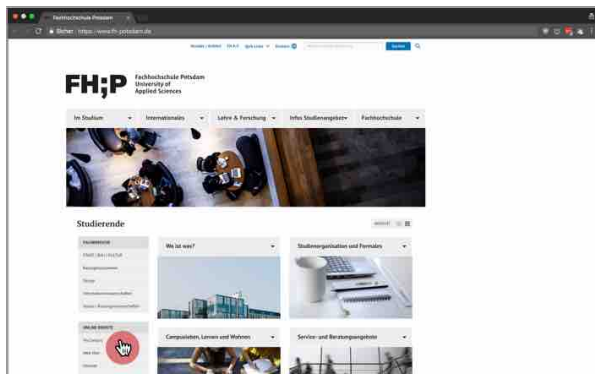
Use Case Certificate of Study

Regarding the first use case, the new landing page helps Julia to guiding more quickly and less frustration, because all extern online platforms are listed in one the topic pool Plattformen zur Studiumsverwaltung. The new interface reduced her number of navigating steps to the target page from 12 to 3 steps. It is important to note, that she needs to visit this particular page only once or twice a year. So, Julia did not recognise that My.Campus has a different domain than FHP homepage. Therefore, she needs condensed information about how and where she can download the certificate of study. The reduced interface landing page helps to make this information more findable and accessible.

New Navigation Flow



- 1



- 2



- 3

Reduction of 9 Navigation Steps

3 Steps

Current

1 -



2 -



3 -



4 -



5 -



6 -



7 -



8 -



9 -



10 -



11 -



12 -



12 Steps

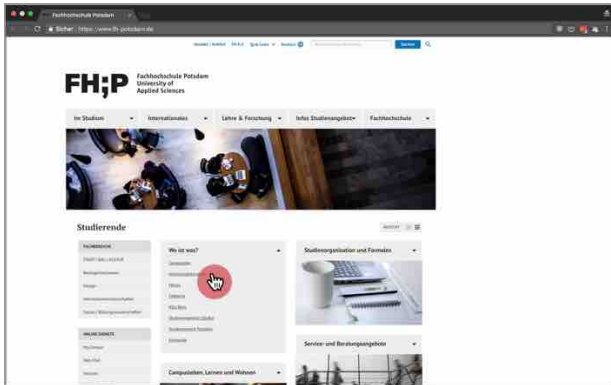
Comparison Current Vs New Navigation Flow (Form Fhp Start Page to My.Campus External Page)

Use Case Library Catalogue

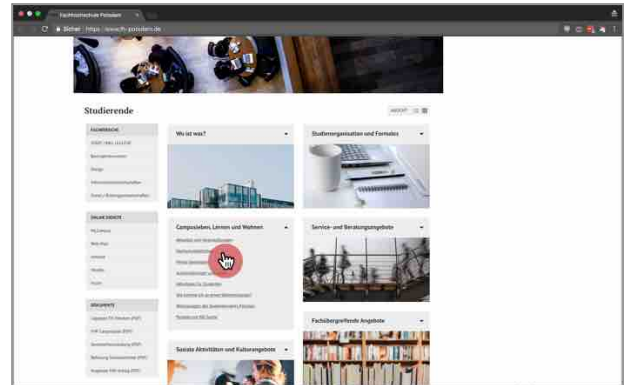
The second comparison demonstrates, how Julia benefits of the landing page navigation in the library use case. Similarly, as the first example exposes, the cause of this problem regards the location of the target page in the menu structure. In contrast to the old navigation flow, the students landing page offers Julia an interface which is more comprehensible for her, because it is optimised for students mental model. Therefore, Julia can find links to navigate to the library catalogue in the categories »Wo ist was?« and »Campusleben, Lernen und Wohnen«. These various places improve the findability of the library. Also, the section of the library is now located as subitem in the main category »Fachhochschule«. Placing this section one level up in the IA structure makes the library also more visible.

Multiple places of navigation links

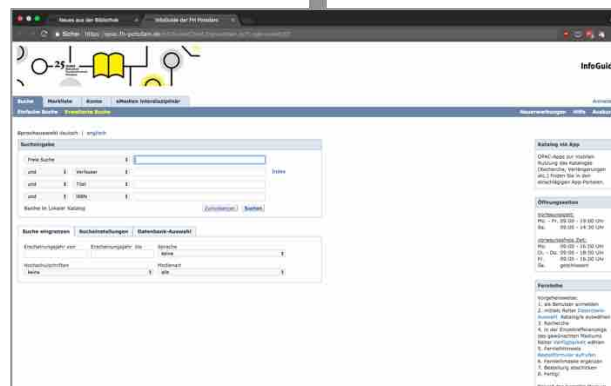
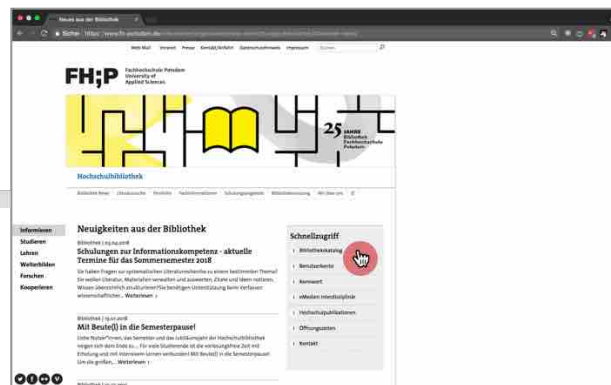
Location 1



Location 2



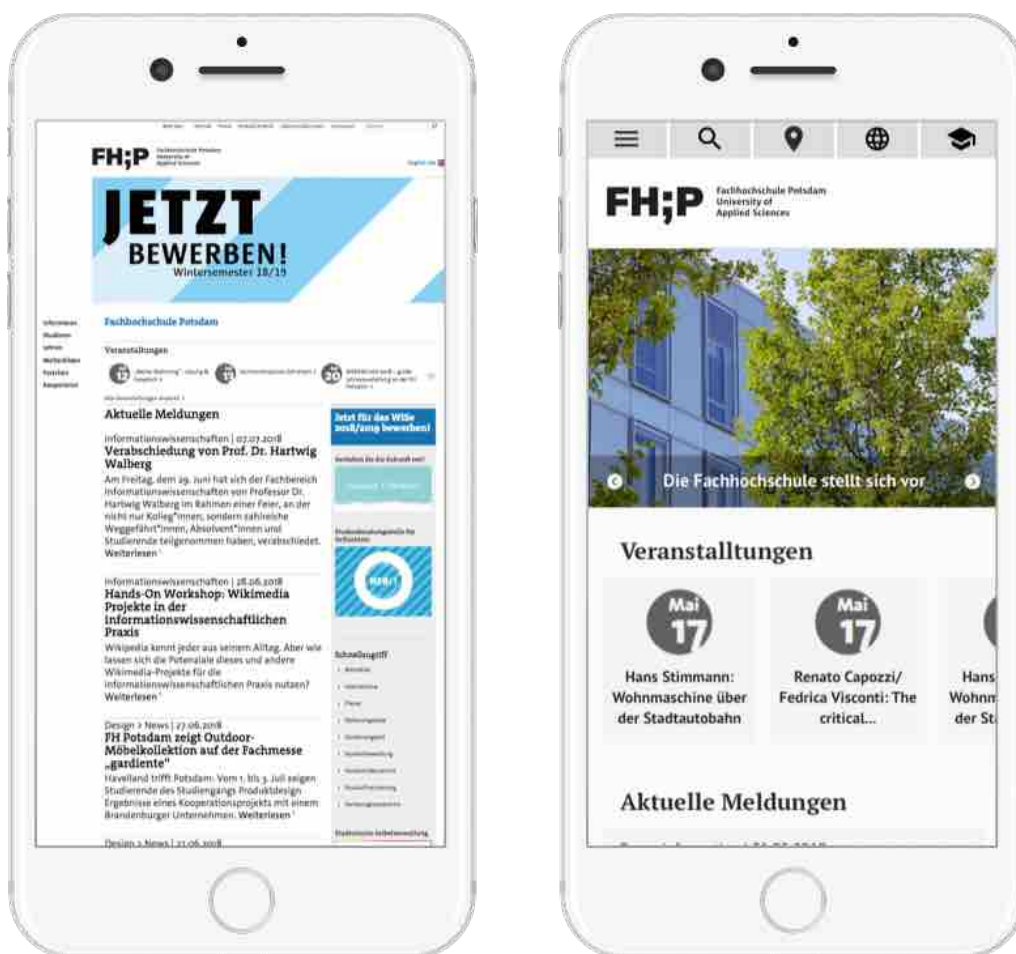
One destination



Example of Multiple Locations of One Navigation Item

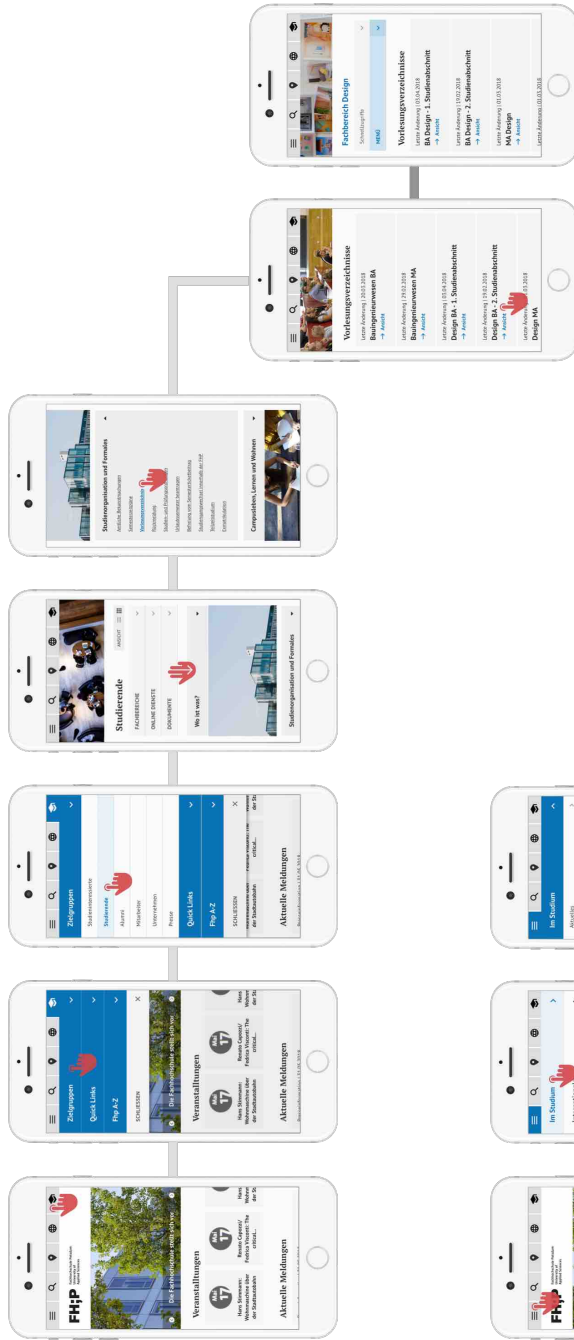
Use Case Course Catalogue

In the last use case, the new landing page and the responsive design of Fhp website make the Julias navigation more effective and efficient. Generally, the new interface of the main menu saves time and frustration for her. The implementation of a responsive version also has a very positive impact on her user experience, when she is looking for the course catalogue with a mobile phone. The visualisation shows the landing page can not limit her steps to navigate to the course catalogues. The main reason is that there are too many lists of the different department. In this particular case, I think the function of the general students landing page for students is not, to contain links for every specific field of study and their sections. Though, it can guide Julia more effective to the overview page, where all course catalogue of Fhp is listed. However, its interface needs to be more usable, especially for mobile navigation.



Comparison Current Mobile View Vs Responsive Design

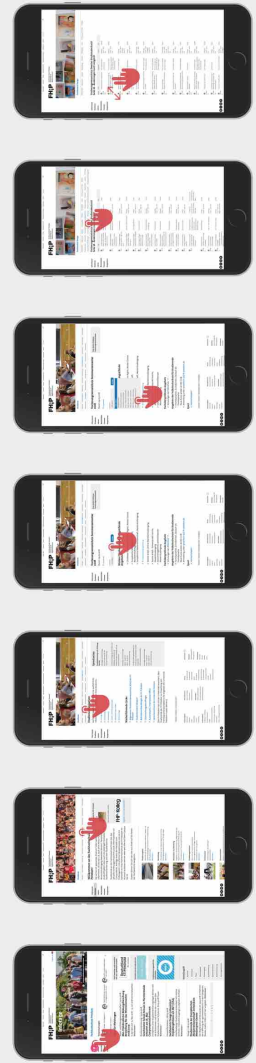
Responsive Navigation Design



Stakeholder Flow

Main Menu Flow

Current Navigation



Comparison Current Mobile Vs Responsive Design Navigation (Form Fhp Start Page to Design Course Catalogue)

VI. Conclusion

This bachelor thesis has examined »How can we improve the usability of the Fhp website by adjusting the navigation elements and the information architecture (IA) to the end that we optimise the user experience (UX)?« For this purpose, a new design concept of the page's content was developed, with focusing on its UX elements of navigation and AI.

A. Summary of Results

The results outline that the webpage has many usability issues which adversely affect the user experience. These problems are based on the user navigation design, the AI structure and that the web design is not responsive. For improving the user satisfaction, this project has developed a new interface for the main menu, submenus and other navigation elements - like the search bar and footer, an alternative landing page navigation besides the current navigation system, as well as adaption of the website's information architecture. Moreover, all design decision base on the previously developed persona Julia who represents Fhp's stakeholder group students.

After the problem analysis and description of the use cases: Certificate of study, the Library catalogue, Course catalogue, the design process was divided into three phases with different focuses. In the first phase, the primary objective was to design new interfaces for navigation elements. It included the inventions of removing the current hover menu, placing a new navigation bar instead of at the top (above the header image) and aligned its main items horizontal. It also involved the interactive look of the main menu, by adding icons and colour highlights and drop down interaction, as well as developing a more effective search tool, reducing the head bar and footer elements, and reconsidering their functions and essential content. Further, in this phase similar adjustments for the submenu elements was designed, as well as a responsive layout for navigation with mobile devices was developed to offer a holistically UX design concept. All modifications were visualised with design examples of screens.

The next process stage focused on the concept of navigation and its usability. Therefore, the primary objects were the navigation structure and its items, of the main menu as well as the submenu of the design department. As results their first level categories were reduced to five items, with a new list order, and got the following new labels: Im Studium, Internationales, Lehre & Forschung, Infos Studienangebot, Fachhochschule (for main menu); Studium & Lehre, Der Fachbereich, Forschung & Projekte, Öffentlichkeit (for submenu of design department). Besides that, the hierarchy, section levels and subitems of both menus were reorganised and with charts documented. To demonstrate these adjustments screens were designed.

Additionally, a dendrogram was developed to illustrate the new arrangement of the page's areas. This graphic shows that categories »Im Studium« and »Fachhochschule« contain the most content. Accordingly, it visualised the cluster of new IA structure with a five-level hierarchy. Due to the IA structure, it had been the navigation dilemma discussed. Central considerations were that deep level hierarchies and flat navigation structures had opposed advantages and disadvantages. Navigation concepts with high usability take both sides into account. The forward design decisions consider that argumentation.

Also, the idea to offer users of the Fhp's website an alternative navigation structure beside the main menu was introduced. This second navigation system based on several stakeholder landing pages with flat hierarchies, which guide the users efficient to their objectives onsite. Therefore, we grouped the stakeholders of Fhp's webpage into the following seven categories: Studierende, Interessenten, International Students, Alumni, Mitarbeiter, Unternehmen, Presse, and developed a landing page for the target group students (Studierende), as an example of the concept. The principle of this particular page was to offer its stakeholder a navigation interface with reduced options. So, we defined thirteen topic pools, which represent the objectives and needs of students onsite, and assigned the most relevant links of the webpage's content as subitems.

Then, the users' benefits of this navigation system were discussed. All arguments base on the project's goal to improve the usability of the Fhp homepage, like more effective and efficient navigation, or findability of specific items.

In the last process phase, the focus was on developing and visualisation to compare the new navigation concept with the IA structure of the Fhp homepage. This graphic demonstrated the intersection points of the students landing page of the website's content, and showed the reduced students' landing page perspective, in comparison with the internal view of the whole menu structure of the institution.

Further, three information graphics were designed to outline the optimised navigation flow based on the new navigation concept. As a reference, we described the improved user experience of Julia (persona) in the use cases.

B. Review and Reflexion

The landing page navigation based on the theory that each user will know what stakeholder group he belongs to and will only need the features targeted at this segment. So, it is suggestive to think organising Fhps web pages' content by stakeholder groups would be easier for the users. The function of the landing page is to help users navigate more efficiently and effectively by anticipating each group's needs and sending them down to their particular site. Despite the described advantages, role-based navigation systems can cause usability issues too. One problem can be, that forcing people to self-identify creates an additional step and takes people out of their task mindset. This question increases users' cognitive effort, and people have not even made it past the navigation yet. Additionally, users can ask whether the category will have information about that group or for that group. For example, the link Studierende might lead to an expectation to see information about the students who study at the university, rather than to think specific information for student members, because the label alone can't tell what to expect.

Besides that, they can feel anxious that the information they see might be incomplete or incorrect. Therefore, usability tests are necessary to learn more about the user's experience (way of thinking, needs and feelings) by asking them what they expect from stakeholder categories.

However, even if the landing page navigation based on the best user researches, the page is always developed for the average user and can not fulfil the individual needs of everyone. This matter regards the whole User experience from the Fhp's homepage, from IA structure up to the visual navigation design. The website will never be perfect. There is ever potential for improving its usability. All in all, periodically user test are essential to know what needs to be optimised and the first step to enhance the whole user experience.

C. Concluding Remarks and Outlook

The key to a useful navigation menu is to keep it simple. No matter how many content categories an IA structure has and how many pages need to link together. Therefore, simplicity might be the most important usability guideline for further developments of the Fhp's homepage. The fewer design features the page contains, the less cognitive effort the users has to do for scanning and comprehending the content, and the better the chances that they will choose the correct option for navigation inside.

Attempting to impress the users with cool effects should not be the priorities for designing new interface elements for the website. Other designers may be impressed by extraordinarily design implementations, but the most users will be far more pleased by content that is findable and easy to use (usable). For guaranteeing the best UX design of the Fhp's website, it is essential to consider theoretical principles with UX research that proves whether the design concept works for its target audience.

Last of all »There is a lot that goes into perfecting navigation design and getting it right means it usually has to go unnoticed. By aligning the user goals, content strategy and navigation design, UX designers can create a cohesive and consistent user experience that users will love.«

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VIII.Appendix

Project Dokumentation

<https://fhp.incom.org/project/10292>

Eidesstattliche Erklärung

Hiermit versichere ich, Wiebke Klöpping an Eides statt, dass ich die vorliegende Bachelorarbeit mit dem Titel „xxx“ selbständig und ohne fremde Hilfe verfasst und keine anderen als die angegebenen Hilfsmittel benutzt habe. Die Stellen der Arbeit, die dem Wortlaut oder dem Sinne nach anderen Werken entnommen wurden, sind in jedem Fall unter Angabe der Quelle kenntlich gemacht. Die Arbeit ist noch nicht veröffentlicht oder in anderer Form als Prüfungsleistung vorgelegt worden. Ich habe die Bedeutung der eidesstattlichen Versicherung und die prüfungsrechtlichen Folgen (§ 14 der Prüfungsordnung 219b ABK Design PO) sowie die strafrechtlichen Folgen einer unrichtigen oder unvollständigen eidesstattlichen Versicherung zur Kenntnis genommen.

Potsdam 14.07.2018

Ort, Datum

Unterschrift

1st	2nd	3rd	4th	5th		
Im Studium	Aktuelles Ip	Veranstaltungen Ip				
	Fachbereiche	Stadt Bau Kultur Ip	Studiengänge	Architektur und Städtebau BA/MA		
				Kulturarbeit BA		
				Konservierung und Restaurierung BA/MA		
				Urbane Zukunft MA		
			Dekanat			
			Gremien	Fachbereichsrat		
				StuRa		
				Dezentrale Gleichstellungsbeauftragte Ip		
			Aktuelles und Termine			
			Forschendes Lernen			
			Bauingenieurwesen Ip		Aktuelles	Meldungen
					Veranstaltungen	
					Studium	Studiengänge
						Studienberatung
						Schüler
						Forschendes lernen
						eLearning
	Fachgebiete					
	Impressionen					
	Labore/ Werkstätten	BKI				
		Bauinformatik				
		Bauphysik				
		Baustoffe				
		Grundbau und Bodenmechanik				
	Mobilitätssysteme					
		Wasser				
	Forschung/ Transfer					
	Fachbereiche	Personen				
		Personen gruppiert				
	Kontakt					
	Sitemap					
	Design Ip		Öffentlichkeit	News		
				Termine		
				Pressespiegel		
Auszeichnungen						
Publikationen						
Applaus						
Designhaus						
Geschichte						
Kontakt						
Organisation			Dekanat			
			Fachbereichsrat			
			Prüfungsausschuss			
			Sutra und Asta			
			Praktikumsbeauftragte			
			Bafög-Beauftragte			
Studium			Studienstruktur			
			Bewerbung			
			Studienberatung			
			Vorlesungsverzeichnis			
			Studienormung			
			Praktikum			
			Sudeinetracks			
			Ausland			
			FHP-Kolleg			
			Studiengänge	Interfacedesign		

1st	2nd	3rd	4th	5th	
Internationales	Ins Ausland	Studium Ip	PROMOS		
		Praktikum Ip	Erasmus-Praktika		
		PROMOS			
		Erasmus + Mobilität zu Unterrichtszwecken			
		Erasmus + Personalmobilität			
	An die FH Potsdam	Vollstudium (Degree Mobility)			
		Gaststudium (Credit Mobility Erasmus + oder bilateral)			
	FHP Connect Ip	Wege ins Ausland Ip			
		Ansprechpartnerinnen Ip			
		Links			
	Infos für Geflüchtete				
	Internationales Profil	European Policy Statement			
		Erasmus Charta			
Partnerhochschulen					
Erfahrungsberichte					

1st	2nd	3rd	4th	5th
Lehre und Forschung	Digitale Lehre	Best-Practice		
		Austausch #Dialog		
		Weiterbildungsan gebote		
		Weiterbildungsan gebote		
		Kontakt		
FLEX Forschend Lehren	Aktuelles	Termine	Termine	
		Berichte	Berichte	
		InterFlex	InterFlex einreichen und durchführen	
			InterFlex Ergebnisse publizieren	
		UROP	UROP – Was ist das?	
			Projekte an der FHP	
		Forschendes Lernen	Was ist "Forschendes Lernen"?	
			Verbundprojekt ForschenLernen	
			dghd-AG	
			Projekt InterFlex	
			Projekt FL²	
			Konferenz 2013	Keynotes
				Forschungspanels
				Projektpräsentationen
				Workshops
				Impressionen
			Literatur	
			Publikationen	Handreichungen
		Forschungsberichte		
		Abschlusspublikationen		
	Kontakt			
Tag der Lehre	Tag der Lehre 2017			
	Tag der Lehre 2016			
	Tag der Lehre 2015			
Hochschuldidaktische Weiterbildung				
Forschung Aktuell				
Forschungsprofil				
Urbane Zukunft	Profil			
	Personen			
	Projekte			
	Masterstudiengang			
	Publikationen			
	Urban Future Talks			
Institute & Labore				
Projekte				
Forschungsstipendien				
Forschungsservice				

		ip	Stipendien
			Stipendiendatenbanken
		Kredite Ip	
		Studierende Eltern Ip	
Ausschreibungen und Preise Ip	Preise für Abschlussarbeiten	Fachbereich Sozial und Bildungswissenschaften	
		Fachbereich Stadt Bau Kultur	
		Fachbereich Bauingenieurwesen	
		Fachbereich Design	
		Fachbereich Informationswissenschaften	
	Hochschulpreis „Gute Lehre“	Hochschulpreis 2017	
		Hochschulpreis 2016	
		Hochschulpreis 2015	
	Genderpreis	Preisträgerinnen	
	Preis für besonders Engerment	Preisträgerinnen	
	DAAD-Preis	Preisträgerinnen	
Campusleben	Aktivitäten Ip	Studentische Selbstverwaltung Ip	
		Chor Ip	
		Campusgarten Ip	
		Casino Ip	
		Semikolon Ip	
		Hochschulsport Ip	
		Fremdsprachenkurse Ip	
		Nextbike Ip	
	Mensen und Cafeterias Ip		
	Hochschulsport Ip		
	Wohnen Ip		
	Leben in Potsdam Ip		

IM STUDIUM	INTERNATIONALES	LEHRE & FORSCHUNG	INFOS STUDIENANGEBOT	FACHHOCHSCHULE
Aktuelles	Ins Ausland	Digitale Lehre	Studienangebot	Aktuelles
Fachbereiche	An die FH Potsdam	FLEX Forschend Lehren	Bewerbungsverfahren	Veranstaltungen
Service- und Beratungsangebote	FHP Connect	Tag der Lehre	Hilfe vom Studien-Service	Hochschulprofil
Semesterzeitpläne	Infos für Geflüchtete	Hochschuldidaktische Weiterbildung	Studienfachberatung	Organisation
Vorlesungsverzeichnis	Internationales Profil	Forschung Aktuell	Formales	Bibliothek
Fachübergreifende Angebote	Partnerhochschulen	Forschungsprofil	Campusspezialisten	Services
Studienorganisation	Erfahrungsberichte	Urbane Zukunft		Familien
Studienfinanzierung		Institute & Labore		Weiterbilden
Formales		Projekte		Kooperieren
Ausschreibungen und Preise		Forschungsstipendien		Presse
Campusleben		Forschungsservice		Kontakt & Anfahrt

Fachbereiche	Plattformen zur Studiumsverwaltung	Dokumente	Oft kontaktierte Organe	Wo ist was? Ort, Lage und Öffnungszeiten	Studienorganisation und Formales	Services- und Beratungsangebote	Fachübergreifend e Angebote	Campusleben, Lernen und Wohnen	Soziale Aktivitäten und Kulturangebote	Jobben und Gründungsfragen	Studienfinanzierung	Hilfe zu Auslandsemester / Praktikum	Studium mit Kindern	Hilfe bei IT-Fragen und online Diensten
STADT BAU KULTUR	MyCampus	Lageplan FH Potsdam (PDF)	Allgemeine Studienberatung	Kontakt- und Anfahrtsbeschreibung	Amtliche Bekanntmachungen	Prüfungs-Service	FLEX Lernen durch eigene Forschung	Aktuelles und Veranstaltungen	Projekte und Angebote des AStAs	FHP Stellen- und Praktikumsbörse	Finanzierungsquellen (Unterhalt, BAföG oder Jobben)	Infos zum Auslandsaufenthalt (Wege ins Ausland)	Familienfreundliche Hochschule	Anleitung zum Campus.Account
Bauingenieurwesen	Web-Mail	FHP Campusplan (PDF)	Sabine Golditz Hochschulbibliothek +49 331 580 2211 Öffnungszeiten Vorlesungszeit	Lage- und Campusplan	Semesterzeitpläne	Studentische Selbstverwaltungen (ASta und StuRa)	InterFlex Interdisziplinäre Lehrveranstaltung an	Hochschulbibliothek	FHP Chor	Studentenwerk Potsdam Jobbörse	Übersicht der Beratungsangebote	Praktikum im Ausland	Beratungs- und Unterstützungsange boten	Häufige Fragen zur FH E-Mail
Design	Intranet	Semesterbeurlaubung (PDF)	Prüfungs-Service	Bibliothekskatalog	Rückmeldung	Beratung zu Fragen der Studienfinanzierung	Offene FHP- Schreibwerkstatt	Bibliothekskatalog	Campusgarten	Externe Stellenbörsen	BAföG-Beratung	Studienaufenthalt im Ausland	Betreuungsangebote für Kinder	Unterstützung bei Moodle, Incom und Adobe Connect
Informationswissen schaften	Moodle	Rückerstattung des Semesterticketbeitrags (PDF)	AStA Büros befinden sich im Haus 17 +49 331 580 1000	Öffnungszeiten der Hochschulbibliothek	Studien- und Prüfungsordnungen	International Office und FHP Connect	UROP Einstieg in Forschung	Mensa Speiseplan	Casino	Externe Praktikumsbörsen	Deutschland- Stipendium	AnsprechpartnerInn en	Orte für Eltern mit Kinder an der Hochschule	Einrichtung des Wireless LAN eduroam
Sozial-/ Bildungswissenscha ften	Incom	Angebote FHP- Kollegauf einen Blick (PDF)		Mensa Öffnungszeiten	Urlaubssemester beantragen	Gleichstellungsbeau fragte	FHP-Kolleg Studienbegleitung für Erstsemester	Ausschreibungen und Preise	Hochschulmagazin Semikolon	Service bei Gründung und Selbstständigkeit	Förderwerke, Stipendien und Stipendiendatenbanken	Befreiung vom Semesterticketbeitrag	Finanzielle Subventionen für studierende Eltern	Microsoft Office 365 WebApps kostenlos nutzen
				Cafeteria Öffnungszeiten	Befreiung vom Semesterticketbeitr ag	Familienbeauftragte und FAMteam	Schlüsselkompete nzen	Aktivitäten für Studenten	Hochschulsport		Liste von Wettbewerben		Linksammlung für studierende Eltern	
				ASta Büro (Lage, Sprechzeiten und Sitzungen)	Adressänderung melden	Beauftragte für Studierende mit Beeinträchtigungen	Mentoring von und für Studierende	Wie komme ich an einen Wohnheimplatz?	Fremdsprachenkurs e		Überblick Studienkredit und Kreditinstitute			
				Übersicht der Studierendenräte (StuRa)	Studiengangwechs el innerhalb der FHP	Hilfe bei Konflikten von unseren Ombudspersonen	Themen Lectures	Wohnanlagen des Studentenwerks Potsdam	nextbike		Fördermöglichkeiten für studierende Eltern			
				Studentenwerk Potsdam Öffnungs- und Sprechzeiten	Teilzeitstudium	Psychotherapeutisc he Beratung	Studiencoaching	Online-Portalen zur WG-Suche	Leben in Potsdam		Vergünstigungen und Nothilfen			
				Standorte der Studentenwerk Potsdam	Exmatrikulation	Schreibberatung und Schreibwerkstatt	TutorInnen Qualifizierung				ISIC Vergünstigungen			
				Erstiguide der FH Potsdam		Gründungsservice	Einführung in studienrelevante Software							
							Weitere Weiterbildungsan gebote							

Improving the Usability of Fhp's Website

By Designing a Navigation Concept

Fachhochschule Potsdam

Prof. Constanze Langer

Prof. Boris Müller

Summersemester 2018