“How do I present myself?”

Research exploration of how different focuses affect the perception of professional portfolios in the field of UX, and UI design and research.

MASTER THESIS RESEARCH PROJECT

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Abstract

This study addresses the phenomenon of professional portfolios used by user experience and user interface designers when looking for a job within their industry. This topic is already partially mapped out in multiple publications. However, the current literature focuses mostly on student portfolios, or new trends within portfolio design. Our study aims to find different aspects of the portfolio that can be focused on in order to create a positive impact on the employers. Performing the relevant literature review, the study uncovers three main factors that can be focused on when creating a professional portfolio - current design trends within the industry, the applicant's identity, and the identity of their profession. Three separate portfolio artifacts are created for this study based on these discovered focuses. We employ quantitative research and utilize participant observation and semi-structured interviews with seven participants from companies that work with user experience and user interface design in order to answer our problem statement. The analysis shows six distinct themes that can be utilized in the portfolio creation, in order to create a more positive image of the applicant by the employer. These themes are: applicant's projects, their background, identity, subjective perception of the portfolios by the employers, external content, and applicant's company background knowledge.

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Summary of the study

The study focuses on the theme of professional portfolios within the user experience and user interface design. It establishes the following problem statement:

How do different content focuses applied to a professional portfolio affect its perception in the eyes of employers in the field of user experience and user interface design and research, and how can this knowledge be used in practice to make for a better match between the employer and the new hire?

Additionally, it follows six research questions focusing on what portfolios are in general, what theories and methods are used in practice when creating them, what traits people employed within the industry should possess, and what focuses are associated with portfolios already.

The literature review uncovers what portfolios are, and explores their history, but also sheds light on professional competencies of user experience/user interface designers. The literature review findings help guide the study onwards and find three distinct areas that can be utilized for us to create portfolio artifacts. When creating these artifacts, we discover different theories of practice and methods that are used in the process of creation of portfolio interfaces in the "real world".

Subsequently, we employ our created portfolio artifacts in an empirical study in order to answer the remainder of our research questions and the problem statement. Utilizing semi-structured interviews, and participant observation while thinking out loud, we collect data from seven participants.

The data collected is then analyzed, making use of coding and thematic analysis. During the analysis, six themes are discovered. The themes are: applicant's projects, their background, identity, subjective perception of the portfolios by the employers, external content, and applicant's company background knowledge. Each of these themes is significant to the portfolio creation and perception, and the designers can utilize them when creating their portfolios.

Table of content

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Chapter 1 - Introduction

> *"[User experience and user interface] Designers must demonstrate through their own portfolio's design that they are able to master cutting-edge technologies that enhance the web design."*
>
> *(Smith T. S., 2014)*

As stated by *Smith (2014)*, a large volume of work and thought has to be put into creating professional online portfolios for web designers. This study explores self-hosted online professional portfolios and what paths the designers can choose to follow when designing and choosing content for them. This project also examines the impact on the potential future employers, and how their internal processes tie into the application process. First, however, we take a look at what portfolios are, briefly explore their history and examine what types of different portfolios exist.

Generally, a portfolio is a presentation of one's professional work. However, there exists a multitude of various kinds of portfolios. It is very common for students in the USA to create portfolios at the end of their current study year *(Association of American Colleges, 2009)*. Already in 2009 over half of the undergraduate universities used this tool as a part of education, but also preparation for professional life after college. Creating authorial work portfolios as a part of education can be very helpful for a person to establish, or at least start looking for their own design identity, originality, and online presence *(Yaffe, D. et al., 2016)*. Nowadays this practice is also seen in some universities in Denmark, however, not on as large of a scale yet. There are different types of portfolios that the students are asked to prepare, serving multiple purposes - like reflecting on their progress within the education, or getting a sense of where they fit in the industry *(Association of American Colleges, 2009)*. These portfolios can eventually also help them represent and distinguish themselves from their peers in their post-study life when they are looking for a job - they are called professional portfolios. Professional portfolios form the main focus of this research project.

The concept of presenting one's collection of work and skills in practice is also used in Europe, where professional portfolios represent an individual in the eyes of potential employers. Ranging from teaching, healthcare, IT, art, etc. professional portfolios are being used in many different industries *(Yaffe et al., 2016)*. Professional portfolios therefore take on different forms and use particular content based on the industry and the specific job positions.

With exceptions, of course, professional portfolios representing one's skills by showcasing their previous work and achievements became a staple of the user experience industry *(Smith, 2014)*. This is the industry that our project primarily focuses on in connection to portfolios. However, this study also touches upon user interface and even front end development industry areas.

1.1 Need and significance

The following chapter explains what the contributions of this study are and briefly analyzes the current state of how much research has been performed in this particular area.

User experience (UX) entails the perception of a product and the ways the product's intended users interact with it. It is used in order to improve the users' enjoyment when using a particular product. User experience can be utilized in any product - from a coffee machine to a submarine radar system. However, whenever user experience is mentioned in this project, it refers to digital interface user experience. User interface (UI) refers to the actual interface's visual representation. It encompasses all visual aspects of the interface from colors and gradients to the particular shapes and fonts used in it.

The UX/UI industry is fairly new *(proto.io, 2018) (Malewicz, M.,2021)*, and continues to change and evolve every year. Due to the industry's rapid development, people aiming to work or already are working as user experience designers need to change and adapt in order to be able to get hired, which also needs to be reflected in their professional portfolios. Moreover, it is not unusual for people in this business to fluidly change between stable jobs and freelance work *(Scolere, L., 2019)*, which further promotes skill competition, flexibility and agile approaches.

> *"If you're a freelancer, ...you don't need just any digital portfolio. You need one filled with recent work and wrapped in a current approach... When you're trying to remain competitive, owning only a vintage portfolio is as useful as having none at all."*
>
> *(Baron C. L., 2010)*

Taking all these factors into account, in order to keep up with new trends and media, user experience designers' portfolios have seen many changes to their overall presentation across the years *(Smith, T. S., 2014)*. In recent years, for example, the dominance and magnitude of social media has shaped how user experience designers present themselves, and pay additional attention to updating and shaping their profiles online *(Scolere, L., 2019)*. Social media profiles like Linked.in and Instagram can now serve as add-ons to one's work and experience, complementing portfolios. They add an additional layer of branding to a professional. However, even in this fast-paced, rapidly changing stream of trends and new media, there is one thing that ties professional portfolios together - their visual form.

There is a substantial amount of publications that address professional portfolios. As examples, we are now going to mention some of the authors and their publications, as well as what these publications focus on.

Smith (2014) outlines how the designers should be able to utilize and master new technologies and trends that are reflected in the portfolio's visual form. *Baron (2010)* gives us some important practical insights into creating a digital portfolio. Additionally, *Scolere (2019)* explores the new additional media that can be used in collaboration with portfolios, and *Smith (2014)* analyzes how the genre of portfolios is evolving. *Yaffe et al. (2016)* fixate more on the importance of having a portfolio and pinpoint a multitude of steps that they recommend when trying to create one, like reading it through to catch grammatical errors, or keeping it up to date. Their paper is also very general, without tying their work to a specific industry. *Pibernik et al. (2014)* also highlight how to create a portfolio and what to keep in mind, however, they do not include any study of their own - only summarize and elevate other people's content. The authors themselves state that more research is necessary for this topic and that their study is very much based on observation. On the flip-side, they do mention one less common topic - originality in the form of interaction. The topic is a rare find across the available literature, and features a unique point of view on portfolios as interactive narrative mediums involving a storyline. Lastly, *Cynthia (2010)*, in their publication "Designing a digital portfolio" also writes about practical portfolio creation without performing any research or involving the employers' in the process in some way. *McNair et al. (2016)* performed a study focusing on educational portfolios. Students' educational portfolios showcase their growth and are supposed to trigger self-reflection, however. They therefore serve different purposes than professional portfolios that our study explores.
It can be observed throughout this paragraph that none of the publications focus on how the authors can put focus on different areas of the portfolios in order to better appeal to the employers.

In conclusion, even though there already exists literature about professional portfolios, e-portfolios, and creative portfolios, the literature focuses on either students creating them for educational purposes and the ability to start framing

themselves in the industry in their future, or on new trends used in professional portfolios. There is little to none literature or research uncovering what the UX/UI-focused professional portfolios could focus on, and how choosing one route over another can influence the conversations with the potential employers later down the line.
Moreover, this research focuses on the exploration of professional portfolios from both "ends" involved in this phenomenon - the employers, and designers, whereas research that is done on portfolios that already exist usually either uses students as the source of the data or it studies the evolution of portfolios and trends within this phenomenon only with the creators - the designers. Our study aims to shed light on the portfolios as a sort of "conversation" between a designer, and one or more employers, where the array of employers can consist of people that work on different positions in various companies. How can a decision taken during the portfolio creation change the interview process, and can it do that at all?

1.2 Problem statement and research questions

Taking the previous subchapters into account, the problem statement for this research project reads:

> ***How do different content focuses applied to a professional portfolio affect its perception in the eyes of employers in the field of user experience and user interface design and research, and how can this knowledge be used in practice to make for a better match between the employer and the new hire?***

In addition to the problem statement formulation, four research questions have been established to help find answers to the problem statement and guide the research.

> *Research question 1*:
> ***What is a portfolio and what is it used for? What types of portfolios exist and what purpose do they serve?***

Researching portfolios and their different kinds form the knowledge foundation for this project and research, as the main problem statement features portfolios as the main artifacts. This research question is answered during the literature research process and can be found in the *subchapter 2.2 Professional portfolios.*

Research question 2:
What is user experience and user interface design and what interface design principles, and laws should be utilized to help create a professional portfolio in the field of user experience and user interface design?

The second research question is going to be extremely useful when the portfolio artifacts need to be created. These portfolios should prove to be up to par with industry standards, and thus need to be constructed with interface usability principles in mind, just as any other visual interface. This research question is explored in the whole of *Chapter 4 - Portfolio production*.

Research question 3:
What competencies should a UX/UI designer and researcher present in their professional portfolio, and how should they be presented?

This research question focuses on what the content of the portfolio should consist of ideally, from the point of view of the employers. This research question is answered in the literature review chapter, *subchapter 2.3 Professional competencies of UX/UI designers*.

Research questions 4, 5, and 6 stem from the literature review and have been added chronologically later in the process. To answer these questions, we produce three portfolios employing different strategies based on reviewed literature. These portfolios are then used as artifacts for carrying out the data gathering process. They are answered in *Chapter 5 - Data analysis and results*.

Research question 4:
How important is the knowledge and application of current user interface industry trends when creating a professional portfolio?

Research question 5:
How prominent of a role should the individual and their soft skills play in a professional UX/UI designer's portfolio?

Research question 6:
To what extent is the work signature of the author important for the employer?

1.3 Outline of this paper

This subchapter is a conclusion of the introduction section of this project, and as such, is going to provide a clear outlook on what this paper is going to investigate.

The following - second chapter describes the literature review that has been conducted for this project. It explores professional portfolios as the main medium of this project, followed up by professional competencies of UX/UI designers.

The third chapter focuses on methodology employed for this research - research design, data collection methods, data analysis methods and ethical concerns regarding it.

The fourth chapter describes the portfolio artifacts production - pointing out different design choices and reasonings behind them. We explore the conceptual design framework, user interface heuristics, gestalts, and cognitive biases that affect their usage. Step by step, this knowledge helps us build our portfolio artifacts.

The fifth chapter analyzes the qualitative data gathered during our research. We explore six main themes - subjective perception in the hiring processes, projects, company background, applicant background, applicant identity, and external content.

The concluding sixth chapter examines the project limitations, potential for future work, discusses the project in hindsight and provides a final overarching conclusion.

Chapter 2 - Literature review

A literature review, as *Randolph (2007)* states, is a way to familiarize oneself with the renown names in a particular field of work. An extensive review of related work has been performed in order to uncover and better understand the concepts that regard this project. The chapter begins describing the reviewing method chosen, followed by a look into relevant literature and research on the topic of professional portfolios. Afterwards we focus on the extensive topic of user experience and user interface design and some of the field's more practical theories and laws, which will be used later in *Chapter 4 - Portfolio production*. Lastly, literature regarding professional competencies of UX/UI designers is reviewed, followed by a sub conclusion and hypotheses drawn from the literature review. An external document containing the full list of the reviewed relevant literature can be found under *appendix j. approved relevant literature list.pdf*.

2.1 Literature review method

Systematic literature review has been chosen as the reviewing method. It is used in order to recognize, choose and critically assess appropriate literature and research that has already been conducted on the chosen topics *(Dewey, A. et al. 2016)*. The findings are then merged together and further built upon. The review serves as a foundation for the project and also answers multiple of the research questions established.
The literature search was boosted using the snowballing method, following *Wnuk (2018)* and *Wohlin (2015)* as examples. This method uses sources and citations from already existing pieces of retrieved relevant literature in order to find more unexplored relevant literature. It is normally used for extending already existing literature lists and finding new aspects of particular topics.

2.2 Professional portfolios

As the main medium that is going to be used in this project, let us begin the relevant literature research by discussing portfolios, what they are, their origins, and the different forms they have had in the past, but also the present day.

2.2.1 History

The word portfolio comes from two Latin words - *portare*, which means 'to carry', and *folium*, which in the design context can translate into a collection of the author's visual work. And that is exactly what professional design portfolios are - an auctorial compilation of the author's best work, that they think is most likely to present them in a good professional light and communicate their skills to employers, peers, or followers *(Pibernik, J et al. 2014)*. An example of a physical portfolio can be seen in *Figure 2.1* and *Figure 2.2*.

Figure 2.1: An example of a physical portfolio by Chrapko (2014).

Figure 2.2: An example of a physical portfolio by Chrapko (2014).

Authorial portfolios, also known as professional portfolios have been used for a long time now in the creative industry and over the years, they have been using many different media and ways of presentation based on the availability and technological limitations *(Smith, T. S. 2014)*. Even nowadays, there is no standardized format for portfolios.

Following portfolios chronologically throughout history, though, the authorial work was at first merely collected together in a container case. This would allow the projects to be very mobile and the work could be presented at interviews and meetings. Later, they were printed on paper. The type of paper that was used for printing made a difference as well as what project it represented. These printed works could be stored in a briefcase that was big enough to host all the different dimensions of the print but also was easy to carry just like authorial works were collected together before, or they could be stitched together using various book/brochure-making techniques. Depending on the specific design industry branch, printed portfolios can feel a bit archaic today, as with the invention of the internet, portfolios found a new way to present themselves digitally. This is especially true for the field of web design and web development, which this project explores, and not so much graphic design where printed portfolios are still used today *(Pibernik, J et al. 2014)*.

2.2.2 Professional portfolios and the modern days

As new technologies have been introduced, portfolios have seen many methods of collection and storing of the authorial work that represents their content, like CDs, DVDs, flash drives, and PDFs shared online *(Smith, T. S. 2014)*. Nonetheless, the widespread accessibility of internet browsing that we experience nowadays has given birth to yet another version of portfolios - online website portfolios, where the author can create the presentation of their collection online as an experience and a new project of its own so that the viewers do not simply look at their work in the author's presence, but experience it in their own time and pace. This new element gives a whole new requirement of elevation to portfolios. They now have to speak for themselves and also on behalf of the author, possibly presenting an elevated "brand" of the author.

There exists, however, a different kind of online website portfolios. A sort of a middle ground between online website portfolios fully created by the author and just a collection of one's work on a flash drive. In this era of digital portfolios that we live in today (and have been living for some time now), Scott Belsky has decided to create an online platform where people could present their work, and in 2006 he launched the platform under the name Behance *(Scolere, L., 2019)*. Behance is an online service and a community where people can share their professional creative work and have their own homepage that serves as an online web portfolio. It rose to prominence in 2015 and still is one of the widely known and used ways to create digital portfolios *(Scolere, L., 2019)*. You can see an example of a Behance portfolio in *Figure 2.3*.

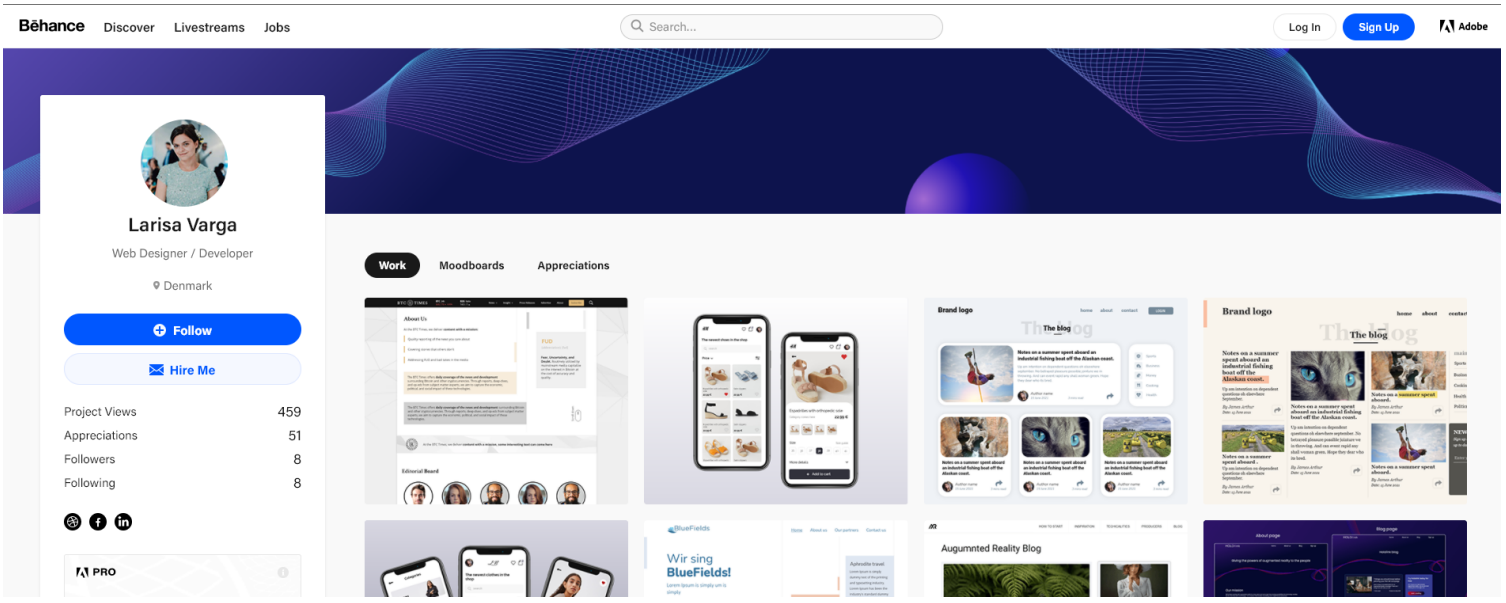


Figure 2.3: An example of a Behance portfolio by Varga (2021).

2.2.3 Industry standards

Since their debut in the design and other visually-focused fields, portfolios have been strongly associated with an individual's effort to brand themselves. They are used to quite literally sell one's work and a promise of 'outstanding performance' as a professional. A professional portfolio is meant to persuade an employer that it is the author that should be hired for a certain position and that they represent a higher - better level of work compared to their peers. That is why professional design portfolios often seek to present an elevated, different, cutting-edge point of view to showcase superiority to the competition *(Pibernik, J. et al. 2014)*. It is because of this trend to "be better than the rest" that we can see that the industry can definitely be a hostile place to compete within *(Baron C. L., 2010)(Smith T. S., 2014)*. Especially considering that experience plays such a great role here. The more experienced a designer is, the more time they have had to create project work, hone their skills, research practical fieldwork, and thus create an assumably better or at least more extensive portfolio. As *Pibernik et al. (2014)* state, the factor that can tackle this issue is being creative with the portfolios but also paying attention to the user experience, target audience, the balance between originality and appropriateness, usefulness, story and its navigation, self-branding, and the content blueprint.

2.2.4 Identity and professional portfolios

McNair et al. (2016) explore another important factor connected to professional portfolios - identity, and consequently self-branding. Although the research takes place within the engineering industry, parallels can be drawn to the interface design industry, and important takeaways can be noted. In their research, *McNair et al. (2016)* perform an empirical study, employing coding and qualitative data analysis on nine separate portfolios submitted by engineering students. These portfolios are different from the portfolios explored within our project, as they take on a purely written form, however, the concept of identity explored in the research is the same. According to *McNair et al. (2016)*, identities are merely constructed by the author, as opposed to actual and real representations of them, and by conducting their study, they have proven that holistic identities can be constructed in portfolios for the authors, but also for their work/craft.

Consequently, we can assume that these identities can be constructed on a non-verbal level - visually, in our study. The identity and its creation that *McNair et al. (2016)* talk about can be considered a parallel to self-branding in the interface design context. Moreover, *McNair et al. (2016)* go further and divide these identities into two separate kinds of identities - professional identity, and identity of the profession. After translation into the design industry (not necessarily just interface design), the "professional identity" depicts the author as a professional, but also as a fully-fletched person behind the professional self. This can include a little more personal insights into the person's life and their experiences in their "non-designer self".

On the other hand the “identity of the profession” then translates into self-branding, as in the engineering industry it meant showcasing how the particular person made the industry their own:

> *“Just as professionals create their professional identities, that is, they create their profession.”*
>
> *(McNair, L. et al. 2016)*

In conclusion, self-branding is one of the important pillars that should be considered when creating a professional portfolio *(Pibernik, J et al. 2014)*, and now we know that it can be manufactured and shaped to an extent. It has also been established that there are two identities that can be used to help the author distinguish themselves in their portfolio when it comes to self-branding - their professional identity and the identity of their profession.
The topic of portfolios has uncovered crucial themes such as industry standards, competitiveness within the industry, and two different portfolio identities that will be utilized and built upon further, later on in our study in *Chapter 4 - Portfolio production*.

The following subchapter will depict our literature review on the topic of competencies as a user experience (UX) and/or user interface (UI) designer.

2.3 Professional competencies of UX/UI designers

When developing a “real world” professional portfolio there are hardly any guidelines to follow apart from internet articles where people suggest what they think a portfolio should look like and consist of. In this project, however, we try to find stepping stones and guidelines that can be categorized and later measured, in order to find out what affects the succession of said portfolios from the employers’ side. Because of this, we deem it necessary to look into what the job as a UX/UI practitioner entails.

First of all, it is important to be able to distinguish different tasks within the UX/UI field. There are tasks that utilize UX/UI research as the dominant part, where the key is to research a topic, phenomenon, product, or some of its features in order to recover data that can be analyzed to form findings. This very study as an example is UX design research. User research, competitive analysis, design evaluation, scenarios, user modeling, task analysis, and brainstorming can also be considered regular tasks in this category *(Nielsen, J. et al. 2014)*.

However, there also are more practical tasks within the field of UX/UI. This mostly entails tasks connected to the designing process of a product itself. Theoretical knowledge is still necessary to deliver a good product, but it is focused on practical tasks. Creating three portfolios as artifacts for interviews is this part of UX/UI design in full effect. More tasks include interactive prototyping, detailed designs, and high-level representations *(Nielsen, J. et al. 2014)*.

The problem can sometimes arise when employers are not able to recognize the difference between these fields of UX and UI, or their equal importance to projects *(Gray, C.M. et al. 2015)*. *Nielsen et al. (2014)* further underline the diversity of the UX and UI designer's job in their study stating that more than 75% of the UX/UI designers perform at least 16 different UX activities as a part of their job, and more than half of them performs 25 different UX activities.

Sova et al. (2020) mention that a UX/UI practitioner should possess the willingness to learn and be tutored by more experienced staff members, which *Getto et al. (2016)* explore in their study. This is further underlined by *Getto et al.. (2013)* in their later study, where they state that UX/UI practitioners need to understand the value of self-development and growth and know how to adapt, due to the ever-changing market and working field. There are no clear guidelines as to what a specific person needs to be able to do and what programs they can work with because these tools are constantly developing and changing. Moreover, different companies have different approaches to UX/UI design and different needs from the UX/UI designers working for them. So although a designer may know how to work with tools like Sketch, a specific company may be looking for someone who can work in the exact same position, but working with Adobe Illustrator or Adobe XD. For clarification - Sketch, Adobe Illustrator, and Adobe XD are all programs used for creating wireframes, mockups, and interface assets. Nonetheless being able to showcase a variety of skills is always considered a plus, because it hints towards adaptability and versatility. Despite that, there still is uncertainty from the designers' point of view whether the company/ies are going to recognize this fact and that it is one of the key values that UX/UI practitioners should possess. Some companies that are new to hiring UX/UI practitioners hardly know what to expect from professionals working in these positions *(Gray, C. 2014)*.

Coming back to the topic of self-development and growth, *Gray (2014)* divides UX/UI designers' competencies into two categories - key competencies, and metacompetencies. Here, key competencies are competencies within specific disciplines, whereas metacompetence is an overarching awareness of one's own actions and the ability to be introspective. Self-reflection has also been widely adopted in design education and practice. *Gray (2014)* also lists more competencies based on other studies like articulation and communication in order to be able to explain envisioned future use of products and focus on solutions rather than problems.

Adding onto the list of competencies, *Nielsen et al. (2014)* state that being skilled with persuading people, mostly to cooperate in fixing problems is a key skill area, but also having computer coding skills with HTML and CSS being essential. As a little hint towards what could be seen as attractive in a UX/UI designer's portfolio, *Nielsen et al. (2014)* point out that taking on useful complementary skills like project management and data analysis can help too. Moreover, *Nielsen et al. (2014)* express the need for non-academic features such as curiosity, passion for work, humble attitude, and the capacity to be insightful problem solvers, in preference to just employees executing methods.

How likely are employers in the field to seek out these qualities, however? And how much do they acknowledge the need for them in case they themselves do not have the educational or professional background? As *Baker (2018)* found out in her study of prominence and priority of UX/UI research within companies - some organizations may be biased to "do things their own way" and neglect UX/UI research in particular in order to avoid uncovering data shedding bad light at the company or their product. Workplaces like these do perform UX research, but do not prioritize it and limit designers' ability to influence projects. When talking about UX research specifically, some companies on the other hand may even feel like they want to utilize UX/UI practitioners, but they fail to understand what this entails *(Gray, C.M. et al. 2015)*.

2.4 Sub-conclusion

As a sub conclusion for this chapter, we can observe that digital online portfolios are a fairly new addition to the job market, appearing after the first ever websites were published in the early 1990's *(Shelley, R. 2021)*. There also seems to be a lack of research done in the industry that includes both the designers and the employers, although literature that illustrates how to, in general, create digital online portfolios exists.

We can additionally conclude that the industry is very dynamic and trends change from year to year *(Baron C. L., 2010)*. We also know that identity plays an important role here. There are two approaches to presenting oneself in their portfolio - the professional identity and the identity of the profession. Although, it is yet unclear to what extent they affect the "conversation" for the employers. This is explored in *Chapter 5 - Data analysis and results.*

Lastly, we have discovered many different professional skills, competencies, personal traits and soft skills that a UX/UI practitioner should possess. According to *Nielsen et al. (2014)* the professional should be good at user research, competitive analysis, design evaluation, and many more professional skills, but also at persuading people. *Gray et al. (2015)* agrees that a large percentage of UX/UI designers in their study perform 16-25 different UX activities as a part of their job. They also highlight the

importance of soft skills like self-reflection, good articulation, communication, etc., and *Sova et al. (2020)* agrees.

This literature research enriches our project with a lot of information, but also leaves three fairly large questions without answers. Based on the findings in this chapter, three research questions have been added to the research, namely research question 4, 5, and 6. They can be found in *subchapter 1.2 Problem statement and research questions*. These additional research questions help us form different portfolio artifact focuses in *Chapter 4 - Portfolio production*, and guide our research further.

With the relevant literature research carried out, and three additional research questions established, we are now going to present the methodology used in our research.

Chapter 3 - Methodology

In this chapter, we present the chosen methods that are going to be used to gather and analyze the research data. This research design is meant to help us approach and answer our problem statement and research questions.

3.1 Research design

There is a large spectrum of quantitative and qualitative methods that we can choose from to help us in our research. In order to begin putting in place our research design, a decision needs to be made whether we would like to gain quantitative or qualitative knowledge out of our study. In order to answer our problem statement, we need to understand more complex information about subjective processes of individual formations of meaning and nuance. Therefore, we choose to work with qualitative research.

Qualitative data research, as *Kuada (2012)* says, requires the researcher to find understanding of a particular phenomenon through the words of those being investigated. Qualitative research demonstrates a contrasting approach to academic analysis compared to quantitative research. With quantitative research, the researchers are interested in asking questions like: “Who?”, “What?”, “When?”, and “Where?”. It is rather interested in a broader picture and demographic. Qualitative research, on the other hand, would like to uncover nuances in thinking and behavior. This type of research aims to find answers to questions like: “Why?”, and “How?” ...does a particular phenomenon occur? (*Creswell, J. W. et al. 2018)*.

As we are going to be trying to understand and dwell deeper into a specific phenomenon - UX and UI designer portfolio reviewing by employers - the fitting research design used is the exploratory research design. This research design can be very fluid and aims to uncover new data or insights about a specific topic. In our exploratory research, we employ data collection, followed by the analysis of the data, and presentation of the findings. A case study has been chosen as a method, as it pairs nicely with qualitative research and can be inductive *(Bryman, A. 2012)*. *Lazar et al. (2017)* summarize case study as an in-depth investigation focusing on a small number

of cases, that pays attention to context, relies on multiple data sources, and utilizes quantitative data and analysis.

Our case study follows three fabricated people as examples, where they send one portfolio to seven companies each, simulating applying for a job. Afterwards, we reach out to these companies, where we gather data in three phases. In the first phase, an introductory interview is performed with a focus on the hiring process and how the interviewee fits into it. In the second phase, we observe the company representative browsing through these portfolios one by one, while stating their immediate thoughts and impressions. The third phase then returns to the semi-structured interview method, where more in-depth follow-up questions are utilized, focusing on the three portfolio artifacts from phase two.

The following subchapters present a deeper consideration and understanding of the data collection, and data analysis topics, as well as ethical concerns and how they are handled.

3.2 Data collection

In this subchapter, we are going to present our chosen methods of gathering data for this project, and participant recruitment related issues.

Our study aims to uncover distinctions in people's experiences within specific situations, clarifying and elaborating their own perspective on a phenomenon. *Brinkmann et al. (2018)* suggest that qualitative interviews are well suited for this task. We also, however, need to observe the participants and their tacit understandings of our portfolios. Therefore, participant observation in combination with semi-structured qualitative interviews were chosen as the two methods used for data collection. Our choice is further underlined by the fact that our study is interested in finding out what attitude is towards a specific subject, and what opinions the participants have. *Courage et al. (2005)* call this kind of methods attitudinal methods of collecting data. This applies to both interviews and participant observation, because both of these methods can research attitudes. Interviews are solely meant to research attitudes and participant observation can either explore attitudes or behavior (e.g. user testing).

> *"The interviewees bring forth new and unexpected aspects of the phenomena studied, and during analysis, new distinctions and information may be discovered."*
>
> *(Brinkmann, S. et al. 2018)*

To summarize, the data collection is divided into three separate stages - one consisting of participant observation while thinking aloud, and two utilizing semi-structured interviews.

3.2.1 Participant observation while thinking aloud

During the participant observation part of the data collection, we present the participants with our three portfolios.

This section of the data collection is meant to gather data without the researcher steering or moderating the conversation by asking questions or breaking the participants' train of thoughts. We are interested in raw immediate thoughts and impressions from the participants. This is meant to simulate a real-life scenario, where a designated employee in a company is reading through job applications and browsing through the applicants' portfolios.

The important aspect to highlight here is that participants are going to be asked to think out loud while they are browsing through the portfolios. This way, we capture generated ideas and comments that can add value to the problem statement solution discovery. Furthermore, the information collected this way is unique in the sense that it stems out of their uninterrupted train of thoughts.
The think aloud approach is also often used when performing usability testing *(Lazar, J. et al. 2017)*. In our study, we combine it with our participant observation. Under this protocol we can record what the participants say while we observe them interacting with the portfolios.
Of course, humans usually do not practice saying exactly what they think when they do something, so we can predict that sometimes they forget to say their thoughts out loud during the process of this test. In this case, the facilitator can help remind them by asking questions like: "What are your thoughts now?", and so on.

In connection with participant observation, we also employ semi-structured interviews as another method of collecting complementing data. The following subchapter describes the theory and practical implications of this method.

3.2.2 Semi-structured qualitative interviews

An interview is one of the most common research methods for data gathering. It is utilized the best in order to gain an understanding of a particular group of people, or even a singular person (*Courage, C. et al. 2005)*. It is, generally, a regulated conversation, where one involved party is attempting to gain information from another party. *Courage et al. (2005)* also state that interviews also work well in combination with other research methods, just like we do in our study.

When selecting an interview as the method for gathering data, the research can still go down multiple different paths depending on further specifications of what kind of interview the researcher/s will be performing. There are three main archetypes of interviews - structured, unstructured, and semi-structured.
Structured interviews, as *Lazar et al. (2017)* state, are the most rigid ones, following a clear structure of questions with no room for follow-up or clarification questions. *Courage et al. (2005)* also refer to these as 'moderated questionnaires'. These interviews are easier to analyze, but provide no space for deviation from the precisely laid out questions in the interview guide.
If research requires to be more explorative and open, semi-structured interviews are the appropriate choice. These interviews are similar to structured interviews, where there may be a set of similar, or even identical questions to begin with. However, with the difference that if the researcher finds something that the subject mentioned particularly interesting, they may follow up on it and steer the conversation that way *(Lazar, J. et al. 2017)*.
Lastly, there are the unstructured interviews. These are usually based only on a list of topics, or a few questions of interest. The conversation is then fluently unravelled as the interviewee follows their train of thought and unveils new topics.

For our project, the semi-structured interviews provide the best fit. Thanks to their mixed structure, this type of interview can follow a set of key questions, as we do in the opening section of the interview. Furthermore, they also provide enough room to uncover new insights on various topics and an option to deviate from the predetermined questions.

3.2.3 Online interviews

An online interview, or e-interview is a quite recent and still emerging method for gathering data *(Salmons, J. 2015)*. In this subchapter, we explain why we chose to employ online interviews, as well as review their strengths and weaknesses.

For our research, it was "mandatory" to conduct online interviews, due to the global COVID-19 pandemic. This study was carried out in Denmark during a full-country lockdown. This unfortunate situation proved to not only be restrictive, however, but also helpful, because the target audience that is being recruited for the research can be difficult to reach, and has proved to be quite busy within their work schedule. We chose to perform audio-visual online interviews carried out using the platform Zoom. This decision was largely influenced by the lockdown, however, proved efficient and fitting for our target audience.

Courage et al. (2005) highlights one of the positive impacts of performing online interviews is their quick nature. Face-to-face interviews can take up a full day per interview - taking transport into account, whereas multiple online interviews can be held with little time in between. Furthermore, they are easier to attend for the interviewees, too, which proved very helpful when recruiting our subjects.

Salmons (2015), however, also highlights crucial aspects of online interviews into consideration. Firstly, e-interviews require using softwares and online tools that not everyone is accustomed to. It is important to keep in mind that potentially, some recruits will not be able to join the interview, due to the lack of technological skills. Fortunately for us, the population requirements for test subject recruitment points towards individuals that work with IT technology or are at least very familiar with it.

Adding to the difficulties of performing online interviews - when conducting them, it can prove more challenging to closely bond with the interviewees in order to validate their identities and sustainability for the project *(Lazar, J. et al. 2017)*. In order to combat this, the participants have been asked to verify their position in the company multiple times over the initial email communication. Additionally, similar questions have been added into the first phase of the interview.

Having summarized online audio-visual interviews as our chosen data gathering method, the following subchapter outlines the process and guidelines employed for participant recruitment.

3.2.4 Population recruitment

In this subchapter, we look at the importance of proper practices and methods used with participant recruitment. When trying to plan how to recruit members for qualitative research, it is the problem statement that needs to guide the recruiting process *(Bryman, A. 2012)*. The problem statement should indicate the geographical context, and the participant characteristics context. Possessing the characteristics and featuring the same or similar traits as the target audience is also recommended by *Rosenzweig et al. (2016)* when recruiting population for qualitative data research. This sampling method is called purposive sampling.

Purposive sampling is supposed to select participants that will best help researcher/s understand the researched problem. It is also, as opposed to random sampling used in quantitative research, a non-probability design of sampling. When working with purposive sampling, it is necessary to clearly outline the criteria for recruitment, that the researcher/s is/are going to be using as guidelines.

In our project, the problem statement aims to understand a phenomenon from a new perspective - not from the designers' perspective, but from the employer's point of view. Very specifically, from the point of view of the concrete single employee or concrete group of employees that is/are involved in the recruiting process for positions regarding UX/UI designers. The unpredictable variable, however, is that companies do not necessarily work the same way compared to one another and employees on different positions may be involved in a recruitment process in one company than in others. Due to this unreliability, the requirement for participant recruitment for our project is not position based, but rather involvement based.

Furthermore, the industry standards and practices are prone to vary depending on the market in which the particular company operates. In order to avoid unpredictability in the collected data and outlying, odd data, a decision has been made to focus on one particular geographical market. In line with these criteria, the subjects recruited for the project must be:

1. Working in a company where there already is at least one working UX/UI specialist.
2. Normally involved in the recruitment process for positions of UX/UI practitioners within their company.
3. Normally involved in the portfolio review of the candidates within their company.
4. Employed within the Danish labor market.

Applying these criteria to the test subjects increases the data reliability. Another important aspect that needs to be addressed in regard to the population sample is the sampling size. The literature sources provide many different views on this matter. On top of that, unlike for quantitative research, there are no specific estimates outlining how many participants are necessary for qualitative research. Here, we have to turn to a concept called theoretical saturation *(Bryman, A. 2012)*. This phenomenon occurs when either:

1. No new relevant data seemingly surfaces in regards to the topic with the current interviewee.
2. The category of knowledge being harvested is well advanced - demonstrating variety.
3. The relations in between the categories are well established, and validated (no need to research the specific relation/s).

Consequently, as *Bryman (2012)* states, it is difficult to know exactly how many participants a particular research is going to require. *Creswell et al. (2018)* agrees with this, however, they have been reviewing qualitative studies in order to assign estimates to different kinds of qualitative studies. They state that narrative studies average at one to two sample subjects, phenomenological studies range from three to ten subjects, grounded theory studies recruit between twenty and thirty subjects, and case studies usually include two to five cases. *Terry et al. (2017)* on the other hand, specify a recommended project sample size for interviews to be between six and fifteen for specifically masters degree projects. For this research we decided to recruit seven participants, and a brief summary of the characteristics of our recruit list can be found in the introduction section of *Chapter 5 - Data analysis and results*.

3.2.5 Requirement gathering

After selecting the fitting interview type and understanding the desired population, *Lazar et al. (2017)* and *Brinkmann et al. (2018)* highlight the importance of requirement gathering, for the interview questions.

This process consists of finding different topics of interest for particular interview research, and then translating them into the final interview questions. *Bryman (2012)* also points out that it is essential to start with easier, maybe even casual questions in the beginning of the interview. The reason behind this is that we want to ease the interviewee into the conversation, and give them a chance to adjust their thinking to the particular new situation and to talking to the interview conductor. *Courage et al. (2005)* in their publication, create an "idealized interview flow", where the interview starts with an ice breaker, followed by an introduction, then comes the core, or as they call it the key, a summary, and a wrap-up.

Our study divides the themes for exploration into two broader groups, where the first group aims to uncover the demographics and background, and the second group focuses on the main qualitative research. These two areas of interest are outlined as:

1. Inquiries about the professional being interviewed and their company.
2. Inquiries regarding the specific portfolios presented to them.

Below, you can find a full list of questions, themes, and reasonings for our interview represented in a matrix in *Figure 3.1*. The first seven questions are aimed to understand the person being interviewed and the company they work in. They are also designed to be easily answered to ease the interviewee into the interview. In this phase, we aim to uncover the circumstances the interviewee is in, and their point of view. It should help us analyze the data and find more reliable insights in the second part of the interview. Additionally, it should make sure that the interviewee is eligible for our study, and that we did not miscommunicate, we include questions regarding their position in the company, and whether their workplace even has any UX/UI practitioners.
The last eleven questions aim at the portfolios presented. This data will present the core of our research.

Interview question	**The aim of the question**
Inquiries about the professional being interviewed and their company	
Does your company have or utilize any UX/UI designers or researchers? If yes -> **What do you use these employees for? And to what extent?**	UX/UI involvement in the company

If no -> **Do you see a need for them in your company?**	
Can you describe the usual hiring process for new employees in these positions?	Full hiring process + where does the portfolio fall into all this
What material do you usually ask for from the applicants? (e.g. CV, motivation letter, etc.)	Application contents and supplements
What is your role in the process when it comes to these hires?	Interviewee involvement in the process
What is your process for going through the applications when hiring?	Personal process of going through the applications
Do you always use the same process for evaluating portfolios?	Level of reliability
What is your professional background (eg. business/design, etc.) and position in the company?	Professional background of the interviewee
Inquiries regarding the specific portfolios presented to them	
What do you think of these three portfolios in general?	Immediate general thoughts.
Have you noticed any differences between the portfolios? -> if yes: **What difference/s did you notice?**	Differences between the portfolios presented.
What positively stood out to you that you can remember? (looking at all 3 portfolios)	More differences from memory -> positives
What negatively stood out to you that you can remember? (looking at all 3 portfolios)	More differences from memory -> negatives
Was there anything that you think was missing? (looking at all 3 portfolios)	The person's expertise on the content gaps
If you were to hire the author of one of these three portfolios - which one would it be? And why?	Their own evaluation on the pros and cons

If you were to describe a great portfolio - what features, or attributes would it have?	The interviewee's expertise in portfolio content in general terms
How much emphasis do you put on the portfolio when assessing whether you want to call the applicant to a job interview? **On a scale from 1 to 10, where 0 is no emphasis at all and 10 is all the emphasis.**	Portfolio weight before the job interview.
How much emphasis do you put on the portfolio when assessing whether you want to hire an applicant or not after the interview? **On a scale from 1 to 10, where 0 is no emphasis at all and 10 is all the emphasis.**	Portfolio weight after the job interview.
To what extent do you consider the portfolio design itself when assessing the application? **(1 to 10, where 1 - portfolio design doesn't matter at all, and 10 - portfolio design matters above all.)**	Do they consider the portfolio itself an authorial project and a demonstration of one's skillset?
Do you have any other thoughts in regards to this session that you would like to share with me today?	Miscellaneous last thoughts.

Figure 3.1: Interview question matrix.

Once the interview questions are identified, they are added to an interview guide for the interview. An interview guide is a document used to navigate the timeline of an interview *(Bryman, A. 2012)*. It is created to help the researchers, but a generalized version of an interview guide can also be given to the interviewee, so that they can keep track of the different stages of the interview. This is, however, not necessary.
For this study, an interview guide for the researcher and an interview guide for the participant have been created and can be found in the *Appendices* section of the report - *a. Interview guide - participant*, and section *b. Interview guide - researcher*.

The subsequent chapter subchapter provides insights into supporting materials used within interviews and in order to prepare for their administration.

3.2.6 Materials

In order to achieve a higher level of clarity and transparency, the following subchapter provides an inside look into the artifacts used during the data collection process, and encapsulates our practices when interviewing.

Below is a list of physical and nonphysical artifacts used for interviewing and think-out-loud observation. These artifacts are divided into two groups - sensitive artifacts, and other artifacts. The 'sensitive artifacts' are labeled as such, because they can directly influence the validity of the data, due to the possibility of disrupting the interviewee. 'Other artifacts' consist of all additional materials that were significant for setting up and performing the interviews.

Sensitive artifacts:

- Quiet rooms utilized for the interviews (as suggested by *White (2016)*)
- The interview guide
- Portfolios created for this study (detailed in *Chapter 4 - Portfolio production*)
- Stable internet connection
- Software used for audiovisual calls - Zoom
- Laptops for calling and viewing the portfolios

Other artifacts:

- Notebook and pen for writing notes
- Mobile phone used for recording audio
- Software used for recording video and audio
- Table with a lamp for better lighting on the video

With all the artifacts summarized, we highlight the procedure used for interviewing in the coming subchapter.

3.2.7 Procedure

After assembling an interview guide with all the relevant questions, and preparing for facilitation of the interviews, the interview procedure protocol has been established. Furthermore, the interview was pilot tested with an unrelated participant in order to enhance the experience, and make it easier to conduct.

The interview procedure protocol describes the proceedings and precise usage alignment of the materials used during the conduct. The logistics of the physical setup form the first important aspect that is crucial to highlight. The environment should feel neutral, as to not evoke any unwanted feelings of distress in the interviewee *(White, B. 2016)*. This is less of an issue when using online interviews and video calls, and the interviewee can freely select their own place of choice, either in their

home or a work office setting. However, we still aimed to create a neutral background image behind the conductor for the test subjects to look at. You can see the physical setup for the researcher in *Figure 3.2*.

Figure 3.2: Physical setup for the interview conductor.

In addition to the physical setup, *Creswell et al. (2018)* stresses the importance of preparing a full timeline of the interview, including what the researcher should say. The already mentioned "ideal interview flow" *(Courage, C. et al. 2005)* from *subchapter 3.2.5 Requirement gathering*, guided our interview procedure here too.

This procedure protocol was merged into the interview question guide for the researcher and can be found in the *Appendices* section of the report - section *b. Interview guide - researcher*. After its creation, the interviews were pilot tested with an unrelated random participant, and adjusted to better the pacing and practicalities.

This concludes the topic of data collection, with the subsequent subchapter inspecting the subject matter of data analysis methods, validity and reliability.

3.3 Data analysis strategies

A project report that handles qualitative data should certainly talk about strategies that are used for data analysis in the methodological approaches section *(Creswell, J. W. et al. 2018).* Qualitative data analysis differs from quantitative data analysis, where the researcher first collects all the data, and then analyzes it, and then writes about their findings *(Creswell, J. W. et al. 2018)*. For example - quantitative data can be partially collected, and then analyzed before the rest of the data is collected.

3.3.1 Analysis approaches

The approaches for data inquiry are based on their nature divided into inductive, deductive, and abductive processes.

The inductive approach is a technique utilizing observation of similarities within and across different cases in order to develop concepts that form ideas, which are then developed into theories. This approach in its different variations is the most common approach used for working with qualitative data *(Brinkmann, S. et al. 2018)*.
The deductive approach infers testable hypotheses from common theories that it tries to then falsify. *Brinkmann et al. (2018)* mention that this way of analyzing qualitative data can, however, be problematic at times. According to them, it is sometimes difficult to say whether the scientist should reject their hypotheses, or just ignore some of their observations - e.g. if they are methodologically frail.
Thirdly, the abductive approach is adopted in situations of doubt and ambiguity, when the researcher needs an explanation, or additional comprehension. If a researcher is reading through the interviews, and they do not understand the meaning, they should employ this approach.

For our data analysis, we chose to work with the inductive approach. Applying this approach, we observe patterns in the data, which then form tentative hypotheses, which are then developed into local theories. *Brinkmann et al. (2018)* mention that when working with quantitative data and performing exploratory quantitative research, the data analysis approach should inherently be inductive - specifically meaning it should not utilize hypotheses as starting points for the data analysis. They state that forming hypotheses before analyzing the data can bring bias into exploratory qualitative data analysis, especially when there is only a single researcher working on the data analysis, and thus we avoid it in our study too. This way we let the data shape the coding process rather than letting our preconceived understanding guide it.

Another approach choice for analyzing qualitative data apart from inductive, deductive and abductive, that a researcher can make is between the meaning, language, or bricolage.

Focusing on the meaning of the data can be done in two different ways - semantic, and latent. The semantic focus produces code that encapsulates the precise meaning of words *(Terry, G. et al. 2017)*. The complementing techniques to this focus include coding and condensation of meaning.
Using meaning coding, the researcher assigns a single, or multiple keywords to a text section in order to characterize the statement *(Brinkmann, S. et al. 2018)*. Meaning coding is used as a key aspect of content analysis, where the text meanings are coded into categories. The number of occurrences for each of these categories then magnifies the significance of the given category. Meaning coding is also used in grounded theory research. The difference between content analysis and grounded theory is that using grounded theory, the codes do not need to be quantified for assessing significance.
When using meaning condensation, extensive statements are compressed into shorter remarks, where the main sense of the original statement is rephrased in a few words *(Brinkmann, S. et al. 2018)*. This method can be used to analyze broad voluminous interview data, where the researcher expressess specific text units by their main themes.
The latent focus interprets the deeper understanding *(Terry, G. et al. 2017)*. The meaning interpretation technique serves for going deeper, beyond what is expressed in words. It is often used in humanitarian areas, where the researcher analyzes for example a poem, or a section of prose. This approach of analyzing qualitative data, as opposed to the other two mentioned approaches, frequently leads to text volume amplification. This means that the researcher often ends up with more data after analysis, than what they started with.

The interview analysis with focus on language is an approach in linguistic disciplines, and thus is disregarded for this research. However, the third mentioned approach - bricolage, can be applied. As *Brinkmann et al. (2018)* state, qualitative data analysis can also be conducted without following any specific analytic method. Instead, the researcher may utilize different techniques interchangeably. Applying this approach can bring out connections and structures meaningful for the research project.

In our project, we focus on the semantic understanding of our data, as we strive to uncover connections and structures in the data. The following subchapter is going to discuss our coding process.

3.3.2 Coding procedure

In order to increase accuracy and credibility of our study, in this subchapter we describe our data analysis process. Addressing transcription as the initial step in the coding process, after conducting and recording the interviews, the data is transcribed

using otter.ai - an online automatic transcription tool. The researcher then listens to the whole interview again, reading the transcriptions simultaneously, correcting the mistakes manually.

After transcribing the data, the process of coding starts with getting familiar with the data. Although our coding process is inductive, it is important to keep the problem statement and research questions in mind while assigning the codes to text bocks *(de Casterlé, B. D. et al. 2012)*. After this step of the coding is complete, the researcher should end with a holistic understanding of the interviewee's experience. While the researcher is getting acquainted with the data, *de Casterlé* points out that they should keep in mind these important questions:

- How do participants orient themselves to questions?
- What assumptions do they make?
- What worldviews are they drawing from?
- What emotional responses do they have to the questions?
- What understanding of their narration for themselves and others do they have?

The following step consists of the initial coding of the interview. The initial coding needs to be thorough, because the researcher's experiences and interests may influence what they notice in the data set. The text is divided into small sections based on the meaning. Additionally, one block of the data can be marked with multiple codes, and some may even be blank - based on the relevance to the problem statement and the research questions *(de Casterlé, B. D. et al. 2012)*. Codes should include enough information about the data blocks and sometimes even have analytical interpretation. You can see an example of early codes in this project on *Figure 3.3*. The initial codes are located on the right side of the figure in soft pink brackets, and they correspond to the blocks of texts from the left side.
After the initial codes are in place, the researcher needs to review them. The process of reviewing consists of reading the specific codes one by one, followed by reading the block of text they refer to. The researcher then either approves the code, or rewrites it, depending on how well it represents the text section it refers to, creating final codes.

	lack of processess, what exactly the applicant worked on
	does not know how skills were applied in projects
	mockups - cannot see the design
looks nice but I in my opinion this is very it's but if you apply as a UX designer you need to e yeah, you made an app and yeah it probably	how were projects approached
k like this again, it's fine if the if the goal here is ut if it says here you can - user a journeys ht - You did on this project I would inquire to the	positive feedback to the picture
. Yeah, well, sounds cool, but I would Yeah, I	negatively notices lack of capital letters in headers
od for knowing Okay, at the base level, you can you're hiring and there's two people one person ill they will be in favor. And alright interface from my phone looks nice.	some text is too small to read
	highlighted soft skills are considered mere buzzwords
	nice to see what the applicant is familiar with
	larger mockup screens are favored

Figure 3.3: Initial codes in our study.

It is important to denote that the first section of the interview that focuses on hiring processes and the interviewee's background was not included in the thematic analysis. This is due to the structured nature of this first part of the interview, and borderline quantitative nature of the data gathered. This data was instead input into a matrix as supportive data for the second half of the interview and participant observation, and can be found in *Appendix c - data analysis.xlsx*.

After developing initial codes, these codes are grouped together and clustered based on similarities. These clusters of different codes should follow a clear core idea that the investigator shall state. In this stage, thematic maps and tables with themes can be used for easier visual assessment. In our study, we utilized tables with themes, and can be found in the appendices section of the report under *Appendix c - data analysis.xlsx*. This step in the analysis is called theme development.

Once all the codes have been assigned to a group based on a theme, it is time for reviewing these groups. The researcher should make sure that the themes capture all the meaning of the codes, but also that the themes are distinct from each other. If they fulfill these requirements, the final themes are defined. The final uncovered themes can be connected to and reflected upon by theory, or summarized on their own. This detailed analysis is described in *Chapter 5 - Data analysis and results*.

3.3.3 Validity and reliability

Following our data analysis process, the topics of research validity and reliability need to be addressed. *Bryman (2012)* denotes that these terms have been "brought over" to qualitative research from quantitative research, where they play an important role in reporting findings of a given study.

However, researchers and experts alike have been heavily discussing how to adjust validity and reliability into qualitative research, and whether they even are needed, given the vastly different nature of qualitative research, compared to quantitative research. These terms are being translated into many other ones, like credibility, transferability, dependability, etc.

Focusing on the qualitative validity, *Creswell, J. W. et al. (2018)* point out multiple viable strategies that can be employed. Validity as a term in common language, indicates the truth, or correctness. Validity in qualitative research refers to the accuracy of the findings, and can be measured using particular procedures.

One commonly known strategy of validating qualitative data that we utilize in our study is data triangulation. This method examines evidence from multiple sources and uses it to create a logical justification for different themes. These themes should be assembled using numerous data sources from the participants *(Creswell, J. W. et al. 2018)*. Data triangulation increases validity of the study it is used in.

Another highlighted method of magnifying validity is self-reflection. *Lazar et al. (2017), Bryman (2012)*, and *Creswell et al. (2018)* all agree that clarity of the bias that a researcher brings to the project creates an open and honest account and increases validity. This clarity can be established by the researcher commenting on the findings of their study, and how they were molded by their experiences, gender, culture, socioeconomic status and so on. This reflection can be found in *subchapter 6.3 Discussion*.

Presenting negative or conflicting evidence to the reader that counters the established themes increases qualitative validity as well. Nearly all evidence found during data analysis helps build up different themes, and the cases for these themes. When showcasing contradictory information gathered, the case becomes increasingly realistic, and additionally more valid. As an example of allowing contradiction, we can showcase *Chapter 5 - Data analysis and results*, where we present a multitude of opinions on the applicant's background, or their projects. Hereby, we comply with and utilize this method in order to increase the study's validity.

Reliability, as opposed to validity, refers to consistency and stable nature. Qualitative reliability should show that the researcher's methods are consistent across other researchers and projects. A researcher can increase qualitative reliability by creating a document, where they detail different procedures and steps of the study *(Yin, R. K. 2008)*. Such a document for our project can be found in the *Appendices* section of this report under *d - schedule and meeting support document*. This document outlines the proceedings of our project. Other procedures, like the data collection, data analysis, participant recruitment, or portfolio production are detailed in this paper in their respective sections. All the documentation of our proceedings additionally increases the project's transferability, meaning the ability for other researchers to replicate our study using the same methods.

On top of the process document, *Creswell et al. (2018)* suggests an additional way of increasing reliability in qualitative research, by checking transcripts for mistakes and making sure there is no shift in meaning of the codes during the data analysis process.

In the consecutive subchapter we identify the ethical concerns and guidelines for our study.

3.5 Ethical considerations

When performing research that involves close collaboration with one or more people, it is crucial to address the morality and ethics that regard working with people (*Orb, A. 2001)*. The guidelines for these considerations predominantly involve informed consent to participate in the given study, the subject's confidentiality, potential consequences of the research, and the role of the researcher *(Brinkmann, S. et al. 2018)*.

An informed consent form is an agreement of the researcher's ethical accountability towards the participant. This agreement should highlight the handling of the participant's personal data, answering questions like: "Who will be able to see the data?", or "Will the participant's name or any other personal information be associated with the research or the data?".
Enforcing the concerns of data handling and participant anonymisation, the data has to be compliant with the EU's General Data Protection Regulation - GDPR. During the data collection process, we acquired sensitive data that has been anonymized, and no personal information can be found throughout the process. As per GDPR, a verbal consent has been given to participate in the study, and for the sessions to be recorded, at the beginning of each interview *(Council of European Union, 2016)*. The participants have been informed verbally, and in the initial written conversations about all the parties involved in having access to the study data, and the consent was given freely, based on specific unambiguous information.

Moreover, the Ministry of Higher Education and Science in Denmark has their own regulations that concern our study. In their publication 'Danish Code of conduct for Research Integrity', they characterize three main principles of research integrity, that all the studies conducted in Denmark should comply with. These three principles are honesty, transparency, and accountability. In our study, we make sure that we follow these principles.

This subchapter concludes *Chapter 3 - Methodology*. In the following chapter, we summarize our process of creating the three portfolio artifacts used to drive the interview data collection process.

Chapter 4 - Portfolio production

The portfolios produced for this project are pivotal for this research, insofar as they were used as sensitive artefacts in every participant observation and interview. Furthermore, the participant observation and to some extent the interviews rely on the tacit knowledge that the interviewer and interviewee has built after experiencing and interacting with the portfolios. By bringing the reader on par with the contents of the portfolios, a deeper understanding of the data can be reached.

Therefore, this chapter outlines important theories of practice that were employed in creating these interfaces, the portfolios, as well as describing the process and decisions taken throughout the procedure as well as exhibiting the final product that was used in the data production. Understanding the process behind production of these artefacts of the data improves the reliability of the analysis of the interview and participant observation in *Chapter 5 - Data analysis and results*.

For the purpose of this study, three portfolios were designed by the author. They were created from scratch using Adobe XD programme. The design and focus varies from portfolio to portfolio, the constant being the merits, work-related projects and personal information in all three of them. This way, the focus of the interviewees was directed specifically toward the design of the portfolios. This chapter will therefore outline these aspects of the artifacts separately.

Garrett's (2011), just as well as *Parush's (2015)* conceptual design framework approach to interface design theory can be considered very practical and provides a great source of structure for creating interfaces. Their theories guide our portfolio creation greatly. An extensive amount of knowledge on the theory and practical application of user experience, user interface, their laws, and also how to follow a concept from ideation to creation will provide a strong base for the practical part of the project.

The final portfolios can be found under *Appendix g - mockup portfolio 1*, *Appendix h - mockup portfolio 2*, and *Appendix h - mockup portfolio 3*, and it is recommended that the readers browse through these attachments before reading the rest of this chapter. The chapter is divided into two subchapters, the first one following the creation process of the portfolios utilizing the aforementioned conceptual design framework, and the latter exploring additional supplementary concepts.

4.1 Conceptual design framework

When designing the portfolio artifacts, our research design follows the conceptual design framework as established by *Garrett (2011)*. This framework describes interface design creation from ideation to realization, including the most well-known concepts and rules used in the industry *(Johnson, J. 2014)*.

Garrett (2011) states that a specific interface's objective/s and the needs of the interface's users create a substantial base for starting to work on a given user experience. As an example then, the objectives of a professional portfolio can be described as: showcase author's work, their professional identity, identity of their profession, and contact information, in a way that "speaks" to the potential employer/s. This base forms the first out of five plains *(Figure 4.1)* that *Garrett (2011)* defines for creating a working user experience. Similarly to him, *Parush. (2015)* also describes five planes of user experience and interface design. This time, however, also naming the concept as conceptual design.

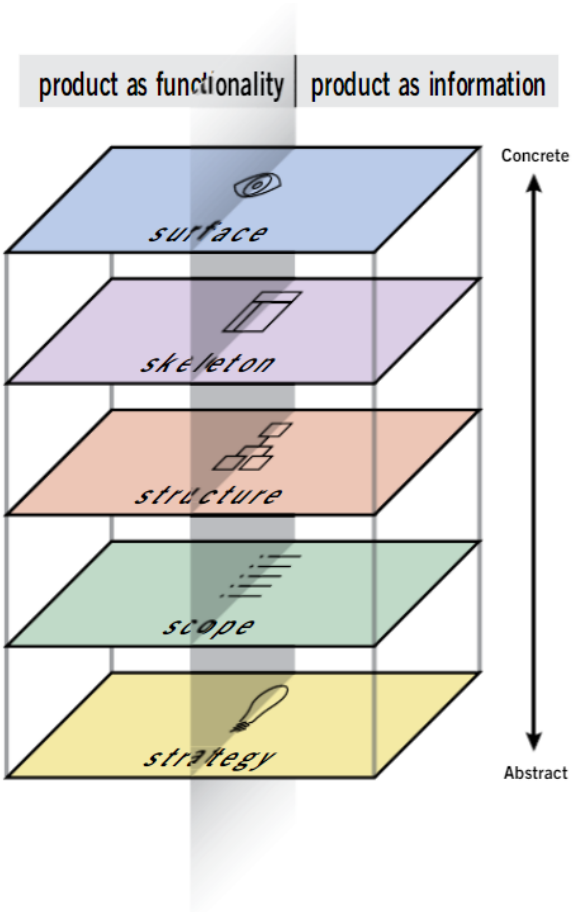


Figure 4.1: the five planes as defined by Garret (2011)

In the following subsections, we describe the main planes that conceptual design works with, connected theory, and practices, and how these were applied in our portfolios. This way, the concepts connected to user experience and user interface design are going to be revealed in the process step where they are used.

4.1.1 Interface objectives and target audience

The first conceptual design plane is characterized as the strategy plane, and should answer two questions:

- What does the company (in our case the author themself) want to achieve with the product/interface?
- What do the users get out of the product/interface?

In order to answer these two questions, the designer needs to know their target audience. *Tomlin (2018)* draws attention to the importance of target audience exploration and definition by working with user personas and user scenarios. This also helps when recruiting end-users for user testing. In our case, however, there will be no user testing of the interfaces (portfolios), because that is not in the scope of this study. The takeaway for us from *Garrett (2011)* and *Tomlin (2018)* is that we need to define and understand the needs of our target audience in order to create successful interfaces. In our case, the target audience would be the person or people reading through the portfolio from the employer's side. We created two different personas, depicted on *Figure 4.2*, and *Figure 4.3*.

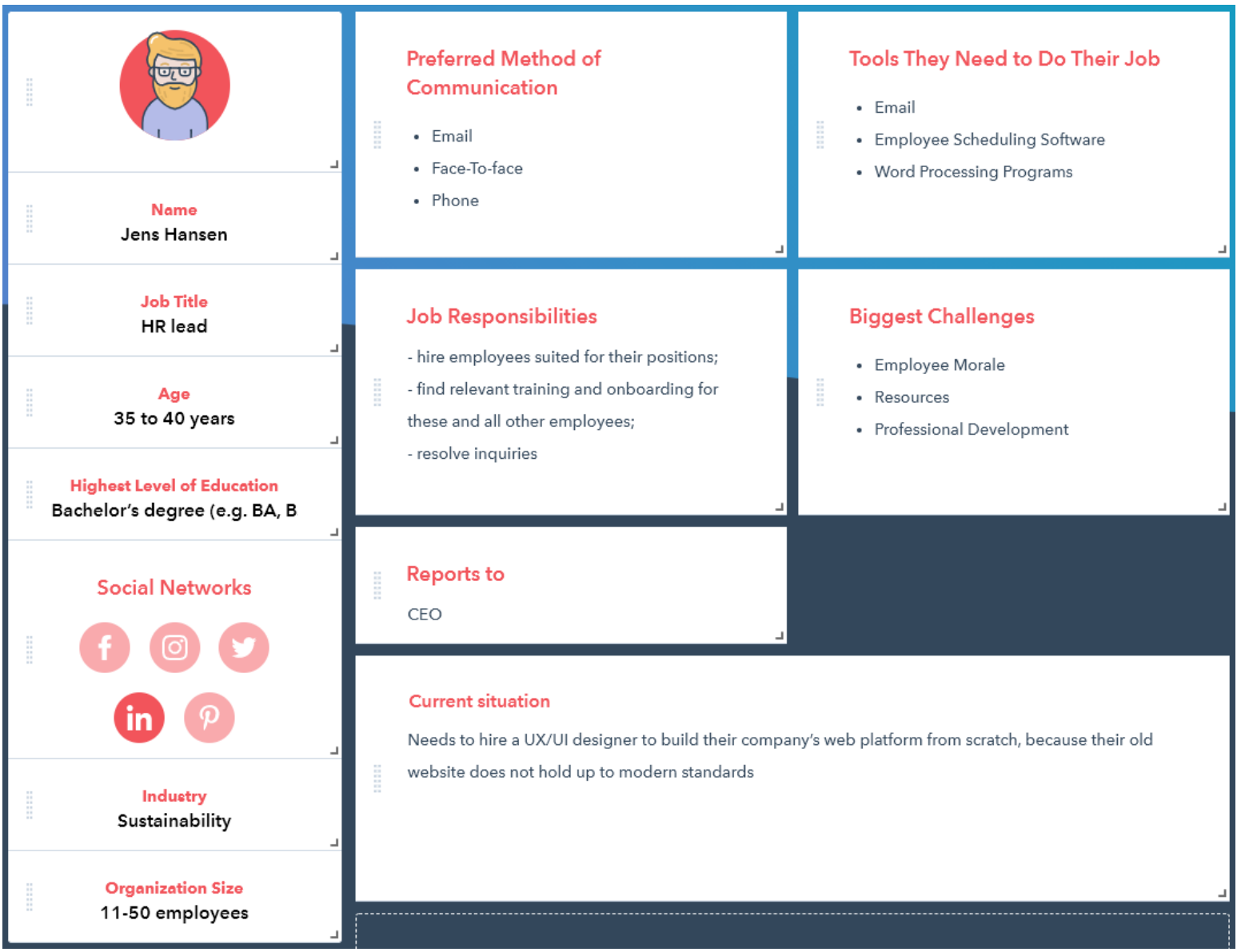


Figure 4.2:User persona 1.

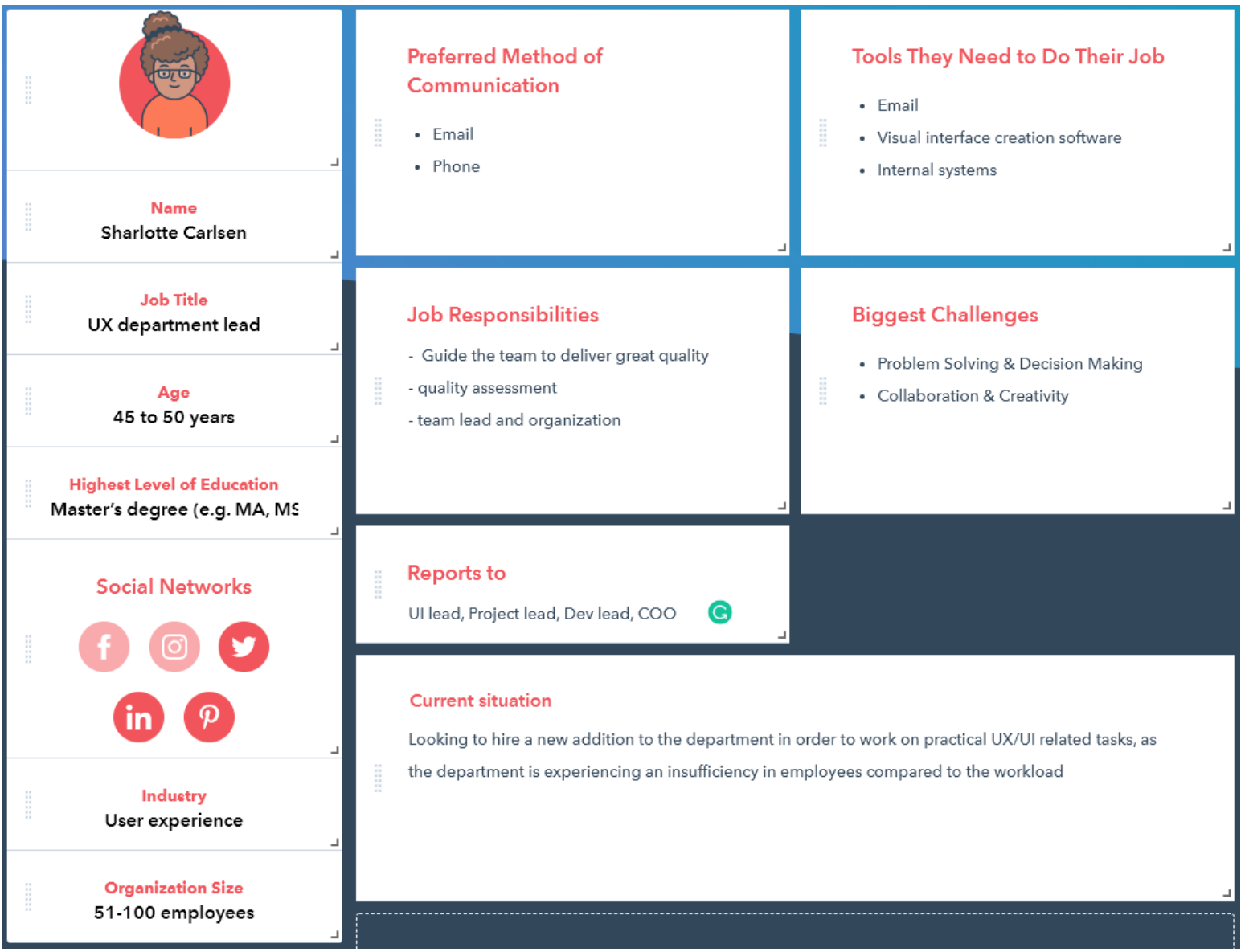


Figure 4.3:User persona 2.

Based on these personas, and the understanding of the target audience, the answers to the aforementioned questions are established as the portfolio interface objectives. The interface creator aims to present all the possible reasons in order for the target audience to be persuaded to call the author for a job interview. Additionally, the users should be provided with all the information they need in order to comfortably decide that this is the right applicant for the job.

All the insights into our target audience gained in the strategy plane is going to help us when moving onwards in the conceptual design framework - into the scope plane.

4.1.2 Interface scope

Following the planes further from the bottom up, the scope plane represents functional specifications and content requirements. What should be highlighted here is that even though we moved between the planes, it is crucial to work on every current plane while utilizing the findings from the previous planes. The strategy plane should give the designer enough information to work with here. The user persona needs and the objectives of the product that the designer is aiming to develop should be translated into these functional specifications and content requirements. These should be prioritized in a hierarchy so that the designer knows what aspects of the product interface should be more prominent and in focus.
Based on the previously defined objectives, the interface content requirements have been established. The portfolio interface should:

- display fitting authorial projects
- showcase the applicant's array of skills
- exhibit the applicant's work ethics
- lay out the applicant's working history
- present the applicant's educational background
- provide a way to contact the applicant

In addition to these general objectives, an additional objective has been added to each of the portfolios, based on the knowledge discovered in *Chapter 2 - Literature review*. Specifically, these additional focuses have been formed by research questions 4, 5, and 6, established in *subchapter 2.4 Sub-conclusion*. These additional objectives are going to differentiate the portfolios from one another, following the problem statement:

Additional focus for Portfolio 1 - current trends approach, based on research question 4: "How important is the knowledge and application of current user interface industry trends when creating a professional portfolio?".

The portfolio 1 should illustrate that the applicant knows and understands the current UX and UI design trends used globally, and locally in 2020/2021. These trends include, but are not limited to 3D elements, glass-morphism, aurora UI, use of gradients in pastel, or vivid colors, etc. A detailed document focusing on this research can be found in the *Appendices* section under *Appendix e - Current trends research*, and an example is displayed in *Figure 4.4* in *subchapter 4.1.4 Wireframing and mockups*.

Additional focus for Portfolio 2 - personal approach, based on research question 5: "How prominent of a role should the individual and their soft skills play in a professional UX/UI designer's portfolio?".

The portfolio should place focus on the person who the employees will be working with if they hire the applicant. It should include multiple images/illustrations of the applicant as the author. The texts in the interface should also be more personal and connected to the professional identity. The final portfolio mockup can be observed under *Appendix h - mockup portfolio 2*.

Additional focus for Portfolio 3 - self-branding and unconventionalism, based on research question 6: "To what extent is the work signature of the author important for the employer?".

The portfolio should demonstrate a strong visual brand. This portfolio should also be distinct on the first glance from the other two portfolios, simulating an unconventional approach that is different from the rest of the applicants at first glance. The final portfolio mockup can be observed under *Appendix i - mockup portfolio 3.*

At this point in the design process, we have established the main goals of our interface, explored the target audience, and established the scope. The next step builds on top of this, and builds the information architecture.

4.1.3 Information architecture

Subsequently in the conceptual design framework, *Garrett (2011)* describes the structure plane. This plane works with interactions design and information architecture.

Interaction design tries to predict possible user behavior and determines how the interface would handle it and respond. In our interface, however, interaction is not utilized to a noteworthy extent, apart from basic text highlighting in the navigation menu, and external links in the footer. Additional reason for the redundancy of specifically interaction design in our project is that the portfolios used in the study are mockups - models of what the real interface hosted online would look like. They are not real self-hosted websites. Therefore we focus only on the information architecture aspect of this plane.

Information architecture as a phenomenon is concerned with structuring and grouping information so that it would make sense and convey the right meaning. Information architects, according to *Ding (2017)*, have to pay a lot of attention to the information organization. The information architecture shapes the design of data. In order to

achieve a design that uses well-working and easily comprehensible information architecture, the designer should consider these four types of information architecture organization:

- Logical IA
- Semantic IA
- Structural IA
- A search functionality

The logical information organization traces well-established concepts, like for example an alphabetical, numerical, or chronological order. Semantic organization categorizes content by the order in which it relates to itself, based on metadata or controlled vocabularies (assigning broader, narrower, and related terms to a term - e.g. term: jacket; broader term: clothing; narrower term: rain jacket; related terms: tops, sweaters). Structural information architecture organization is, for example, a global or local navigation system, browsing aid, or a site map, and the search functionality is displaying searched terms based on algorithms.

The general information architecture created for the interfaces can be found listed below:

- **landing section**:
    - Portfolio 1 - current trends approach: Welcome message and “this is a portfolio” disclosure
    - Portfolio 2 - personal approach: Welcome message + photo
    - Portfolio 3 - self-branding and unconventionalism: Welcome message + logo
- **work ethics and soft skills** as a part of the landing section + scattered and highlighted in portfolio 2 - personal approach
- **skills in programs** used within the industry - “from ideation to realization”
- **three fitting authorial projects**
- **work history and education**:
    - **Work history**
    - **Education**
- **Contact**

4.1.4 Wireframing and mockups

Going back to *Garrett's (2011)* interface design planes, the fourth plane, right after the structure plane, is the skeleton plane. In this plane - interface design, navigation design, and information design are applied.

Interface design, as he describes, works with selecting the right interface elements for the user tasks. Wireframing is extensively used in this stage of the process, as wireframes have to represent all of these three elements - interface, navigation, and information design. Still, they are not represented in detail, but only on a surface level. A study about wireframing by *Hamm (2015)* shows how wireframing can serve as a so-to-speak blueprint to the interface. It describes the interface in detail without focusing on specifics. Wireframes illustrate the basic shapes and functionality that would be found in a single section of a web page, and it usually utilizes black and white colors using basic shapes with descriptions of what they represent, and possibly what functionality they would hold. The full set of wireframes for all of the screens should give a clear skeleton structure of the interface and its functionality.

The wireframes for our portfolios can be found in the *Appendices* section under *f - wireframes*, and a small example can be observed on *Figure 4.4*.

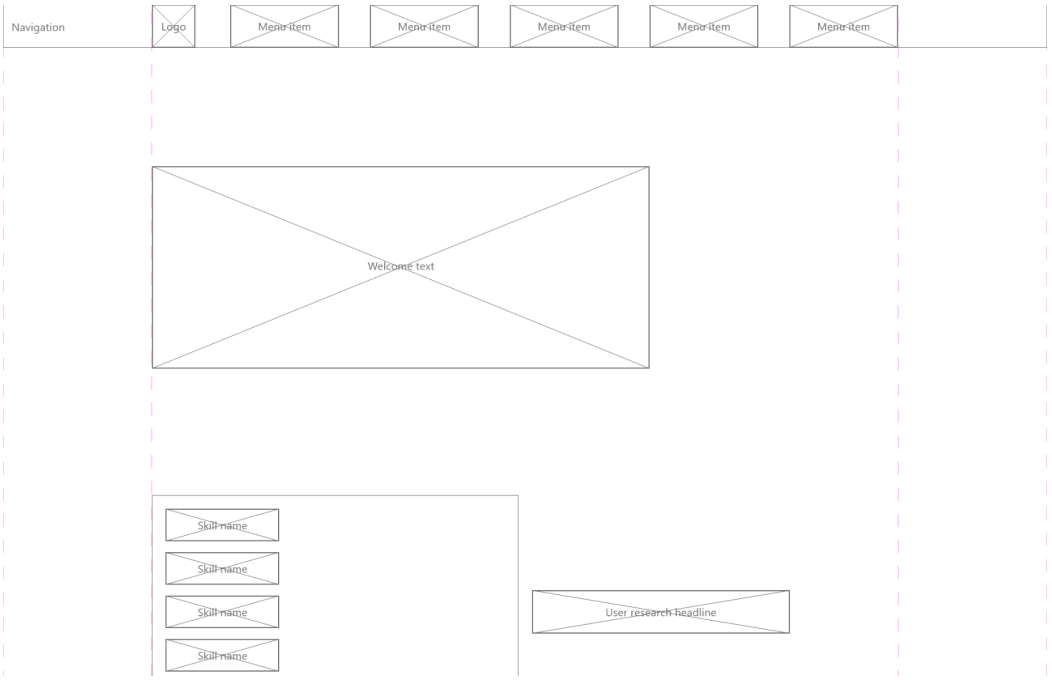


Figure 4.4:Portfolio wireframes used for the landing section.

The specific visuals, colors, texts, and typefaces of an interface are added in the final plane - the surface plane, which handles sensory design. Adding a user interface on top of the other planes finalizes the process and can be considered a fully realized

user interface. An example can be seen on *Figure 4.5*, and the full mockups are located in the *Appendices* section under *g - mockup portfolio 1, h - mockup portfolio 2*, and *i - mockup portfolio 3.*

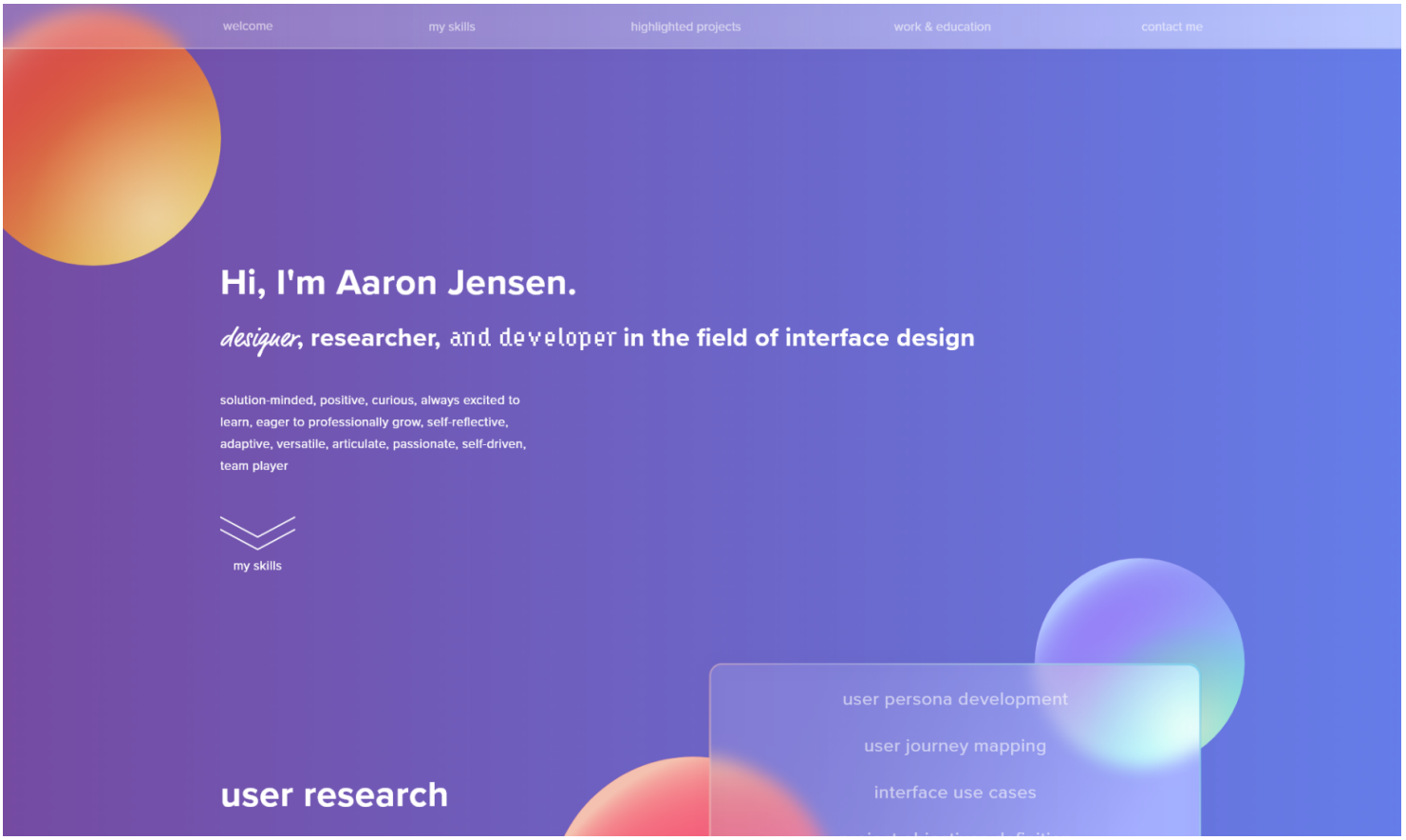


Figure 4.5:Portfolio mockups used for the landing section of portfolio 1.

The user experience and user interface design fields are extensive. So far, we have uncovered and talked about concepts connected to the practical creation of interfaces that designers in the "real world" use to help guide their process.

There are, however, a few more concepts and design laws that we would like to introduce, as they are crucial to the topic and widely known and used in the interface design industry *(Johnson, J. 2014)*. These concepts are profoundly rooted and well-known within the industry, and help guide and progress with the project work. These concepts are described in the subsequent subchapter.

4.2 Additional concepts

As we could see with the conceptual design framework, where many people were describing the same or very similar phenomenon, theory, or a set of rules in their literature, it is the same with the theory and practices we would like to introduce here. These concepts are user interface heuristics, developed and described by *Nielsen (1994)* and later built upon by *Abulfaraj et al. (2020)*, user interface gestalts, and user interface cognitive biases. All of these concepts and rules are intertwined, similar, or the same because they are grounded in human psychology in how people perceive, remember, reason, learn, and convert thoughts into actions *(Johnson, J. 2014)*.

4.2.1 User interface Heuristics

A study was performed at the beginning of the twentieth century, where a party of German psychologists has tried to uncover facts behind the human vision. One of their general discoveries was that human eyesight is holistic *(Johnson, J. 2014)*. That means that the human visual system dictates structure by default.
Based on these findings, many people have tried to put together a set of rules for interfaces. Notably, we can mention Hick's law, Miller's law, Fitts's law, and Nielsen's heuristics *(Yablonski, J. 2021)*. We are not going to go into detail about these theories, but only briefly describe them.

Hick's law points out that time it takes to make a decision increases with the number and complexity of choices. Based on this law it is recommended to minimize choices when response time is critical, break complex tasks into smaller tasks, avoid overwhelming users by highlighting recommended options, but also to avoid simplifying to the point of abstraction.
Connected to choices and options, **Miller's law** explains how an average person can only keep seven (plus or minus two) items in their working memory. That is why for example menus should at most consist of seven options - the less than seven the better, and content should be organized into smaller groups that are easier to comprehend and memorize. We utilize Hick's and Miller's laws in the main menu, as seen on *Figure 4.6* and *Figure 4.7*.

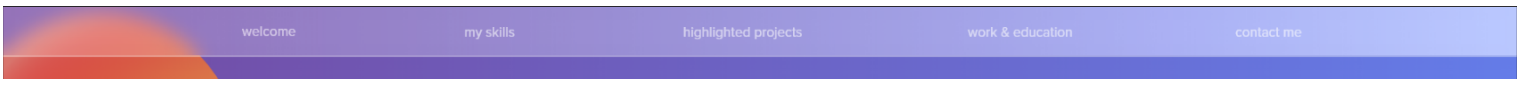


Figure 4.6: Main menu items in portfolio 1 utilizing Hick's and Miller's laws.

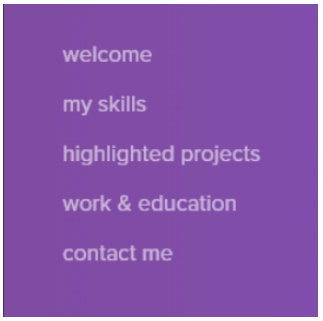


Figure 4.7: Main menu items in portfolio 2 and 3 utilizing Hick's and Miller's laws.

Fitts's law talks about how the time to acquire a target is shorter the bigger and closer the target is. In interface design, this translates into making sure that targets that need to be clicked or otherwise interacted with should be big enough, and have adequate space between each other. These targets should also be placed in areas that are easily accessible. Fitts's law is utilized in portfolio two and three in the main menu, where the menu is restructured vertically, in order to shorten the distance between the menu items, as observed on *Figure 4.7* on the previous page. In portfolio one, the menu horizontal navigation was preserved, in order to obtain more insight from the participants

Lastly, one of the most well-known sets of heuristics has been established by Jakob Nielsen, which was later updated by *Abulfaraj et al.* in 2020. The list consists of laws that focus on visibility of the system status, the match between the system and the real world, user control and freedom, reversibility, consistency, error prevention, recognition rather than recall, flexibility, efficiency, aesthetics and help provided to users *(Abulfaraj et al 2020)*.

4.2.2 User interface Gestalts

The Gestalt principles draw directly from the Heuristic findings. There are seven Gestalt laws: Gestalt law of proximity, similarity, continuity, closure, symmetry, figure/ground, and common fate. The original set of Gestalt laws was later added to, at the end of the twentieth century *(Harley, A. 2020)*. The added laws include the Gestalt law of common region and periodicity. The key fundamental rules of Gestalt order are emergence, reification, multistability, and invariance.

Emergence in connection to Gestalt laws means that the human mind sees plain and sharp elements first. It also tends to see elements in their simplest form first. An example of this can be seen in *Figure 4.8*, whereupon looking at this section, we first see a rectangular shape, and only afterwards we focus on the individual icons.

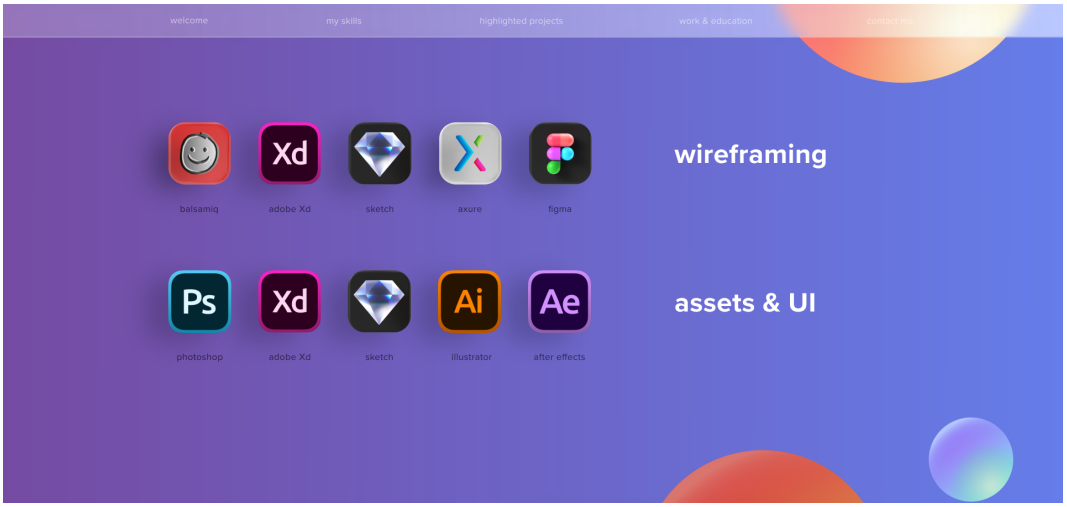


Figure 4.8: Example visualization of the principle of emergence in portfolio 1.

Reification in connection to Gestalt laws reflects in the human mind deducing the full object if it gets enough fragments of it. It can be observed in *Figure 4.9*, where a partial outline of a person can be seen, and although the full silhouette is not shown, we can still recognize it as an outline of a person.

Figure 4.9: Example visualization of the principle of reification in portfolio 3.

Multistability in connection to Gestalt laws can be observed when the human mind is able to perceive objects in multiple ways. This is possible, but eventually, the mind chooses a point of view that becomes dominant. This can be observed in *Figure 4.10*, but also in some famous phenomena like e.g. the blue dress phenomenon, where some people perceive the dress as blue and black, and some as white and golden *(Figure 4.11)*.

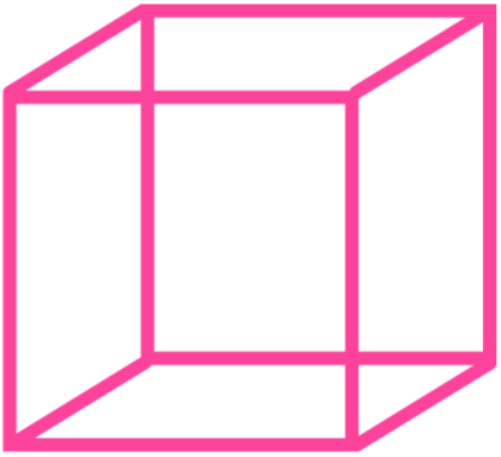


Figure 4.10: Example visualization of the principle of reification by Baraniak, P. Retrieved from: uxmisfit.com

Figure 4.11: The blue dress phenomenon Retrieved from: google.com

The last rule that is reflected in the Gestalt laws is the rule of invariance. This law shows how the human brain creates a simplified projection of a specific element and thus can recognize it independently of its size, color, rotation, and other transformations. The plus symbol on the phone in *Figure 4.12* is recognized as a simple plus, although the shape is visualized in a more complex angle.

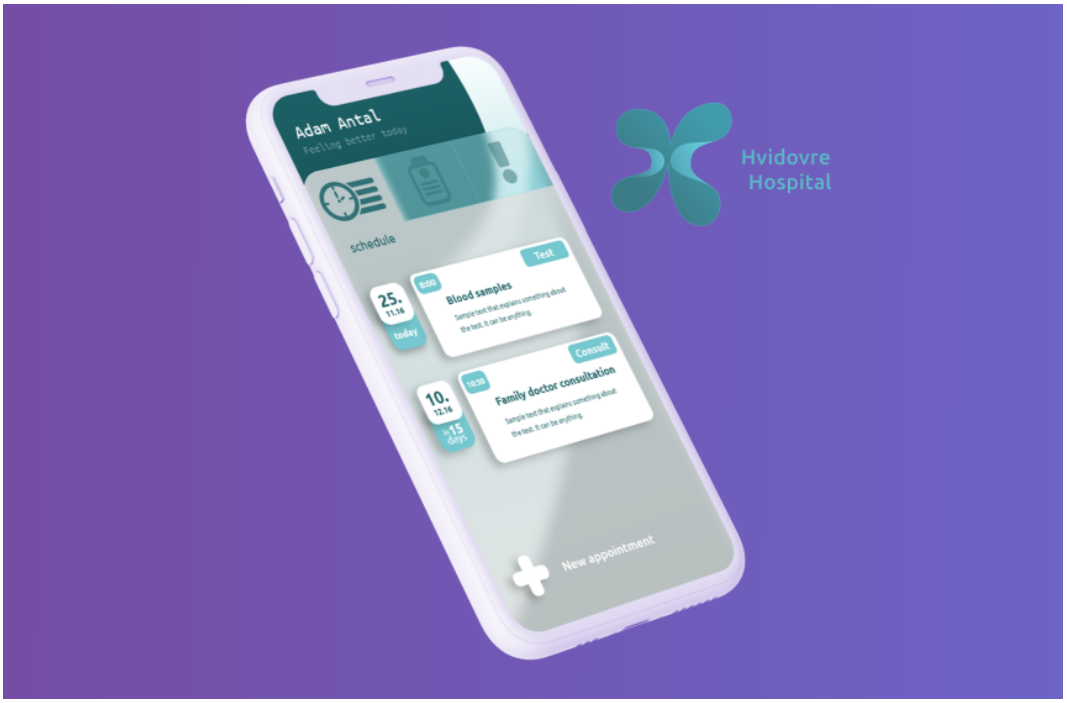


Figure 4.12: Example visualization of the principle of invariance in portfolio 1.

Moving on from the fundamental rules of Gestalt principles to the actual principles, the **Gestalt law of proximity** points out that elements tend to be perceived as in groups based on their proximity to one another. This suggests that items placed closer to each other can be grouped into a visual structure of rows, columns, etc. That is a very effective way of "satisfying" the human eye, as the human vision is wired to structure *(Johnson, J. 2014)*.
On the contrary, if connected elements are placed far apart from each other, the users would have problems perceiving them as linked/related. An example of both cases of Gestalt law of proximity usage can be seen in *Figure 4.13*, where we perceive there being three distinct groups - two paragraphs of text with headlines, plus the navigation on the left.

Figure 4.13: Example visualization of the Gestalt law of proximity in portfolio 3.

The second Gestalt law that we are going to look at is the **Gestalt law of similarity**. It also describes the perception of object grouping and states that if objects look similar to each other, they appear grouped *(Johnson, J. 2014)*. The brain recognized similarity first based on color level, then size level, and lastly, on shape level. This law used in the interface of portfolio 3 can be observed in *Figure 4.13*, where the brain can clearly distinguish that the two paragraphs behave the same, whereas the navigation on the left side behaves differently.

The **Gestalt law of continuity** states that the human brain is biased to perceive connected and continuous forms over disjointed fragments *(Johnson, J. 2014)*. This can be observed in *Figure 4.5, Figure 4.6, and Figure 4.8* used in interface design in the navigation menu of portfolio 1, guiding the eyes to slide from one item to the others.

Another law that deals with the brain trying to resolve ambiguity is the **Gestalt law of closure**. It describes how we as humans can not perceive incomplete shapes and the mind fills in the missing data *(Johnson, J. 2014)*. This law can be observed in practice in the white shape behind the phone screen mockup that is seen as a circle hidden behind the mockup screen in *Figure 4.14*.

Figure 4.14: Example visualization of the Gestalt law of closure in portfolio 3.

The **Gestalt law of symmetry** also highlights the human tendency to see shapes. It states that we tend to parse scenes that are difficult to understand into less complex scenes *(Johnson, J. 2014)*. Symmetrical scenes are more pleasing to the eye as they are less complex to grasp for the brain. An example of this law used in interface design can be seen in *Figure 4.15*, where the left and the right side of the screen are perceived to be in equilibrium.

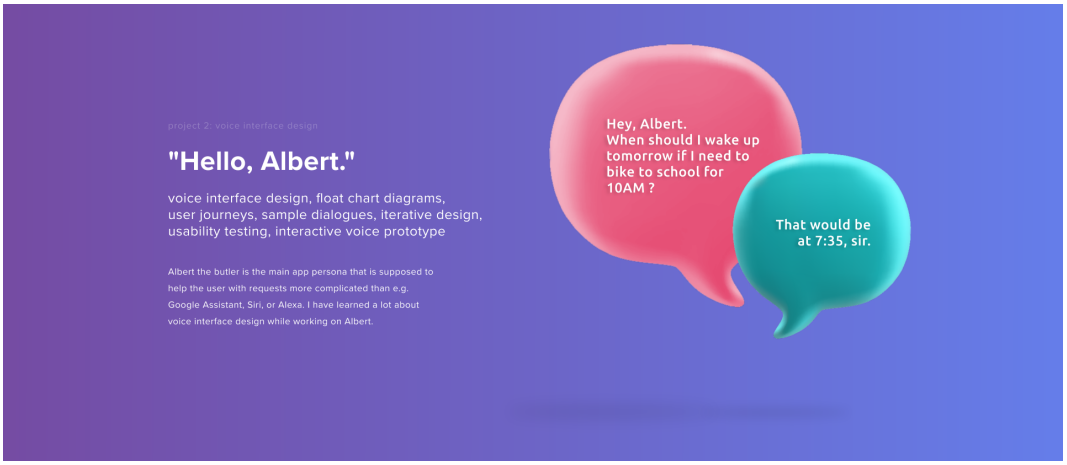


Figure 4.15: Example visualization of the Gestalt law of symmetry and Figure/ground in portfolio 1.

The **Gestalt law of Figure/ground** talks about how our brain structures the elements we see into Figures - foreground, and ground - background. The objects that are in our immediate attention are the foreground, and everything else is background. In interface design, darker or dimmed colors, or blurriness can indicate background and take the user's attention away to brighter colors and clearer shapes. We used this principle as seen in *Figure 4.15* in order to create a feeling of three dimensional space.

The **Gestalt law of common fate** as the only one of the group concerns moving objects, or objects that do not move while other objects do. It states that the elements moving together are perceived as grouped. In interface design, a well-executed animation can guide the users' attention to the right elements. The law was utilized in portfolio 2 and portfolio 3 for the items in the navigation menu as seen on *Figure 4.14* on the previous page.

One of the two laws that were added later is the **Gestalt law of common region** declaring that elements found within clearly defined boundaries are considered a group. The common region can help structure the content and make it easier to comprehend, as seen in *Figure 4.16*.

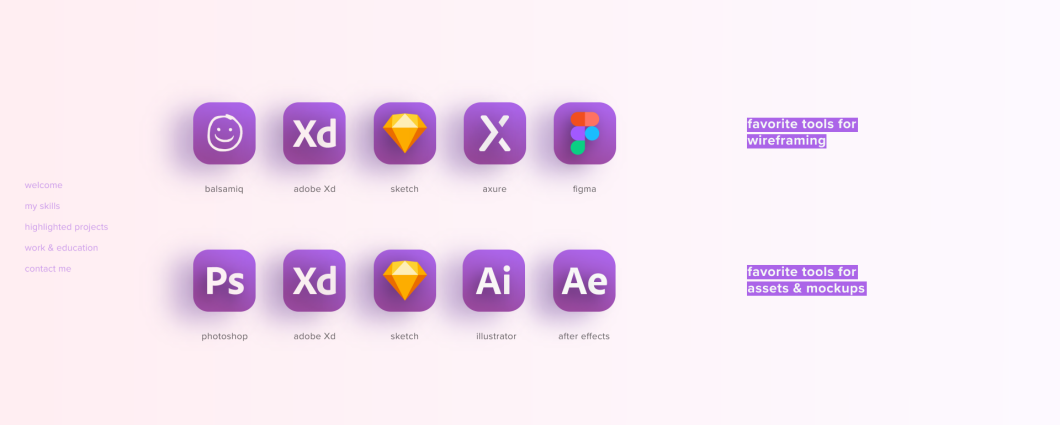


Figure 4.16: Example visualization of the Gestalt law of common region in portfolio 3.

Lastly, the **Gestalt law of periodicity** tackles elements appearing multiple times in similar patterns. These elements are then perceived as related. In interface design, this law can be used in long lists, extensive grids, tabs, etc. in order to build a rhythm, as seen in *Figure 4.17*.

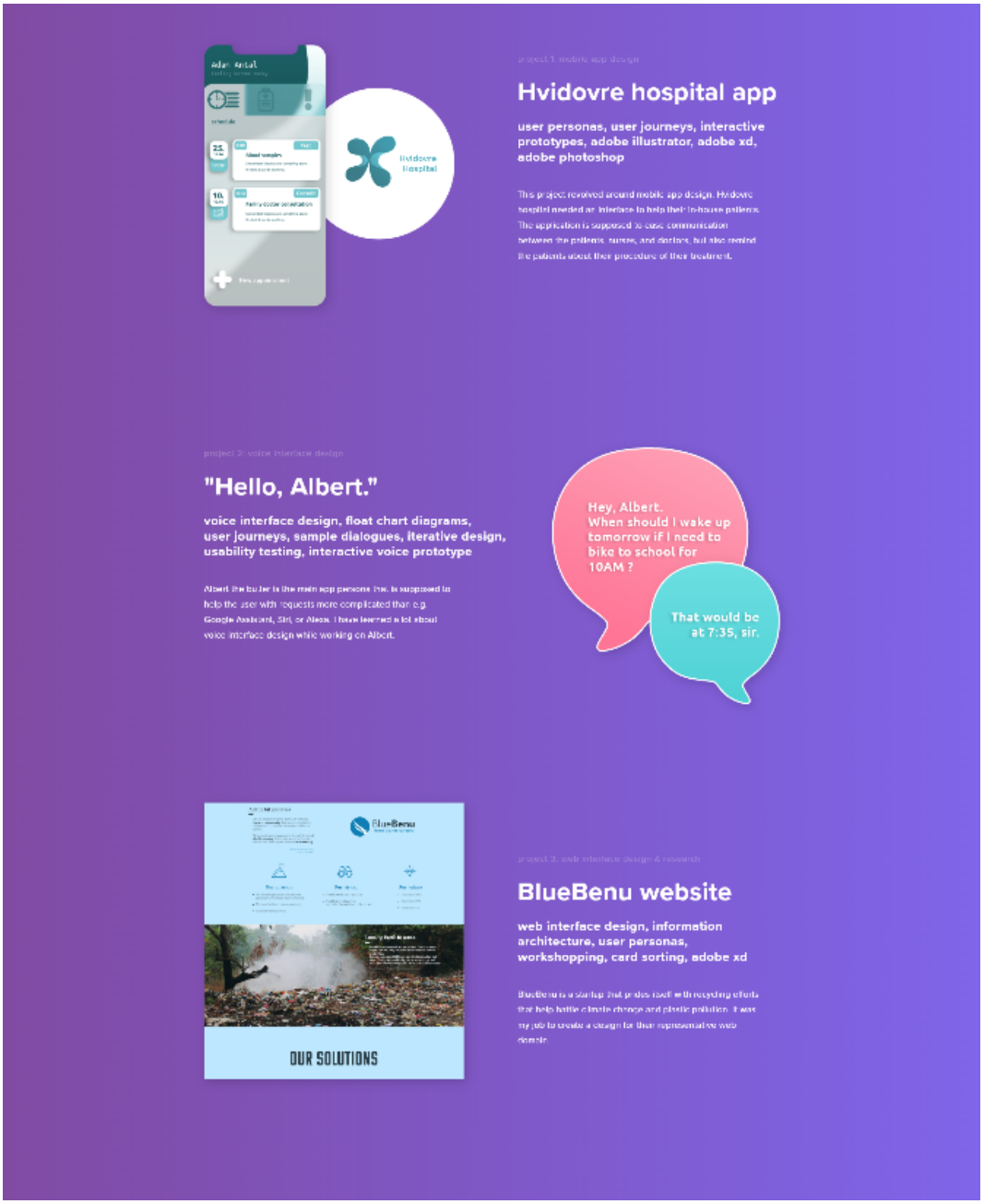


Figure 4.17: Example visualization of the Gestalt law of periodicity in zoomed-out mockup of portfolio 2 (each of the projects takes up the whole screen when browsing).

A good practice described by *Johnson (2014)* is to perceive an interface section through all of the Gestalt laws one by one, after designing it. This helps the designer be critical and find inconsistencies in the design.

We have now mentioned and described fundamental theories, methods, and practices used when developing interface design, and showcased how we utilized them for the portfolio artifact creation. The final portfolios can be found under *Appendix g - mockup portfolio 1*, *Appendix h - mockup portfolio 2*, and *Appendix h - mockup portfolio 3*, and were used as key artifacts when collecting data. Landing sections can

also be seen on *figure 4.18* for portfolio 1, *figure 4.19* for portfolio 2, and *figure 4.20* for portfolio 3. The following chapter describes the data analysis and the results of the study.

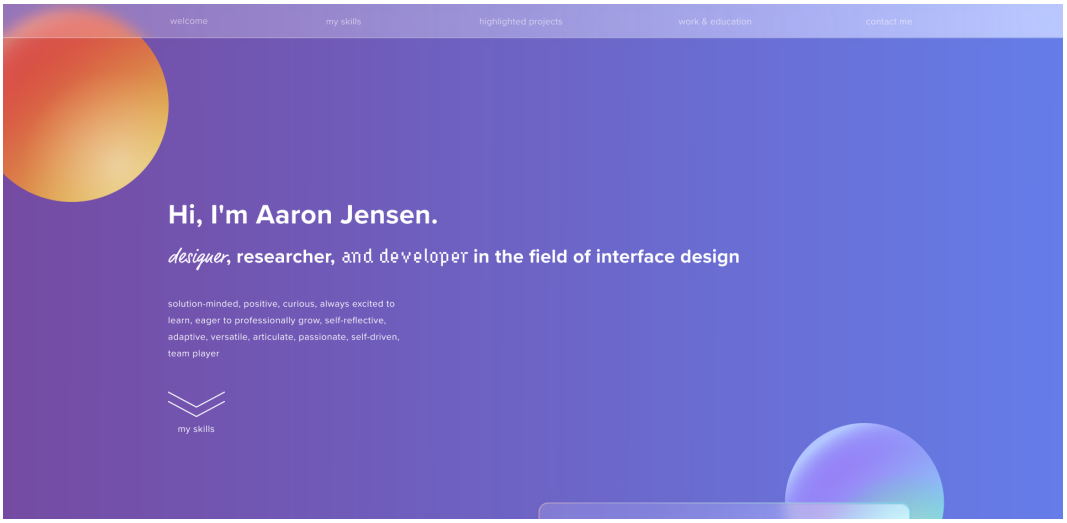


Figure 4.17: Landing screen for Portfolio 1

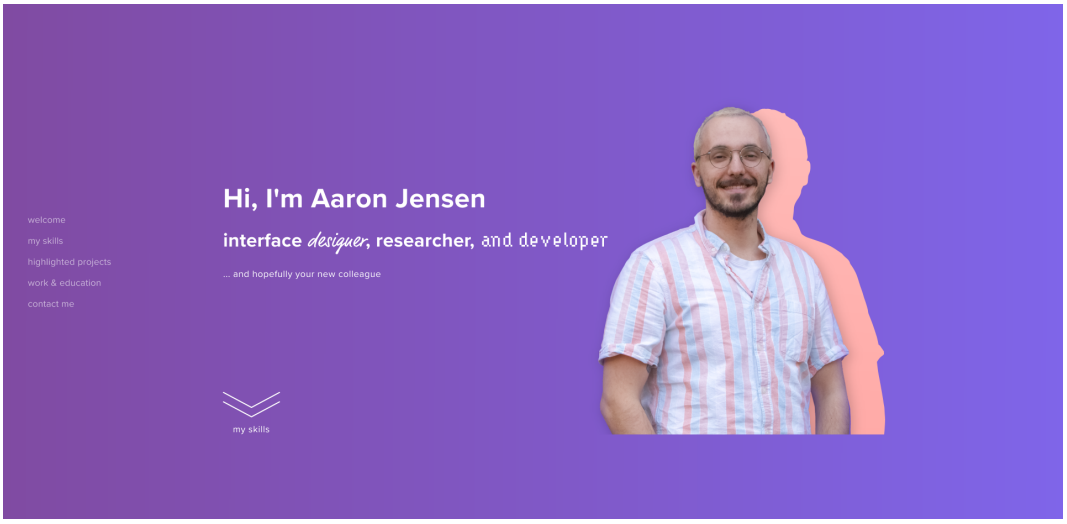


Figure 4.18: Landing screen for Portfolio 2

Figure 4.20: Landing screen for Portfolio 3

Chapter 5 - Data analysis and results

In this chapter, we employ our methodology in order to analyze the gathered data. The presentation of the data analysis is divided into subsections based on the final themes that surfaced during the thematic analysis of the data gathered in the second part of the interviews and participant observation while thinking out loud. These themes and their analysis represent the results of the study, and in the subsequent chapter should help us answer our problem statement:

> ***How do different content focuses applied to a professional portfolio affect its perception in the eyes of employers in the field of user experience and user interface design and research, and how can this knowledge be used in practice to make for a better match between the employer and the new hire?***

The themes that were established are: projects, applicant background, subjective perception of the portfolios by the employers, applicant identity, external content, and applicant's company background knowledge. These themes additionally represent different focuses that can be targeted in order to best represent a UX/UI practitioner in the eyes of the employer.

A visualization that depicts this code distribution can be seen in *Figure 5.1*. It is important to note that this visualization merely depicts how many codes a certain theme contains, and not the importance of the themes.

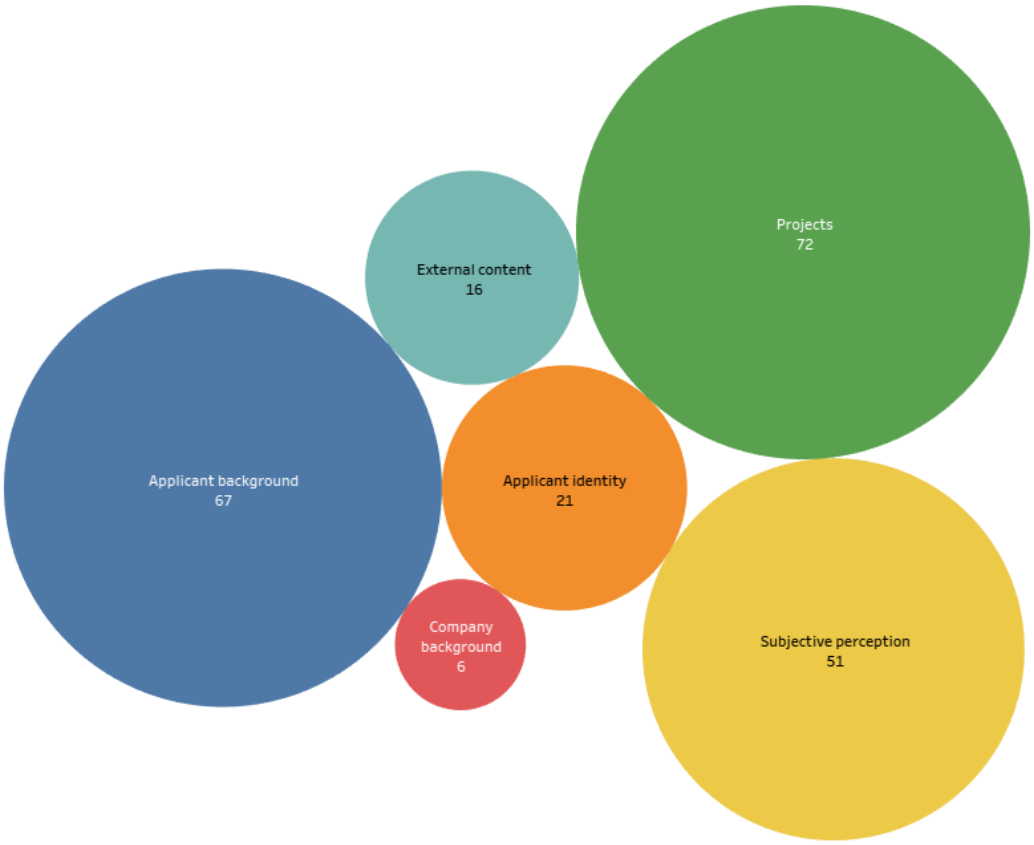


Figure 5.1: Distribution of the final codes within themes from the second half of the interview and participant observation while thinking-out-loud, visualized in a bubble graph.

The first part of the interview, before participant observation, aimed to understand the hiring processes and how the participants fit into these processes. The data gathered from this section has been input into a matrix and provides knowledge on participant background. The detailed matrix can be found in *Appendix c - data analysis.xlsx*, but is also presented in connection to the following subchapter. The data analysis opens out with the theme of subjective perception in connection to the recruiters' background. The term recruiter means any single person involved in the hiring process within the hiring company. Subsequently, we talk about the rest of the uncovered themes seen on *Figure 5.1*.

In order to better understand each of the participants and their backgrounds, a short introduction has been created for all of them, as they will be referred to throughout the rest of this chapter. Images have been added to ease the memorization for the reader. These participant descriptions can be seen on *figure 5.2* through *5.8*.

Participant 1 	• experienced CEO, and founder • from a startup digital marketing company • educated in marketing and business • normally involved in giving the final approval, but also browses through the applications in the beginning of the process

thispersondoesnotexist.com (2021)

Figure 5.2

Participant 2 	• experienced user experience research manager • from a software company • professional background in service design and user experience • educational background in service design and user experience • extensively involved throughout the whole hiring process and decision making

thispersondoesnotexist.com (2021)

Figure 5.3

Participant 3 	• experienced user experience director • from a web design company • professional background in user experience design • educational background in information technologies and communication • extensively involved throughout the whole hiring process and decision making

thispersondoesnotexist.com (2021)

Figure 5.4

Participant 4 	• senior user experience designer, coding architecture, and cloud integration • from an IT service management company • professional background in software development, UX, UI, cloud integration, front-end development • educational background in user experience design and software development • involved in one of their two interviews with the applicant

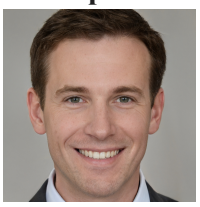
thispersondoesnotexist.com (2021)

Figure 5.5

Participant 5 	• user experience and interface designer • from a software company • professional background in user experience and interface • educational background in digital design • extensively involved throughout the whole hiring process

thispersondoesnotexist.com (2021)

Figure 5.6

Participant 6 	• experienced human resources manager • from a computer consultancy company • professional background in executive research and human resources development • educational background in human resources management • involved in the beginning of the hiring process in order to qualify the application pool

thispersondoesnotexist.com (2021)

Figure 5.7

Participant 7 	• senior user experience designer and user interface designer • from a software company • professional background in user experience design • educational background in communication design • extensively involved throughout the whole hiring process and decision making

thispersondoesnotexist.com (2021)

Figure 5.8

5.1 Hiring processes and subjective perception

The hiring process, among other subjects, forms the focus of the first part of the interview that was performed. The questions here aimed to gather supportive data that supplement the qualitative data gathered in the second half of the interview, but also to find out what role the portfolio plays in the overall recruitment process.

5.1.1 Hiring processes

Firstly, let us have a look into what the hiring process generally looks like. All the participants but participant 5 have described their hiring process to consist of multiple stages described in this paragraph. Participant 5 mentioned that in their company, they prefer hiring people that had just finished their university degree: *"We mostly only hire students straight off University. So we look into their grades, and if they have a portfolio."*.

For the rest of the participants, the first hiring stage normally consists of posting job listings on social media - LinkedIn, or other job listing platforms like jobindex.dk, ofir.dk, or even just on their own website. Participant 3: *"First, we create a job position, we have a job opening, or it could also be that someone applies with an unsolicited application."*. This initial phase is often done by the recruiters from human resources department/positions, as mentioned by participants 2, 6, and 7. Participant 2: *"I'm actually very rarely the one making that decision - if we call them or not. It's the recruiter mainly."* (in this case, recruiter means a colleague from the recruiting team in HR). Participant 3, however, although also working in a similar position and with similar background, stresses that she is involved in the whole process from beginning to the end.
Additionally, participant 6 then highlights the fact that in their process, they use headhunting in this phase as well: *"As soon as we publish the position listings, we perform a search. So, we search LinkedIn for relevant profiles, matching the position, and we reach out to them. And if they are interested, then we also have them apply for the position through our system."*. Utilizing headhunting, the employees of a company search for people with relevant skills and backgrounds themselves, and then reach out to them with an invitation for an interview. If a person would like to be prone to be headhunted, they should pay attention to updating their online platforms where they present their work. This can be LinkedIn, but also their online portfolios, either self hosted or on platforms.

After some time passes, and enough people apply for the position (varies between companies), the recruiters filter the applications, and invite chosen applicants for an initial interview. The recruiters involved in this can still either be from HR positions, or the particular open position's manager/s. Applicants are then either called over phone, or invited into an initial interview. Participant 6 said: *"It could be on the phone, or it could be a short Teams meeting…, to make sure that we have a good match."*. Participant 3 mentioned the importance of focusing on finding a cultural fit in the applicants in this early stage: *"So it's more like what we call an informal coffee chat. ...,just to see how the chemistry is working. It's really important to us."*. Participant 4, 6, and 7 also point out that the applicant should provide for a good cultural fit into the team. Afterwards, the applicant pool is quantified again, and the recruiters from the HR community of practice become less involved. Participant 6: *"My role is then more observant, just to make sure that what they wrote and said in the first interview actually matches their work."*.

Subsequently in the process, the recruiters focus on whether the applicants prove to be the right fit for the position professionally. These two different interviews - cultural fit interview, and professional fit interview, however, proved to be interchangeable, and some companies may prefer to first look at the applicant's skillset. Participant 2 summarized their process nicely for both UX and UI roles: *"So for the designers we do a whiteboard exercise, where we give them a design problem, and ask them to draw out their process and sketch a few initial screens. And for the researchers they would get a few hours to make an interview guide and a quick research project plan for a brief that we give them. [Then we]...ask them to interview one of us when we meet again a few hours later, and we want to hear their initial findings"* Participants 3, 4, 5, and 6 also mention giving the applicants a case study to work on in this phase of the process.

Lastly, participants 2, 3, 6, and 7 mention picking one final applicant who then attends a meeting with more management members, and some of their new colleagues to reinforce that they fit into the team.

In regard to how prominent of a role the portfolio plays in the overall process, participant 2 said: *"I think [for the end evaluation of the applicant] we do half the interview and half the task [that the applicant solved at the company]. So the portfolio is the ticket to the interview, and then it's out."* All of the other participants provided us with very similar standpoints - participant 3, for example commented: *"It [the portfolio] doesn't become irrelevant, but it's really minor [after the interview]. [Afterwards, it's]... much more about what we've been talking about and the chemistry, and my gut feeling."* And so, we can say that portfolios play a much less important role in the decision making for the recruiters after the applicant has already been chosen to attend an interview. On the contrary, however, before any of the applicants are called in for an interview, the recruiters rely solely on the documents provided by the applicant - the portfolio being one of them. The array of materials that they ask for in the job listings varies on whether it is for a UX or a UI position, and on the company, as participant 2 and 3 commented.

The hiring process, as we observed, can consist of multiple phases, where employees from different backgrounds have different roles. The employees working within human resources can be involved in the initial parts of the process - curating job listings and posting them online, but also qualifying the applicant pool. The recruiters with corresponding background to the applicant, are then used in the core of the process, and the company lead can be involved as well in the very end together with the applicant's future colleagues. The recruiters with UX/UI background, and the company lead, however, can be involved and influence any part of the process. The recruiters with HR background do not attend or influence decisions made in the later interviews.

5.1.2 Recruiters' backgrounds as communities of practice

In order to understand the participant's involvement in the hiring processes and place it into a bigger context, we need to have a look at the professional background of the participants included in the study, and what roles they come from in their respective companies.

As seen in *figure 5.2* through *5.8* a large portion of the interviewees work and have studied in matching background to the background of the position of the new hire. These are namely participants 2, 3, 4, 5, and 7. However, employees from different positions and backgrounds are also involved in the process. Participant 1 comes from a business background, and participant 6 has their background in human resources management.

During the participant observation, it is noticeable that recruiters from the same background as the applicant paid attention to different aspects of the portfolio, as compared to participant 1 and 6.
Participant 1 seemingly solely wanted to see individual projects and working experience, as he mentioned a lot throughout the interview: *"[I] definitely [want to see] a lot of projects and those individual project pages."*. Subjects other than projects or work experience seemed irrelevant: *"In regards to education, I don't care. I've met people with amazing master's degrees and are terrible at design."*, and: *" I don't need as much fluff coming into it right away. Really I want to see the work"*.
The rest of the participants followed through and acknowledged all of the areas shown in the portfolios.
Participant 6 on the other hand perceived the portfolio differently than the rest. When asked about which of these portfolios he would hire over the others, he was the only one picked portfolio 3 (found in under *Appendix i - mockup portfolio 3*, and can be partially observed on *figure* and *4.20*). The rest of the participants either picked portfolio 1 or 2, or at least were in the end deciding between them. Participant 2 for example, mentioned right after she opened the portfolio: "The third one... No. Fifteen seconds and it's a no". However, participant 6 valued how different and distinct this portfolio (3) felt compared to the others: *"And then whenever you can surprise me a little bit, of course, it enhances the interest."*.

The reason for highlighting different backgrounds of employees involved in the process of hiring has to do with how the different representatives look at and perceive the applicants' portfolios, as showcased. *Abraham (2018)* refers to this phenomenon as communities of practice. Communities of practice are different groups of people that come from various backgrounds. *Abraham (2018)* also connects communities of practice with another phenomenon called boundary objects.

5.1.3 Portfolios as boundary objects

Within our data, we observed recruiters with different backgrounds, such as human resources, UX/UI practitioners, and business and marketing experts, can all be involved in the recruiting process of a new UX/UI practitioner. As showcased earlier, participants 1, participant 6, and the rest of the participants all looked at the portfolio differently, through their own community of practice - their background. The portfolios are, however, still used as means of communication between the recruiters of all the various backgrounds. In this process, the portfolios can be considered used as boundary objects.

In order to understand what boundary objects are in theoretical terms, *Abraham (2018)* describes them as physical or abstract artifacts that are used for collaboration between multiple groups, or individuals with different backgrounds - communities of practice. They are supposed to be beneficial to all parties involved, and ease transfer of information, and knowledge. In our case, the portfolios serve as a visual communication bridge for the recruiters that work within the field of human resources, business, and UX/UI design.

Corrado (2019) in his publication describes boundary objects used in the education field. He, as an example of a boundary object, describes collaboration between a school, or a university and a workplace, where the school, students, and the company involved collaborate on the same project. *Marheineke (2016)*, additionally focuses on boundary objects as artifacts used for virtual collaboration. He shows boundary objects used as tools that help different groups involved gain a shared understanding. Shared understanding is then described as the rate of mental overlap and intermutuality in knowledge, expectations and assumptions about a given object/subject.

In practice, this means that the applicant, when designing and creating their portfolio, should cater to all of the different groups that can be involved in the process. This is because all of the recruiters that come from different communities of practice have a large role in the hiring process. Although a recruiter with one background would reach out to the applicant, a recruiter with a different background would possibly not. And since it has also been uncovered in the previous subchapter that even though recruiters from particular communities of practice are more likely to be involved in particular sections of the hiring process, this is not a guarantee. They can influence the outcome earlier or later in the hiring process. *Abraham (2018)* describes some of the properties that boundary objects should possess. The suitable properties to focus on when creating a professional UX/UI portfolio are modularity, abstraction, concreteness, shared syntax, visualization, up-to-dateness, and potentially participation.

In this paragraph, we briefly compile these helpful properties that should be accounted for when creating a professional UX/UI portfolio:

- Modularity enables the different communities of practice quick access to the information relevant for them. An example from our data can be found in participant 1, where he described the need to see the applicant's projects and relevant work experience early on in the portfolio.
- Abstraction, on the contrary, is used in order to highlight the commonalities. This provides a shared reference point to all the specific groups of people involved. A personal photo of the applicant can be utilized, as it has been highlighted by all the participants as a positive aspect of portfolio 2 (*figure 4.19* on page 57).
- Concreteness points towards addressing very specific topics relevant to the particular communities. Recruiters with UX/UI background, for example, like seeing specific tools that the applicant can use, as described by participants 3,4,5, and 7.
- Shared syntax brings a common blueprint for understanding different information components.
- Visualization is probably the one aspect of boundary objects that professional UX/UI portfolios always utilize. Especially when visualizing the applicant's projects. Using visual language makes sure that the objects do not rely on verbal definitions.
- Up-to-dateness involves timely communication of changes.
- Participation is a property that can be used, but can prove difficult to utilize. It suggests the involvement of the relevant communities in the creation of the artifact. This way of creating interfaces is used in iterative design, but also on a smaller scale when utilizing user personas.

5.1.4 Subjective perception

This subchapter serves as an answer to research question 4: "*How important is the knowledge and application of current user interface industry trends when creating a professional portfolio?*".

It has been mentioned in the previous subchapter that different communities of practice utilize and perceive the portfolios, or at least some of their aspects, distinctly. On top of that, observing all of the participants' reactions to aspects concerning color and typeface usage, we can notice a trend of extremely subjective perception of these elements.

During the course of the participant observation while thinking-out-loud, participants shared their immediate thoughts while browsing the portfolios. Although there were points where the opinions were similar, or the same, there were many instances where their attitudes and opinions were vastly different, due to subjective perception of the subjects at hand.

One of the examples of this is the usage of color and typeface. All of the participants apart from one commented on the color choices. Participant 5 commented: *"Nice use of gradients and different types of typefaces"*, immediately after opening portfolio 1 (*figure 5.2*, *appendix g. mockups portfolio 1.png*) As described in *subchapter 4.1.1 Interface objectives and target audience*, one of the main objectives for portfolio one was the usage of current trends - including the color trends used in interface design (see *Figure 5.2*). Following this objective, it was not unexpected that the participants picked up on it, and talked about the topic. However, the topic of color, typeface, and other UI elements were fairly polarizing, and almost all the participants had their own thoughts on the matter. Interestingly, even participants from the same communities of practice (with the same background) had distinct opinions on these two topics. Participant 7 disliked portfolio 1 (*figure 5.2)* because of the background visual elements: *"I like that there were not these bubbles around, they didn't look serious."*.

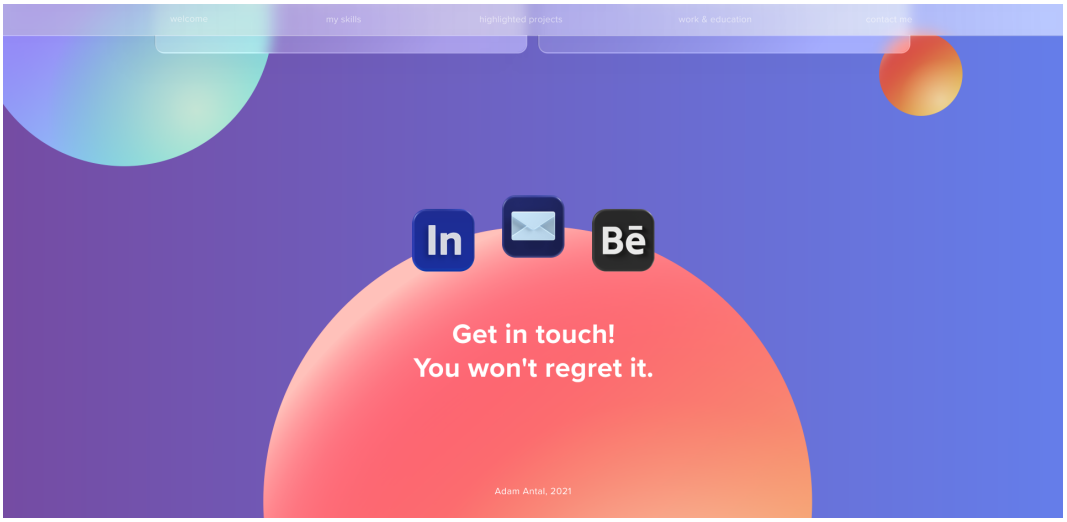


Figure 5.2: Utilizing color trends in portfolio 1.

In the topic of subjective perception, there were also observed instances where another factor played a role. Some of the participants had different opinions on particular matters, because they come from different backgrounds. *Figure 5.3* depicts one instance of this. Here, most participants with relevant UX/UI background deemed the space to the left of the silhouette to be too large to be used as negative space (empty space). Participant 2 commented on this: *"When that outline of the person is there, like the shadow of the person, there's nothing on the left. It's completely empty. It's a waste of space in terms of, like - what's important to communicate here?"*. On the contrary, participant 6 specifically, who is not included in the same community of practice, saw it as a way to differentiate this portfolio from others, some even favoring this approach. He commented: *"in portfolio 3 I like the look, but I also like the persona [silhouette]."*.

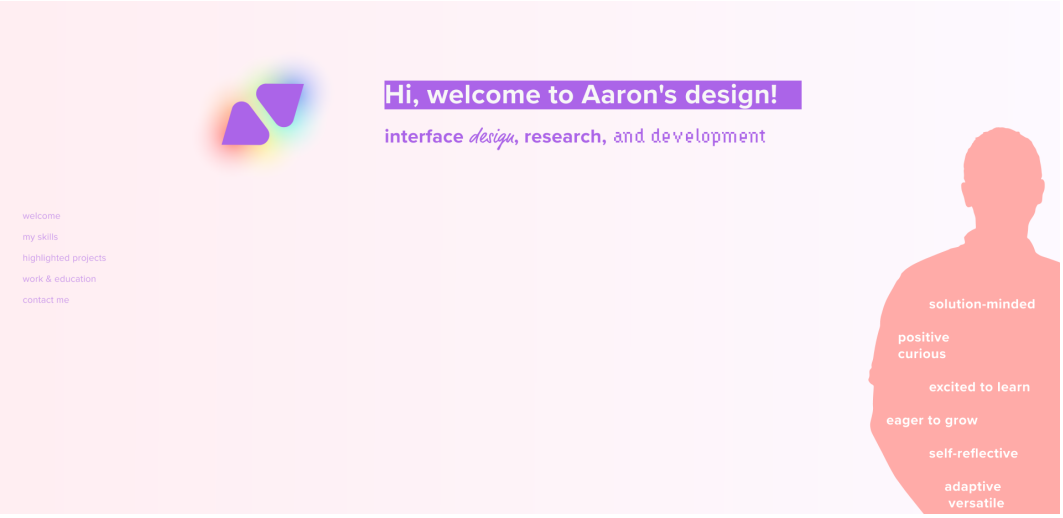


Figure 5.3: Utilizing reification in order to guide the user to scroll down.

In practice, this finding underlines the importance of understanding that some elements of professional portfolios will be exposed to subjectivity influenced by the recruiter's background and personal experiences.

5.2 Projects

The theme that encompasses the most codes, and thus has been mentioned the most is the topic of projects. Portfolios are described as a collection of authorial work, and so it is matching that the interview participants had a lot to say about the subject.

In our portfolios, we repeatedly included three different projects. These projects were briefly described and connected to relevant skills that they represent, as well as programs that were used in the process of their creation. The interviewees universally agreed, that this approach to projects is not satisfactory, and that the projects aspect of a portfolio needs to be given much more room. Participant 7 said: *"It's really nice to have more examples [projects]. And actually, I would love [for the portfolio] to have a lot more examples [projects]."*. Participant 1 agreed saying: *"I think the most important thing from my standpoint, in the portfolio is I want to see the projects fast and upfront. Front and center."*. In case the applicant lacks practical projects, participant 4 stressed the importance of creating some on their own: *"I also encourage young UX designers, that even if they don't have professional experience, they should do some homebrew projects and provide them."*. Based on this strongly shared opinion across all of the participants, we can conclude that project work showcased in portfolios is one of its most valued aspects.

When planning out a professional portfolio, there are three aspects that should be taken into consideration when rendering projects. The interview participants mention these as: the choice of the right projects, project processes, and project presentation.

When choosing the right projects for a professional portfolio, the author should consider the variety of projects they showcase. Participant 7 got very interested when she discovered one of the projects listed in our portfolio: *"Now I got a little more interested, because I work with healthcare, so that's really, really cool to see a healthcare related project! Yeah, that's interesting."*. Therefore, showcasing a larger selection of various projects can prove extremely helpful, because there is a larger chance that there is a specific project that appeals to a specific company. If the company works in the private sector, they are likely to appreciate projects that the author has worked on under similar circumstances. Another example could be a company that works with accessibility. They would likely value seeing the applicant's past projects and skillset connected to this topic. In this vein, the efforts to choose the right projects for a portfolio can be addressed by researching the targeted company/companies of interest for the applicant.

Project processes should also be paid attention to in high detail, as participants 2, 3, 5, and 7 declare. Participant 5 stated: *"If you're [the person who is] hiring and there are two people, and one person has actually explained how they approached this project - I think that they will always be in favor."*. As described in *subchapter 2.3 Professional competencies of UX/UI designers* in our literature review, the UX/UI practitioners often perform a lot of various tasks in their day-to-day work in a company. Additionally, the work tasks rely on usage of the correct processes for gathering data, coming to conclusions, and then identifying pain points. This can explain the need to describe the author's experience and work in great detail. The potential employers are then able to evaluate the applicant's approach in the context of particular project scenarios and problems. The aspects that should be highlighted are problems, approaches to solving them, learnings, and needs. Participant 4 stated: "*I would like to see more screens or more examples of how he has been using those techniques."*. Participant 5 agreed saying: *"I want to know - what were the challenges? How did you approach them? And how did you solve it? More than just what the task was and a screenshot."*.

The project presentation forms the following layer of focus for rendering projects. The presentation should be clean, and easy to understand, without being too wordy. However, it still needs to encompass the problems and processes, creating a narrative of the work. The presentation should also focus on being short because the recruiters looking through the portfolios often do not spend too much time and effort on browsing through them. Participant 2 said: *"A good portfolio is something that I scroll through in three and a half minutes, and I get the message. It's not something that I will never be as in depth in as they have been."*.
In practice, using GIFs and larger mock-up screens are favored. GIFs are very dynamic and can showcase interaction and animation. Furthermore, when displaying mockups, it is crucial to render the interface as clean as possible.

The principle of reification (see *subchapter 4.2.2 User interface Gestalts*, and *Figure 4.12*) should be avoided in this case, and interfaces should be displayed without being skewed. Participant 7 commented on this matter saying: *" I also like this better [portfolio 2 project mockup seen on figure 5.4], because it's focusing on what is on the screen and not the device. [In portfolio 1]...we had this device, and it was more like, it's more important than I can show that I can turn this device a little bit in another perspective and add shadows, but I think the more important thing is what's in what's on this device."*.
Furthermore in regard to project presentation, participant 4 points out that including links to live projects can be a big plus: *"Looking at those projects, it would be great to have some kind of link to a demo, or to the real app, or real page if they exist."*.

Figure 5.4: Visualizing mockups in portfolio 2.

5.3 Company background

In case the applicant would like to focus on a specific company or a specific set of companies, and they would like to maximise their chances, they should research the relevant companies' backgrounds. A professional portfolio is able to highlight the relevant and positively perceived sides of the applicant. Without a proper company background research, however, it can happen that the author highlights specific skills, or projects, that do not match the desired applicant profile from the company's side. This is where performing background research on the particular company comes in extremely beneficial.

As an underlying subject, the importance of appropriate content appears throughout multiple other topics in our data - namely projects, and applicant background. It has already been mentioned that participant 7 got very interested in the portfolio she was browsing when she discovered one of the projects listed in our portfolio. This enthusiasm about the specific project derived from the fact that the particular project matched with the kind of project their team works with regularly. Participant 7: *"Now*

I got a little more interested, because I work with healthcare, so that's really, really cool to see a healthcare related project! Yeah, that's interesting.".
Furthermore, participant 3 mentioned that she is interested in how the applicant sees themself within the organization. She expressed wanting to see what the applicant's contribution to the company could be, but also what they hope to gain, and how the company can contribute for them to achieve this. Participant 3: *"I think the way you write about how you put yourself into play in our organization, saying what you what, what you can offer and what you hope to gain and learn. I think that's very important. But if you ask our creative director for example, that would be something he would give a different answer to."*. From the second half of this quote, although it is just the participant's personal thought, we can additionally extract the theme of subjective perception in connection to communities of practice already explored earlier in this chapter.

In summary, performing thorough company research can provide guidance to address these potential questions from the company recruiter's side. The information gathered when investigating a company can also be used to provide structure for the content of an applicant's portfolio. The applicant can observe nuances that differentiate the company from others, where maybe the job descriptions are extremely similar, however, addressing relevant issues that concern the company may prove to provide an enhanced positive perception of the applicant.

5.4 Applicant background

The professional and educational background of the job candidate was uncovered to form another large focus in our data. This and the following subchapter serve as a partial answer to research question 5: "*To what extent is the person behind the portfolio and their soft skills play in a professional UX/UI designer's portfolio?*".

Although participant 1 specifically mentioned that for him, the educational background is completely irrelevant, in the rest of the cases, the recruiters do acknowledge the applicant's educational background. In our portfolios, the background section did not go into great detail, but merely listed the institutions that formed the applicant's background. This can be seen on *Figure 5.4*. This approach, according to participant 7 does not provide enough information for the company representative to come to any further deeper conclusions. Participant 5 mentioned that including year spans together with the institutions would provide useful complementary information. Participant 4 also highlighted the beneficial nature of the year span inclusion forming a timeline. This way, the recruiters can assess the seniority of the applicant within the industry. Citing participant 4: *"I would really love to understand it in timeline order. [relevant work experience]. Education as well. It could also be highlighted when he has graduated from those universities, because then it gives me a feeling whether he's a junior senior in the industry."*. Educational

and work background visualized in chronological order with dates can help the recruiters judge the length of specific previous employment too, where many shorter contracts often raise questions towards the applicant, as participant 4 stated.
Focusing on education and past job experiences can also help applicants that are recent graduates with filling out gaps of information. A lack of professional projects can be alleviated by showcasing what the applicant has done during and after their education.

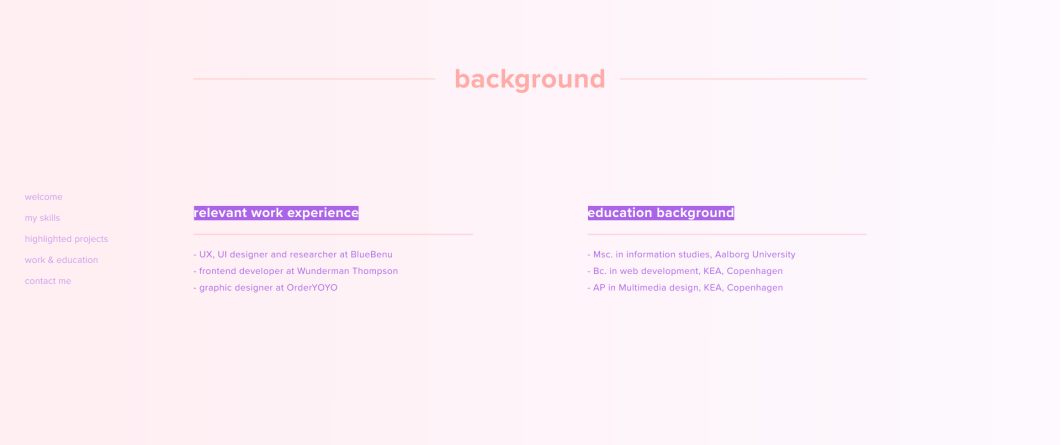


Figure 5.4: Applicant background in portfolio 3.

One prominent section in all of our portfolio artifacts focuses on software tools knowledge and skills. In this section, the portfolio showcases the knowledge of relevant programs and practices used in the industry. An example from portfolio 3 can be seen on *Figure 5.5*.

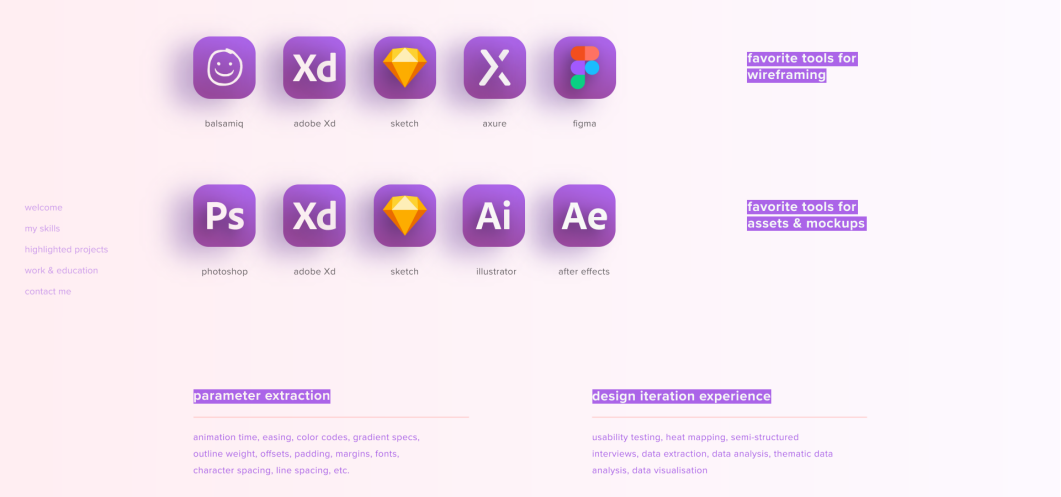


Figure 5.5: Applicant relevant toolset and skillset.

As found throughout the thematic analysis, this is a good point to highlight, however, our portfolios do not highlight tool and software skills in a favorable way. We already mentioned through participant 2 that portfolios need to be easy and quick to read and the message should be concise. The current implementation of the highlighted tools

and skills takes up a lot of space according to participant 3,5, and 7. A better way to highlight relevant tools and skills would be to include them together within particular project descriptions. This way, the portfolio page becomes much quicker to navigate and read through, without compromising highlighting skills with tools and software.

In connection to the topic of applicants' professional background, it is also necessary to talk about the subject of soft skills. Performing the literature review of relevant competencies for this project (*subchapter 2.3 Professional competencies of UX/UI designers*), we learned that soft skills play a large role in being a UX/UI designer and performing the job. Portfolio 2 took on the role of highlighting soft skills as one of the main points to see how the recruiters value them in job applications. These skills were perceived negatively, and as an unnecessary addition to the portfolio by all the participants apart from participant 6. Participant 2 mentioned that soft skills should not be highlighted, because they are obvious traits, and the applicant should possess them inherently, when applying for a UX/UI job position. Quoting participant 2: *"If you're a designer, there are some tools, I'm just assuming... You know, I don't need a paper that says that you know Figma, you know. because otherwise it's like - don't apply for this job."*. Highlighting applicant's soft skills was also perceived consultancy-like in a negative way, and too abstract. Participant 6, coming from the background in HR, as the only one mentioned to specifically like these highlights.

Lastly in connection to the applicant background, the subject matter of professional multi-identity has to be addressed. The applicant in our portfolios has been framed as a professional working with user experience, user interface, but also interface development, and this fact has been prominently highlighted on the landing screen as an introduction to the applicant. Two of the interviewees held extremely contrasting opinions about this. Participants 2 and 3 immediately mentioned this as a negative. Participant 2: *"I see that he presents himself as a designer, researcher and a developer. That's something I would immediately make a mental note of that they don't present themselves as a researcher."*. Participants 5 and 6 on the contrary pointed it out as a positive trait. The rest of the participants either focused on one of the fields and disregarded the others, or did not comment on the matter. This phenomenon is seemingly connected to two topics described earlier in the analysis - subjective perception, but is also the matter of company background. These two factors make professional multi-identity a risky inclusion in professional portfolios.

Based on previous findings, if the applicant would like to appeal to a specific company, we recommend performing a thorough company research in order to find out what their values are prior to choosing a focus. This way the applicant can uncover whether including additional backgrounds would help, or hinder them.

5.5 Applicant identity

It has been made clear by *McNair et al. (2016)* in our literature review that apart from applicant's identity of profession, there is another aspect that forms the image of an applicant in the recruiters' eyes - the applicant's professional identity. This and the previous subchapter serve as a partial answer to research question 5: "*To what extent is the person behind the portfolio and their soft skills play in a professional UX/UI designer's portfolio?*". Additionally, this subchapter serves as an answer to research question 6: "*How large of a role does personal work signature in the portfolio play for the employer?*".

Professional identity depicts the applicant on a more personal level, as a contrast to the identity of their profession (how they made the work theirs). We focused on professional identity in portfolio 2, by including multiple images of the applicant, but also by adjusting the working of included texts to give the portfolio a warmer and more personal tone. This can be observed on *Figure 5.6*.

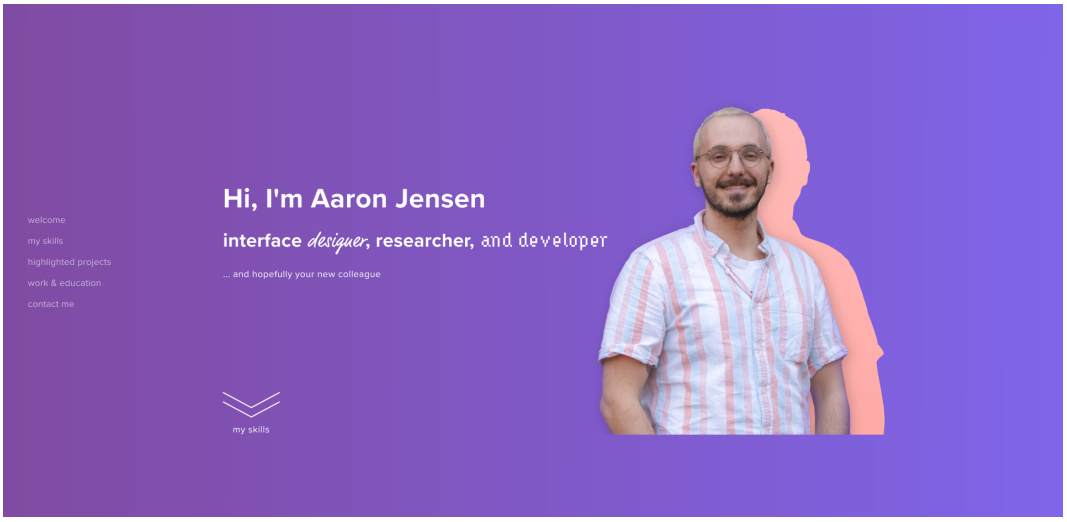


Figure 5.6: Example use of applicant photos in portfolio 2.

There is an ongoing debate whether applicants should include photos or other personal information about them *Betty (2020)*. In Australia, for example, it is against law for an employer to ask for photos, or other information that could be used to discriminate against them. Photos, however, are allowed to be included if the applicant chooses to do so, unlike in the USA, for example *(thelocal.dk, 2015)*. Denmark's law should protect applicants from discrimination, and thus usage of photos is perceived as normal.
In our study, we discovered that all the interviewees highly valued the inclusion of applicant's photos. Quoting participant 5: *"It is always nice to have a face or a picture to make it more personal. It gives the application some soul."*. Participant 1 also particularly mentioned the importance of smiling in the image included. All the participants unanimously agreed to value seeing the applicant, because they are

possibly going to be physically seeing and meeting them at the workplace in case they are hired. In case the applicant is uncertain about photo inclusion, *Rich (2018)* in her study summarizes a lot of research done by other researchers in regard to photo usage in job applications based on countries and different positions. However, *Rich*'s findings align with ours, where an inclusion of the applicant's photo is found to lead to a positive response. Participant 6 pointed out that for him, making portfolios and job applications personal is a very strong way of standing out among a lot of similar applications. In conclusion, professional identity can be utilized to great extent in professional portfolios.

During our literature research, it has been discovered that apart from professional identity, the applicant can also utilize identity of their profession *(McNair L. D. et al. 2016)*, meaning how they made the profession their own. In portfolio 3 (can be found in *appendix i - mockup portfolio 3*, and partially on *figure 4.20*), we attempted to develop an artificial brand for the applicant to set them apart from the group. Using a logo, brand name, and a color scheme, portfolio 3 focused on highlighting the candidate's identity of profession, and setting them apart from the rest visually. A significant limitation of this approach was that the projects included in the application remained the same. The rest of the portfolio, however, took on the brand identity.
The response to this approach was mixed, but none of the interviewees were particularly positive about it, apart from participant 6 with background in HR. Interviewees from the UX/UI community of practice seemed confused as to why a portfolio would be branded this way when applying for a job position in a company. Participant 4 declared: " I would maybe try to focus on yourself rather than to brand yourself. Instead of using some kind of unknown branding like here.". We therefore recommend not to intentionally frame the applicant as a brand in the case of applying for a job in a company.

5.6 External content

The last theme uncovered during thematic analysis is external content connected to the professional portfolios.

When applying for a job, portfolios are submitted together with personal CVs, cover letters, or motivational letters, as stated by our participants. However, the specific combination of materials requested highly depends on the brief coming from the company. Participant 4 mentioned: "We ask precisely for a CV, resume and a portfolio.". Participant 3 pointed out that for UX researchers, they normally do not even ask for a portfolio: *"We asked for the resume, and a motivational letter. And then for the UI designers, we asked for a portfolio, or some kind of documentation for their work."*.
In practice, the information about what material is required by the company can also help the applicant with selecting what content to include in their portfolio. Taking

language skills as an example - they may be of importance if the applicant's first language does not match the language used within the company, as participant 5 pointed out. However, we do not include language as a recommendation to focus on in the applicant background subchapter, because language skills would likely be highlighted externally from the portfolio - for example in a supplementary CV. Quoting participant 5: *"Maybe relevant language skills or stuff like that would be smart to include. But maybe that would be just put into a CV. But it's always good to know if you speak Danish, for example, if you're hiring for a Danish company"*.

The portfolio artifacts used in our project also utilize links to external profiles on Behance, LinkedIn, and included an email address. It has been revealed that the recruiters resort to browsing through applicant's external profiles if there is not enough information in the portfolios. In our case, participants 1, 4, 5, and 6 mentioned that they would like to see more in-depth information on projects externally, because they felt like they did not get enough process information, interface screens, and method utilization in the portfolios. Additionally, participant 4 mentioned that depending on the seniority of the applicant in the industry, external links that showcase how they contribute to the community can also be valuable for the employers. These can include lectures, online blogs, conferences, and so on. Quoting participant 4: *"So if it's someone super senior, I would expect that he can teach other guys, and that he has proven experience running some workshops, or conferences, or lectures, or is running their own blog and having an opinion."*.

This concludes our data analysis and results. In the following chapter, we address our project in hindsight, and summarize the findings in relation to the problem statement.

Chapter 6 - Discussion and conclusion

This chapter represents a critical reflection upon the research that has been performed. We start out by identifying the restraints that the project suffers from. Subsequently, we present the relevant research paths that could be used to further develop and unravel the subject matter of this research area. Following this, the project shortcomings and the researcher's personal point of view are discussed. The chapter then ends with a closing judgement that summarizes the findings.

6.1 Project limitations

There are a variety of factors that confined this project during its development. This subchapter describes the known factors that posed an influence on the research.

One of the already mentioned limitations during this project's development became known as the COVID-19 pandemic. The worldwide outbreak of COVID-19 and the mandatory lockdown affected the way we were able to gather the data for this research, prohibiting any physical contact with our research participants. Not only has this hindered the process of approaching our potential participants, but also obstructed the way we could interact with already recruited participants. In the end, these obstacles acted as both hindrance, but also an advantage, however. That is because of the advantages that online interviews granted the researcher, such as not having to physically spend time traveling in order to perform interviews.

A deliberate limitation outlined in the *subchapter 3.2.4 Population recruitment*, is the requirement for the research participants to be employed in companies that operate on the Danish labor market. This requirement on one hand provides homogeneous research data, but also limits the research to the Danish labor market. In order to find out whether our findings hold up globally, this research would need to be repeated within other foreign (non-Danish) labor markets.

The portfolio artifact creation forms an important role in our research. Iterative design is a framework that could have been used during the development process. This framework is often used when creating interfaces in order to find pain points and adjust them in order to better fit the needs of the interface's target audience

(Rosenzweig et al. 2016). Iterative design framework has not been utilized in our portfolio production process due to time restraints. This is definitely one of the project's limitations, however, a counter argument can be made that when looking for a job “in real life”, it is the designer's choice whether they want to employ this framework or not, but more importantly, whether they have the time to do so. Iterative design is a time costly addition to a project, and in the specific case of the project being a design portfolio, it would be extremely difficult to recruit the target audience for interviews.

This summarizes the known limitations of our project. Following this chapter, a general discussion regarding the research work will take place.

6.2 Discussion

Approaching this research project in hindsight, there are positive and negative aspects of it on both professional, objective level, but also subjective reflections. This subchapter attempts to outline all the different aspects of the project that could initiate a discussion.

Firstly, let us mention the portfolio creation aspect of the project. The choice of creating the artifacts instead of using portfolios originally created by professionals in the industry shaped the project to a great degree. For one, it let us fully focus on the problem statement, and not on individual projects from the different designers. However, it also may have hindered the transferability of the project in case another researcher/research group sets out to replicate it. Furthermore, the professionality of the researcher in this particular area comes into the question. And although the researcher has the correct educational background in order to create professional UX/UI portfolios, they lack seniority in the industry.
Adding onto the topic of portfolio artifacts are the different focuses used to differentiate the portfolios. Although the different selected focuses stemmed from the literature review, applying more of them may have uncovered a larger quantity, or more significant findings.

Another topic that should be addressed in this chapter is the research’s focus on companies and stable job positions for UX/UI designers. Different publications indicate that there is a trend of UX/UI practitioners also working as freelancers *(Baron C. L., 2010)(Cynthia, L. B. 2010)*. This means that they can work on a project basis in companies that normally do not utilize UX/UI practitioners, or on large projects where external help in a company is needed. When recruiting the research participants, the researcher could have joined a freelancer online network in order to seek out and include this category of recruiters in the research. Nonetheless, we are unsure as to how this would affect the data or the findings.

In relation to data analysis, Cohen's Kappa has been considered, but not used for increased data validity. This method would require us handing the data over to a different researcher, who would then code it after us on their own. These codes would then be compared with the codes that were uncovered by us, which could increase the reliability of our codes. Nonetheless, it has been decided that we do not employ this method due to ethical reasons and time constraints. This way we comply with the agreement made with the study's participants about the handling of their data.

Following the subject matters of portfolio artifacts and research participant recruitments, we are now going to discuss the bias that the researcher brought into the study. This research topic direction for this project has been influenced by the fact that it is a master thesis. The researcher themself, after concluding their studies, is going to be looking for a job. This fact certainly molded the topic selection process. Furthermore, the decision for creating portfolio artifacts developed thanks to the very particular background of the researcher. It would have been significantly more time consuming to seek for an external professional/s in order to create the portfolio artifacts externally.
Bias aside, the researcher feels satisfied with the project and its contribution to the researched topic. This study has adjusted the approach to a well-known phenomenon and examined it from a new and unexplored angle, possibly laying ground for more research to explore this topic further.

6.3 Conclusion

The ambition of this research project was to uncover more insights that could shed a new light on the phenomenon of authorial portfolios within the user experience and user interface industry. In order to summarize our findings, we refer back to the research questions, followed by the problem statement.

> Research question 1:
> ***What is a portfolio and what is it used for? What types of portfolios exist and what purpose do they serve?***
>
> Research question 2:
> ***What is user experience and user interface design and what interface design principles, and laws should be utilized to help create a professional portfolio in the field of user experience and user interface design?***

Research question 3:
What competencies should a UX/UI designer and researcher present in their professional portfolio, and how should they be presented?

The first, second and fourth research questions have been answered fairly promptly after establishing them. Performing a review of relevant literature, we framed portfolios as collections of authorial work that are used for presenting purposes. It has also been brought to attention how rapidly they have evolved in the short timespan since they started being used. We understood the importance of user experience and user interface in connection to the portfolios, as portfolios within the UX/UI industry took on a digital online form in recent years. Furthermore, we found out that a fairly extensive list of professional and personal competencies is required when working in the industry.
The information gathered from answering research questions one, two and four has been used in order to create the content focuses for our research, complementing the problem statement.

Subsequently, in *Chapter 4 - Portfolio production*, interface design principles and laws as the industry standards have been examined. These principles, such as the conceptual design framework, user interface heuristics, gestalt, and cognitive biases were then applied to our research artifacts - three professional portfolios.

Ultimately, after answering all the initial research questions, we refer back to the problem statement, which reads as follows:

How do different content focuses applied to a professional portfolio affect its perception in the eyes of employers in the field of user experience and user interface design and research, and how can this knowledge be used in practice to make for a better match between the employer and the new hire?

The focuses that the problem statement refers to have been chosen based on additional research questions stemming from the relevant literature review:

Research question 4:
How important is the knowledge and application of current user interface industry trends when creating a professional portfolio?

Research question 5:
How prominent of a role should the individual and their soft skills play in a professional UX/UI designer's portfolio?

Research question 6:
To what extent is the work signature of the author important for the employer?

Based on applying these three different focuses to UX/UI portfolios, we extracted important areas that can be placed into prominence when UX/UI designers are creating their professional portfolios. These areas include the recruiters' subjective perception in the hiring process, the applicant's past projects, their background, personal identity, the company background, and external content connected to the portfolio.

The extracted focus areas can be used as guideline focuses in practice when creating professional portfolios as outlined in *Chapter 5 - Data analysis and results*. They serve as a clarification that provides insights into what a professional portfolio in the industry should entail, utilize, and what focuses rather be avoided. The clarity in the desired portfolio structure can help the applicant present themself and their work in the best possible authentic way, and thus benefit the companies involved in making a decision on how good of a fit the applicant is for the company.

In regard to the regional applicability of the study, only Danish companies participated in the research. Nonetheless, multiple nationalities have been involved on the representative level, and thus the findings are deemed applicable for other regions too - especially in Europe. More similar research involving companies based in other than the Danish labor market would benefit this claim, however.

6.4 Recommendations for future work

The findings and shortcomings of our study create a fairly large platform for future work in the investigated area. The following recommendations present supplementary research using different methods and practices that could further develop our findings.

1. Portfolio artifacts used for the data collection could be taken from professionals within the industry instead of being made specifically for this project. This approach could also eliminate the need to artificially create and apply content focuses, but would rather utilize the different authors' divergence.
2. The research could delve deeper into each of the involved companies, where all the particular people involved in the process would be involved in the data collection process.
3. With the findings of our research in mind, the project could be replicated. This time, however, the content focuses would be based on our own findings

(all the subchapters of *Chapter 5 - Data analysis and results*) - subjective perception/boundary objects, projects, company background, applicant background, applicant identity, and external content.

4. Finally, the research could put freelance professionals into the forefront, instead of concentrating on stable job positions.

Bibliographical references

Abraham, R. (2018) Guidelines for Architecture Models as Boundary Objects. Book chapter, Cham: Springer International Publishing, pp. 193–210. Retrieved from: https://kbdk-aub.primo.exlibrisgroup.com/permalink/45KBDK_AUB/159qapk/cdi_springer_books_10_1007_978_3_319_69584_6_19

Abulfaraj, A. Steele A. (2020) Detailed Usability Heuristics: A Breakdown of Usability Heuristics to Enhance Comprehension for Novice Evaluators; HCI International 2020 – Late Breaking Papers, User Experience Design and Case Studies. pp.3-18. Retrieved from: https://kbdk-aub.primo.exlibrisgroup.com/permalink/45KBDK_AUB/n4l1aj/alma9920914049405762

Association of American Colleges and Universities. (2009) Peer Review - Emerging trends and key debates in undergraduate education. Vol.11 (no.1), pp.3-7. Retrieved from: https://www.aacu.org/sites/default/files/files/peerreview/Peer_Review_Winter_2009.pdf

Baker, K. S. (2018). User Experience as Organizational Ethos Focused on Quality: a Case Study of UX-Receptive and UX-Reluctant Workplace Cultures. Dissertation for the title of Doctor of Philosophy. pp.1-22,77-152.Retrieved from: https://dc.uwm.edu/etd/1972

Betty, M. (2020) It is Legal to Ask for Photos on Job Applications? Retrieved from: https://lawpath.com.au/blog/it-is-legal-to-ask-for-photos-on-job-applications

Brinkmann, S. Kvale, S. (2018) Doing Interviews. The Sage Qualitative Research Kit. Second edition. Book. Chapter 1-5,7-12. ISBN: 978-1-47391-295-3

Bryman, A. (2012) Social Research Methods, 4th Edition, Oxford University Press. Chapters 1-6,17-25. Retrieved from: https://www.academia.edu/38228560/Alan_Bryman_Social_Research_Methods_4th_Edition_Oxford_University_Press_2012_pdf

Chrapko, G. (2014) Physical portfolio 2014 [image] Retrieved from: https://www.behance.net/gideonchrapko

Corrado, P. (2019) Meaningful Learning by Creating Technology-Mediated Knowledge Boundary Objects Between School and the Workplace. Book chapter. pp. 181-187. Retrieved from:

https://kbdk-aub.primo.exlibrisgroup.com/permalink/45KBDK_AUB/159qapk/cdi_springer_books_10_1007_978_981_13_9652_6_17

Courage, C., Baxter, K., & K.Caine. (2005). Understanding Your Users. Book. Chapters 2-7, 10, 14-15. Retrieved from: https://kbdk-aub.primo.exlibrisgroup.com/permalink/45KBDK_AUB/n4l1aj/alma9920760773205762

Creswell, J. W. Creswell, J. D. (2018) Research Design. Qualitative, Quantitative and Mixed Methods Approaches. Fifth edition. Book. Chapter 1-4,6-8,10. ISBN: 978-1-5063-8670-6

Cynthia, L. B. (2010) Designing a digital portfolio. New Riders, Second edition. New Riders. Chapters 1-5,7-11,13. ISBN-13: 978-0-321-63751-2

Danmark, & Uddannelses- og Forskningsministeriet. (2014). Danish code of conduct for research integrity. Kbh.: Ministry of Higher Education and Science. https://ufm.dk/publikationer/2014/the-danish-code-of-conduct-for-research-integrity (27 p.)

de Casterlé, B. D., Gastmans, C., Bryon, E., & Denier, Y. (2012). QUAGOL: A guide for qualitative data analysis. International journal of nursing studies, 49(3), 360-371. Retrieved from: https://kbdk-aub.primo.exlibrisgroup.com/permalink/45KBDK_AUB/159qapk/cdi_proquest_miscellaneous_926507858

Dewey, A., & Drahota, A. (2016). Introduction to systematic reviews: online learning module cochrane training. Retrieved from https://training.cochrane.org/interactivelearning/module-1-introduction-conducting-systematic-reviews

Ding W., Lin X., Zarro M. (2017) Information architecture the design and integration of information spaces, 2nd ed. Book. chapters 1, 3-7, 9. Retrieved from: https://www-morganclaypool-com.zorac.aub.aau.dk/doi/pdfplus/10.2200/S00755ED2V01Y201701ICR056

Do, A. M. Rupert, A.V. Wolford, G. (2008) Evaluations of pleasurable experiences: The peak-end rule. pp.96-98 Retrieved from: https://kbdk-aub.primo.exlibrisgroup.com/permalink/45KBDK_AUB/159qapk/cdi_pubmed_primary_18605486

Fogg, B. J. (2003) Persuasive Technology Using Computers to Change What We Think and Do. Book. pp.1-29 Retreived from: https://kbdk-aub.primo.exlibrisgroup.com/permalink/45KBDK_AUB/n4l1aj/alma9920793020505762

Galitz, W.O. (2007) The Essential Guide to User Interface Design. Wiley Publishing Inc., Third edition. Part 2, Step 3,4,7,9,11,12. ISBN: 978-0-470-05342-3

Garrett, Jesse J. (2011). The Elements of User Experience : User-Centered Design for the Web and Beyond, 2nd ed. Berkeley, Calif: New Riders, chapters 1-8. Retrieved from: https://www.academia.edu/6511543/The_Elements_of_User_Experience_User_Centered_Design_for_the_Web_and_Beyond_Second_Edition

Getto, G., Potts, L., Salvo, M. & Gossett, K. (2013). Teaching UX: Designing programs to train the next generation of UX experts. SIGDOC '13: Proceedings of the 31st ACM international conference on Design of communication pp.65-70. Retrieved from: https://kbdk-aub.primo.exlibrisgroup.com/permalink/45KBDK_AUB/159qapk/cdi_acm_primary_2507082

Getto, G. & Beecher, F. (2016). Toward a Model of UX Education: Training UX Designers Within the Academy. IEEE Transactions on Professional Communication. 59. 153-164. Retrieved from: https://kbdk-aub.primo.exlibrisgroup.com/permalink/45KBDK_AUB/4ka8t5/cdi_crossref_primary_10_1109_TPC_2016_2561139

Gill, P., Stewart, K., Treasure, E. and Chadwick, B. (2008). Methods of data collection in qualitative research: interviews and focus groups. British dental journal, 04(6), pp.291-295. Retrieved from: https://kbdk-aub.primo.exlibrisgroup.com/permalink/45KBDK_AUB/159qapk/cdi_proquest_miscellaneous_68093263

Gray, C. (2014). Evolution of design competence in UX practice. Conference on Human Factors in Computing Systems - Proceedings. pp.1645-1653 Retrieved from: https://kbdk-aub.primo.exlibrisgroup.com/permalink/45KBDK_AUB/159qapk/cdi_acm_primary_2557264

Gray, C.M., Toombs, A.L. & Gross, S. (2015). Flow of competence in UX design practice. In Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems pp. 3285-3294. Retrieved from: https://kbdk-aub.primo.exlibrisgroup.com/permalink/45KBDK_AUB/4ka8t5/cdi_acm_primary_2702579

Hamm, Matthew J. (2015). Wireframing Essentials : an Introduction to User Experience Design, chapters 1, 2, 4, 5. Retrieved from: https://kbdk-aub.primo.exlibrisgroup.com/permalink/45KBDK_AUB/n4l1aj/alma9920782482105762

Harley, A. (2020) The principle of common region: Containers create groupings. Retrieved from: https://www.nngroup.com/articles/common-region/

Harri, O. Harjumaa, M. (2018) Persuasive Systems Design: Key Issues, Process Model and System Features 1. Routledge Handbook of Policy Design. 1st ed. Book. pp.87–105. Retrieved from: https://kbdk-aub.primo.exlibrisgroup.com/permalink/45KBDK_AUB/159qapk/cdi_informaworld_taylorfrancisbooks_10_4324_9781351252928_6_version2

Hartson, H. Rex., and Pardha S. Pyla. (2012). The UX Book Process and Guidelines for Ensuring a Quality User Experience, Book. Chapters 2, 3, 7, 9, 22, 24. Retrieved from: https://kbdk-aub.primo.exlibrisgroup.com/permalink/45KBDK_AUB/n4l1aj/alma9920848985205762

Hathaway, D. Norton, P. (2018) Understanding Problems of Practice: A Case Study in Design Research. Cham: Springer International Publishing AG, Chapters 1-6. Retrieved from: https://kbdk-aub.primo.exlibrisgroup.com/permalink/45KBDK_AUB/159qapk/cdi_askewsholts_vlebooks_9783319775593

Johnson, J. (2014) Designing with the Mind in Mind: Simple Guide to Understanding User Interface Design Guidelines, 2nd ed. (Elsevier Inc.) chapter 1-7,9-12, Retrieved from: https://kbdk-aub.primo.exlibrisgroup.com/permalink/45KBDK_AUB/159qapk/cdi_skillsoft_books24x7_bks00062207

Kuada, J. (2012) Research Methodology. A Project Guide for University Students. First edition. Book. Chapter 1,3,5-8,10. ISBN: 978-87-593-1554-5

Lazar, J. Feng, J. H. Hochheiser, H. (2017) Research Methods in Human-Computer Interaction. San Francisco: Elsevier Science & Technology, Chapter 7,8,10. Retrieved from: https://kbdk-aub.primo.exlibrisgroup.com/permalink/45KBDK_AUB/159qapk/cdi_askewsholts_vlebooks_9780128093436

Mantonakis, A. Rodero, P. Lesschaeve, I. Hastie, R. (2009) Order in Choice: Effects of Serial Position on Preferences. pp.1309-1312 Retrieved from: https://kbdk-aub.primo.exlibrisgroup.com/permalink/45KBDK_AUB/159qapk/cdi_proquest_miscellaneous_733817280

Marheineke, M. (2016) Designing Boundary Objects for Virtual Collaboration. 1st ed. Wiesbaden: Springer Fachmedien Wiesbaden. pp. 143-168, 195–210 Retrieved from: https://kbdk-aub.primo.exlibrisgroup.com/permalink/45KBDK_AUB/184g6b1/alma9920788774905762

Maxwell, J.A. (2012). Qualitative research design: An interactive approach (Vol. 41) . Sage publications.. Retrieved from: https://kbdk-aub.primo.exlibrisgroup.com/permalink/45KBDK_AUB/n4l1aj/alma9920727395905762

McNair, L. D. Paretti, M. C. Gewirtz, C. (2016) Creativity and Identity in the Construction of Professional Portfolios. Book, Cham: Springer International Publishing. pp.151-172. Retrieved from: https://kbdk-aub.primo.exlibrisgroup.com/permalink/45KBDK_AUB/159qapk/cdi_springer_books_10_1007_978_3_319_49352_7_6

Nielsen, J. Molich, R. (1994) 10 Usability Heuristics for User Interface Design. (updated Nov. 2020) Retrieved from: https://www.nngroup.com/articles/ten-usability-heuristics/

Nielsen, J. Farrell, S. (2014). User experience careers. Journal of experimental psychology. pp. 20-99. Retrieved from: https://media.nngroup.com/media/reports/free/User_Experience_Careers.pdf

Norris, N. (1997). Error, bias and validity in qualitative research. Educational action research, 5(1), pp.172-176. Retrieved from: https://kbdk-aub.primo.exlibrisgroup.com/permalink/45KBDK_AUB/159qapk/cdi_informaworld_taylorfrancis_310_1080_09650799700200020

Orb, A., Eisenhauer, L. & Wynaden, D. (2001). Ethics in qualitative research. Journal of nursing scholarship, 33(1), pp.93-96. Retrieved from: https://kbdk-aub.primo.exlibrisgroup.com/permalink/45KBDK_AUB/4ka8t5/cdi_proquest_miscellaneous_76970605

Oyama, Y. Emmanuel, M. Yoshihide, N. (2018) The Hemingway effect: How failing to finish a task can have a positive effect on motivation. Article. pp.7-18 Retrieved from: https://kbdk-aub.primo.exlibrisgroup.com/permalink/45KBDK_AUB/159qapk/cdi_gale_infotracacademiconefile_A565487742

Parush, A. (2015) Conceptual Design for Interactive Systems : Designing for Performance and User Experience . First edition. Book. (Elsevier Inc.) chapter 3-19. Retrieved from: https://kbdk-aub.primo.exlibrisgroup.com/permalink/45KBDK_AUB/n4l1aj/alma9920849031405762

Pibernik, J. Dolic, J. Kanizaj, B. (2014) What is creativity in web portfolio design?. Digital creativity. Routledge. Vol.25 (2), pp.126-139. Retrieved from:

https://kbdk-aub.primo.exlibrisgroup.com/permalink/45KBDK_AUB/159qapk/cdi_crossref_primary_10_1080_14626268_2013_811425

Radvansky, G.A. Gibson, B.S. McNerney, M. W. (2011) Synesthesia and Memory: Color Congruency, von Restorff, and False Memory Effects. pp.219-229 Retrieved from: https://kbdk-aub.primo.exlibrisgroup.com/permalink/45KBDK_AUB/159qapk/cdi_proquest_miscellaneous_845764615

Randolph, J. (2007, 01). A guide to writing the dissertation literature review. Practical Assessment, Research, & Evaluation. Volume 14, pp. 1-13. Retrieved from: https://kbdk-aub.primo.exlibrisgroup.com/permalink/45KBDK_AUB/159qapk/cdi_doaj_primary_oai_doaj_org_article_b8b174f1c5ad4990a4203979da70521a

Rich, J. (2018) Do photos help or hinder field experiments of discrimination?, International Journal of Manpower, Bradford; Vol. 39, Issue 4. pp. 502-517. Retrieved from: https://kbdk-aub.primo.exlibrisgroup.com/permalink/45KBDK_AUB/159qapk/cdi_proquest_journals_2068897938

Rosenzweig, E, Green, T. Pearson V. (2015) Successful User Experience : Strategies and Roadmaps. First edition. Book. Chapter 2,3. Retrieved from: https://kbdk-aub.primo.exlibrisgroup.com/permalink/45KBDK_AUB/n4l1aj/alma9920760815505762

Salmons, J. (2015) Designing and conducting research with online interviews. Book. Pp. 1-28 Retrieved from: https://www.betterevaluation.org/sites/default/files/43888_1.pdf

Scolere, L. (2019) Brand yourself, design your future: Portfolio-building in social media age. Research article. New media & society 2019, Vol.21(9) pp.1891-1909 Retrieved from: https://kbdk-aub.primo.exlibrisgroup.com/permalink/45KBDK_AUB/159qapk/cdi_crossref_primary_10_1177_1461444819833066

Senette, C. et al. (2018) Persuasive Design of a Mobile Coaching App to Encourage a Healthy Lifestyle During Menopause. Proceedings of the 17th International Conference on Mobile and Ubiquitous Multimedia. pp.47–58. Retrieved from: https://kbdk-aub.primo.exlibrisgroup.com/permalink/45KBDK_AUB/159qapk/cdi_acm_primary_3282899

Shelley, R. (2021) The history of website design: 30 years of Building the Web [2021 Update] Retrieved from: https://www.smamarketing.net/blog/the-history-of-website-design

Smith, T. S. (2014) The Rhetoric of Website Design Professionals' Online Portfolios. Borders without boundaries: Research and pedagogy in Writing and Discourse - Proceedings of the Sixth Annual Conference of The Canadian Association for the Study of Discourse and Writing L'association canadienne de rédactologie. Brock University, St. Catherines, Ontario, Canada, pp.39-60. Retrieved from: https://casdwacr.files.wordpress.com/2015/06/casdw-proceedings-2014.pdf?thickbox=1_target%253D

Sova, D. & Kantner, L. (2020). Mentoring to Build UX Skills in Business Environments. University paper. Pp.1-10. Retrieved from: https://www.teced.com/wp-content/uploads/2011/06/Kantner_Sova_MentoringtoBuildUXSkills.pdf

Terry, G. Hayfield, N. Clarke V. Braun, V. (2017) Thematic Analysis. The SAGE Handbook of Qualitative Research in Psychology. (SAGE Publications) pp. 2-32. Retrieved from: https://kbdk-aub.primo.exlibrisgroup.com/permalink/45KBDK_AUB/4ka8t5/cdi_credo_entries_24336456

thelocal.dk (2015) Why do Danes put a photo on their CV? Retrieved from: https://www.thelocal.dk/20150120/job-denmark-cv-photo/

thispersondoesnotexist.com (2021) [image of a non-existing person]. Retrieved from: https://www.thispersondoesnotexist.com

Varga, L. (2021) [professional portfolio] Retrieved from: https://www.behance.net/larisaailisoaie

Whittemore, R., Chase, S.K. and Mandle, C.L. (2001). Validity in qualitative research. Qualitative health research, 11(4), pp.522-537. Retrieved from: https://kbdk-aub.primo.exlibrisgroup.com/permalink/45KBDK_AUB/159qapk/cdi_proquest_miscellaneous_71123517

Wnuk, K. Thrinay, G. (2018) "Knowledge Management in Software Testing: A Systematic Snowball Literature Review." e-Informatica Software Engineering Journal 12.1 pp. 51–78. Retrieved from: https://kbdk-aub.primo.exlibrisgroup.com/permalink/45KBDK_AUB/159qapk/cdi_doaj_primary_oai_doaj_org_article_c0254911ae4345c2957307aa35bde1da

Wohlin, C. Petersen, K. Badampudi, Deepika, (2015) Experiences from Using Snowballing and Database Searches in Systematic Literature Studies. Proceedings of the 19th International Conference on Evaluation and Assessment in Software Engineering. pp. 1–10. Retrieved from:

https://kbdk-aub.primo.exlibrisgroup.com/permalink/45KBDK_AUB/159qapk/cdi_swepub_primary_oai_DiVA_org_bth_11371

Yablonski, J. (2021) Laws of UX. Retrieved from: https://lawsofux.com/

Yaffe, D. Ofori, E. Nino, M. (2016) Professional Portfolios: Bringing Life to Your Best Work. Article from Washington: Springer. Vol.60 (4), pp.307-308. Retrieved from: https://kbdk-aub.primo.exlibrisgroup.com/permalink/45KBDK_AUB/159qapk/cdi_proquest_journals_1793529964

Yin, R. K. (2008) Case study research: Design and methods. Sage Publications, pp. 32-38. Retrieved from: https://www.academia.edu/32420108/Yin_Case_Study_Research_Design_and_Methods

Appendices

The following section of the report lists all of the external documents referenced within this research paper.

a. interview guide - participant.pdf

b. interview guide - researcher.pdf

c. data analysis.xlsx

d. schedule and meeting support document.pdf

e. current trends research.pdf

f. wireframes.png

g. mockups portfolio 1.png

The online version of this artifact that has been used during the interviews can be found at:
https://xd.adobe.com/view/582c2532-fd4f-45eb-9997-79c092dc7882-0d7f/?fullscreen&hints=off

h. mockups portfolio 2.png

The online version of this artifact that has been used during the interviews can be found at:
https://xd.adobe.com/view/395580d7-61a1-4e6a-8439-e3615e64ae64-6c06/?fullscreen&hints=off

i. mockups portfolio 3.png

The online version of this artifact that has been used during the interviews can be found at:

https://xd.adobe.com/view/fdc03523-b103-4a38-abf2-ba67776dc3bd-a893/?fullscreen&hints=off

j. approved relevant literature list.pdf