Empowering Academic Graduate Job Search

The Design and Validation of a Task-Based Vacancy Platform

Jeroen
ter Haar Romenij

Master thesis

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Executive Summary

A significant portion of academic graduates have difficulty finding a first job after graduation. Research shows that the expectations of academic graduate job seekers and employers do not align and this graduation project confirms that job seekers and employers do not speak the same language. On the one hand, job seekers do not seem very able to communicate their skills and abilities in a convincing manner. On the other hand, employers do not seem very able to communicate the job requirements effectively.

In this graduation project, Jeroen ter Haar Romenij validated and developed a vacancy platform in collaboration with the start-up HelloCareer. The platform allows academic graduate job seekers to explore job opportunities with the use of a job task language. With this task-language, HelloCareer aims to bridge the gap between educational study programs and actual job profiles on the labour market. The task language enables job seekers and employers to express their preferences, respectively for a future job and a future employee, in a uniform language, thereby reducing the asymmetry of information between the two parties, ultimately resulting in better matches.

During this graduation project, a task-language for the three master programmes that are a part of the TU Delft's faculty of Industrial Design Engineering was co-developed with academic graduate job seekers.

Based on intense involvement of both the job seekers and the employers, crucial learnings were acquired on how to best define and apply the task-language and shape the design of the task-based vacancy platform.

The way in which the preferences of the job seekers are represented by the platform has a direct effect on the job opportunities that are presented to them. Therefore, the value of autonomy over self-representation is highly at stake and has been put central in the development of the task-based vacancy platform. To engrain this way of thinking in the design process, a design for values approach has been chosen. Through empirical research that was conducted with academic job seekers, it has been explored what the value of autonomy over self-representation means for them in the context of the vacancy platform. As a result, these insights have shaped the design of the task-based vacancy platform which is described in this thesis.

The final result is of this graduation project is a User Interface Design that demonstrates in a clear and practical manner how the task-based vacancy platform operates.

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Introduction

This report is the result of my graduation project for the TU Delft and Hello Career on academic graduate job search. This chapter describes my personal motivation for this project, the client, the graduation scope, the relevance of this project and the project approach.

1.1 Topic

If you assume that a person works on average from age 18 until age 68, works 40 hours full-time per week, takes 5 weeks off each year and sleeps for around 8 hours a night, we can conclude that around 32 percent of one's waking life during their working years is spent on work. That is almost 1/3!

Why do some people love their work and some hate it? Why do some people seem to get stuck in their work? Work is a topic that fascinates me. It is something that I take seriously in my life, because I consider it as a primary source that allows me to learn, to explore my potential, to be challenged, to grow, to connect with others and most of all, to have a lot of fun.

One's job satisfaction can be a result of many things. We could think about the working conditions, the working activities, a company culture, the interaction with co-workers or the level of stress during work. All these things could most-likely be researched elaborately and (re)designed for.

However, in this project I will not focus on improving in-job conditions or the in-job experiences. This project focuses solely on finding the right job: job-seeking.

1.2 Client

This project is designed in collaboration with the company HelloCareer. HelloCareer is an Amsterdam based start-up, consisting out of a core team of five people. In collaboration with the University of Amsterdam, the Amsterdam Centre for Learning Analytics (ACLA) and House of Skills, they are developing a digital platform with the goal to facilitate sustainable matches between job seekers and employers.

They argue that the traditional job matching industry mostly thinks in terms of educational degrees, qualifications and job title's. In contrast, their aim is to facilitate job matching based on specific tasks. They want to create a platform where people and companies are matched on the basis of tasks.

With regards to their vision, job seekers would ideally be able to create a list of tasks they like to do, tasks they are good at and/or tasks that they want to improve on. On the other hand, companies would be able to create sets of tasks that reflect their needs at

a particular moment, rather than publishing a "framed" job position as often done. Subsequently, the platform allows both parties to find each other on the basis of matching job requirements in terms of tasks.

They refer to this principle as "Ikigai", an originally Japanese concept, meaning "a reason for being", see figure 1 for further explanation. In Western cultures the concept of "Ikigai" is usually interpreted as having a clear purpose in life and doing things on a daily basis that closely align with your purpose.

To show the importance of having an "Ikigai", a Japanese study investigated the association between the "Ikigai", referred to "a life worth living", and the cause-specific mortality risk among 43.391 Japanese adults. The study found that the risk of all-cause mortality was significantly higher among the subjects who did not find a sense of "Ikigai" as compared to subjects who found a sense of "Ikigai" (Sone, Nakaya, & Tsuji), 2019).

HelloCareer is currently developing algorithms that allow to match job seekers with vacancies on the basis on specific tasks. Besides this, they are also pitching the business to potentially interesting parties to establish partnerships. They are still at the beginning of building this venture, but they have great ambitions.

The aim of this graduation project is to create a better understanding of the recruitment industry, focussing both on the needs of job seekers and employers. The end deliverable for this project will be a user-friendly digital interface design of a vacancy platform.

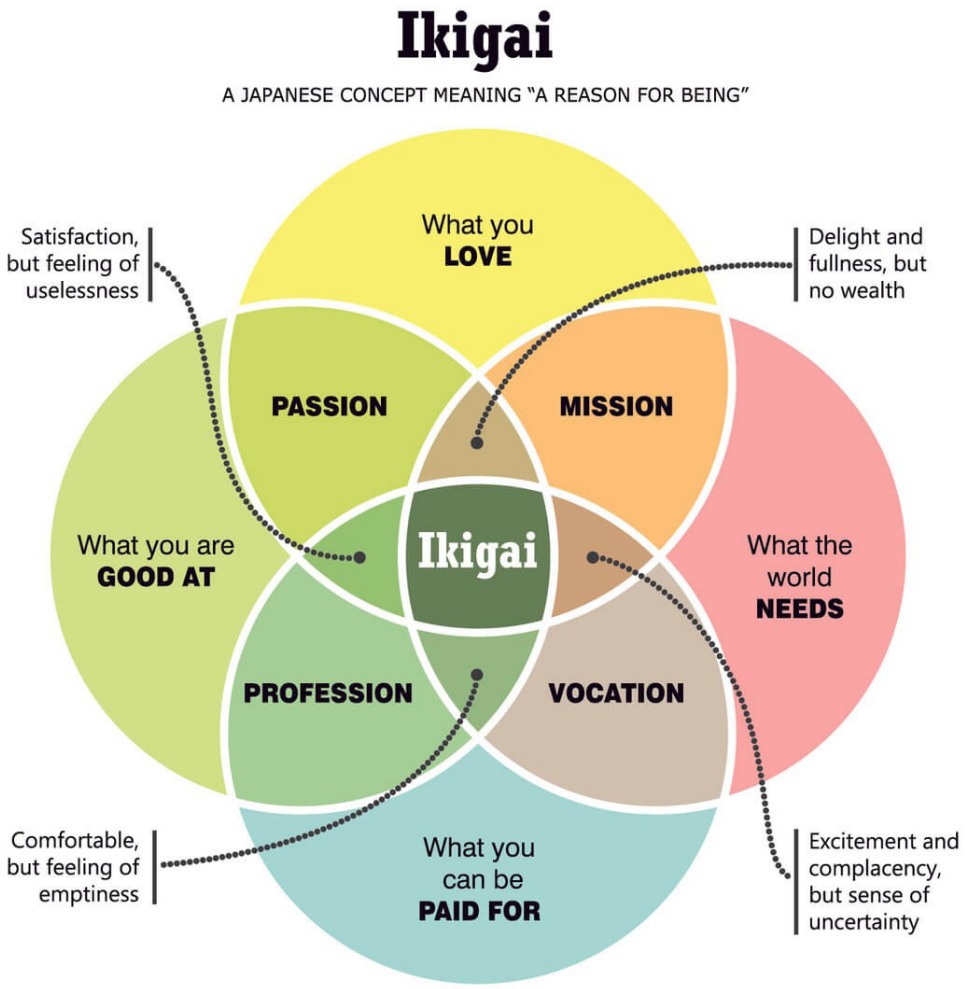


Figure 1: Diagram that explains the Japanese concept "Ikigai" (For A State Of Happiness)

1.3 Motivation for collaboration

Joining this start-up made me enthusiastic for two reasons. First of all, like I previously explained, work is a topic that fascinates me. I see many people fighting the battle with their work as they “live for the weekends” and complain when it is Monday again. I think it is a shame when people are not developing careers that make them happy. Work plays a big role in my life, because to me, it is a great source of satisfaction, inspiration and personal growth. Therefore, I got excited to become part of a journey where I could contribute to other people’s career development.

Secondly, I am very passionate about start-ups. I consider the creation of a start-up as the ultimate expression of one’s vision and a great opportunity to positively impact as many people as possible. My personal ambition is to turn this project into reality. I do not aim to create a start-up only for the sake of profitability and growth, but one that also contributes to building a better future.

I envision a future where people’s daily activities are neatly aligned with their reason for being.

In conclusion, I find it very exciting that this project also provides me an entrepreneurial opportunity, allowing me to pro-actively build on - what I envision to be - a better future.

1.4 Graduation scope

Job seeking, or job matching, is an extremely large industry as it relates to all working people, from all walks of life. One lesson that I have learned from previous design projects is that it is tremendously helpful to focus on a specific group of people.

Doing so, allows you to properly understand the group-specific needs and desires and as a result, enables you to create a design that strongly aligns with this. That is why I strongly advocated to find and define such a group at the beginning of this project.

The group that I want to be focussing on during this project are master graduates in the transition from education-to-work.

The reason I am very motivated to focus on this target group is that most of my friends and acquaintances are either 1) close to the point of master graduation, 2) are actively looking for a first job after graduation or 3) have just started their first employment. From their experiences, I have learned that searching for a first job after graduation can be difficult and frustrating. Often, I heard that it is challenging to 1) know what you are looking for in a job, 2) to understand what opportunities align with that and 3) to find those opportunities on the job market.

Choosing this target group not only gives me the feeling that I am working on a real problem that affects many people, but also allows me to better empathise with the target group, because they are very close to me.

This lead to the following graduation goal: Empowering the Academic Graduates Job Search through a Task-Based Vacancy Platform.

In the next section I will further back up the general relevance of this project.

1.5 General relevance

The OECD, an intergovernmental economic organisation with 36 member countries including The Netherlands, reports that the demand for tertiary education, referring to any type of education beyond the high school level, continues to rise. They found that on average, across OECD countries, 44% of 25-34-year-olds held a tertiary degree in 2018, compared to 35% in 2008 (OECD, 2019).

The OECD says that the transition from tertiary education-to-work can be a difficult period for a lot of young people. Reasons for this are the risk of unemployment, job insecu-

rity due to low-paid or temporary contracts, and potential job mismatches (OECD, 2018).

For academic graduates, unemployment in itself also brings along other problems, because being unemployed for a long time may result in the loss of human capital that has been acquired at higher education institutions. Human capital are the skills, knowledge, and experiences possessed by an individual, viewed in terms of their value to an organization or society (Kwon, 2009). A loss of human capital results in a waste of money for the individuals and for society, because a university education is a long and costly investment. Therefore, it is crucial that policy-makers understand the way in which higher education and labor market systems interact with each other to shape the transition process (De Grip, 2004).

Another problem that occurs when individuals are unemployed for long periods of time is a loss of motivation to search for a job. A loss of motivation may result in a lower search intensity which has a direct effect on the probability of being employed, since the probability of receiving an offer is proportional to the intensity of search (Salas-Velasco, 2007).

Furthermore, young people are usually less specialised and therefore more likely to be dismissed when firms are in distress. Young people may also find themselves in a so-called "experience trap", where employers favour experienced workers over them. This trap disables the younger people to increase their own experience (Dolado, 2015).

Also, on the labour supply side, there is higher worker turnover among young people than among experienced workers, as their initial jobs may not completely align with their skills and preferences (Blanchflower and Bell, 2011).

Being employed is one thing, but the quality of the employment is even more important. Job mismatches occur when the level of skill, knowledge and/or capability of the individual misaligns with the job requirements. Job mismatches generally have negative consequences for the workers, resulting in lower earnings and job satisfaction (Quintini, 2011; Sloane, 2003). In addition, McGuinness and Wooden (2009) suggest that mismatched workers are more likely to move from one state of mismatch to another. This is supported by Pinquart, Juang and Silbereisen (2003) who claim that a successful school-to-work transition is the precursor of promising career development. This stresses the relevance that the problem of mismatch should be tackled at the point of labour market entry to help ensure that young professionals, and society as a whole, do not incur long-run costs.

1.6 Project approach

My masters programmeme *Design for Interaction* takes the end-user as the main focus point within design projects. To me, that means going through a design process where you 1) develop an understanding of your end-user(s) so you can 2) design a solution that solves the user's problem in a user friendly way, taking into account the context of use. In the world of innovation, this is often referred to as "Desirability".

In this project, I want to research and develop the "desirability" by means of applying ***validated learning***. This approach lies at the heart of The Lean Start-up methodology, invented by Eric Ries (Ries, 2011).

Validated learning is a method where an envisioned product idea is broken down into its most crucial components, the "risky assumptions", which are tested by means of experiments. This method maximizes learning by measuring from the experiments what components, and to what extend, are successful, and what components need to be improved or changed.

With the application of validated learning in

my graduation project, I want to distinguish two main validation phases from each other. During the first phase, I focus on the validation of the problem and during the second phase, I focus on the validation of the solution.

In the beginning of the project, the first phase encourages me to get a deeper understanding of the nature of the problem and whether it is something significant worth pursuing. Putting the problem central at first, I prevent myself from focussing too much on the envisioned solution while not clearly understanding the underlying problem it aims to solve.

Only after knowing what problem needs to be solved, I shift my focus to the validation of the envisioned solution. In this second phase, the main focus is to develop and learn how the problem can be solved effectively.

The method of *validated learning* shows some similarities with the *5-step design thinking process* (empathize, define, ideate, prototype and test), though it is less explorative and more outcome-oriented by its nature.

The biggest difference between *validated learning* and the *5-step design thinking process* is that the former starts with a product idea that gets broken down into its assumptions, while the latter starts with a rather open mind, generally without specific ideas, assumptions or preconceptions.

Therefore, unlike with the 5-step design thinking approach, it is essential to state clear assumptions before conducting experiments.

To clarify, the design process that I will follow in this graduation project starts with a concrete product idea, namely the task-based vacancy platform.

The envisioned product idea is further introduced in chapter 3.

1.7 This project in relation to the traditional innovation framework

Like previously described, my personal ambition is to turn this project into reality. Therefore, I want to ensure that this project has a true *raison d'être*. According to traditional innovation guidelines, this means that the result of this project should not only be "desirable", but also "feasible" and "viable", see image 2. Here, "feasible" refers to whether the solution can actually be delivered. Often, especially in the realm of digital products, this is associated with the product's technology.

Since the product's feasibility is not my area of expertise, I will not be able to make critical evaluations or judgements about it. However, since it is an important predictor for the product's success, it is something that I do want to take into account on a high level. Therefore, I intend to have at least one session with an experienced developer during the design phase to be better informed about this matter.

"Viability" refers to the business side of a product, meaning if people are willing to pay for it. Since a start-up never operates in a vacuum, but in a market with other players, "viability" also implies that the proposed solution should be able to compete with the other, existing, solutions in the market. I intend to implement the product's viability by identifying the competition in this market and to think

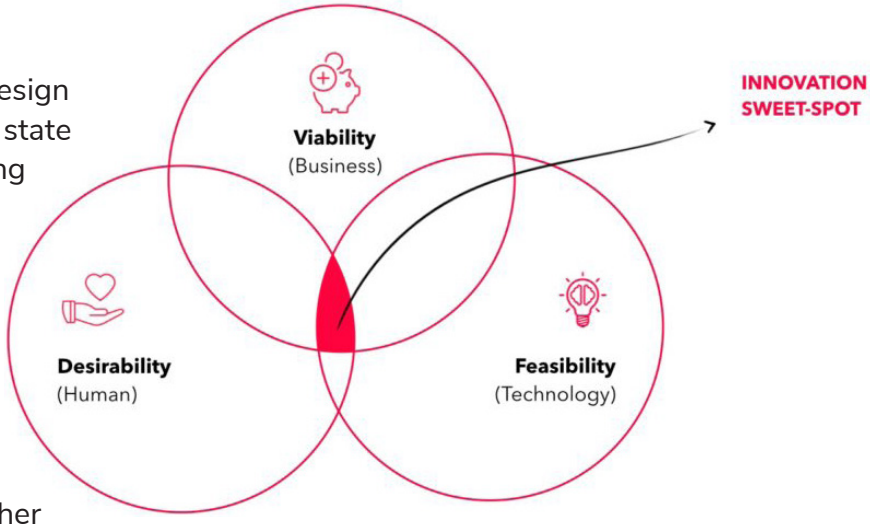


Figure 2: The traditional innovation sweet-spot (Fecheyr, 2020)

about a possible, competitive, revenue stream. Considering the time constraint and my lack of expertise in this area, I do not intend to go into the "nitty gritty" of the business model design.

1.8 A new framework: Introducing integrity

The three elements as discussed in previous section come together in the traditional innovation sweet-spot framework that help start-ups, and other organizations, to innovate, see image 2. However, this traditional framework does not challenge the innovator to think about what impact his creation has on a society and the future. The organization *Board of Innovation*, a global business design & innovation strategy firm, proposed a new innovation sweet-spot framework where a fourth element is added to the traditional one: "Integrity", see image 3.

I am a proponent of using this newly proposed framework over the traditional one, because, like mentioned before, I strive to contribute to a better future and to create a positive societal impact, two of my key drivers in this project. Therefore I would like to adopt this framework as a point of reference throughout this project.

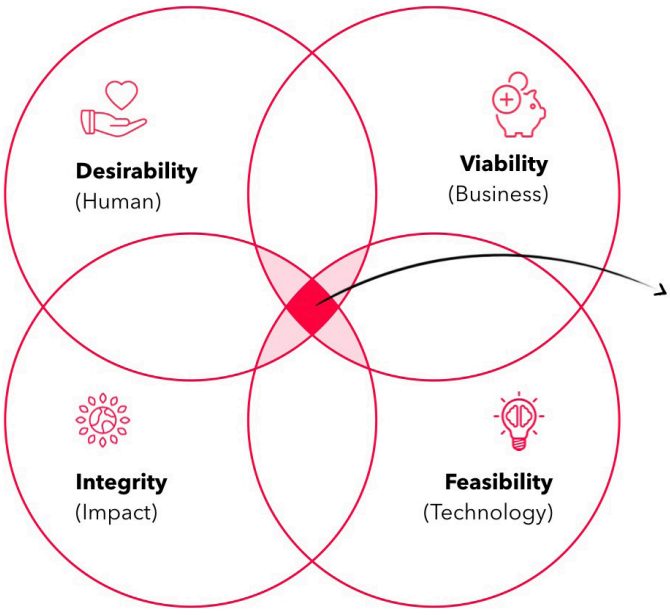


Figure 3: New innovation sweet-spot (Fecheyr, 2020)

To me, a value for integrity not only revolves around product outcomes, but also to the way in which these outcomes are achieved. Now, based on the envisioned task-based vacancy platform, which is further described in chapter 3, it seems inevitable that this product will be driven by algorithms, perhaps even self-learning algorithms: Artificial Intelligence (AI).

According to Aizenberg and Van den Hoven (2020), "AI systems can help us to make evidence-driven, efficient decisions, but can also confront us with unjustified, discriminatory decisions wrongly assumed to be accurate because they are made automatically and quantitatively.". Aizenberg and Van den Hoven mention that given the speed and scale at which these systems can operate, they are able to systematically disadvantage one demographic group or community versus another. Therefore, we should aim to design fair algorithms.

However, they mention "Designing fair algorithms is particularly challenging considering that discrimination can occur even when sensitive attributes, as those listed in the Equality Title, are excluded from the data (Barocas and Selbst, 2016) and the fact that fairness is a highly contextual, contestable, and procedural concept that does not always lend itself to mathematical formalisms (Selbst et al., 2019). Therefore, designing for equality entails developing a nuanced understanding of the stakeholders' conception of fairness in a given context and the system properties that should support it."

With their research, Aizenberg and Van den Hoven bridge the socio-technical divide through the framework of Design for Values (Van den Hoven et al., 2015), introducing a roadmap for pro-actively engaging societal stakeholders to translate fundamental human rights into context-dependent design requirements through a structured, inclusive, and transparent pro-

cess. Through Van de Poel's concept of the "Values hierarchy", the context-specific interpretation of values and the design requirements they lead to can be mapped. In turn, this allows for a transparent and structured debate amongst the stakeholders.

Figure 4 shows the generic structure of the "Values hierarchy". As can be seen, the hierarchy counts three level elements: "Values", "Norms" and "Design requirements". Here, norms are "properties or capabilities that the designed technology should exhibit in order to support desired values." (Aizenberg and Van den Hoven).

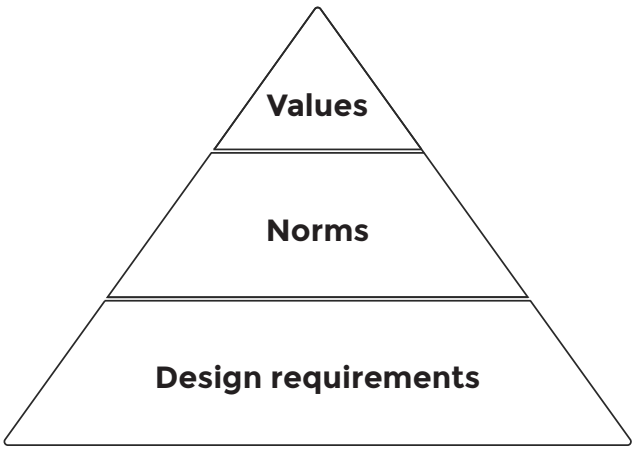


Figure 4: "Values hierarchy" visually maps the context-dependent specification of values into norms and design requirements

In the Values hierarchy, the link between a lower level element in the hierarchy and a higher level element is characterized by a "*for the sake of*" relation. For example, a certain design requirement is for the sake of a certain norm, which in turn, is for the sake of a certain value.

Aizenberg's and Van den Hoven's roadmap begins by adopting the four values at the basis of the EU Charter of Fundamental Rights (Official Journal of the European Union, 2012) as top-level requirements to guide the design process. These values are: human dignity, freedom, equality, and solidarity.

Although Aizenberg and Van den Hoven provide a solid roadmap, their theory has not yet been put into task. This seems like an interesting opportunity where this project could contribute to.

Considering Aizenberg's and Van den Hoven's observation that human dignity is a foundational value in the EU Charter and is the central, overarching human value at stake in AI, it seems interesting to focus on this value in the context of this graduation project. One of the components that is ingrained in this value and which seems particularly interesting to further explore in the context of this graduation project, is the notion of "autonomy over self-representation".

The notion of autonomy over self-representation is highly at stake in the context of a vacancy platform. The way in which people's requirements are represented by the platform has a direct relation with their potential job opportunities. Therefore, in the context of such an application, an unwanted representation of a person may have highly negative consequences, resulting in the opposite desired effect: disempowerment.

Following the Design for Values framework and the value for "autonomy over self-representation", I aim to pro-actively engage the job seekers throughout the design process, ensuring that they feel accurately represented by the task-based vacancy platform.

As a result from the empirical research that is conducted, I will clarify what insights from the job seekers in relation to the value of "autonomy over self-representation" have resulted in certain design requirements. In addition, these relationships will be visually mapped by means of the Values hierarchy as previously described.

2

Education-to-work transition

Section 1.5 described the general relevance of this graduation project. This chapter further elaborates on the education-to-work transition process, the research that has been done in this context, what factors actually influence the transition process, the challenges of the process and how this project advances the state-of-the-art.

2.1 Introduction

In previous chapter we have come to understand, for various reasons, why it is so important that all young professionals experience a smooth transition process from tertiary education-to-work. This chapter provides more insight in the education-to-work transition, where the field currently stands and how my graduation project will advance this.

2.2 Education-to-work transition

Following an idealistic view on any economic market, buyers and sellers find each other immediately, without costs and both have perfect information about the prices of all goods and services. However, in the real market some transactions often involve friction. For example, in the labour market, firms may not easily find workers and unemployed workers may have to search for extended periods of time to find a suitable job.

In the context of the education-to-work transition process, often referred to as school-to-work transition (SWT), O'Higgins (2008) distinguishes two main features: the success in achieving an identified outcome, and the ease with which this takes place. In other words, where do young professionals end up after their education and how (easily) do they get there. According to Nilsson (2017), a completed transition requires stable or satisfactory employment, even when it regards temporary- or self-employment.

Like previously described in section 1.5, job mismatches generally have negative consequences for the workers, resulting in lower earnings and job satisfaction. Also, mismatched workers are more likely to move from one state of mismatch to another. Therefore, it seems evident that job mismatches should be avoided at all costs.

Most theoretical work on the transition from education-to-work has done by Diamond, Mortensen and Pissarides who created a search and matching framework (Mortensen 1970; Mortensen 1986; Mortensen and Pissarides 1999). Their framework goes beyond the notion that centralized and frictionless labour markets exist. As Pissarides (2011) states it, "the matching function captures many features of frictions in labour markets that are not made explicit ... it takes time to find a good match, the length of time it takes varies across workers in unpredictable ways, and if there were more job vacancies available, on average, workers would find a good job much faster".

In the context of job matching, a key challenge in the SWT process is asymmetry of information (Nilsson).

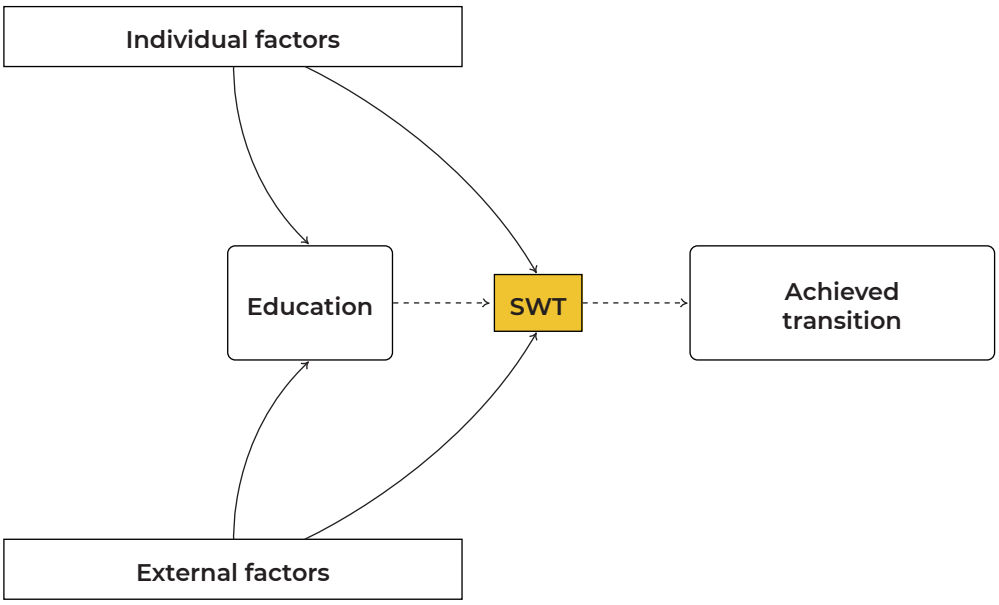


Figure 5: Conceptual chart of the school-to-work process (Nilsson, 2017)

Asymmetry of information is a general concept, applicable to any economical trade, that occurs when one party possesses greater material knowledge in a trade than the other party (Gustavsson, 2018). With respect to the SWT process, this phenomena manifests itself by the graduates' inability to properly communicate their skills and abilities in a convincing manner and the employers' inability to communicate the job requirements in a clear manner (Mastercard Foundation, 2019). This is being amplified by the lack of previous job experience of the graduates that cause firms to derive the worker's productivity from the little information at hand (Nilsson).

Furthermore, Petrongolo and Pissarides have shown that one's individual characteristics are a highly determining factor for successful education-to-work transitions(Petrongolo and Pissarides 2001).

Nilsson (2017) captured the education-to-work transition in a conceptual chart, see figure 5. This chart shows that an individual's school-to-work transition is determined by individual factors, external factors and the education. The following sections elaborate on all of these factors individually.

2.3 Individual factors

Individual determinants of success in the labour market are family background, social networks, cognitive abilities and personality.

According to Nilsson, the socio-economic context in which people are raised, such as family background, shapes their beliefs about present and future possibilities offered to them. A long time ago, Backman carried out a longitudinal study on U.S.A. adolescents, showing that socio-economic status was a good predictor of both intelligence and knowledge of job opportunities (Backman 1970). More studies have highlighted the importance of family background on individual success (Bynner (1998) and Staff and Mortimer (2008)).

Social networks have also proven to be determinants of success in the labour market, because a significant share of workers find their jobs through personal contacts (Montgomery 1991b; Topa 2001; Jackson 2010).

Cognitive skills have been correlated with higher wages in the labour market (Behrman, Ross, and Sabot 2008; Green and Riddell 2003), a higher probability to leave unem-

ployment in the SWT (Wondratschek 2010), a higher incidence of employment and longer work experience (Carneiro, Crawford, and Goodman 2007).

Personality traits are also important determinants of a range of socioeconomic outcomes, such as employment (Heckman, Stixrud, and Urzu´a, 2006). A survey study by Acosta, Muller, and Sarzosa (2015) shows a positive association between personality traits and labour market participation and educational outcomes.

2.4 External factors

Considering external determinants of success in the labour market, demographics play an important role in the supply of labour. The arrival of a relatively large group of people at the labour market is doomed to be accompanied by unemployment, so called cohort crowding (Nilsson). Based on a set of 11 European Economies, Korenman and Neumark (1997) estimated that the ratio of youth unemployment to the total share of youth in the population is around 0.5.

According to Nilsson, the concept of supply and demand explains that it takes time for the market to absorb new graduates. In this context, long term unemployment in the education-to-work transition can be explained by graduates who are queuing for high quality jobs. This behaviour does not seem irrational as an extensive research by KRIVET (1998) concluded that a significant loss of learning takes place due to downward job seeking, or in other words settling for a lower quality job, implying over-education, by university or college graduates.

Another external factor in the SWT process are the rapidly developing technologies which cause the needs of the labour market to change quickly and as a result, create a disconnection between the skills and knowledge that graduates acquired in (higher) education as compared to the labour market needs (Quintini, Martin, & Martin, 2007).

2.5 Education

Another determinant of a smooth SWT process is the education itself. Educational institutions shape the educational programmes and therefore, are responsible for the human capital that graduates accumulate during their studies. In addition, educational institutions may have partnerships or relationships with organizations in the labour market that can be leveraged by graduate job seekers. Therefore, they have the ability to provide a strong contribution to the graduates' SWT process. However, educational systems vary in quality and organizational setting.

With respect to the course composition within educational prorgams, McGuinness, Seamus, and Adele (2016) show clear evidence that "*a higher concentration of work-related components such as work placements, the acquisition of facts and practical knowledge, project/problem-based learning and research projects can reduce the probability of graduate mismatch in first employment.*"

The study of McGuinness et al. shows that the probability of mismatch is reduced by between seven and eight percentage points when jobs are acquired with the help of the university. This emphasizes the importance of educational institutions in the job matching process. However, in terms of routes into the labour market, help from educational institutions was only used for 6% across their sample of 11 European countries. Their research supports the view that "by strengthening links with employers and investing more heavily in career-support functions, universities and third-level institutions can play an important role in matching graduates with jobs, thereby eliminating informational asymmetries and reducing the incidence of graduate mismatch.". Here, third level institutions refer to tertiary educational institutions other than universities, such as the "Middelbaar Beroeps Onderwijs" (MBO) and the "Hoger Beroeps

Onderwijs" (HBO) in The Netherlands.

2.6 Routes into the labour market

Previous section discussed the educational institution as a route into the labour market, but there are many more. McGuinness et al. consider the following ten alternative routes into the labour market: "advertisements", "a public employment agency", "a private employment agency", "internet", "approached by an employer", "higher education work placement", "family/friends", "help from higher education" (such as universities) and "other" (such as previous work).

Interestingly, certain routes to the labour market are particularly ineffective to reduce informational asymmetries between the requirements of employers and job seekers (McGuinness et al.). The biggest difference in their study was found between the use of private employment agencies and higher education work placement, with respectively pseudo R2 rates of 0.013 and 0.003 as estimate predictors for mismatch. In other words, the use of private employment agencies raises the likelihood of mismatch when used as a route in the SWT process. McGuinness et al. mention that "...*private agencies are, perhaps,*

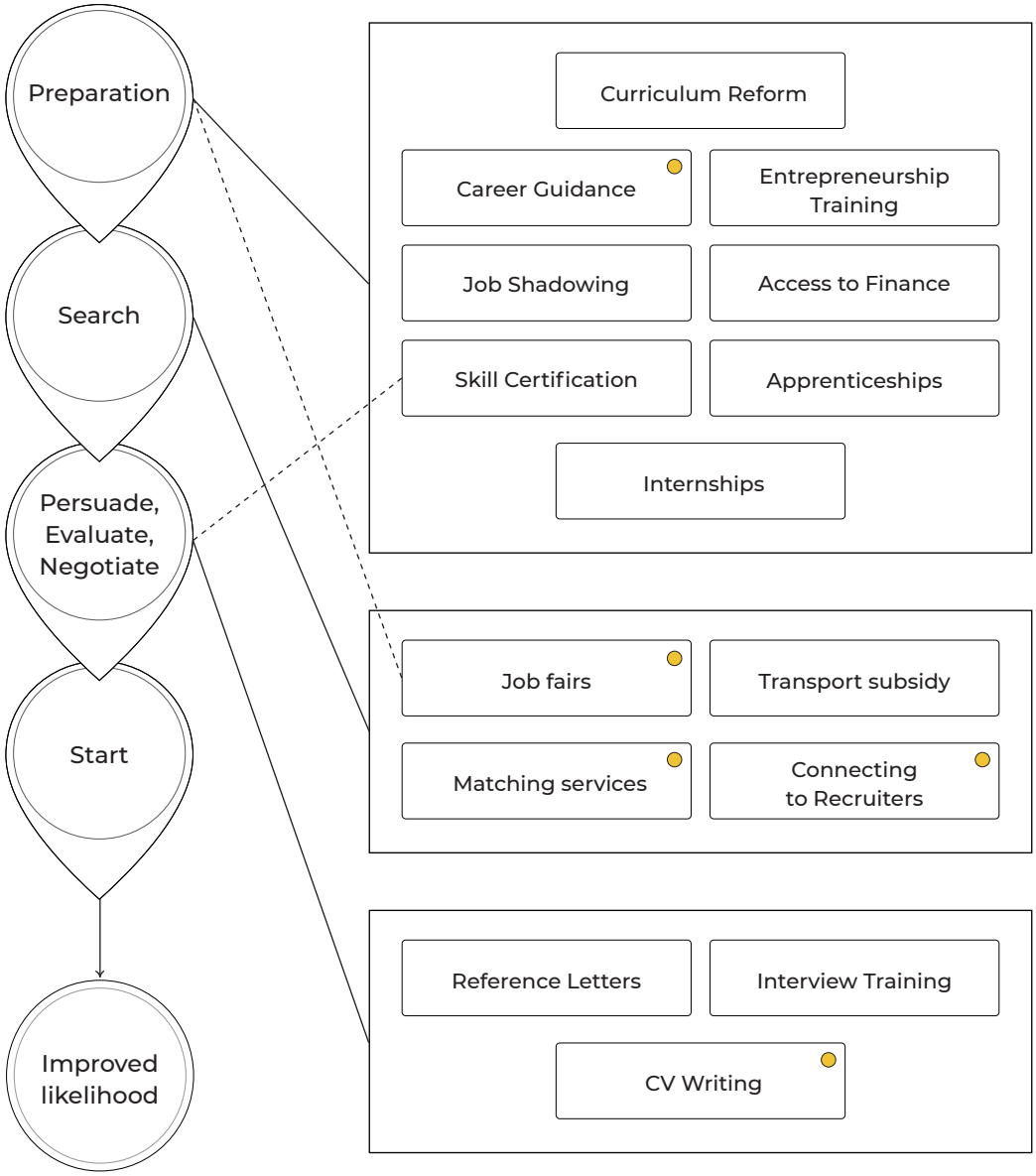


Figure 6: Overview of phases (left) and interventions (right) in the SWT process (Mastercard Foundation)

more concerned with generating a fee and tend to place less emphasis on the quality of the match.".

2.7 SWT process: Phases and interventions

To gain a better understanding on the different phases within the SWT process and the various types of existing interventions, I would like to refer to an overview from the Mastercard Foundation paper (2019), that I restyled visually, in figure 6. Here, existing initiatives targeted at improving SWT in Sub-Saharian Africa are identified. Though this is based on initiatives in developing countries, I think that it provides a great starting point for my graduation project as it appears to be quite similar to the initiatives in The Netherlands.

The overview in figure 6 shows the different phases in the SWT process, starting at "Preparation" and ending at "Start". Each phase links to different interventions, all targeting different obstacles in the SWT process. The Mastercard Foundation describes each intervention in their paper, including what barriers they target and what their limitations are. Some of these are mentioned later in figure 7.

Regardless of a specific type of intervention, Atchoarena (2000) mentions that "Good information and guidance become increasingly important as the education and employment choices that young people face change and become more complex. Change and complexity arise not only from changes in jobs and career patterns, but also from the *growing flexibility of the pathways that link education-to-working life.*".

Continuing, Atchoarena states: "Despite excellent examples and impressive individual innovations, in most countries, a systematic approach to information and guidance during the transition phase is lacking. ... Too often information and guidance services are marginal within the priorities of schools.".

In addition, the study of McGuinness et al. confirms the view that current job search methods fail to sufficiently reduce existing informational asymmetries between employers and workers (2016).

According to Atchoarena, a key challenge is to provide universal access to high quality information and guidance services at an affordable cost. He mentions that traditional classroom-based and counsellor-based approaches show weaknesses in meeting this objective, because they have difficulty in adapting rapidly enough to changing job requirements. Moreover, the counsellor-based approach is too expensive as access should be universal and the full spectrum of young people's guidance and information needs are to be met.

Establishing clear, open and coherent pathways seems to be a condition for successful SWT outcomes. Increasing attention is being paid to educational pathways as they prove to be fruitful means to counter the SWT challenges (Atchoarena). Moreover, establishing these pathways allow educational institutions to attract more students and therefore, raises their competitiveness.

Structured partnerships between key stakeholders is increasingly recognized as a prerequisite for building effective transition policies. However, governments are still looking for what works best.

2.8 Conclusions

A key challenge in the SWT process is the informational asymmetry between the job seekers and the employers. In turn, this can result in job mismatches as both job seekers and employers may have different job requirements, while, at the same time, they are both unable to clearly communicate these.

It has been discussed that universities can reduce the incidence of graduate mismatch by eliminating informational asymmetries by

strengthening links with employers and investing more heavily in career-support functions. It has also been covered that the current job search methods fail to sufficiently reduce existing informational asymmetries between employers and workers.

Interestingly, some of the interventions as stated in the Mastercard Foundation paper have the aim of tackling the above-mentioned challenges. Taking these interventions as a starting point, I selected a total of five interventions that seemed to relate most to these above-mentioned challenges and most suited for a solution at scale: the vacancy platform. These interventions are marked with a yellow dot in figure 6 and are listed below in figure 7 including their description, what barriers they target and what their limitations are.
This chapter described some key challenges in the SWT process. One of the things that can be concluded is that good information and guidance become increasingly important, but that a systematic approach is lacking where the current job search methods fail to sufficiently reduce existing informational asymmetries between employers and workers. The goal of my graduation project is to profoundly contribute to this problem.

Similar to the challenges (barriers) targeted as listed in figure 7, I aim to target the following challenges with the task-based vacancy platform:

1. To help job seekers identify a wide variety of job opportunities

2. To overcome low information in the search process (such as vague job descriptions)

3. To connect job seekers with employers

4. To help job seekers present their skills and abilities convincingly (reducing information asymmetry)

The concept of the task-based vacancy platform is further described in the next chapter.

Intervention	Barriers targeted	Description	Limitations
Career guidance (Phase: Preparation)	Low levels of job market information; mismatch between possibilities and aspirations	Help in identifying achievable opportunities for young job-seekers	Capacity constraints faced by schools to implement such a programme; requires teacher training and increases burden on teachers
Job Fairs **Matching Services** **Connecting to Recruiters** (Phase: Search)	Low knowledge about the job- search process and where to look for jobs	Connect job-seekers directly with employers; overcome the problem of low information in the search process	Programmes match employers and workers but do not guarantee take up of jobs; aspirations mismatch might cause programme failure.
CV writing (Phase: Persuade, Evaluate & Negotiate)	Information asymmetry and lack of trust between employers and job-seekers regarding the work-readiness of youth	Allow job-seekers to present their skills and abilities in a convincing manner; reduce asymmetry	Programmes target jobs which have a relatively well defined hiring process; might be less effective for informal sector employment

Figure 7: A few interventions that target similar barriers in the SWT process as I intend to (Mastercard Foundation)

3

Concept introduction

Unlike taught in the faculty of *Industrial Design Engineering*, this graduation project follows a design process that starts with a specific concept, namely a task-based vacancy platform, which will be shaped along the way. This concept is further described in this chapter.

3.1 Introduction

The previous chapter gave more insight in the SWT process, where the field currently stands with respect to this and how my graduation project will advance this. Though it seems common within TU Delft's faculty of Industrial Design Engineering that design projects start from scratch, this project follows a different, rather uncommon, approach.

This project starts with a specific concept, namely a task-based vacancy platform. Following the Lean Start-up approach by Eric Ries, the concept will first be broken down into its "most risky" assumptions. These are the assumptions that are most fundamental to the concept. According to Ries most start-ups fail, because their assumptions turn out to be wrong. Therefore, it is important to identify the most fundamental assumptions and test these. The learnings that arise during the tests will further shape the development of the product. This chapter further describes the concept and how it came about.

3.2 How the concept came about

Although it might seem that this project started with a concept with little research backing this up, I had my reasons to come to that decision. It all started with a LinkedIn post with the aim to gain leads for an interesting collaborating partner in the context of my graduation project, see figure 8.

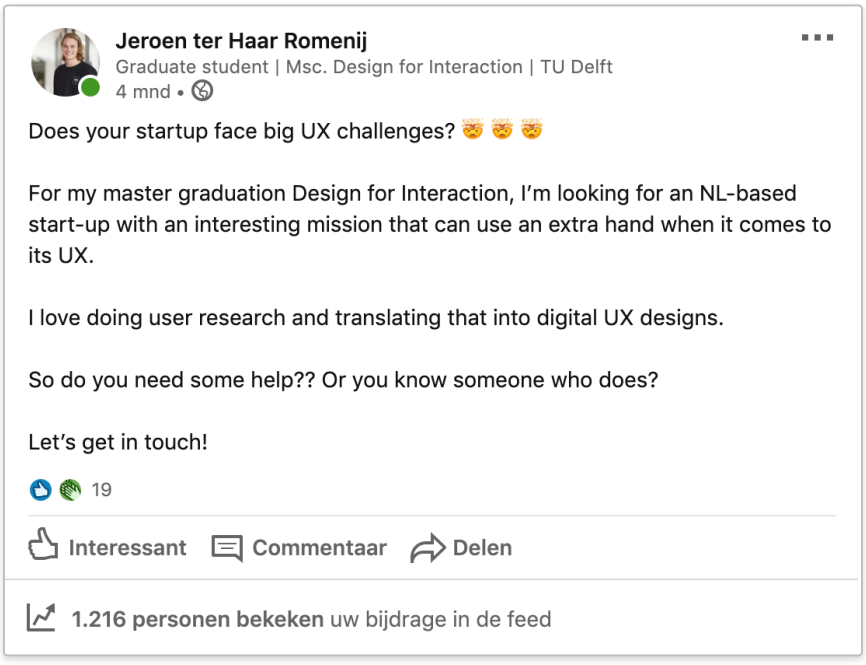


Figure 8: Screenshot of my LinkedIn post (September 2019)

My post resulted in a chat with Quincy Dalh, the client of this project. We did not know each other, but when he read my post, he reached out to me. Soon, this led to a meeting where Quincy shared his perspective on the SWT process based

on his 12 years of experience in this field. Here, he explained the idea of a task-based vacancy platform and why he believes it has the potential to drastically improve the SWT process.

As I recalled a few problematic cases from my friends relating to their experiences with the SWT process, I understand the problems that the task-based vacancy platform could tackle. Together with the opportunity of shaping a start-up through my graduation project, I got very excited.

However, before I decided to kick-off the graduation project straight away, I did some explorative research myself. Prior to the official start of this graduation project, I conducted six one-hour long interviews with graduates and young professionals to gain a better understanding on how the SWT process is experienced from a graduate perspective.

My key takeaways from these interviews were as follows:

1. Going through the SWT process is nerve wrecking. During this time, someone does not have a structured (and fulfilling) daily activity anymore. Instead, they have to actively search, identify and apply for jobs as every minute that is not spent on doing this, amplifies their feelings of uncertainties.

Someone said: "*Looking for my first job was nerve wrecking. I was very tensed, because everything was so uncertain and I didn't have any money.*".

2. Searching for jobs can be difficult as it is unclear what all the options are.

Someone said: "*You don't know what jobs are out there. Finding this out feels like a big mountain you have to climb.*".

3. Knowing what is expected from you can be difficult based on vague job descriptions.

Someone said: "*It can be hard to evaluate whether a job is a good match for you when the job description is so vague.*".

These insights encouraged me to pursue this path and start the graduation project.

3.3 How does the task-based vacancy platform work?

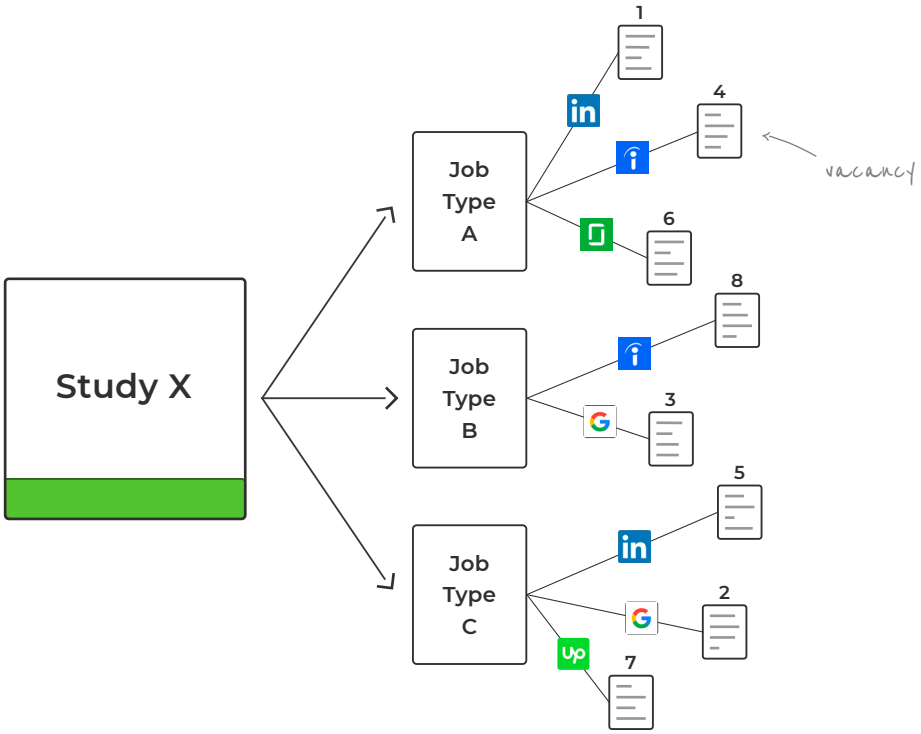
To answer this question, I would like to refer to figure 9. This sketch illustrates the current job search situation and the envisioned job search situation in the SWT process, where the latter is facilitated by the task-based vacancy platform. By showing both versions, I aim to clarify the added value of the envisioned job search situation relative to the current job search situation.

In the current job search situation in the SWT process, graduates generally first have to decide what type of job they are looking for. In most cases, every field of study is associated with a few job types. These job types represent jobs that have somewhat similar job tasks. Note that we are not yet talking about specific vacancies here. In the context of possible designer job types, one could think of "Service designer", "UX designer", "Visual designer", "Design researcher", etc. The current situation in figure 9 shows three different job types that are a part of the search process: Job Type A, B and C.

Having decided on the job types, the actual search process begins. Through various channels, such as LinkedIn, Indeed, Google for Jobs, etc., graduates use different sets of keywords relating to the job type they are searching for. This leads to specific vacancies which are depicted with the numbers 1 - 8, as seen in figure 9.

In the envisioned job search situation in the SWT process, the task-based vacancy platform is the starting point in the search pro-

Current **job search situation** in the SWT process



Envisioned **job search situation** in the SWT process

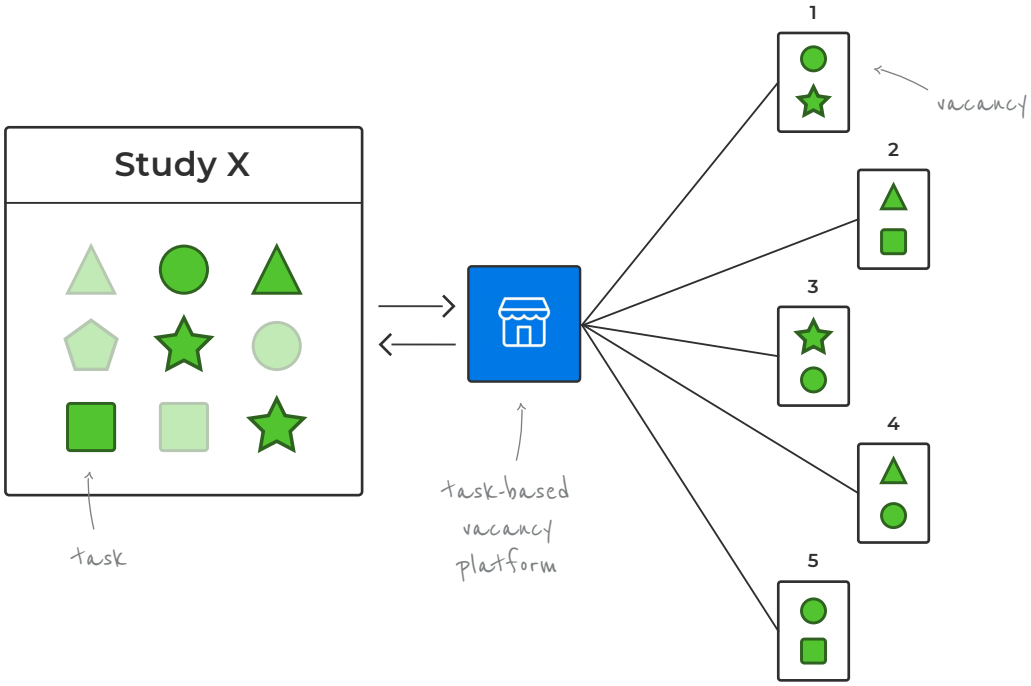


Figure 9: Current and envisioned job search situation in the SWT process. In the current situation, graduates generally search for jobs through multiple channels based on one or more job types. In the envisioned situation, graduates can search for jobs through the task-based vacancy platform that allows them to find commonalities between vacancies and their tasks of interest. (own ill.)

cess. In this situation, a graduate is able to select on the platform his/her educational institution and the field of study that he/she graduated for. A feature of the platform is that all fields of studies from all educational institutions have been indexed by its tasks. This means that, for every field of study, the platform is able to present a list of tasks relating to that specific field of study. These lists are collections of tasks that were, in some way, part of the study, embodied during various courses. In figure 9, the tasks are represented in the envisioned situation through various shapes (triangle, polygon, circle, star and rectangle).

From the list, the graduate is able to select the tasks that he/she regards as potentially interesting to do during his/her future job. This selection forms the starting point for the job search. In figure 9, the difference between selected and unselected tasks in the envisioned situation can be seen through a difference in brightness of the shapes (the brighter shapes represent the selected tasks).

All the vacancies that are listed on this platform meet the requirement that the vacancy-specific-tasks are defined according to the platforms' taxonomy. This ensures a consistent definition of tasks throughout the platform and more importantly, enables the vacancies to be findable on the basis of specific search inputs (tasks). In this context, the tasks allows both parties to express their needs through the same "language".

When the graduate has selected a number of tasks based on his/her interest and clicks the button "search", the system is able to present all the vacancies that match with - at least one task to - the graduates' selected tasks. Importantly, vacancies are generally not defined by one specific task, but more by a set of tasks. For that reason, facilitating matching between graduates and organizations based on tasks - starting at only 1 task - can have huge implications in terms of the richness and diversity of the matches. This would be a huge advantage over the current job search situation as it provides the ability to match graduates with organizations across different fields that could not have been done through traditional job search platforms.

Not only does this provide a much richer and more diverse way of matching, but it should also drastically reduce the information asymmetry between both parties as the needs of each party are much more explicit. Both parties are namely forced to articulate what they are precisely looking for. Note that the actual way in which both parties interact with the platform is still undefined and is to be defined as a part of this project. Therefore, previously used terms, or verbs, that could imply a type of interaction, such as "select", "articulate", "search" and "match", should not be interpreted too literal.

The envisioned job search process allows graduates to search for jobs without necessarily having a clear job type in mind. Therefore this new way of job searching might result in a much more explorative and playful experience. However, this is not necessarily an objective in itself and needs to be further examined for better understanding.

Assumed is that another huge benefit of the task-based vacancy platform is that the job search process becomes less scattered through one centralized platform with one uniform taxonomy, the task-language.

However, it should be kept in mind that realizing this platform requires the cooperation of educational institutions, because this route seems most fruitful to achieve a high-quality indexing of studies at scale. Most likely, it will cost quite some time and effort to establish these co-operations (partnerships), but once done, the opportunity seems gigantic.

3.4 Why tasks?

You might be thinking: "Why using tasks and

why, for example, not skills?". The reason for this is that tasks communicate more specifically what type of act needs to be done where skills do not.

In the context of employment, an employer would not be looking for an employee that is only good at "active listening", but rather for someone who is able to "consult clients during meetings". Interestingly, skills and tasks highly relate to each other as one needs certain skills to do a certain task.

Considering previous example, in order to properly "consult clients during meetings", someone should not only possess the skill of "active listening", but, for example, also the skill of "critical thinking", "speaking" and "social perceptiveness". Therefore, it seems that tasks lend themselves much better for the purpose of expressing needs in the context of a vacancy platform as compared to skills. However, this is still an assumption and needs to be tested.

3.5 Most risky assumptions

Like previously mentioned, the most risky assumptions are those that need to be validated for the envisioned concept to be a success. In product development processes, it is crucial that these most risky assumptions are tested first to prevent from building a product that nobody wants to pay for. For the task-based vacancy platform, the most risky assumptions are:

1. Academic graduates going through the SWT process have a poor understanding of what kind of job they are looking for.

Rationale: This is the fundamental problem that the envisioned product aims to tackle.

2. For academic graduates going through the SWT process to determine if a potential job is interesting, they find it very important to know what tasks a job involves.
Rationale: The lack of clearly communicated tasks that a job includes is expected to be a major cause of the problem.

3. Academic graduates going through the SWT process feel that they can properly represent their professional preferences and capabilities by making a selection from a set of tasks which is specific to their study.

Rationale: Assumed is that the use of study related tasks is a fruitful way to express one's desires and therefore, provides an effective means to start the job search process.

4. Academic graduates going through the SWT process are very interested to discover what vacancies match in terms of their tasks to their personal selection from a set of tasks which is specific to their study.

Rationale: Matching one's desires with jobs' requirements in terms of concrete tasks is assumed to be an effective mechanism to improve the job search process.

5. Organizations have difficulties in finding the right candidates for their entry-level job positions.

Rationale: The envisioned product is essentially a marketplace, therefore it has to solve a problem on both the supply and demand side.

3.6 Conclusion

Now that the functioning of the envisioned task-based vacancy platform has been explained in more detail, lets recap the barriers it aims to tackle. They are as follows:

1. To help job seekers identify a wide variety of job opportunities
2. To overcome low information in the search process (such as vague job descriptions)
3. To connect job seekers with employers
4. To help job seekers present their skills and abilities convincingly (reducing information asymmetry)

4

Validation Part 1: Survey

This chapter kicks-off the validation phase of the task-based vacancy platform. This first validation phase regards a survey that has been filled in by 96 respondents. This chapter describes the methodology, the respondents, the analysis, the results and the conclusion.

4.1 Introduction

Now that the concept of a task-based vacancy platform has been explained in previous chapter, it is time to start validating the "risky assumptions". This chapter forms the first part of the validation phase and regards a survey that was sent out.

4.2 Methodology

This validation phase mainly focusses on the validation of the core "problem" within this project (graduates have difficulties to go through the SWT process) and less on the validation of the envisioned solution (the task-based vacancy platform). Since the problem validation acts as the fundamental building block throughout this project, I wanted to be as sure as I possibly could. Therefore, I decided to use a method that allowed a relatively big sample across the population of academic graduates in the SWT process: conducting a survey.

Conducting a survey has the advantage over, for example, conducting an interview, because this generally demands much more time per participant to extract and analyse the data. The primary objective of this survey was to validate the following two risky assumptions:

1. Academic graduates going through the SWT process have a poor understanding of what kind of job they are looking for.

2. For academic graduates going through the SWT process to determine if a potential job is interesting, they find it very important to know what tasks a job involves.

4.3 Approach

A total of 24 questions were formulated in the survey of which the majority were opinion scale questions, some multiple choice questions and some open questions (where respondents had to formulate their answer). The questions that directly related to the risky assumptions were opinion scale questions, because this allowed a clear language to learn about the risky assumptions. For these questions, I used a seven point Likert scale. All questions and some of the answers can be found in the appendix on page 137.

To learn about risky assumption 1, I asked the following question:

How much do you agree with the statement (7 point Likert scale: totally disagree - totally agree): "I know exactly what kind of job I'm looking for."

To learn about risky assumption 2, I asked the following question:

"To decide how interesting a vacancy is, how important do you find (7 point Likert scale: not at all - very much): The activities / tasks that I need to do"

To reduce bias towards the answers, my aim was to establish a kind of baseline reference throughout the survey. Therefore, respondents were asked to rate multiple attributes, among which "activites/tasks" was also present, in terms of their level of importance to decide how interesting a vacancy is. The following attributes were presented in the following order respectively:

- The location of the company
- The industry / sector of the company
- The products / services of the company
- The reputation of the company
- (Your impression of) the company culture
- The size of the company
- The mission of the company
- The salary
- The secondary employment conditions

None of the attributes were further explained, except for the last one "The secondary employment conditions" where the following was added: "number of holidays, laptop, etc.). Therefore, the meaning of these attributes were mostly up to the interpretation of the respondents. In hind side, it would have been better to also explain ambiguous attributes, such as "company culture", to prevent different interpretations amongst the respondents.

The survey served as a fruitful way to easily gather data from a relatively large sample group. Therefore, the survey also contained questions leading to other valuable insights about the topic, but that did not directly relate to the risky assumptions. To keep this chapter to the point, not all questions (and their results) are discussed.

4.4 Respondents

The survey was conducted in two phases. The first phase was conducted at "De Nederlandse Carrièredagen" (The Dutch Careerdays), the biggest career event in The Netherlands, focussed on students, "starters" and young professionals, held in Utrecht. Therefore, my assumption was that a lot of people from my target group, namely academic graduates going through the SWT process, but also people closely relating to the target group (who could still provide valuable insights) would be there.

After I decided on the set of questions, I prepared a paper survey and printed 150 copies on A4. My strategy was to approach as many people at the event as possible. Doing so, I tried to estimate each persons' age and if I would expect them to be somewhere in between 20 and 28, I would approach them. First, I provided the people some context, followed an invitation to do the survey.

Most people that I approached, were interested to participate in the survey. Within a time span of four hours, 70 people completed the survey.

As I realized that probably not all of the respondents would be academics holding a masters degree, each participant was asked to share his/her highest level of education. With respect to the risky assumptions and other questions, I wanted to investigate if there would be significant differences amongst different fields of studies. Therefore, every participant was asked to share his/her field of study.

The second phase was conducted digitally. The digital survey contained exactly the same questions as the paper survey. During this phase I contacted around 400 people, mainly through LinkedIn where I searched for profiles containing keywords such as "Master", "Msc", "Graduated", "Looking for opportunities", "Open for jobs", and more. Also, I invited people from my personal network, such as friends and study acquaintances.

4.5 Analysis

Around 50% of the respondents from the first phase answered “University Masters” as their highest level of education, around 35 respondents. The results of these respondents were manually entered by me in the digital survey tool “Typeform”.

During the second phase, around 60 respondents filled in the survey. All of them were either following, or had completed, a masters degree (I only approached people who’s LinkedIn profile showed a masters degree). Together with the respondents from phase 1, this resulted in 96 respondents (N = 96).

To investigate whether there were significant differences amongst the different fields of studies, the fields of studies were grouped into 5 categories. They were as follows:

- Social & Human Sciences (e.g. Religion Sciences, Public Administration, Sociology, Law), N = 11
- Engineering & Technical Sciences (e.g. Neuroscience, Physics, Chemistry, Computer Science, Mechanical Engineering), N = 23
- Accountancy & Economics (e.g. Accountancy, Economics, Econometrics, Business Administration), N = 11
- Industrial Design Engineering (e.g. Strategic Product Design, Integrated Product Design, Design for Interaction), N = 27
- Technology, Policy and Management (TPM) Masters (e.g. Engineering and Policy Analysis, Complex Systems Engineering and Management, Spatial, Transport & Environmental Economics), N = 24

To ensure a fairly even distribution amongst the different categories, I paid attention to the respondents’ fields of studies while the results were coming in. This allowed me to pro-actively target the right people.

For every opinion scale question, the averages were calculated across all groups. Then, the averages were calculated per group. Other multiple choice and open questions were grouped according to each category. From there, conclusions were drawn. A detailed overview of per-group results can be seen in the appendix on page 140.

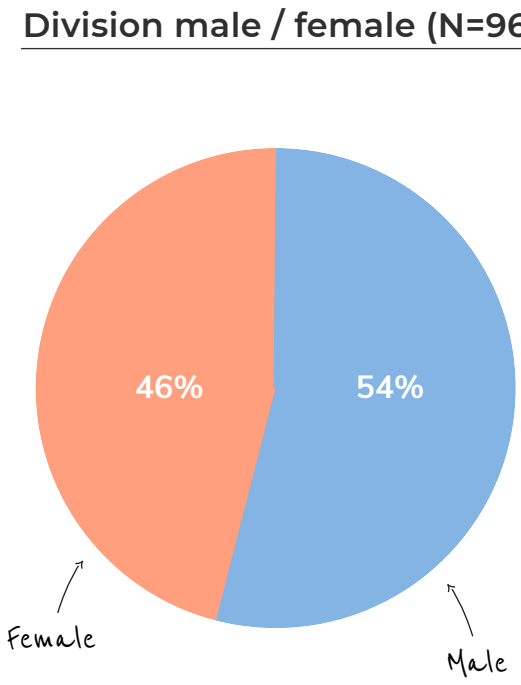


Figure 9: Survey results, division male / female (own ill.)

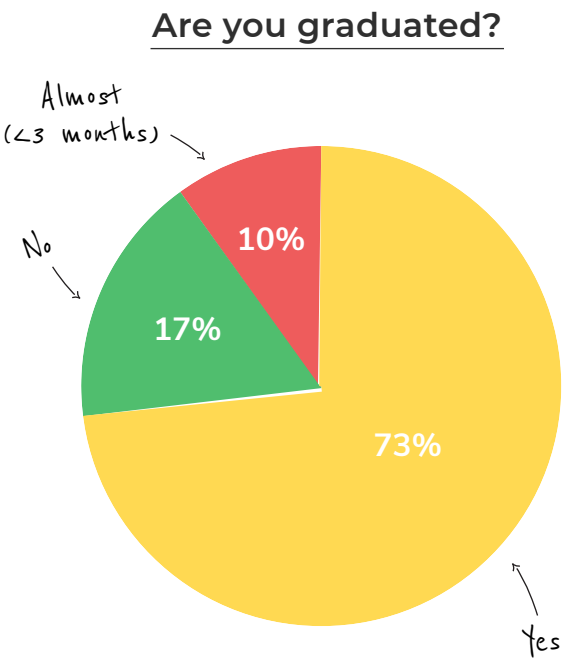


Figure 10: Survey results, graduated or not (own ill.)

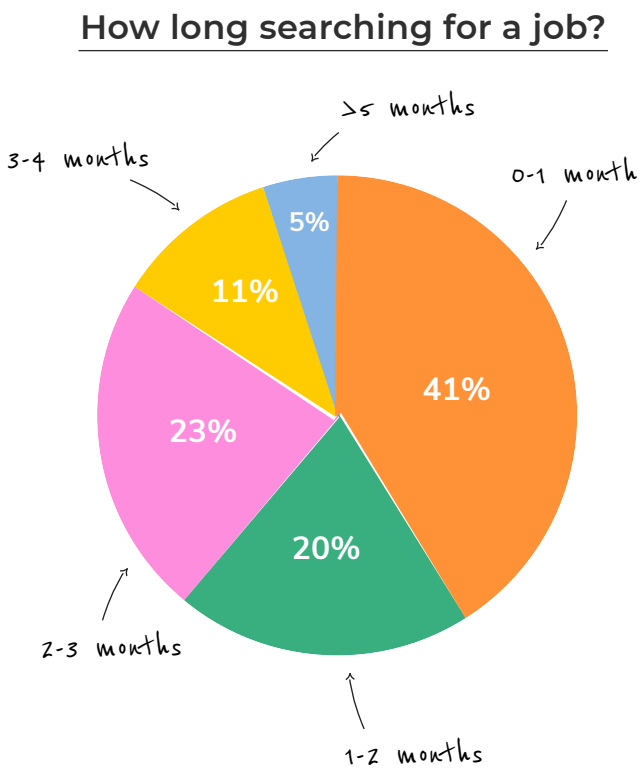


Figure 11: Survey results, time searching (own ill.)

4.6 Results

Figure 9 shows the division between male and female amongst the respondents. Figure 10 shows whether the respondents were graduated or not. Figure 11 shows for how long the respondents were searching for a job. In this context, the cohorts from people who answered that they were looking for 5 months or more were merged to simplify the data visualization as these were very little.

The outcome to the question where the respondents were asked how much they agreed with the statement: "I know exactly what kind of job I'm looking for", averaged a 3.9 (mean) on the 7 point Likert scale (median = 3).

The outcomes to the question where people were asked to rate several attributes are shown in figure 12. In this figure, all the attributes are plotted on the x-axis and are given

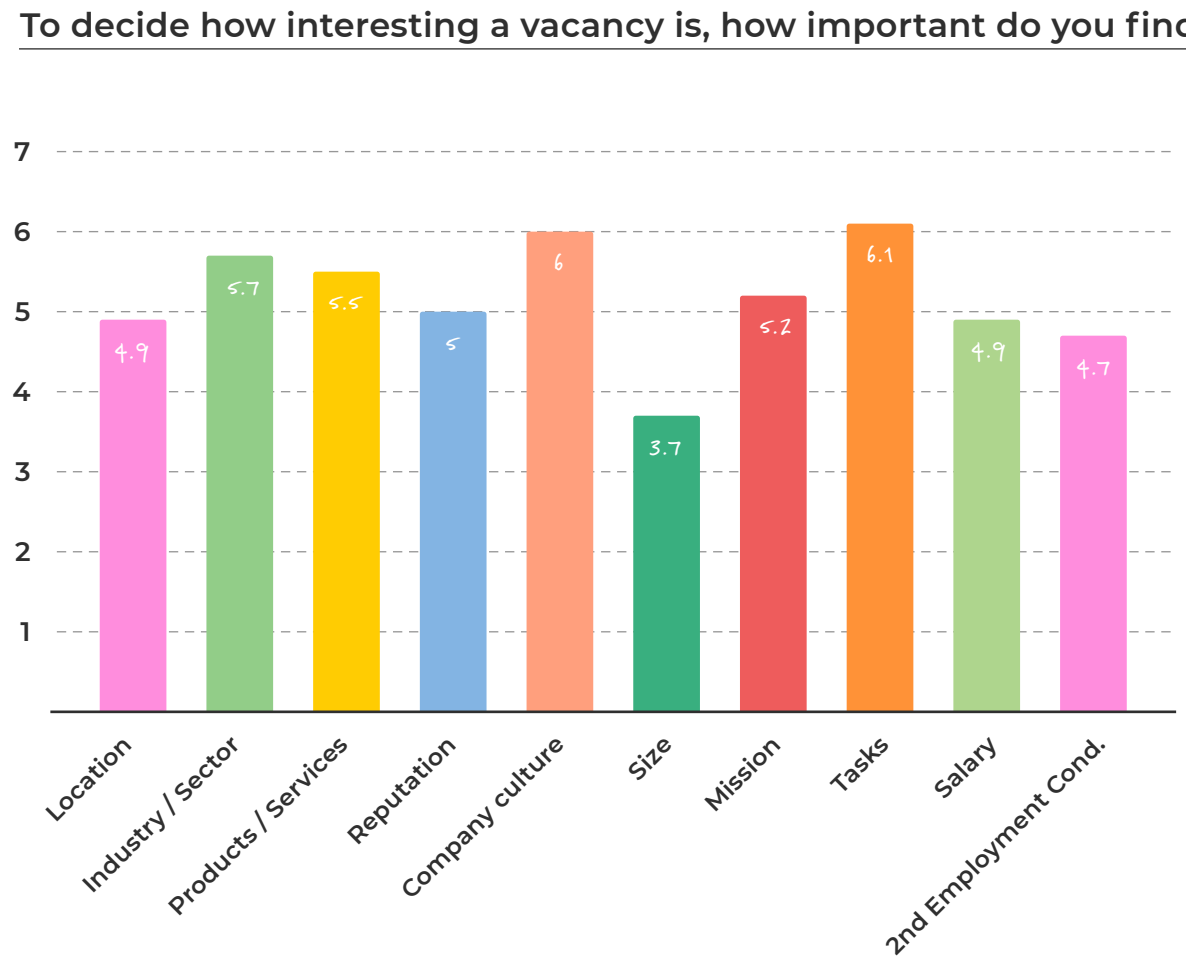


Figure 12: Survey results, importance of attributes when deciding how interesting a vacancy is (own ill.)

shortened labels. Each outcome represents the level of importance that the respondents gave to each attribute when deciding how interesting a vacancy is.

Note that these answers are averages and do not inform about differences in outcomes between the various categories like previously mentioned. Although I did not conduct an official statistical analysis, I did not find any noteworthy differences. Therefore, to not overcomplicate the results, only the averages are shown.

The outcome to the question where respondents were asked how important they found the activities / tasks they need to do (to decide how interesting a vacancy is), averaged a 6.1 on the 7 point Likert scale (median = 6).

The outcome to question 20 is also worth mentioning. Questions 20 was: "*What is your biggest challenge in finding a job that is a good fit for you?*". Respondents could choose multiple answers (from the multiple choices) and if they wanted, write their own answer in an open field. The answers reveal the challenges that people experience when searching for a job. The outcomes to this question can be seen in figure 13. As can be seen in the figure, 39 respondents said their biggest challenge was: "I don't know what jobs I like and are within my field of studies". Again, all answers were grouped according to each "field of study" group. These groups are shown in the appendix on page 140.

The outcome to question 22 is also worth mentioning. Question 22 was: "*A platform is being developed that allows you to search job vacancies based on the tasks that you like, relating to your field of studies (referring to example). How valuable would this platform be for you?*". The example showed the task-based vacancy platform in a very conceptual way as can be seen in the appendix on page

Figure 13: Challenges when finding a job that is a good fit (own ill.)

138. Answers to this question were given on a 7 point Likert scale, ranging from “Totally not valuable” (1) to “Totally valuable” (7) and averaged on a 5.2 (median = 5).

4.7 Conclusion

From figure 9 it can be concluded that there is a fairly even division between male and female respondents in the sample group. All participants of the sample group answered “University Masters” as their highest level of education.

The results tell that the majority of the sample group (73%) is graduated. However, from the data that was gathered, it can not be concluded that all these graduates are going through the SWT process (at the time of filling out the survey) and therefore completely represented the target group.

Question 6 (“*For how long are you searching for a job?*”) did not take into account those respondents who had not started looking for a job (yet) and those who had already found a job. This is an error in the design of the survey that was only discovered in hindsight. Therefore, it can be assumed that the respondents who may not be going through the SWT process (at the time of filling out the survey) take a part in the “0-1 month” cohort as “0” would be best representing their situation. Therefore, the “0-1 month” cohort might not be completely accurate. Nonetheless, if, in an extreme case, this cohort would be completely subtracted from the sample, still 59%, corresponding with 55 people, would certainly be going through the SWT process.

Since no formal statistical analysis was conducted, the answers throughout the survey from the people “who are (certainly) going through the SWT process” and the “who might not be going through the SWT process” can not be distinguished from each other. Nonetheless, the sample group is still a fairly good representation of the target group as the majority was graduated from a masters and therefore must have been able to empathize with the SWT process.

One of the primary objectives of this study was to learn about risky assumption 1. To do so, the following question was asked: “How much do you agree with the statement: ‘I know exactly what kind of job I’m looking for’ (7 point Likert scale: totally disagree - totally agree)”. With a mean of 3.9 and a median of 3, the results to this question skew a bit towards “totally disagree”, thereby confirming that the majority of the respondents have a (somewhat) poor understanding of what kind of job they are looking for. This result shows that there is definitely room for improvement.

Another primary objective of this study was to learn about risky assumption 2. To do so, the following question was asked: “To decide how interesting a vacancy is, how important do you find: The activities / tasks that I need to do (7 point Likert scale: not at all - very much)”. With a mean of 6.1 and a median of 6, the results to this question lean heavily towards the “very much” part of the spectrum, thereby confirming that the majority of the respondents find the activities/tasks that they need to do very important to decide how interesting a vacancy is.

Interestingly, the average score across all attributes is a 5.2 which is essentially the “baseline reference point”. Based on this, it can be concluded that the attribute “activities/tasks” is considered on average 0.9 point more important than the baseline reference, confirming the relative importance of a task description to decide how interesting a vacancy is in comparison to the other attributes from the presented set

Nonetheless, regarding the question concerning the attributes, it has to be mentioned that the respondents might have had different interpretations of each attribute. Particularly this could have been the case with the attribute “the company culture”. Unlike with the at-

tribute “Secondairy employment conditions”, this attribute was not enriched with examples. In hindsight, this could have been done better.

Another discovery that was made in hindsight, was the lacking of a base reference point (“neutral”) throughout all opinion scales. Specifically with questions 8-17 (the attribute questions), this could have caused a bias in the answers as the questions were formulated as “How important do you find ...”, implying that the respondents would find “...” important anyhow. Nonetheless, all of the opinion scaled answers did not contain this base reference and therefore, all questions were biased in the same way. Thus, this should not have caused a difference regarding the relative ratio.

The answers that were given to question 20 (the biggest challenge in finding a job) were interesting, specifically considering the most voted answer, which is “I don’t know what jobs I like and are within my field of studies”. This supports the view that the majority of the respondents have a hard time identifying possible career opportunities that align with their study and personal interest, one of the main problems that the task-based vacancy platform aims to tackle.

Another interesting finding relating to question 20 came from the field-of-study-categorization. Page 139 in the appendix shows how often each challenge was answered per category, including the self-written answers. Based on the relative prevalence of each answer, thus with respect to the absolute amount of respondents per category, two things in particular seem striking. The first one is that the challenge “I find it difficult to choose” was answered by 8 out of the 11 respondents from the category “Accountancy & Economics”. This seems no surprise considering that, according to Bisschop and Zwetsloot (2019), graduates from the studies Accounting and Fiscal Economy take the shortest time to first employment on average. It supports the view that these graduates generally have a lot of job options and that therefore, their main challenge is choosing.

The second one is that the challenge “There are little or no vacancies for what I’m looking for” was answered by 17 out of the 27 respondents from the category “Industrial Design Engineering”. Despite the multidisciplinary nature of the fields of studies represented by this category (Strategic Product Design, Design for Interaction and Integrated Product Design), graduates apparently still have a hard time finding career opportunities after graduation.

After question 20 (biggest challenges in finding a job), respondents were asked “What could possibly help you overcoming these challenges?” *[open answer]*. To this, one of the respondents falling into the “IDE” category answered the following:

“***More publicity related to Strategic Product Design and the TU Delft in non-technological fields. In the healthcare sector they don’t understand what I can offer them. They think you design solar cars...***”

This quote perfectly captures the disconnection between the labour market and higher education (asymmetrical information). This and many other insights that were gained through the survey encourage me to further pursue the development of the task-based vacancy platform as it seems a promising solution to the problems that have been found.

The finding that IDE graduates in particular find it challenging to find interesting vacancies made me decide to use their field as a starting point to further explore the potential of a task language in the context of job searching.

For the next phase, my intention is to further validate the concept of a task-based vacancy platform using actual task examples.

5

Validation Part 2: “Canvas”

This chapter continues the validation phase of the task-based vacancy platform. This validation phase regards the validation of two other risky assumptions for which an experiment has been conducted with 11 MSc graduates from the IDE faculty. This chapter describes the methodology, the participants, the analysis, the results and the conclusion of the experiment.

5.1 Introduction
The previous chapter described the first part of the validation phase where two risky assumptions were tested through a survey. This chapter continues the validation phase by testing two more risky assumptions for which an experiment has been conducted with 11 MSc graduates from the IDE faculty.

5.2 Methodology
This validation phase mainly focusses on the validation of the envisioned solution: the task-based vacancy platform. The primary objective of this validation phase is to validate the following two risky assumptions:

3. Academic graduates going through the SWT process feel that they can properly represent their professional preferences and capabilities by making a selection from a set of tasks which is specific to their study.

4. Academic graduates going through the SWT process are very interested to discover what vacancies match in terms of their tasks to their personal selection from a set of tasks which is specific to their study.

Overarching to these two risky assumptions, I wanted to gain an in-depth understanding on two things: 1) taking into account the value “autonomy over self-representation”, can “playing around” with tasks from a study programme lead to an accurate representation of a graduates’ professional desires and 2) can it provide an effective mechanism to search for a job. To allow this understanding to grow, I wanted to be able to observe them while “interacting” with tasks and to be able to ask them questions, specific to the context. Therefore, I chose for a qualitative approach in this validation phase: a combination of observing and interviewing.

5.3 Approach
Like described in the conclusion of the previous chapter, I decided to take the field of Industrial Design Engineering (IDE) as a starting point to further explore the potential of a task language in the context of job searching. Therefore, for this second validation phase, I created a list of tasks relating to the three masters of TU Delft’s faculty of Industrial Design Engineering (IDE): Design for Interaction (DfI), Strategic Product Design (SPD) and Integrated Product Design (IPD).

I chose to create one set of tasks that repre-

sented all three masters instead of one set that represented one specific masters for two reasons:
1. The IDE masters have a lot of overlap, because design is such a multidisciplinary field and I know from my own experience that some students have great interest in disciplines from other master programmes.
2. Given the time constraints, it was not feasible to prepare a separate set of tasks for each master programme.

To compose the list of tasks, I looked up all courses from the three masters on "www.studiegids.nl/tudelft" (study guide). Combining this source with my own experience from the masters *Design for Interaction* allowed me to compose a fist version. To make sure that this version was fairly accurate, I randomly approached 10 IDE students in the IDE faculty (whom I did not know) and asked them if they could mention 10 tasks they had been working on recently. Their answers allowed me the improve and expand the list. The list that was used during this validation phase is called: "*List of tasks IDE V1.0*" and can be found in the appendix on page 143. The list was printed on paper and each individual task was cut out (see figure 14).

Figure 14: Task cards used during validation phase 2 (own ill.)

Parallel to creating the list, I designed a canvas that would allow participants to categorize the tasks. The title of the canvas was: "Your personal board of preference and competence in the context of job search".

The canvas contains two dimensions on which the participants could categorize the tasks. The first dimension was "Tasks I would like to do in my job" versus "Tasks I would NOT like to do in my job". The second dimension was "Tasks I am able to do well" versus "Tasks that I am not able to do well (yet)". The design of the canvas can be found in the appendix on page 145. In addition to the printed "task cards", the canvas was printed on an A0 sheet.

All experiments were conducted individually and in person. At the start of each experiment, the participants were given a little context about my project. Here, I did not reveal much, other than mentioning that I was designing something to improve matches between job seekers and employers.

To better understand if the participants were going through the SWT process, the participants were asked the following two questions:

1. Are you currently looking for a job?
2. If so, how long have you been looking for a job?

After these questions were answered, the participants were given the staple of IDE related tasks. They were asked to categorize each individual task on the canvas and to think out loud while doing so. The participants were told that they did not have to defend each choice, but when something would be unclear to them or when they would hesitate, they could share that.

After the participants categorized all tasks, they were asked several questions about their experience and opinion relating to the experiment. These questions can be found in appendix on page 145.

The main question I asked to learn about risky assumption 3 was the following:

"In terms of your preferences and capabilities as a professional, do you feel accurately represented by your canvas?"

Note that this question directly explores how the value of "Autonomy over self-representation" is being experienced by the participants in the context of the canvas test.

The main question I asked to learn about risky assumption 4 was the following:

"On a scale of 1-7, how interested would you be to find jobs whose tasks match the tasks you categorized under "Would like to do in my job"? (7 point Likert scale)"

Another aspect that relates the value "Autonomy over self-representation" that I wanted to explore, is whether participants would feel comfortable if employers would view them through their representation by the canvas. This could provide insight to whether the participants feel confident that employers would interpret their representation accurately. To explore this, each participant was given two options out of which they had to choose. The options were as follows:

1. Would you prefer to approach companies on the basis of your canvas yourself; or
2. Would you prefer to approach companies yourself AND allow companies to approach you on the basis of your canvas (profile)?

5.4 Participants

All participants were MSc graduates from the IDE faculty. Some of them I knew well, while some I did not know at all. The participants I knew well were contacted directly by me and the people I did not know well were recruited via LinkedIn. This qualitative experiment was conducted with a total of 11 people. To maintain their privacy, each participant was given a number, see figure below.

	Looking for a job?	For how long?
1	No, almost starting	-
2	No, just got a job	-
3	Orienting	1 month
4	Yes	3 months
5	Yes	1 month
6	Yes	2 month
7	Yes	1 month
8	Yes	2 months
9	Orienting	1 month
10	Yes	2 months
11	No, almost starting	-

Figure 15: Participants validation phase 2 (own ill.)

5.5 Analysis

Everything that was being said by the participants during the experiments, was recorded and transcribed into statements. Interesting statements from each transcription were highlighted and clustered, resulting in several topics. The topics were as follows:

- Job searching challenges
- General perceived value of the canvas
- The axes on the canvas
- Definition of tasks
- Autonomy over self-representation
- Using canvas for job matching

Subsequently, in most clusters, sub-clusters were made to distinguish positive and negative comments.

5.6 Results

In this section, the results are discussed per cluster.

Job searching challenges

Experienced challenges in terms of searching for a job after graduation that were mentioned by the participants were 1) Some jobs require too much experience, 2) It is difficult to understand what the job possibilities are, 3) It is difficult to search and find jobs (don't know what keywords to use) and 4) It is difficult to pitch/convince employers what you can offer them.

Participant 9

"Terms in our world are really vague. Interaction design, user experience design. Mostly I end up at website design.. Very often I look at companies that I like and then I have a look how they define their vacancies and then I search further with those terms."

General perceived value of the canvas

Generally, the participants responded very positively to the act of making the canvas. Some participants mentioned that the canvas helped them to clarify their competences and ambitions as they became more explicit. This gave them a good feeling. For some people the canvas had a reassuring effect as they mentioned to be sometimes insecure about their capabilities. The canvas reassured them that they are still able to do quite a lot of things well.

Participant 5

"I already thought about what I want, but these cards really help with that. Actually you should invite everyone that finished IO to do this exercise. This makes it clear what you want and what you also absolutely don't want."

Participant 8

"Gives me the idea that I'm capable. Even though I have my insecurities, I can still do all of this stuff."

A few people took a picture of their result so they could use it during a job interview.

Other people did not get a lot of added value from making the canvas, other than what they already knew about themselves.

Participant 1

"I pretty much know what I want to do. It was not difficult to decide what I'm good at and what not."

The axes on the canvas

Some participants said that they found it valuable to be able to categorize tasks that they did not want to do in their jobs. They said it helped them to focus on the things they do want to do in their jobs. This is similar to what some other participants said, which was that the exercise helped them to clarify what they want in their job. Other participants mentioned that they found it valuable to be able to express what they want to learn better.

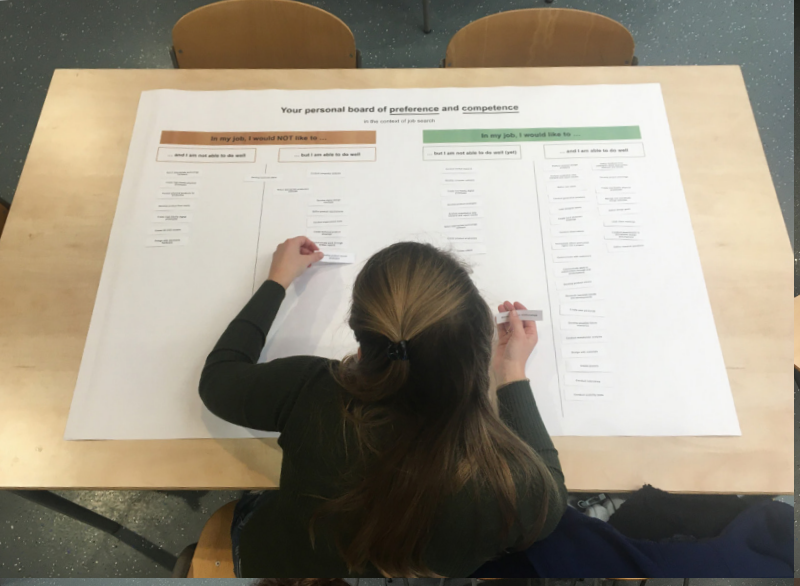
Participant 4

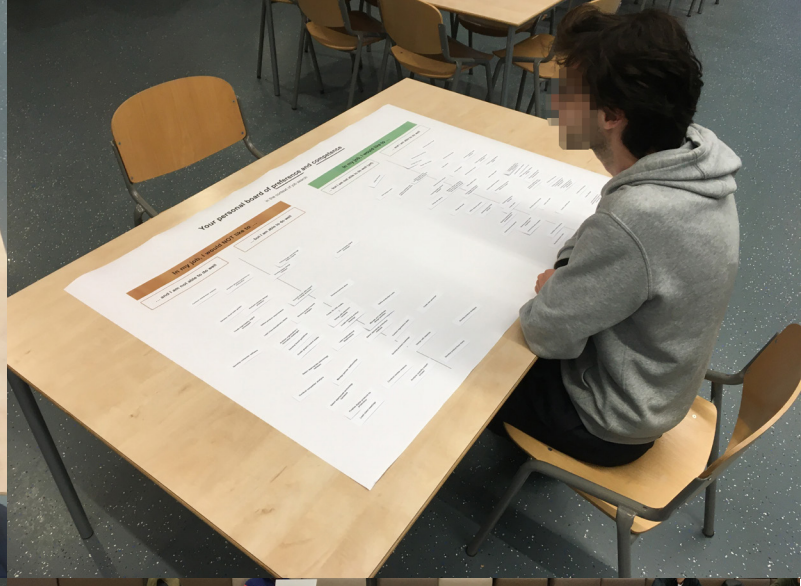
"Two dimensions of 'would like to' and 'would NOT like to' help with finding the balance what I like and what I want to do in my job and what not."

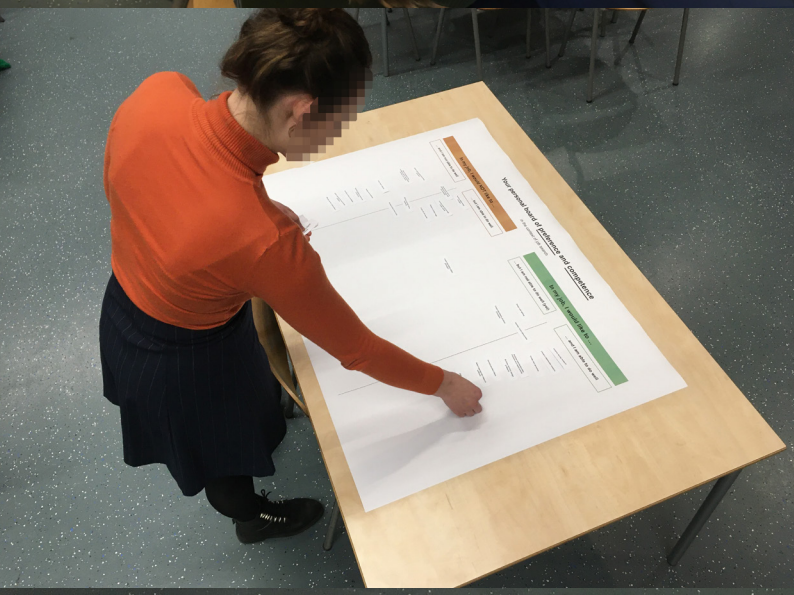
Participant 3

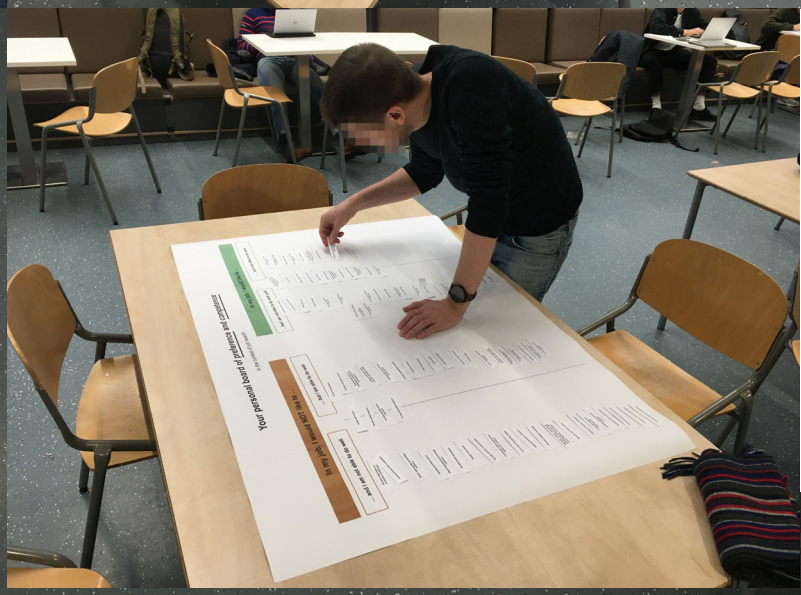
"What I noticed, is that with some skills you can really stand out above others. These things I put at "not good at yet, but would like to do". Nice to be able to say that to an employer."

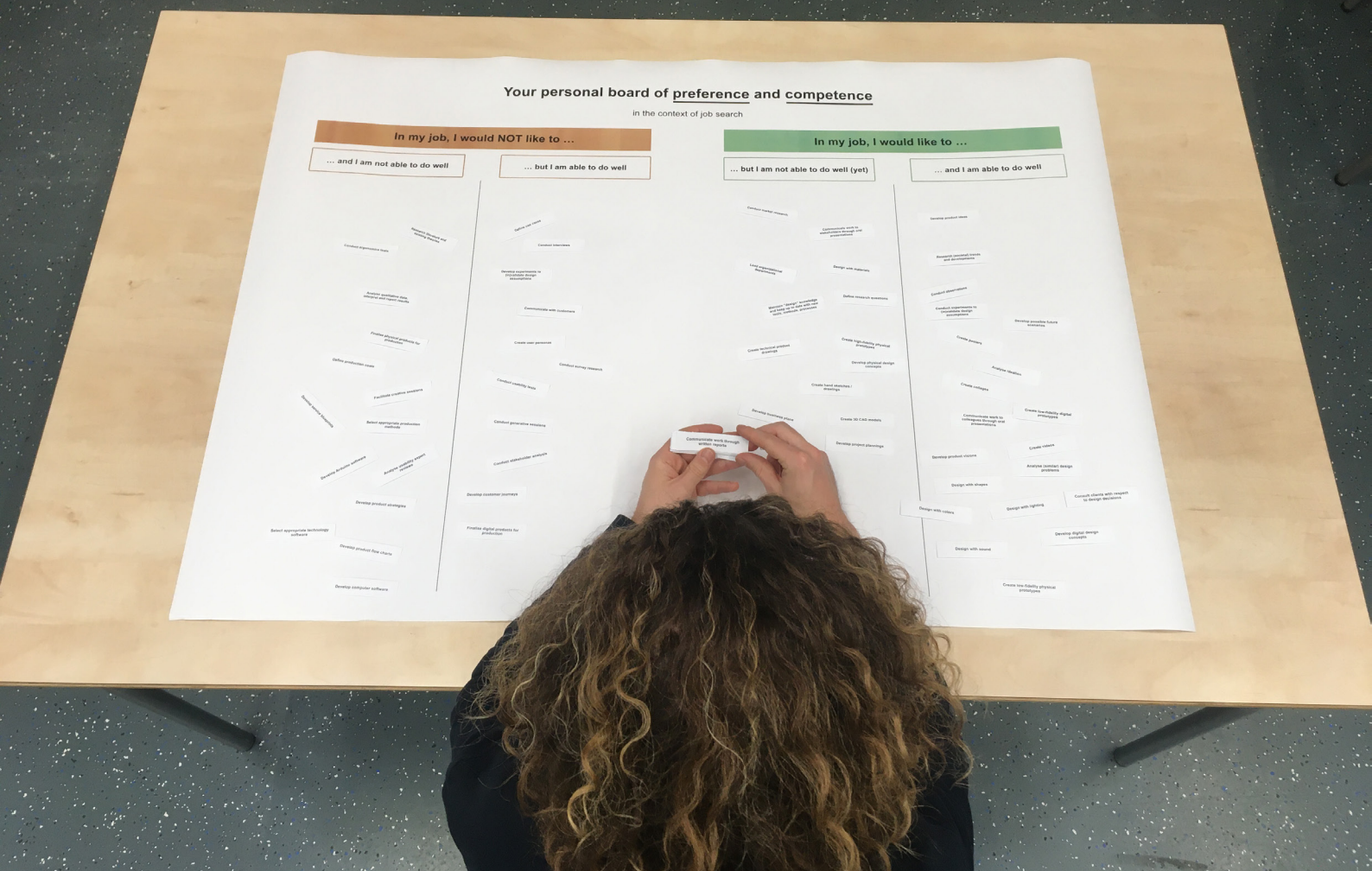
Some participants mentioned that the division between "would not like to" and "would like to" felt too harsh. They considered certain tasks as important or said that would be fine doing them occasionally, but not as a core


Your personal board of preference and competence
in the context of job search
In my job, I would NOT like to ...
... and I am not able to do well
... but I am able to do well
In my job, I would like to ...
... but I am not able to do well (yet)
... and I am able to do well


Your personal board of preference and competence
In my job, I would like to ...


Your personal board of preference and competence


Your personal board of preference and competence
In my job, I would NOT like to ...
... and I am not able to do well


Your personal board of preference and competence
in the context of job search
In my job, I would NOT like to ...
... and I am not able to do well
... but I am able to do well
In my job, I would like to ...
... but I am not able to do well (yet)
... and I am able to do well

task in their job.

Participant 4

"The 'would NOT' feels quite emphasized.. Is this really something I want to avoid or am I fine with doing it, but wouldn't really prefer so..?"

Participant 8

"Sometimes it was difficult to think if I could or couldn't do something well or if I like or doesn't like something. Some things are very interesting, but not things I'd like to do in my work."

Similar to this, some participants were afraid that they would miss out on job opportunities when they put tasks under "Would not like to do in my job".

One participant mentioned that it would be nice to have a scale that allows her to express how good/bad she is at certain tasks.

Participant 11

"Sometimes, it's difficult to say if you're good or not good at something. Therefore, it would be nice if you could integrate a scale to indicate how good you're at something."

Definition of tasks

In general, the participants found the way in which the tasks were defined quite clear. Some participants mentioned that they liked it that the tasks started with verbs, such as "Design", "Create" or "Conduct".

One participant mentioned that the tasks were easily relatable to the courses of the masters programme, which was nice.

Participant 3

"Like specific tasks such as 'develop project plans' or 'conduct usability tests' or 'define use cases'. Very specific things that we've learned here. If it's so specific, then you think back about a course that you did and if you liked that or not and if it went well or not."

Participant 8

"Most of them yes. There are a few of which I think it's multi-interpretable, like "Create wireframes"... But also "Teach design thinking to colleagues" and "Lead cross-disciplinary teams". They belong a bit to each other. They are a bit broad, but that's good. The activities touch upon all domains. Not the feeling that you missed something."

The majority of participants said there were some tasks they did not understand. In these cases, sometimes the verbs were confusing or it was unclear whether tasks referred to physical or digital product design.

Participant 7

"Yes, I thought everything was clear, except for some digital stuff. I thought digital design concepts were 3D CAD models, but they were more website and app design things."

Some participants experienced that certain tasks seemed from a different dimension, such as "Design with sound", which one participant considered more as a theme than a task. Last, some suggestions have been made to expand the list.

Participant 9

"Some things seem from a different category or level of abstraction, like design with sound/lighting/smell/color. Then "design thinking", "design with emotion", "design with fashion" would also be missing..."

Autonomy over self-representation

When the participants were asked "Do you feel accurately represented by your canvas?", 8 out of 11 people started their answer with the word "Yes".

Like mentioned before, participants considered it as valuable to be able to indicate what

tasks they would not want to do during their job, allowing them to focus.

Participant 2

"I think this represent me well. You see that I have a lot of skills, but that I'm also ambitious and that I would like to learn more. There's not so much on what I wouldn't like to do in my job, maybe 1/4. And that's true, I like doing a lot of things."

Participant 8

"Yes, this summarizes my competences and my ambitions clearly and also what I don't want. It's also important to know what you don't want. It helps to see an overview and notice what you want to focus on and this will help with applying."

A few participants felt that their soft skills, such as "Leadership" and "Collaboration", were not well represented. They mentioned that these soft skills played a big role during their studies and that they consider these as on of their core strengths.

Participant 10

"Yes for sure, but certain qualities could be missing. These tasks relate to hard skills, but the soft skills are more missing here, think of Leadership, Collaboration, Working together."

Another participant mentioned that he developed other, non-study related, skills during his free time, such as working with kids, and that these could potentially differentiate him from other candidates. However, these skills were not represented in his canvas.

One participant mentioned that her ability to think in abstract terms and to make connections was not really represented in the canvas while she considers this as very important in terms of her capabilities.

Participant 1

"Some people are good at spotting opportunities in a physical product. I can spot more opportunities by analysing a situation. That's not really in there. There must be something in about where your spark is, what your brain is good at.. For me that is critical thinking and being able to make connections. That is a bit missing here. "

Using canvas for job matching

On average, the participants assigned a 6,4 on a 7 point Likert scale (1 = "Not at all interested", 7 = "Very interested") to indicate how interested they are to find jobs whose tasks match their tasks from "Would like to do in my job".

One participant mentioned that the canvas is able to reflect her vision of her future job, which she finds helpful. One other participant said that such a tool could help him to quickly discover a lot of, potentially interesting, vacancies. Another participant mentioned that this could really help you in deciding what jobs match your preferences, which is very nice.

Participant 5

"7, this would be very nice, who wouldn't want that? This is a kind of super assistant, so you don't have to scout through the whole internet with 100 tabs open."

Participant 10

"7, because it always pretty hard to find a job yourself. For example I searched for junior designer.. but it was difficult to find something of what I consider as a designer. Now it's your own profile of the vision you have for your job. That really helps."

Some participants responded a bit sceptic to the job matching functionality. They mentioned that LinkedIn has a similar "matching" feature, but that this works very bad. This makes them question if the task-based vacancy platform is able to deliver real value.

Some participants mention that employers could have different interpretations of certain tasks which may affect the quality of the matches in a negative way.

One participant mentioned that only focussing on tasks is not sufficient, because she takes many other factors in to consideration when evaluating a job. Similar to this, another participant mentioned that this tool does not reflect someone's personality while this is very important in a job match.

Participant 1

"I give it a 6, because it really helps scrumming down. It's interesting, but not enough. For me it's important to the location, so where the job is, if the company is big or small, what methods they use, what they're known of, etc."

<u>One-way vs. Two-way approaching</u>
Four participants preferred that only they themselves could approach companies on the basis of their canvas (one-way), while seven participants preferred that both they themselves and companies could approach each other (two-way).

<u>One-way</u>
The main argument why participants chose the one-way option was that they wanted to have the control over their personal information. They said they did not like the idea that companies can make judgements about you based on your profile.

Participant 10

"You might lose flexibility to do things that you put at things you wouldn't like in your job. Maybe organizations can make judgements about you: That I'm not good at something, doesn't mean that I don't have any interest in those topics."

Another participant mentioned that her canvas (profile) would be different when she would be looking for a job herself versus when other parties could see her profile. In the latter case, she would try to sell herself more and she wants to decide how she does that.

Participant 1

"I feel like I could use it in two ways: 1: I use it for me, use it honestly to understand where I want to be and what job I want. 2: I use this platform to look for a job. In that case, I need to sell myself and I want to be able to decide how I sell myself to the companies. That can be different for different companies."

<u>Two-way</u>
The main argument why participants preferred the two-way option was that they thought it would broaden their chances. They considered it as an opportunity to be surprised by companies / jobs that they initially did not think about themselves.

Participant 6

"It broadens your chances. In that way companies can surprise you that you would initially never have thought about."

Nonetheless, two of these 7 participants said that they wanted to have the ability to turn their public visibility off whenever they wanted.

Participant 2

"Two-way, but with the ability to switch it off when you've a job. Otherwise you'll get crazy. Give this the preference, because you can discover things that you'd initially maybe didn't have thought about."

5.7 Conclusion

Generally, the participants responded very positively to the experiment. Most participants thought it was a valuable exercise for themselves, because all the different tasks and its categorizations provided clear insight in what they liked/dislikes and thought they could do well, or not (yet). This was not only reflected by what the participants mentioned, but also by the fact that three participants wanted to take a picture of their canvas to use as a tool during their job search.

It became evident that some participants had a better idea what they were looking for in a job in general, while others did not have this. In general, this latter group of people responded most enthusiastic to the act of making the canvas as it provided them with new insights.

During some post-experiment interviews, three out of the four challenges that this project aims to tackle, as described in chapter 3, were mentioned by the participants.
The challenges that were mentioned by the participants were:

- It is difficult to understand what the job possibilities are
- It is difficult to search and find jobs
- It is difficult to pitch/convince employers what you can offer them

These findings reaffirm the pre-identified challenges that graduates experience in the SWT process and therefore, that this project truly has a "raison d'être", a reason for existence.

From the results, we have learned about risky assumption 3 that the majority of the participants indeed felt that their professional preferences and capabilities were well represented by their canvas. This is an important finding in the context of the value "Autonomy over self-representation" as it shows that the canvas intervention seems to honour this value. Besides the ability to list what tasks are desired in a job, also the ability to express what tasks were not desired in a job was considered as a valuable feature.

In addition, some clever suggestions were made that would, according to some participants, improve the accuracy of one's representation, such as a stronger emphasis on soft skills (people skills), the ability to capture more abstract capabilities (judgement, decision making, system thinking, critical thinking) and the integration of a scale to be able to prioritize tasks (how (un)desired they are) and to be able to express more nuance of one's skill level. These suggestions will be taken into account during further development.

Conducting the experiments provided insight in how the tasks could be better defined. Some participants mentioned that some tasks seemed from a different order than the others and some mentioned that some tasks were very specific, while others were more generic. In further development, I aim to improve and expand the list of IDE tasks.

Furthermore, we have learned about risky assumption 4 that the participants were indeed interested to find jobs on the basis of their canvas, which confirms the assumption.

However, despite the fact that this proves a high level of interest amongst the participants, it does not yet completely validate the concept of a task-based vacancy platform. Based on some participants' critical perspective and their references to LinkedIn's matching functionality that works in their opinion "very bad", it seems that the true value of this platform is highly depended on the quality of the matches that are realized, and thereby the quality of the companies that list their vacancies on this platform. Therefore, it will be extremely important to involve the right parties and to constantly question, and challenge, how the quality of the matches can be optimized.

Last, it has been explored whether participants would feel comfortable if employers would view them through their representation by the canvas. The results show that the opinions are divided and valid arguments were given for both perspectives. Over the next phases, other interventions will be designed and tested that represent the task-based vacancy platform in a more realistic way. Those interventions allow to gain a richer understanding about several issues, such as this previous one.

Based on validation phases 1 and 2, it can be concluded that 1) there is a real problem that should be solved and that 2) the task-based vacancy platform might be an effective solution to the problem.

However, successful outcomes of graduates that are going through the SWT process are strongly depended on any given situation in the labour market. The jobs that these graduates eventually obtain are a direct reflection of the needs within organizations. Thus, for the task-based vacancy platform to provide a good solution to the graduates, it is crucial that the platform also provides significant value for organizations who are seeking for these graduates. Therefore, it is essential to understand whether the task-based vacancy platform is valuable for organizations.

In the next validation phase, the perspective of organizations on hiring “fresh” academic graduates will be explored and the risky assumption 5 will be validated:

5. Organizations have difficulties in finding the right candidates for their entry-level job positions.

6

Validation Part 3: Employers

This chapter continues the validation phase of the task-based vacancy platform. Where the previous phases revolved around the graduate job seekers, this validation phase revolves around another stakeholder: the employers seeking for “fresh” academic graduates. During this phase, a total of 5 interviews have been conducted and this chapter describes the methodology, participants, the analysis, the results and the conclusion.

6.1 Introduction

In the previous two chapters, many valuable insights have been gained relating to the first four risky assumptions. All these assumptions related to the graduates’ challenges of going through the SWT process and the potential value of the task-based vacancy platform for this target group. So far, the insights only encouraged to further develop the envisioned product. This chapter continues the validation phase, but shifts stakeholder. This phase aims to learn about risky assumption 5 for which five in-depth interviews were conducted with employers.

6.2 Methodology

The primary objective of this validation phase is to learn about the following risky assumption:

5. Organizations have difficulties in finding the right candidates for their entry-level job positions.

In addition, this phase aims to understand the motives of organizations in hiring “fresh” academic graduates. For this phase, I chose to conduct interviews as this allowed me best to gain a deep, qualitative, understanding.

6.3 Approach

Each interview was split up into two parts. During the first part of each interview, I asked several questions to gain more insight on the organizations’ perspective on hiring “fresh” academic graduates.

Here the main focus-points were:

- What motivates organizations to hire “fresh” academic graduates?
- What criteria do organizations have when hiring “fresh” academic graduates?
- At what moments do organizations decide to hire “fresh” academic graduates?
- What challenges do organizations experience in the process of hiring “fresh” academic graduates?

The first three focus-points mainly revolved around understanding the organizations’ needs in the context of hiring “fresh” academic graduates. The latter point mainly revolved around understanding the organizations’ experienced challenges, or “pains”, in the process of hiring which relates to the validation of risky assumption 5.

All interviews were semi-structured and took

about 30 - 45 minutes. In total five interviews were conducted of which two were in person and three via telephone. The full interview guide can be found in the appendix on page 149.

To learn about risky assumption 5, I asked the following question:

"What challenges do you experience in the hiring process for entry-level job positions?"

During the second part of the interviews, I showed each interviewee a picture of one of the canvasses that was made during the previous phase. This allowed to gain insight on the interviewees' perspectives on the task-based vacancy platform.

6.4 Participants

Quincy Dalh, the client, recruited four participants for the interviews from his network. I recruited one participant from my network.

The main criteria for the interviewees were that they each had to have experience in hiring candidates for entry-level positions. Figure 16 describes for each participant in what type of company they work, how many employees their company counts and what kind of entry-level positions they mainly recruit for.

6.5 Analysis

All interviews were recorded and transcribed word by word. In each transcription, interesting statements were highlighted and subsequently, all results were clustered based on the focus points and others. From there, conclusions were drawn.

6.6 Results

In this section, the results are discussed per cluster including some quotes. More quotes can be found in appendix, starting on page 150.

<u>The motivation for hiring "fresh" academic graduates</u>

All participants mention that hiring inexperienced workers, like "fresh" academic graduates, is advantageous, because it gives them the opportunity to shape and educate these people themselves. This ensures that these new employees adopt the companies' work style and learn working according to their standards.

Participant 1

"*Educating your own people is important, also because we kind of developed our own methodology over the years that you don't see elsewhere.*"

	Type	Amount of employees	Mainly recruiting for
Participant 1	Consultancy	100	Designers
Participant 2	Start-up	15	Software developers
Participant 3	Start-up	12	Software developers
Participant 4	Corporate	1000+	Finance trainees
Participant 5	Agency	25	Software developers

Figure 16: Overview of interviewees (own ill.)

Other mentioned advantages of hiring inexperienced workers are that these people bring new insights, cost less and can grow with the company towards senior positions.

Participant 2

"*The benefit of starters is that you can shape them.*"

Criteria for candidates

Most participants mention that they pay more attention to a candidates' potential, rather than to the candidates' current skill-set. They are mostly looking for motivated people with an eagerness to learn and that have the potential to grow.

Participant 1

"*If someone just comes from university, they have a lot of stuff to learn so you scout more on mentality than on experience.*"

Also, some participants mention the importance of a cultural fit between the company and the candidate.

Participant 3

"*For us, the coding skills aren't necessarily the most important, but more the eagerness to learn.*"

When new candidates are hired

Participants who's organizations focus on growth mention that they are constantly looking for new candidates to join.

Participant 2

"*We are looking constantly for new people, because we have a lot to do and have big ambitions to grow.*"

In contrast, participants who's organizations are less focussed on growth mention that they only expand their team when they have no other choice.

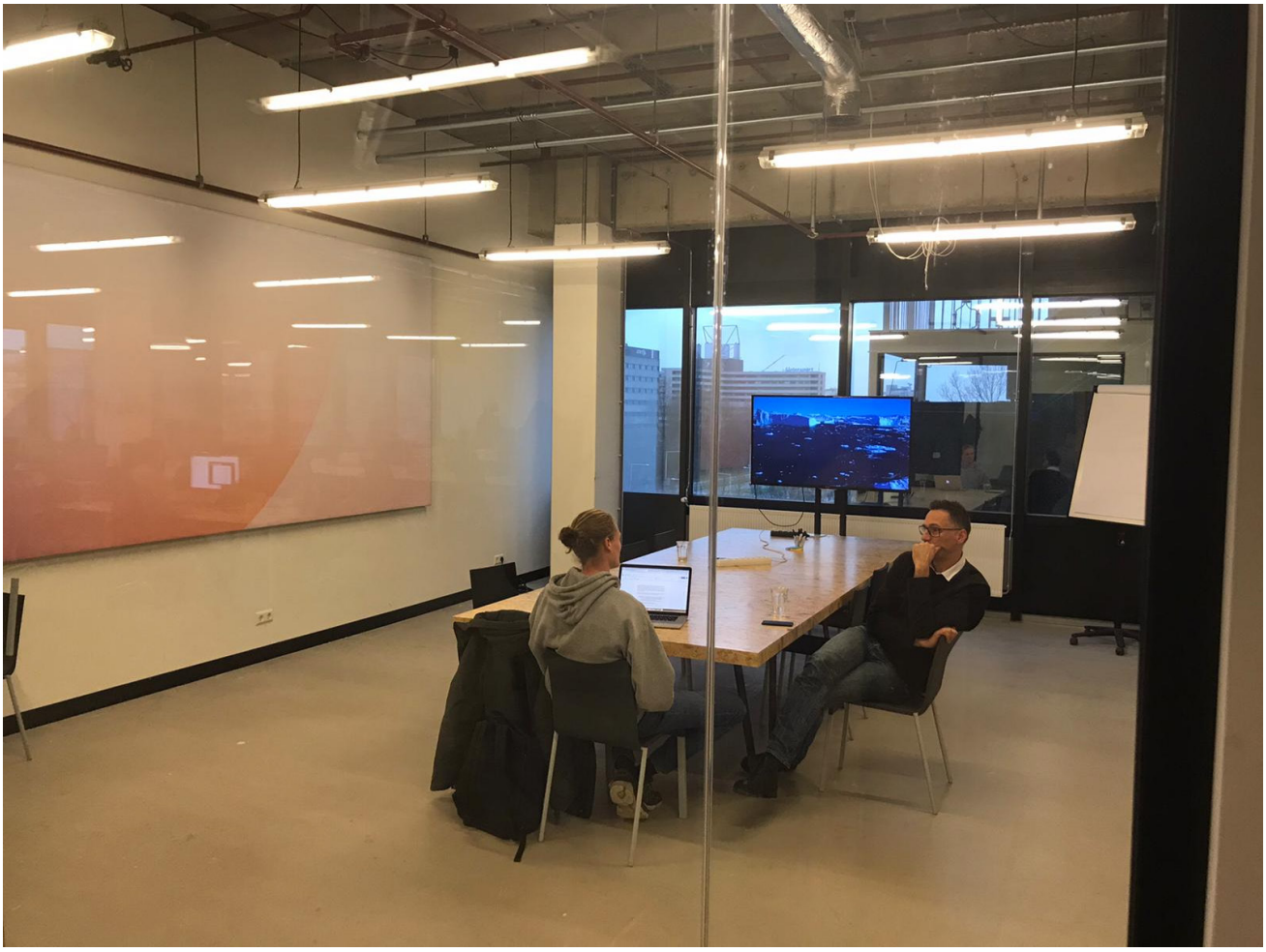


Figure 17: Me conducting an interview at one of the interviewees' office (own ill.)

These companies generally monitor what they call, the "sales pipeline". This means all the upcoming projects that are either confirmed or not (yet) confirmed. From this pipeline they can estimate the occupancy of the teams and employees.

Participant 5

"*When we hire is based on the upcoming projects, so what's in the sales pipeline. Also a certain control factor: do we want to grow fast or not. Right now, we're not, so we're more selective when it comes to hiring.*"

One participant mentions that he distinguishes incidental shortages from structural shortages and that both types of shortages result in different choices.

Participant 1

"*We closely monitor what projects are coming up and what that implicates for the occupancy of the team. If we then see that we have a shortage of people, then we look if that's structural shortage or a incidental shortage. If it's a incidental shortage, we look if a freelancer can pick up this work. If it's a structural shortage, we will open up new positions, because we always prefer to work with our own people.*"

<u>The hiring process and its challenges</u>

All participants mention that they generally receive a lot of applications for their entry-level positions.

Participant 1

"*We almost never have to put a vacancy online. There's a constant flow of people who are interested.*"

Participant 4

"*The amount of incoming applications for our graduate programmes is gigantic.*"

However, quantity does not necessarily result in quality. Some participants mention that their main challenge is to find the right candidate.

Participant 3

"*There are plenty of candidates, but reaching the right ones is a challenge.*"

Two participants mention that the whole hiring process can take up a lot of time.

Participant 3

"*The process of thinking who you need. Before you've come to a conclusion with the team, that costs time.. Also, the process of actual translation to a good vacancy text. And then the next stage of actually finding the right candidates, that's a challenge. Time is the most challenging part.* "

Last, two participants mention that they find it challenging to evaluate how a candidate will perform during his/her job.

Participant 1

"*It's very hard to see up front how someone will perform. When you talk about this profession, people seem to understand each other quickly because we have been raised with the same vocabulary and if you use that vocabulary, you think that you mean the same, but in reality that's not always the case.*"

<u>Response to the canvas</u>

All participants consider the canvas as a valuable tool, because it allows them to get to know a candidate better.

Participant 3

"*I find it very useful to know what someone's ambitions are, where he want to grow towards and what someone is capable of.*"

Participant 4

"*It can be very interesting to consider this as people's personal job mood-board.*"

Several participants mention that they would like to use such information in the context of a

job interview to have a more effective discussion with the job candidate.

Participant 3

"This could be a tool to have a better discussion. It allows you to ask questions about the things someone thinks he is good at. Then you can ask where they learned that and if they can mention examples."

Despite the participants' positive responses to the image of the canvas, I could either tell, or they would mention themselves, that they had difficulties to read the information on the canvas.

Participant 1

"The information is there, but it's not well presented. I would cluster things."

One participant suggested to categorize the information. Another participant suggested to implement a scale that allows candidates to communicate how much they want to do certain things.

Participant 4

"I think it should communicate a scale, for example 1-5, how much people want to do certain things in their job."

Also, some participants seemed to be turned off to read that a candidate does not want to do certain tasks in their job.

Participant 1

"If someone says he can't make service blueprints and doesn't want to learn it, I would not invite this person for a interview as a service designer."

One participant questions the completeness of the tasks. Another participant mentions that he thinks it will be a great challenge to get 80, or so, tasks on the same level of abstraction, so from very specific things to more general things, especially for every industry.

Participant 3

'Managing to get 80 things on the same conceptual level. That it's not to detailed and not too broad. And doing that for every industry, I think that's a big challenge."

Explaining the task-based vacancy platform

One participant mentions that it would be nice to use such tasks to compose job descriptions.

Participant 4

"This could work for us in composing job descriptions, because our recruiters have conversations with hiring managers about what they're looking for in a profile. What they think they can further develop and what competencies they already have enough of."

All the other participants did not respond very enthusiastic to the concept of a task-based vacancy platform. One participant mentions the hassle of creating a vacancy and that this would only add more complexity to that.

Participant 1

"I don't think that job matching on the basis of these tasks could work, because it's already a pain to write a job. In that case I would have to take specific criteria of an external platform into account to write down what I want, I will never do that."

"I've experienced that creating vacancies in larger organizations is a worthless process. There's no time and knowledge. You're not going to solve that by asking the question on a level deeper."

Participant 2

"here we don't do vacancies anymore, because they don't work for us. We tried to write our vacancies in a way that people would reply. That doesn't have to do much with the actual work."

Participant 5

"I would personally prefer to use it as a tool to get to know a job candidate better, rather than a job matchmaking platform. In that case I would be dependent on the candidates in your database."

Other suggestions for preferred usage

At the end of the interviews, the participants had the opportunity to express how they would prefer to use the task language.

Participant 1 talked about how he would like to use a tool where candidates self-assess their skills and that he can use to this information to identify interesting candidates, based on what he is looking for.

Participant 1

"Then I want to present my candidates a tool where they can assess themselves on a scale on the basis of those criteria, for example on hand sketching, copy-writing, doing research, wire-framing. Then I want to feed those self assessments into a system where I determine the importance of each criteria on the basis of what I'm looking for and what I mean with that. As a result, the system can prioritize the most relevant candidates. It is very important to me that I'm in control and not the system."

Participant 2 talked about how he would like to know someone's soft-skills. Participant 5 mentioned that he would like to use a tool to get to know someone's ambitions better. He talks about a tool where candidates can express what they want to learn during their job, so he can better decide if someone is a good fit for the company.

Participant 5

"Now I have a vacancy for a front-end developer, so I could put in a lot of tasks that have to do with that position, but I can also throw in some tasks that tell something about potential grow paths. That is very interesting. When someone says he wants to grow in a certain direction, but maybe that's not relevant within the company. Then I can better decide if someone is a good fit for us."

6.7 Conclusions

The participants responded very enthusiastic to the canvasses. From the interviews, it became apparent that this kind of information about a candidate can enable organizations to make better, more informed, hiring decisions.

Relating to risky assumption 5, we learned that the majority of the participants indeed seemed to have difficulties in finding the right candidates for their entry-level job positions. All participants mentioned that they generally receive a lot of applications for entry-level job positions. Some participants mentioned however, that it can take a lot of time to get to the right candidate.

Despite these supporting views, the hiring managers were not very enthusiastic about the concept of a task-based job matchmaking platform. Here, the following arguments were given:

1. A job is usually the starting point in a collaboration, nobody fits exactly to the definition of a job position. Therefore, to define a job position in terms of all its specific tasks does not make sense.

2. Writing vacancies is already a painful job and it gets even more complicated when you can only use task definitions determined by an external platform.

3. It is a weak spot that the quality of the matches are determined by the quality of the candidates in the database of the platform.

Another potential explanation could be that organizations already receive a lot of job applications and therefore, do not get very enthusiastic about the idea of receiving even more applications. For them, large amounts of job applications is associated with lots of screening, which is a painful and time-consuming exercise.

However, one could argue that whenever such a platform allows organizations to 1) attract more “of the right” candidates by more accurately describing the job activities, 2) have a wider reach of candidates thanks to the searchability of the tasks within job descriptions and 3) create vacancies more easily, their ultimate need for attracting the “right people” for the “right job positions” would, in theory, be better served.

I also realized that the way in which concept of a task-based vacancy platform was presented, namely by showing one of the canvasses, required quite a lot of imagination from the participants. In contrary, during the previous phase, it was much more easy for the graduates to imagine the concept, because the exercise they did (categorizing their study related tasks) would be a part of the envisioned job search situation anyhow. They only had to imagine that vacancies would be matched to their canvas, while the participants from this phase had to imagine the whole process of writing a vacancy with its tasks, receiving applications and screening the applications. Presenting a canvas with 80 tasks, that did not even relate to their business, in an unstructured way might not have helped.

Furthermore, another factor that could have been of influence to these results is the type of entry-level positions that these companies are mainly recruiting for. Figure 16 shows that three companies are mainly recruiting for software developers and one mainly recruits for finance trainees. What I have learned during the interviews is that the profession of software development is much less multidisciplinary than for example the profession of design. Obviously, there are differences between software languages and front- and back-end development, but the act of coding is rather similar across these different areas.

The main concern of these organizations seems to be the quality of software development. However, I think that a task language is not an appropriate nor effective way to communicate the quality of any task . Rather, the strength of a task-language is to distinguish types of task (or activities) in a labour market where so many different job activities can be identified.

Due to various reasons, the task-based vacancy platform has not been validated during this validation phase. However, the task-language was considered as a valuable means by the employers to get to know candidates in a better way. Additionally, some suggestions were made by employers how they would prefer to use the task-language. Therefore, the next phase aims to further explore how the task-language can be used best to support organizations in finding the right candidates more effectively.

7

Validation Part 4: Prototyping with Employers

This chapter continues the validation phase of the task-based vacancy platform with employers. For this phase, two visual prototypes were created and shown to 6 employers. This chapter describes the feedback that was provided by the employers regarding the prototypes.

7.1 Introduction

Previous phase showed that employers find the task-language interesting, though not necessarily in the context of the task-based vacancy platform. This phase aims to further explore how the task-language can be used best to support organizations in finding the right candidates more effectively.

Six new employers were part of this validation phase. With the support of two visual prototypes relating to the task-language, their feedback was gained on various ideas. This chapter shows the visual prototypes that were used, describes the feedback that was gained from the discussion with the employers and concludes with the implications for this graduation project.

7.2 Redefining tasks

Like mentioned in section 5.3, the first version of the list of tasks regarding the three IDE masters was mostly composed on the basis of the study guide. In addition, I used my own knowledge about the design discipline.

So far this list has been shared with 11 IDE graduate students and 5 employers. These sessions have allowed me to gain a much better understanding about the task-language, particularly in the context of the design discipline.

Fundamentally, it has become more clear what a task exactly is and how it should be defined.

The following points describe several guidelines for the new task definitions:

1. On an abstract level, a task is solely defined by “a type of action” + “a context”.
2. A type of action is formulated as a verb, conjugated in the infinitive form without “to” (e.g. “Develop” or “Research”).
3. A context describes the “thing” that the action is projected on (e.g. “Business model” or “User needs”).
4. A task never describes why it is being executed.
5. A task never describes how it is executed, such as a methodology or tool.

Following these guidelines, a task definition generally consists out of two to five words. These guidelines ensure that a task is clear, though not too specific. This is important, because in the context of the task-based vacancy platform, the tasks act as a connector between two parties: the job seekers and

the employers. Therefore, it should allow both parties to talk about the same thing on a general level, while leaving some room for why or how the task must be executed.

The next section describes the exact process that led to the improved IDE task-language in more detail.

7.3 The process of improving the task-language of Industrial Design Engineering

The design discipline knows many models to explain how design can be applied in practice. For example, the theory of design thinking captures the design process in five stages: Empathize, Define, Ideate, Prototype and Test. Similarly, the double diamond approach captures the design process in four phases: Discover, Define, Develop and Deliver.

These kinds of models have clear points of overlap in the sense that they all seem to include a phase of exploring / discovering / researching, a phase of creating / ideating / prototyping and a phase of exposing / testing / measuring. The observation that these kinds of phases exist in the design process has helped me to create a framework that distinguishes different types, or categories, of tasks, such as “Research tasks” or “Design tasks” or “Test tasks”. Therefore, these kinds of models have been a constructive point of reference to my approach in improving the list of IDE tasks.

Furthermore, the observation that the three IDE masters each emphasize different aspects of the design process has also been very constructive to my approach in improving the list of IDE tasks. To my interpretation and on a very general level, the masters Strategic Product Design (SPD) emphasizes “research and strategy”, the masters Design for Interaction (DfI) emphasizes “concepting” and the masters Integrated Product Design emphasizes “engineering”. In addition, I made the observation that design projects in the master programme IPD generally revolve around physical product design, whereas design projects in the programme DfI generally revolve around both physical product design and digital product design. This latter observation encouraged me to distinguish physical product design from digital product design.

Together, these different observations allowed me to create a nuanced mental model of the design discipline. As a result, I was able to cluster similar types of tasks which resulted in the definition of the following task categories:

- Research
- Strategize
- Define
- Design Physical Products
- Design Digital Products
- Prototype Physical Products
- Prototype Digital Products
- Plan
- Test
- Lead
- Collaborate
- Communicate
- Document

Note that all these categories are formulated as verbs in the infinitive form, referring to a type of activity.

Once these categories were established, I challenged myself to further enrich each category with according tasks. To do this more effectively, I involved several designer professionals and asked them to brainstorm along with me. This allowed a broader perspective on each category. Here, I ensured that each new task conformed to the task-definition-guidelines as I had previously defined. As a result, a total of 76 tasks had been defined.

7.4 Visual prototype #1

Based on the new task-definition-guidelines and the process of improving the task-language of IDE, a new list of tasks emerged. In comparison to the previous list of IDE tasks, a number of tasks that did no longer meet

the task-definition-guidelines were removed. However, a number of tasks were also added to the list and in addition, like mentioned in the previous section, all tasks had been grouped according to their task-category. Figure 18 provides an overview of the new list of IDE tasks. Simultaneously, this overview is visual prototype #1 that was used to support the discussions with the employers during this validation phase. An enlarged version of the visual prototype can be found in the appendix on page 156.

7.5 Visual prototype #2

During the previous validation phase, two employers mentioned that, instead of the task-based vacancy platform, they would prefer to leverage the task-language to be able to better evaluate candidates in the screening process.

These two employers made a similar suggestion as they mentioned they would to have a survey-kind-of-tool that allows job applicants to go through a set of tasks (relating to the vacancy) where they can indicate their level of skill in a task (suggestion 1) or indicate how desirable a task is in their future job (suggestion 2). In this way, job candidates can better communicate their level of skill or their level of interest in a task, allowing the employers to better identify those applicants who align best with the requirements of the job position. On the basis of this suggestion, a visual

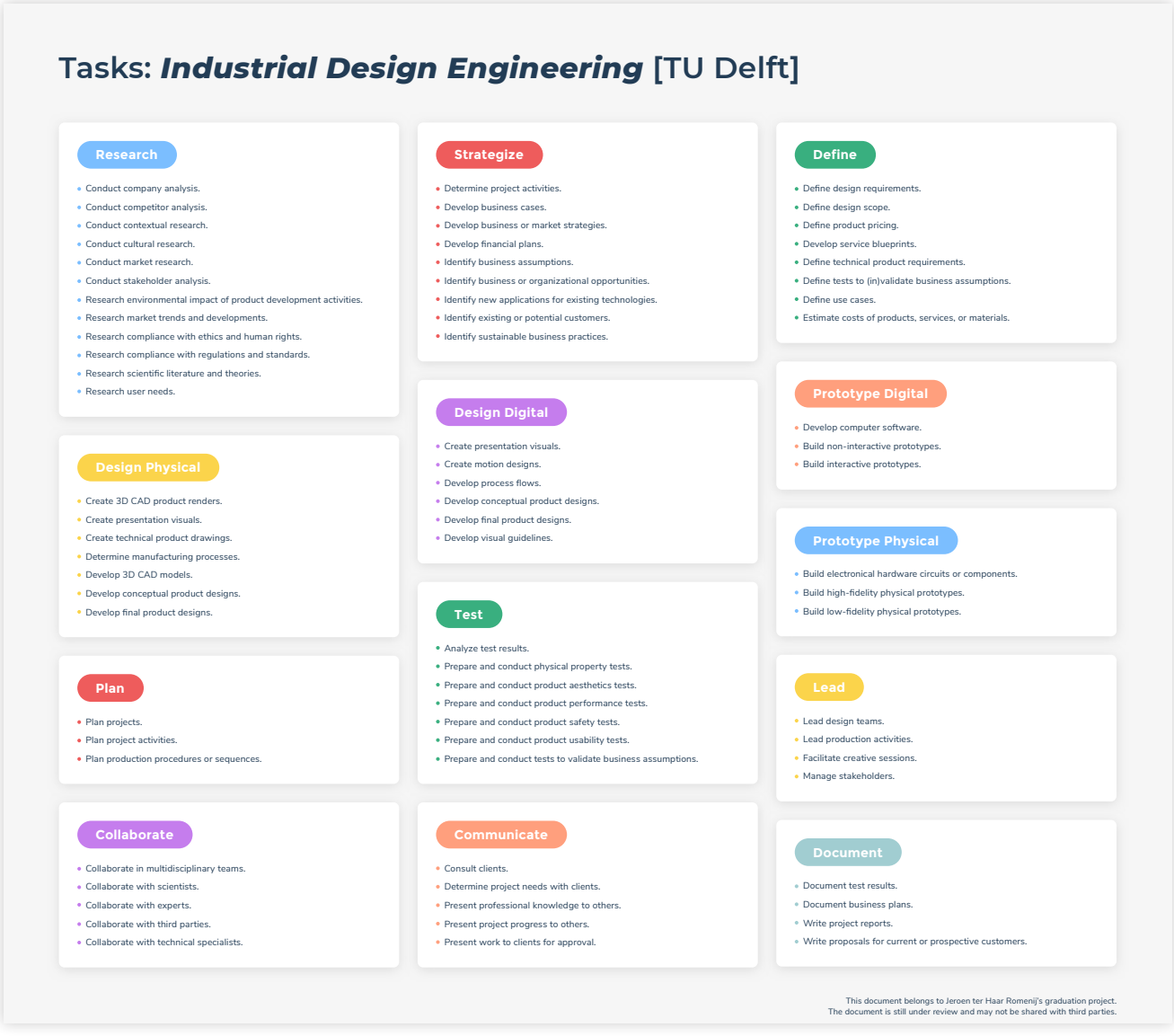


Figure 18: The new list of IDE tasks based on the feedback from validation phase 2 and 3 (own ill.)

prototype was created, see figure 19. This prototype entails just one visual, but captures the essence of the concept. The prototype is called “Job Application Survey - Candidate Result Form” and reflects the outcome of a (fictional) candidate who went through the “survey-kind-of-tool” where he rated 72 business activities on the basis of “Interest to develop” and “Top skills”. These two dimensions were chosen to satisfy both suggestions that were previously made, but also takes into consideration that most employers during the

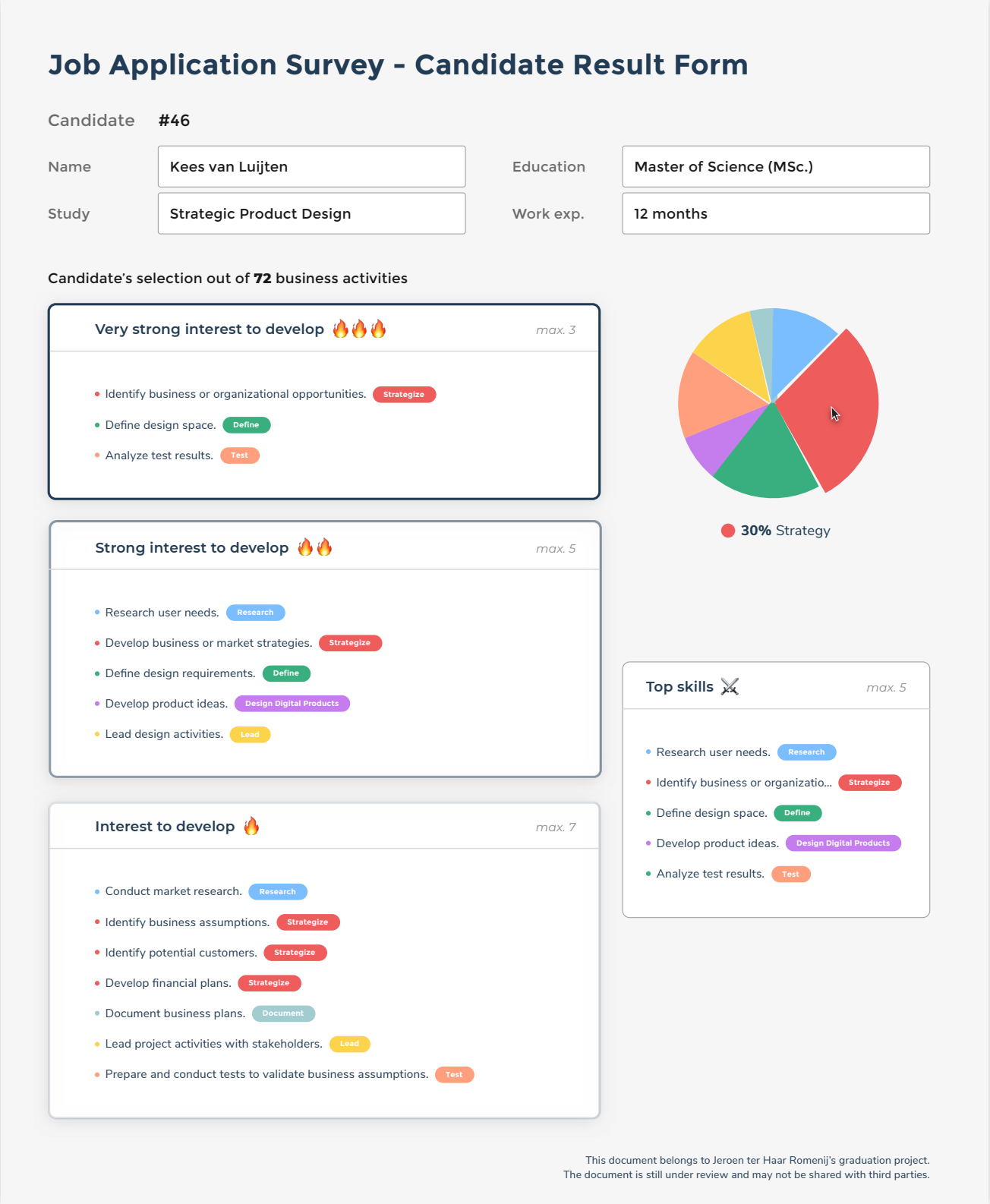


Figure 19: The visual prototype that was created (own ill.)

previous validation phase mentioned that they pay more attention to a candidates' interest and motivation than to his/her exact skillset. Therefore, the dimension of "Interest to develop" has been given more weight in the visual prototype than the dimension "Top skills".

The concept that the visual prototype entails is an online survey in which a number of relating tasks to a job position are chosen by the company in question. Subsequently, in order for a candidate to apply for the job, he/she has to do the survey. In this survey, the candidate goes through the set of tasks (as chosen by the company) where he/she can choose a limited amount of tasks that he/she is 1) interested to develop (to various degrees) and 2) able to do best. The outcome to these ratings is presented in a .PDF file, which is the visual prototype as seen in figure 19.

In the prototype, the tasks are organized for each dimension and a pie chart summarizes a candidates' interested into certain task-categories (e.g. "Research, "Strategy").
To ensure that the level of ones' interest is still a part of the pie chart, each level of interest entails a different "weighing factor". They are as follows:

- Very strong interest to develop = 3
- Strong interest to develop = 2
- Interest to develop = 1

7.6 Methodology

In contrast to the previous validation phases, no specific risky assumption was formulated during this phase. Generally speaking, this validation phase aims to validate the potential of the task-language through the exploration of different possible applications. Therefore, this phase can be considered as more exploratory than the previous ones with one central research question:

How can the task-language be used best to help organizations in finding the right candidates more effectively?

To gain insights in a rich but fast way, employers were contacted by phone and the visual prototypes were shared with them digitally.

7.7 Approach

Each conversation was split up into two parts. During the first part of each conversation, I asked several questions to gain more insight about the employers' position in the company and their experiences in hiring "fresh" academic graduates.

In the second part, I sent both visual prototypes by email and provided some context around them. Subsequently, I asked the employers what they thought of the prototypes.

As I was "the student who had been creating prototypes", it might have been difficult for the employers to provide critical feedback. Therefore, I invited them to mention what they did not like about the prototypes or what they thought could be improved. Usually, this sparked an open discussion where valuable insights were gained.

7.8 Participants

Six employers were part of this validation phase. None of these participants participated in the previous validation phase. However, similar to the previous validation phase, these employers all had experience in hiring candidates for entry-level positions.

Figure 20 clarifies the type of organization they work in, the amount of employees that the organization counts and the type of junior position that they are mainly recruiting for.

7.9 Analysis

All discussions were recorded. After each discussion, these recordings were analysed to identify the most interesting findings. These findings were transcribed and clustered.

Subsequently, all results were clustered and compared. From there, conclusions were drawn.

7.10 Results

Visual prototype #1, the overview with the IDE tasks, provided an effective means to communicate the concept of a task-language. The task-categories allowed the participants to easily interpret the set of IDE tasks and experience the value it.

However, visual prototype #2 where employers would be able to better identify the applicants who align best with the requirements of the job position did not excite the first three employers (who all represented different types of organizations).

Participant 1

"That's interesting, but we would not really use that right now because we are a small company and we can manage it just fine. We usually evaluate candidates based on our gut feeling."

Participant 2

"This it's a good idea, because it gives more insight. Not sure whether the ambitions are the most important aspect or if I would prefer knowing what someone has done so far. Nonetheless, I'm not sure if we would use this right now because it seem a bit like "heavy tooling" for a junior position."

Participant 3

"We don't really need this. I usually experience that people's preference change after they gained some work experience in a company. A lot of focus on what someone wants to develop in a first job might not be very valuable for that reason. Also, when someone want to develop something in their work, but has no skill in it, he/she is not an interesting candidate."

Although they mentioned "it was an interesting idea", none of them mentioned that it really solved a problem for them. But more importantly, I personally came to the conclusion that this concept did not align with the vision that fuelled this project in the first place. Therefore, after these three conversations, I decided to no longer share visual prototype #2.

Nonetheless, two employers mentioned that they do consider the task-language as a valuable mechanism to gain a better understanding of a job candidate.

Participant 2

"I think this is helpful at the start of a collaboration, to facilitate the discussion of a growth path."

	Type	Amount of employees	Mainly recruiting for
Participant 1	Start-up	2	Design and Software dev.
Participant 2	Corporate	1000+	Design
Participant 3	Scale-up	500	Design
Participant 4	Corporate	1000+	Finance
Participant 5	Agency	50	Design
Participant 6	Corporate	500	Design

Figure 20: Overview of employers that were a part of this validation phase (own ill.)

Participant 3

"Thinks this tool could facilitate people in answering specific questions relating to their skills during a job interview. That helps both parties to talk about the important things. People could then also show proof of those skills during an interview."

After the first three conversations, I decided to replace visual prototype #2 for a short "pitch" of the task-based vacancy platform, supported by visual prototype #1. Like mentioned, I discovered that this whole project was initiated to empower graduate job search and that therefore, they had to be part of the equation. Hence, the reasoning why the marketplace (the vacancy platform) had great potential to bring together these two parties.

The previous validation phase showed that organizations have difficulties in finding the right candidates for their entry-level job positions. However, it also showed that organizations did not necessarily see great value in a task-based job matching platform. As discussed in section "6.7 Conclusions", one of the reasons that might have contributed to this, was the fact that the concept required a lot of imagination from the employers. Therefore, they potentially did not know what they rejected.

Now, with the improved presentation of the task-language in visual prototype #1, I saw opportunity to convey the concept in a better way. Additionally, I wanted to speak to organizations that did not mainly recruited for software developers, but preferably for designers. From this point on, the focus became to discover what characteristics the task-based vacancy platform had to possess in order to meet the needs of the employers to ultimately become a success. The following sections share some thoughts from three more employers regarding the task-based vacancy platform.

Participant 4

"I find it interesting, because there's a gap between starting young professionals and organizations. To use this platform well, I think it should be very easy to use. So that it doesn't take a lot of time to create a vacancy,"

"With my recruiting background, I know that different organizations have different needs. Some organizations are more specialized knowledge organizations, so when it comes to hiring juniors, they look for potential, while start-ups might look more for "extra-hands" that can be productive from the start. I think that is something that you should keep in mind."

"Also in some sectors like IT, it doesn't matter what exact tasks someone is able to do because of the scarcity within that market. As long as someone is interested in the topic, he will be trained within the company."

Participant 5

"I like the idea a lot, because this allows you to have a wider reach where you create an initial match. One of our challenges is that we do not get a lot of high quality applications. This could potentially improve that. Also, it could help with the first screening and such information can be further discussed during a job interview."

"One of my concerns is that candidates "check all the boxes" when they see all the job requirements, just because they want to work at our place."

"Think it's key that it is super easy to add all the tasks. I like the categories, I think you should stick to that."

Participant 6

"Sounds very interesting, you have a much wider reach in that case. Also, it can be a good starting point to facilitate a job interview. "

"If you say that all universities would be connected to this platform, that would be amazing. We usually struggle to reach the right candidates. You have job fairs, but

you never know who shows up and there are always a lot of students who just never go to those things. Having one place where all these students look for a job would be very valuable."

"*In my previous work, I've tried to capture definitions of work activities and noticed that it's difficult and time costly, so if that's done for you, that would be super valuable. Then you can use that internally as well.*"

"*However, I think putting that in practice is more difficult. I experienced that starters do not always know what they want to do during their work when they have no actual work experience. Secondly, both parties should have a similar interpretation of the thing. If it would work, it would be amazing.*"

7.11 Conclusions

During this validation phase, I learned that the tool that enables employers to better identify what job applicants align best with the requirements of the job position was not a fruitful concept that needed to be further pursued.

Moreover, I discovered that this concept completely leaves out the interest of the job seekers and that therefore, it did not align with my, nor HelloCareers', vision that brought life to this project in the first place. I came to the realization that although employment is dependent on a job seeker and an employer, the primary stakeholder in this project is the job seeker. The ultimate goal in this project, and beyond, is to ensure that these people are aware of their professional possibilities and consciously deliberate their options.

Nonetheless, these first three conversations confirmed that employers consider the task-language as an interesting means to get to know a candidate better.

From the point that I decided to no longer share visual prototype #2, the concept of a task-based vacancy platform was pitched to three other employers, supported by visual prototype #1. Here, in contrast to previous validation phase, the employers did consider it as potentially valuable. All three employers seemed to experience some kind of disconnection between educational institutions and their organizations. It became evident that if the task-based vacancy platform would help them to overcome this hurdle, allowing them to have a wider reach, it would offer a good solution to them.

In addition, a few valuable points have been made that will be taken into account. Some of these points even seem to resonate with the findings from previous validation phase:

- Different organizations might have different needs. A start-up might be interesting in having an employee that is productive from the start, whereas a corporate might be focussed less on this and more on someone's future potential.
- Not all markets might be suitable for this, such as IT where there is a big shortage and therefore, it does not really matter .what someone is exactly capable of doing.
- It is key that the process of vacancy creation on the platform is "super easy".
- Two parties might have a different interpretation of a task.

To conclude, the task-based vacancy platform does seem to have potential as an effective solution for employers. To further understand if this solution truly solves their problem in the right way, more research needs to be done. However, considering the time, I have decided to stop further validation with employers, so I can completely focus on the validation of the envisioned solution with the primary stakeholders: the job seekers.

8

The Business Model

This chapter presents and clarifies the business model that I envision for HelloCareer. Integral to the business model, this chapter also elaborates on the way in which HelloCareer can generate revenue from its customers.

8.1 What is a business model?
First of all, lets clarify what a business model exactly is. According to Lead Innovation, a German company providing innovation consulting, "A business model describes, in a model-like and holistic manner, the logical connections and the way in which a company generates value for its users. A company can operate several business models at the same time.".

This chapter elaborates on the business model that I recommend to HelloCareer based on the conversations with the client and my research.

8.2 A platform business model
From the start of this thesis, I have referred to the envisioned product as the "task-based vacancy platform". Ironically, this phrasing already captures the most important aspect of the envisioned business model, namely "platform". A platform business model means that an organization facilitates interactions between supply and demand in a given market. Types of organizations that operate through this model do not own their supply chain, but have a network of independent third party producers (Moazed & Johnson, 2016).

For example, AirBnB is the largest hotel chain in the world, but they do not own any hotels. They focus on facilitating and exchanging value, rather than physically creating the value that is being produced. According to Moazed and Johnson, these companies are so successful, because they did not only create a piece of software, but created a network around it. For Uber it's the drivers, for AirBnB it's the hosts and renters. Those networks is where the real value is for the platforms.

Not all organizations who are in business to match supply and demand operate through the platform business model. For example, most real estate agents and recruiters not only facilitate interactions between supply and demand, but also take responsibility for these interactions. They are essentially the middlemen that match supply and demand themselves. An advantage of this approach is that these parties can guard the quality of the interactions. This enables them to create a brand around certain standards/principles more easily. A disadvantage of this approach is that these kinds of organizations are more difficult to scale.

8.3 Motivation for the platform model
The reason why I think the platform business model is most interesting for HelloCareer has two main reasons. First and foremost, HelloCareer's mission is to empower graduates in discovering interesting job opportunities. This

means that HelloCareer does not want to take ownership of the process of job discovery, but wants to provide the tools to graduates to empower them in doing so. This approach is much more effective than when the company would suggest potential matches themselves, because in this way the job seekers are encouraged to take conscious part in the job seeking process allowing them to better understand their desires over time. With this approach, HelloCareer does not only focus on the quantity of the matches on the platform, but also on their quality, ensuring a more future-proof, sustainable, solution for the job seekers and employers.

Secondly, HelloCareer can be scaled much easier when it does not take ownership of the supply chain, because this allows the organization to focus primarily on the growth of the platform. Ultimately, this results in greater value for both supply and demand. In fact, with a platform business model, HelloCareer's primary resource revolves around the cross-side network effects. This effect occurs when the presence of one party on the platform has an impact on the growth of the other. For example, the more accommodations are listed on AirBnB, the more attractive the it is to vacationers/renters.

According to Moazed and Johnson, the platform business model is the predominant business model of the 21st century. Interestingly, the top five market capitalization companies in the world, which are Microsoft, Apple, Amazon, Alphabet and Alibaba (as of April 2020), all have platform business models. These companies are so powerful, because platform business models result in greater margins than all the other types of business models, allowing these companies to focus more on cost reduction and quality improvement.

8.4 Business model canvas

A good way to capture the business model of a company is by filling in a business model canvas. The canvas outlines nine key segments which form the building blocks of the business model.

The nine key segments are as follows:

- Customer segment
- Value proposition
- Key activities
- Key resource
- Channels
- Customer relationship
- Key partners
- Cost structure
- Revenue stream

In order to gain a better understanding of a business model and its dynamics, I reached out to a business designer from Business Models Inc, a Dutch innovation consultancy firm that helps organizations to accelerate innovation and entrepreneurship, to get some expert consultation. This resulted in a one-hour meeting between the business designer, Quincy and myself. The meeting was tremendously helpful to further shape the thoughts on HelloCareer's business model. One of the key takeaways from this conversation was that business models are not fixed, but are likely to change over time as the company gains new insights about its customers and ecosystem. Figure 21 shows the business model canvas that has been filled in for HelloCareer. The following sections elaborate on each segment in the canvas.

8.4.1 Customer segment

The customer segments specify the customers for which value is created. In the case of platform business models, there are two core customer segments, namely the "consumers" and the "producers". In HelloCareer's case, the consumers are the academic graduates seeking a first job after graduation and the producers are the employers seeking academic graduates with little or no prior working experience.

Figure 21: The business model canvas filled in for HelloCareer (template: Strategyzer)

The Business Model Canvas

Designed for:	Designed by:	Version
HelloCareer	Jeroen ter Haar Romenij	V1.0

Key Partners

- Graduate job seekers
- Employers
- Educational instit.
- Young professionals
- Students
- Recruiters

Key Activities

- Enhance positive network effects
- Reduce negative network effects
- Analyze platform data
- Refine value propositions
- Improve user experience

Key Resources

- Cross-side network effects
- Platforms algorithms
- Platform's generated data
- HelloCareer's ability to analyze the right data and act upon it.

Value Propositions

Consumers

Land your first job that perfectly aligns with your interest and study background

Producers

Hire fresh academic graduates that perfectly align with certain tasks that need to be done in your organization

Customer Relationship

- Fast responsiveness to issues
- Customer support
- Forum for job seekers

Channels

- Web app
- Android / iOS app
- Social media
- Media coverage
- Field sales

Customer Segment

Consumers

Academic graduates seeking a first job after graduation

Producers

Employers seeking academic graduates with little or no prior working experience

Cost Structure

- Customer acquisition costs (marketing, sales)
- Salary
- Infrastructure costs (hosting, computing)

Revenue Streams

- Charge to publish a vacancy (variable price according to company size to stimulate small businesses)
- Charge monthly fee for premium account that enables to search, find and contact candidates based on desired tasks

Strategyzer
strategyzer.com

As mentioned earlier, another important stakeholder are the educational institutions, because they are considered the key to accurately, and up to date, index all Dutch study programmes. HelloCareer envisions a win-win situation where educational institutions do not only provide this data to the platform, but also benefit from the data that is generated on the platform. In this line of thinking, educational institutions are also considered as a customer segment, though in the long term. In the short term however, I think that HelloCareer should keep its focus on the core interaction of the platform: interactions between job seekers and employers.

8.4.2 Value propositions

The value propositions specify the core value that is delivered to the customers. Since the envisioned product revolves around two customer segments, there is a different value proposition for each segment.

The value proposition for the job seekers is: "Land your first job that perfectly aligns with your interest and study background". The value proposition for the employers is: "Hire fresh academic graduates that perfectly align with the tasks that need to be done".

8.4.3 Key activities

The key activities describe what actions are required from the organization that delivers on the value proposition. As mentioned earlier, platform business models generally do not own the supply chain. Therefore, these types of businesses do not have to deal with activities such as producing goods or managing stocks. Instead, their main concern is the growth and maintenance of a valuable network of consumers and producers. Therefore, two key activities of HelloCareer is to enhance positive network effects and to reduce negative network effects amongst the job seekers and the employers.

Not having to produce goods or manage stocks does not mean that HelloCareer should not invest energy into improving its platform. I personally consider continuous improvement as a core responsibility of HelloCareer, if not of any company. Therefore, I also wanted this to translate into the business model. As a result, other key activities are "analysing platform data", "refining customer value propositions" and "improving user experience".

Interesting side note: notice how these key activities are formulated conform the task definition guidelines and as a result, are able to communicate the types of activities in a clear and effective manner.

8.4.4 Key resources

The key resources describe what the value propositions require in order to deliver on them. Like mentioned earlier, HelloCareer's primary resource revolves around the cross-side network effects which occurs when the presence of one party on the platform has an impact on the growth of the other party. The more presence of both consumers and producers on the platform, the more value HelloCareer is able to deliver. If there is no sufficient presence of consumers or producers on the platform, HelloCareer will not be able to deliver on the value propositions.

Besides the cross-side network effects, other key resources are the platform's algorithms, the data that is generated on the platform and HelloCareer's ability to analyse the right data and act upon it.

8.4.5 Channels

The channels describe how the customers are reached. Regarding the delivery of the value proposition, the channels are the application for the web, "a web app", and a mobile application for both Android and iOS.

Regarding the promotion of the platform, the envisioned channels are social media, media coverage and "offline" field sales.

8.4.6 Customer relationship

The segment customer relationship describes what needs to be established with the customers. In line with one of the key activities that revolve around the network effects, an important point of focus for HelloCareer is to minimize negative network effects. To do so, a key relationship that needs to be established is a fast responsiveness to issues. This means that HelloCareer should actively monitor and engage with different social media channels.

Another relationship that HelloCareer needs to establish is providing customer support to both consumers and producers. In this context, assumed is that a forum for graduate job seekers could be able to provide a kind of support that HelloCareer itself would not be able to provide thanks to the community of like-minded people. In addition, it can be a fruitful way to relieve the load of customer support from HelloCareer.

8.4.7 Key partners

First and foremost, the key partners are the graduate job seekers and the employers. Like described before, educational institutions are also considered an important stakeholder in this ecosystem. Furthermore, HelloCareer considers young professionals, students and recruiters as key partners as they all seem to operate within, or close to, the ecosystem.

8.4.8 Cost structure

The cost structure describes what costs there are in the business. HelloCareer's costs will primarily revolve around the execution of the key activities as mentioned earlier. In other words, the salary payment of HelloCareer's founders and employees. Furthermore, there will be costs involved around the acquisition of new customers and HelloCareer's infrastructure, meaning the hosting and computing of the platform.

8.4.9 Revenue streams

The revenue streams describe what streams of revenue are generated. I envision two main streams of income for HelloCareer, a primary and a secondary. The primary stream of revenue is to charge employers to publish a vacancy on the platform.

An alternative is to charge per incoming job application, but that could potentially discourage employers in finding an optimal candidate as it would cost them most to screen more candidates. Also, HelloCareer could choose to charge per realized match, but that would be difficult to track, potentially resulting in missed income for HelloCareer. Charging per vacancy seems a simple and straightforward approach which is also commonly used by vacancy platforms.

In order to stimulate to presence of start-ups and SMEs on the platform, I would propose to make the costs of publishing a vacancy on the platform variable according to a company's size. Based on what other vacancy platforms charge to publish a vacancy, an expected price range is 200 - 500 euro per 30 days. The time restraint of 30 days ensures that the vacancies on the platform do not become outdated, though the vacancies can always be extended after these 30 days by an additional payment.

The secondary stream of revenue is to charge a subscription fee for a "premium recruiter account". These accounts allow employers/recruiters to search the HelloCareer database for candidates based on their desired tasks. Obviously, only candidates that give explicit consent to be searchable by employers can actually be found through this functionality.

This is referred to as the secondary stream of revenue, because this functionality would require a significant presence of job seekers on the platform. Therefore, this stream of revenue might not be relevant immediately after the launch of the platform. However, as HelloCareer's network of job seekers will grow, this feature is able to provide more and more value to employers/recruiters. With a signifi-

cant presence of job seekers on the platform, this functionality would allow employers/ recruiters to find potential job candidates in a very effective way, saving them a lot of time. Therefore, an expected price range for this recruiter premium account is 500 - 1000 euro per month.

8.5 Implications of the business model for the design of the platform

With respect to the envisioned business model, one of the biggest implications for the design is that the platform will never match job seekers directly with employers and vice versa. The power of the task-based vacancy platform lies within the mechanism through which it operates: the task-language. This mechanism allows the job seekers, but also employers/recruiters (by means of the the premium recruiter accounts), to effectively define and refine what they are looking for. In this way, HelloCareer aims to provide a "very sharp knife" to its customers, while they themselves are "the chef" and remain completely in control.

Another implication for the design of the platform is that it needs to offer job seekers the option to publicly expose (parts of) their profile, so that employers can get in touch with them. In turn, with respect to the premium recruiter accounts, the platform needs to provide an environment where employers/ recruiters can choose certain tasks to find candidates.

Last, to provide a strong community of job seekers that can share experiences amongst each other and that can answer each other's questions, the platform needs to have a forum dedicated to the graduate job seekers.

9

Design Requirements V1.0

This chapter brings together all relevant insights from previous (empirical) research activities in the form of design requirements for the task-based vacancy platform. This first list of design requirements is referred to as V1.0 and acts as the basis for the UI Design V1.0 which is presented in chapter 11.

9.1 Introduction

Up until this point, several research activities have been conducted. These research activities have been directed at all key stakeholders, namely the graduate job seekers, employers and universities, and many interesting insights were drawn from those. This chapter aims to bridge the gap between these valuable insights and the first User Interface (UI) Design of the task-based vacancy platform, UI Design V1.0, by means of design requirements.

Ideally, the UI Design V1.0 would be threefold, namely a UI Design for each stakeholder: the graduate job seekers, the employers and the universities and would be tested with each stakeholder accordingly. However, due to time constraints, I have decided to only create a UI Design for the graduate job seekers in the context of this graduation project. Mainly, because the challenges these people experience in the context of job search was the primary source of inspiration for this project. Therefore, the design requirements that are defined in this chapter primarily revolve around this stakeholder.

However, it would be a waste not to document important implications from the research conducted with the other two stakeholders: the employers and the universities. Therefore, this chapter also describes the most important design requirements for the employers and universities.

9.2 Structure

In this chapter, the design requirements are grouped according to each stakeholder. Within each group, each design requirement is further categorized based on its type. Here, three different types of design requirements are distinguished from each other. They are as follows:

1. Type “Behavior”, these requirements describe the inputs that are expected by the system and the outputs that will be generated by the system.
2. Type “Interface”, these requirements describe what information the platform communicates to the user.
3. Type “Logic”, these requirements describe how the algorithms of the system need to operate.

As each design requirement describes what should be implemented in the design, it does not mention why this needs to be done. Therefore, each requirement comes with a

"rationale". The rationale describes the motivation behind each requirement.

The design requirements as stated in this chapter relating to the graduate job seekers have implications for different parts, or "components" of the User Interface (UI) Design. Therefore, these components are grouped accordingly. The reasoning behind these components is further described in the next chapter in section 10.2. The components are as follows:

1. ONBOARDING: facilitates the process of task categorization through which a user creates his/her profile.

2. PERSONAL PROFILE PAGE: refers to the overview of a users' personal profile.

3. DIFFERENT ROUTES TO EXPLORE JOBS: refers to the environment where various "routes" are presented that can be used to start exploring vacancies.

4. VACANCY SEARCH QUERIES: refers to the environment where actual vacancies are presented according to the route taken (in the previous component) and where these can be read in detail.

Furthermore, as described in chapter 1 of this thesis, my intention is to clarify what insights from the empirical research in the context of the value "autonomy over self-representation" have resulted in certain design requirements. Therefore, the insights that have led to these requirements are further explained at the end of this chapter. In addition, the relationships between this value and its according requirements are visually mapped by means of a Values hierarchy.

9.3 Design requirements: Graduate job seekers

ONBOARDING

Behavior

1. For each academic study programme, the platform shall provide graduate job seekers a set of tasks that are a part of that particular study programme. (Autonomy over self-representation)

Rationale: To provide graduate job seekers an effective language to communicate their professional desires and to enable them to properly understand job requirements.

2. The platform shall provide graduate job seekers the ability to define his/her preferences by communicating whether something is considered as desired, "OK" or undesired in the context of a future job. (Autonomy over self-representation)

Rationale: To enable graduate job seekers to communicate their preferences.

3. The platform shall present graduate job seekers each task individually and in random order.

Rationale: To reduce bias from graduate job seekers in the categorization process towards similar tasks.

Interface

4. In the process of onboarding, the platform shall not mention to the graduate job seekers the category that a task belongs to, such as “Research”, “Strategize” or “Define”.

Rationale: To reduce bias from graduate job seekers in the categorization process towards specific task-categories.

5. The platform shall make graduate job seekers aware what fraction of tasks have been categorized into “desired”, “OK“ and “undesired” with the respect to the total amount of tasks.

Rationale: To inform graduate job seekers about their progress, enabling them to make an estimation how long they are still in the process of onboarding and to reduce the chance of users dropping out half way.

6. The platform shall make graduate job seekers aware that the categorization of tasks into “desired”, “OK“ and “undesired” only affects the order in which vacancies are presented and will not lead to exclusion of certain vacancies.

Rationale: To inform graduate job seekers how the “matching” algorithms work and thereby, to ensure that they create a profile that accurately represents them and not out of a fear of missing out on vacancies.

7. The platform shall make graduate job seekers aware that the categorization of tasks can be changed later at any moment.

Rationale: To create a more relaxed state of mind by the graduate job seekers, making them aware of the fact that a categorization does not need to be perfect.

Logic

8. The platform shall not exclude vacancies from search queries whenever these contain one or more tasks that are categorized as undesired by graduate job seekers.

Rationale: To ensure that graduate job seekers do not miss out on potentially interesting vacancies, simply because they defined one of the vacancy’ tasks as “undesirable”.

9. The platform shall not make graduate job seekers’ categorization of tasks publicly visible without explicit permission from the user.

Rationale: To give the graduate job seekers control over who can view their categorization of tasks and who not.

PERSONAL PROFILE PAGE

Behavior

10. The platform shall group all tasks according to their task category, such as “Research”, “Strategize” or “Design Physical Products”. (Autonomy over self-representation)

Rationale: To provide a structured overview of ones’ professional desires.

11. The platform shall provide the graduate job seekers the ability to edit any part of their profile at any moment. (Autonomy over self-representation)

Rationale: To provide graduate job seekers the ability to change their preferences.

12. The platform shall provide graduate job seekers the ability to add additional elements of personal information to their profile, such as “name”, “profile picture” and “a personal biography text”. (Autonomy over self-representation)

Rationale: To provide graduate job seekers the ability to enrich a profile, ensuring an accurate self-representation.

13. The platform shall provide graduate job seekers the ability to switch on and off the public visibility of each element of personal information within ones’ profile, such as “name”, “profile picture”, “personal biography text”, “desired tasks”, at any moment. (Autonomy over self-representation)

Rationale: To give graduate job seekers control over the public visibility of their personal information.

14. The platform shall provide graduate job seekers the ability to download a PDF file that lists the categorization of tasks into “desired”, “OK“ and “undesired”.

Rationale: To enable graduate job seekers to easily share their professional preferences with other parties.

DIFFERENT ROUTES TO EXPLORE JOBS

Behavior

15. The platform shall present graduate job seekers what vacancies that have as many desired tasks and as little undesired tasks, also referred to as “Best overall matches”.

Rationale: To allow graduate job seekers to discover what vacancies are a good overall match to their profile, providing them a way of discovering vacancies that requires little effort.

16. The platform shall communicate to graduate job seekers what combinations of desired tasks from a users’ profile are frequently occurring amongst vacancies on the platform and show those vacancies accordingly.

Rationale: To allow graduate job seekers to discover what combinations of desired tasks are frequently occurring amongst the listed vacancies on the platform and to find those vacancies accordingly.

17. The platform shall provide graduate job seekers the ability to search for vacancies on the basis of one or more tasks from their set of desired tasks.

Rationale: To allow graduate job seekers to search for vacancies on the basis of one or more

desired tasks from their profile.

18. *The platform shall provide* graduate job seekers *the ability to search for vacancies on the basis of free text inputs.*

Rationale: To allow graduate job seekers *to search for vacancies on the basis of tasks that are not a part of their profile.*

19. *Whenever a* graduate job seeker *adds a task to the search query via a free text input, the platform shall suggest tasks through auto-completion.*

Rationale: To enable graduate job seekers *to find and select tasks in an effortless way and to allow discovering tasks that are not a part of their profile.*

Interface

20. The platform shall communicate to graduate job seekers how many desired tasks from a their profile occur in every vacancy in relation to the total amount of tasks of each individual vacancy in a visual manner.

Rationale: To allow graduate job seekers *to see quickly how many desired tasks each vacancy relatively contains.*

21. Whenever graduate job seekers select one or more tasks from their set of desired tasks to search for vacancies, the platform shall inform in real-time how many vacancies match to that selection of tasks.

Rationale: To inform the graduate job seekers *how many vacancies match to a particular combination of desired tasks, so that this information can be used in the process of selecting.*

22. Whenever graduate job seekers hover over a vacancy, the platform shall communicate what specific tasks are a part of that vacancy.

Rationale: To inform graduate job seekers *about the specific tasks that a vacancy includes, while not cluttering the screen with a lot of information.*

Logic

23. The platform shall identify what combinations of desired tasks from a graduate job seekers' profile are frequently occurring amongst vacancies on the platform.

Rationale: To enable graduate job seekers *to discover what combinations of desired tasks are frequently occurring amongst the listed vacancies on the platform and to find those vacancies accordingly.*

VACANCY SEARCH QUERIES

Behavior

24. The platform shall provide graduate job seekers the ability to remove any task that was of input for a particular search query.

Rationale: To enable graduate job seekers to remove tasks from their search input.

25. The platform shall provide graduate job seekers the ability to add tasks to a search input via a free text input.

Rationale: To enable graduate job seekers to add tasks to their search input that are not a part of their profile.

26. The platform shall provide graduate job seekers the ability to add tasks from their profile to a search input.

Rationale: To enable graduate job seekers to search for vacancies on the basis of one or more desired tasks from their profile.

27. The platform shall provide graduate job seekers the ability to add tasks to a search input via task categories, such as “Research, “Strategize” or “Define”.

Rationale: To enable graduate job seekers to discover new tasks, enabling them to enrich their search input in a meaningful way.

28. The platform shall communicate to graduate job seekers what tasks, besides those that were already of input, are most occurring amongst the vacancies and thereby, provide the ability to add these tasks to the search input.

Rationale: To enable graduate job seekers to discover what other tasks relate to the tasks of their search input, enabling them to enrich their search input in a meaningful way.

29. The platform shall provide graduate job seekers the ability to filter search queries on locations.

Rationale: To enable graduate job seekers to refine search queries in a meaningful way.

30. The platform shall provide graduate job seekers the ability to filter search queries based on a certain amount desired, OK or undesired tasks.

Rationale: To enable graduate job seekers to discover what vacancies have a particular amount of desired, OK or undesired tasks and to enable them to discover these specific tasks.

Interface

31. For each search query, the platform shall prominently show what tasks were of input.

Rationale: To inform and remind the graduate job seekers what tasks were of input for a particular search query.

32. The platform shall communicate for each vacancy whether each task that is a part of the vacancy tasks has been categorized by a user as “desired”, “OK” or “undesired” or if the task is new. In the latter case, the tasks are assigned the label “new”.

Rationale: To support graduate job seekers in their judgement of a vacancy by clarifying how each task from a vacancy relates to their own preferences as defined in the user profile or by showing that a particular task is new.

9.4 Design requirements: Employers

Behavior

33. The platform shall provide employers the ability to define vacancies with a maximum of 10 tasks.

Rationale: To trigger employers to critically think about what they need and thereby minimize the likelihood that vacancies contain irrelevant tasks.

34. To define a list of tasks in the process of vacancy creation, employers are able to access task categories, such as “Research”, “Strategize” and “Prototype Digital Products”, through which all corresponding tasks can be retrieved.

Rationale: To support employers in their evaluation and judgement what certain key job requirements are and to make the process of vacancy creation more effortless, thereby improving the user experience of the platform.

35. In the process of vacancy creation, the platform shall provide employers recommendations what other tasks relate to those that are already selected to define a particular job.

Rationale: To make the process of vacancy creation more effortless for employers, thereby improving the user experience of the platform.

36. Whenever the platforms’ database is not able to provide a task definition that is satisfying, employers are able to request a new task definition, which will then be reviewed by HelloCareer. Only after formal approval by HelloCareer, these tasks become a part of the database and can be used to define a vacancy.

Rationale: To ensure that all tasks from the platform are defined according to HelloCareers’ guidelines, providing a consistent language across the whole platform for all types of users.

37. The platform shall provide employers the ability to search and find user profiles (of those who have given explicit consent to a public visible profile) on the basis of the desired tasks as listed in the profiles.

Rationale: To enable employers to actively search and find candidates who desire to do certain tasks that they require for a particular job.

Logic

38. Whenever employers define a list of tasks in the process of vacancy creation, only tasks that are part of the database can be used (Otherwise, requests can be made, but these need to be approved first by HelloCareer, see requirement 34)

Rationale: To ensure that all tasks within the platform are defined according to HelloCareers’

guidelines, providing a consistent language across the whole platform for all types of users.

39. The platform is able to recognize relationships between tasks, allowing to make recommendations to employers in the process of vacancy creation about what other tasks relate to those that are already a part of the vacancy.

Rationale: To make the process of vacancy creation more effortless for employers, thereby improving the user experience of the platform.

9.5 Design requirements: Universities

Behavior

40. The platform shall provide universities an overview for each educational study programme what tasks are generally considered by the graduate job seekers as "desired, "OK" and "undesired".

Rationale: To provide universities insight into how their students generally perceive the study programme related tasks in terms of how desired these are considered in a future job.

41. The platform shall provide universities an overview for each educational study programme how each task translates to the labour market in terms of demand.

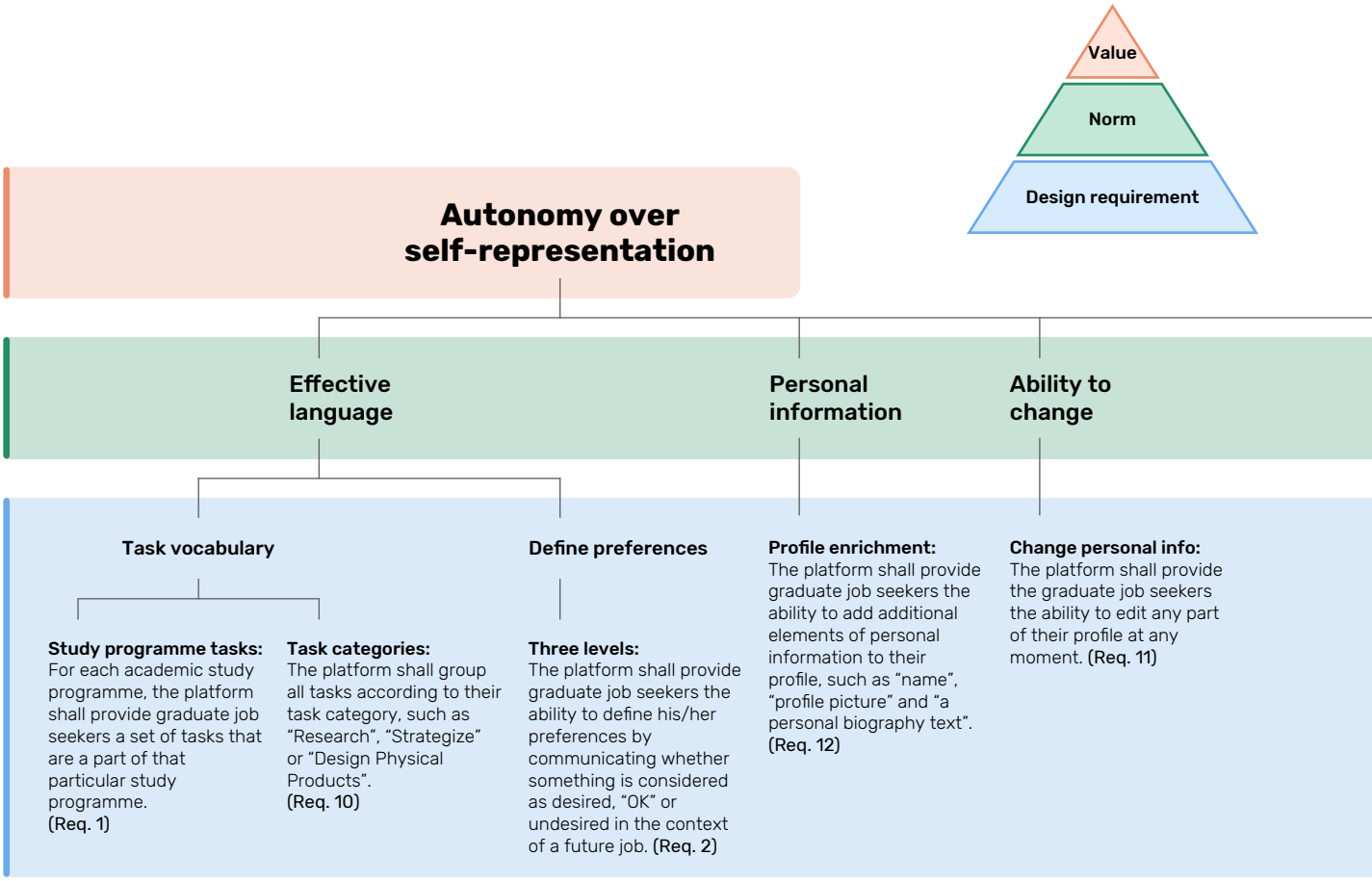


Figure 22: Value hierarchy that is structured for the value of "Autonomy over self-representation" in the context of the task-based vacancy platform. The legend in the top right corner of the figure shows the three main layers in the value hierarchy: the top layer, "Value", the middle layer, "Norm" and the third layer, "Design requirement" (own ill.)

Rationale: To help universities evaluate and reflect on the value of the tasks that are a part of study programmes.

42. The platform shall provide universities an overview for each educational study programme what specific combinations of tasks are frequently prevalent amongst the vacancies on the platform.

Rationale: To enable universities to restructure study programmes in an valuable way.

9.6 Requirements relating to the value "Autonomy over self-representation"

As can be seen by the "(Autonomy over self-representation)" highlights in section 9.3, a total of 6 requirements have been defined as a direct result of the value of "Autonomy over self-representation". These requirements are, amongst others, based on the empirical research that has been conducted with the graduate job seekers. By means of the Value hierarchy as seen in figure 22, the relationships are visually mapped between the value "Autonomy over self-representation" (first level), its norms (second level) and subsequently, the design requirements (third level) corresponding with each norm.

Like described in chapter 1, each level from the Value hierarchy carries a "for the sake of" relationship with one level higher. Aizenberg and Van den Hoven (2020) mention that a "for the sake of" relationship "captures the stakeholders' contextual reasoning and motivations for requiring that a higher level element is supported by a lower level element". As a result, "it facilitates an inclusive, socially-aware, cross-disciplinary conversation necessary to account for the breadth and depth of complex social-ethical issues and value implications.". To be able to easily refer to the different design requirements throughout this section, each design requirement in the value hierarchy has a name. These names are formulated in a way that they capture the essence of each design requirement. The names are stated before at the beginning of each design requirement and are typed **in bold.**

Control over visibility

Public visibility ON/OFF
The platform shall provide graduate job seekers the ability to switch on and off the public visibility of each element of personal information within ones' profile, such as "name", "profile picture", "personal biography text", "desired tasks", at any moment. **(Req. 13)**

As can be seen in figure 22, some third level elements (design requirements) have been "stretched" into two components, namely the two branches under the norm "Effective language". This has been done, because it helped in establishing clearer relationships between the norm and the design requirements, resulting in a narrative that would be more easy to understand for external stakeholders. Ultimately, the goal of the value hierarchy is not to only capture the relationships between different levels of abstraction, but to provide an effective tool to involve external stakeholders in a particular thought process and reasoning.

Now, lets clarify how the empirical research translated to the value hierarchy. The first norm into which the value of autonomy over self-representation is decomposed is "Effective language". This norm was put in the hierarchy first to show that in order for a job seeker to properly represent themselves, the first property that the design must have is an effective language.

Subsequently, the norm "Effective language"

is split up into two branches on a design requirement level. The first branch “Task vocabulary” refers to type of vocabulary that is used, the “Task language”. The second branch “Define preferences” ensures that job seekers can give meaning to the tasks through defining their preferences. These two branches result in different kinds of design requirements, although both are for the sake of an effective language.

The branch “Task vocabulary” refers to the core mechanism of the task-based vacancy platform. This mechanism also acted as the starting point of this project. At the beginning of this project, the assumption was that a vocabulary of tasks is able to provide an effective language for both job seekers and employers to express their preferences in the context of employment. This assumption was tested in, amongst others, the “Canvas” test which was conducted with 11 people from the target group. For this test, a first version of a list of tasks representing the three masters from the IDE faculty was composed by me.

The “Canvas” test showed that this task language, as it was defined at that point, was generally perceived by the participants as an effective way to represent themselves. However, during the “Canvas” test it became clear that the way in which all the tasks were defined was experienced as inconsistent. Also, some tasks seemed to be missing from the list. As explained in section 7.2, this resulted in the definition of guidelines for how these tasks should be defined. Also, a new version of the list of tasks was created and validated with academic graduate job seekers, hence the definition of design requirement “Study programme tasks”.

Following the “Canvas” test, some canvasses that were created by the participants were shown to employers during validation phase 3. Particularly in this context, it became apparent that although the tasks seemed to be able to communicate different types of activities in an effective manner, it was not easy for the employers to read an interpret all the tasks. Therefore, I decided to further group the tasks according to their so called task categories and to present them accordingly.

Next, during validation phase 4, this new presentation of tasks was shown to employers. During these conversations, the value of these task categories became apparent as it allowed the employers to interpret the tasks effectively and at ease. At this point, the value of the task categories were not validated with job seekers yet, but the very fact that it allowed employers to better interpret the information was a strong motivation to stick to the task categories. Therefore, this resulted in the definition of design requirement “Task categories”. Nevertheless, the task-categories are further validated with job seekers in chapter 11.

The task vocabulary essentially is a vocabulary, or a collection, of tasks. However, unlike for example the English language, the task vocabulary on itself is incapable of addressing “meaning” to the tasks. Therefore, another requirement for the sake of an effective language is to enable job seekers to define their preferences, hence the branch “Define preferences”. On a general level, this enables job seekers to specify what tasks they like and what not.

During the “Canvas” test, the participants were able to express if they either would or would not like to do particular tasks in their future job. The “Canvas” test showed that this framework provided a quite effective means for graduate job seekers to accurately represent themselves. However, the test also showed that there was room for improvement. Several participants mentioned that they experienced a level of preference in between tasks they would and would not like to do in their future job. Some participants described it as “tasks that you would not like to do all the time, but that you do want to

include in your job". For that reason, it was decided to introduce another level of preference to allow job seekers to define their preferences in a more nuanced way. The level that was added is "tasks you're OK with". This resulted in the definition of design requirement "Three levels" that enables job seekers to define their preferences on three levels: "Undesired tasks", "tasks you're OK with" or "Desired tasks".

The iteration from the two levels of preference to three levels of preference shows that different solutions can be applied for the sake of "Define preferences". Therefore, in order to clarify this line of thinking, the norm "Effective language" is first decomposed in the value hierarchy into "Define preferences" and only second into "Three levels".

Note that the framework that was used in the "Canvas" test also facilitated the expression of ones' skill level, previously referred to as the "capability" dimension. However, based on several interviews with employers, it has been decided to leave out this dimension, because this dimension introduced a value judgement that only seemed to weaken the core purpose of the tool, which was to enable graduate job seekers to communicate what they desire in a future job, not necessarily their level of skill.

During the "Canvas" test it became apparent that some participants did not feel that their canvases provided a complete representation of themselves. These participants mentioned that their canvas did not communicate things in a personal way. Therefore, to ensure that the design of the platform also supports a representation of a job seeker in a personal manner, the norm "Personal information" is introduced. In turn, this property has been translated into design requirement "Profile enrichment" which provides users the ability to add additional elements of personal information, such as a personal biography text.

Furthermore, during the "Canvas" test it became clear that some participants found it difficult to decide whether they would desire a certain task in a future job or not. Moreover, some the participants wanted to recategorize certain tasks in their canvases at a later point in the test. This was considered as an important insight and resulted in the norm "Ability to change". Although this system property might be obvious to some people in the context of software development, I found it important to still include it in the value hierarchy, because this reminds us to the fact that people's personal information, such as preferences of tasks, is not static, but can change over time. Therefore, the design of the task-based vacancy platform must accommodate to this. The norm "Ability to change" was translated in design requirement "Change personal info" which allows job seekers to edit any part of their profile at any moment.

Furthermore, the people that participated in the "Canvas" test were asked if they hypothetically wanted to share their canvases with potential employers. This revealed that 7 of the 11 participants did want like to use this option. Here, 4 of the 11 participants said they did not like the idea "that companies can make judgements about you based on your profile". Therefore, an important property of the task-based vacancy platform is that it provides job seekers control over their personal information. Hence the norm "Control over visibility". To accommodate different preferences of different job seekers, the platform must provide the ability to switch on and off the public visibility for each main element of personal information, such as "name", "profile picture", "personal biography text" and "desired tasks". Hence, the definition of design requirement "Public visbility ON/OFF".

The next chapter clarifies how the Design requirements V1.0 translate into the UI Design V1.0.

10

UI Design V1.0

This chapter presents the first version of the User Interface (UI) Design for the task-based vacancy platform, the “UI Design V1.0”. The chapter describes the approach that has been taken in the design process, the main components of the design, the process flow and the actual UI Designs themselves.

10.1 Introduction

As described in previous chapter, I have decided, due to time constraints, to only create a UI Design for the graduate job seekers. This chapter clarifies how all design requirements, as stated in previous chapter, have been translated into the first version of the User Interface Design for the task-based vacancy platform, the UI Design V1.0.

10.2 Approach

For this phase, I decided to create the User Interface Design in the form of “wireframes”. A wireframe, mainly used in digital product design, is a skeletal framework that demonstrates what interface elements exist on the screens and how they are positioned. From the work I did in parallel to my masters as a freelance User eXperience (UX) designer, I noticed that wireframes come in many different “forms and shapes” and that there is not “one right way to do it”.

For me, a “good” wireframe is primarily focussed on the structure and the features of a product and not on its aesthetics. Therefore, wireframes are generally an effective way to test the functionality around a (digital) product, because people do not become distracted or biased by shiny colours or “fancy” fonts.

In the process of creating the wireframes, I conducted four individual and informal usability tests. In these tests, I asked some of my friends to carry out several tasks in the context of the design, such as “Add new task to your search query”. These tests allowed me to observe how (un)clear several features were designed. In addition, I asked my friends to share their impressions regarding the clarity of the UI Design with me. These insights enabled me to tweak the design up until a point where I thought that a formal usability test, not only focussing on the product interaction but also on the general perceived value of the product, made more sense.

The versions that were designed and tested in the process towards the UI Design V1.0 can be found in the appendix starting on page 159. These versions are called V0.1, V0.2, V0.3, V0.4 and V0.5 and respectively show the progress that took place. The key insights that fuelled each iteration are also described in the appendix.

10.3 The main components

Digital products generally encompass various stages of product usage, hence they usually consist out of multiple, or sometimes even dozens of, “screens”, or UI’s. One of the key aspects of product development, like emphasized in The Lean Startup methodology, is to keep the waste of efforts during the product

development process to the minimum. For this reason, to ensure that the right product is designed in the right way, it is crucial to receive feedback on your product design early on. Hence, it would not be clever to design a complete digital product with all its screens that would, in reality, be required. Instead, the challenge is to identify the fundamental building blocks of the design so only these components are designed and tested accordingly. Thereby, potential waste can be kept to a minimum.

Before I started on the UI Design of the task-based vacancy platform, I challenged myself to identify these fundamental building blocks of the product. As a result, a total of four main components were identified. These are as follows:

1. Onboarding
2. Personal profile page
3. Different routes to explore jobs
4. Vacancy search queries

Together, these four components are able to demonstrate a full usage cycle of the vacancy platform while each individual component is kept to a minimum. Being able to demonstrate a full usage cycle allows people to profoundly understand the functioning of the product, enabling them to provide valuable in-depth-feedback.

The usage cycle starts with the first component: “Onboarding”. This component facilitates the process of task categorization through which a user creates his/her profile. This is considered as the first crucial step for users to experience the value of the platform.

The second component, “Personal profile page”, refers to the overview of a users’ personal profile. This component is primarily focussed on providing an overview of a users’ task categorization as created by means of component one. Moreover, this second component reflects how a user would, in reality, be represented on the platform, thereby being an important aspect of “Autonomy over self-representation” that is put at the heart of this project.

The third component, “Different routes to explore jobs”, refers to the environment where various “routes” are presented that can be used to start exploring vacancies. This component was defined for two main reasons. First, it would facilitate an explorative experience where users would be made aware of the different ways to search and discover vacancies. Second, this would be an effective way to gain feedback about different ways to explore jobs with the aim of uncovering important user needs.

The fourth component, “Vacancy search queries” refers to the environment where actual vacancies are presented according to the route taken (in the previous component) and where these can be read in detail. This fourth component reflects the “final stage” of the usage cycle.

10.4 Flow chart

The flow chart that can be seen in figure 23 is a diagram that represents the flow from a full usage cycle as described in previous section. The flow chart starts at the top left corner of the diagram (based on a landscape orientation) and walks through each main component as previously described.

On a high level, the flow chart shows how the four main components are related. On a deeper level, it captures the actions that take place within each component.

Generally, the actions are represented by means of the rectangular shapes. Some actions are facilitated by another action that is performed by the platform itself. These are represented by means of the diamond shapes. The arrows show how all actions are interrelated. The flow chart is shown enlarged in the appendix on page 164.

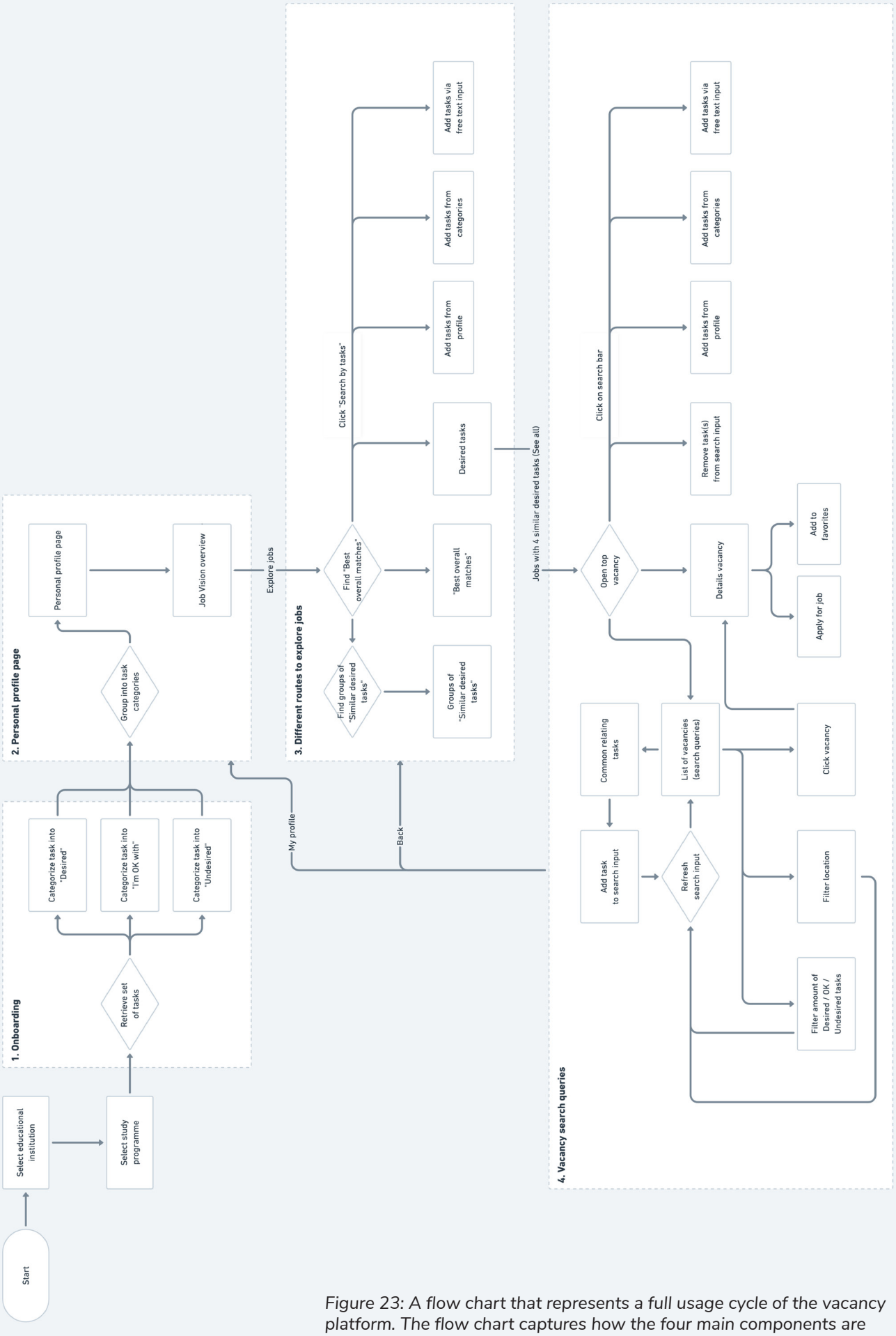


Figure 23: A flow chart that represents a full usage cycle of the vacancy platform. The flow chart captures how the four main components are related and what actions take place within each component (own ill.)

10.5 The UI Design V1.0

The UI Design V1.0 is presented in the following sections. Almost all design elements of the UI Design V1.0 are described in the previous chapter in the form of design requirements and motivated accordingly. Therefore, the following sections do not repeat each design element and its purpose, but mainly aim to clarify the organization of the design elements.

10.6 The UI Design V1.0: Onboarding

According to the first main component, “Onboarding”, the onboarding screen was created, see figure 24. The core purpose of this component is to facilitate the act of task categorization. Therefore, the organization of the onboarding screen completely revolves around this act and distraction is put to the minimum. As a result, the design of the onboarding screen is fairly simple in its nature.

The main point of focus on the screen is the task card. Therefore, this element is positioned central on the screen, has the biggest font size and is framed in a “card” to create a strong contrast to the background. Behind the task card that is presented, other task cards are made partially visible to make the user aware that more task cards that are yet to come.

The text above the task card aims to clarify what is exactly expected from the user. The three buttons below provide users the ability to give their input.

During the informal tests that were conducted with the versions of the UI Design prior to V1.0, two persons mentioned they wanted to have the option to skip a task. Therefore, it was decided to introduce another button to facilitate this type of input: “Answer later”. However, to encourage users to categorize each task into one of the three categories, this button has been given less visual weight to discourage its use.

Furthermore, the information relating to the “bigger picture”, meaning how the act of task

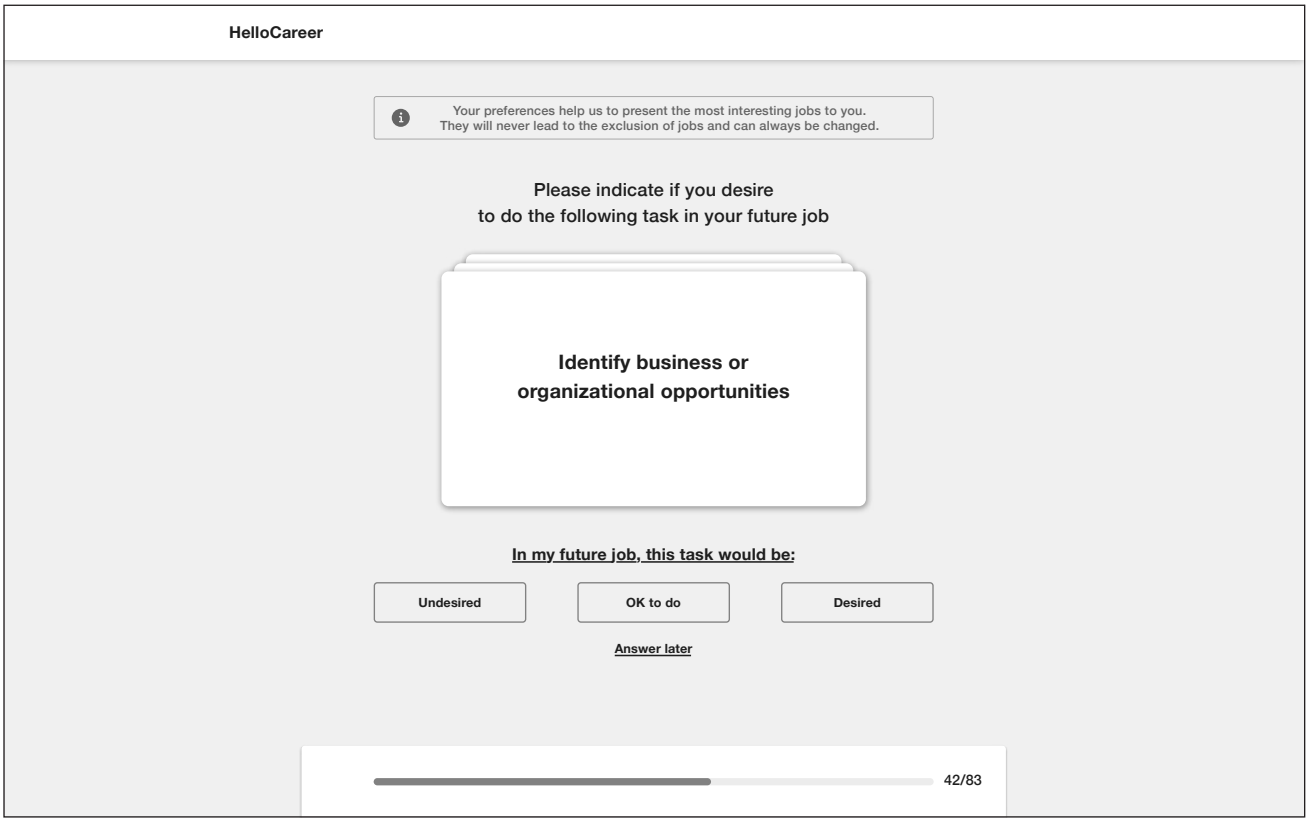


Figure 24: The design of the onboarding screen based on the first main component “Onboarding” from UI Design V1.0

categorization will affect future outcomes, is positioned at the top part of the screen to reflect the higher purpose, literally positioning this element higher than the others.

SurveyMonkey, a company that provides a tool to create and run professional online surveys, published an article where they provide data regarding the effect of using progress bars in surveys and whether its best to position a progress bar at the top or the bottom of the screen with respect to the completion rate. Here, it became evident that it is generally better to position a progress bar at the bottom of the screen (Liu, 2018). Hence, the decision to position this element accordingly.

10.7 The UI Design V1.0: Personal profile page

According to the second main component, "Personal profile page", the user profile screen was created, see figure 25. The top part of this screen shows a navigation bar that enables users to navigate between the main components within platform. Note that the onboarding component only applies to first time usage and therefore can not be accessed anymore after profile creation. The user profile screen is represented by the link in the top right corner with the user name and a miniature profile picture. The third component "Different routes to explore jobs" is represented by the link "Explore jobs". From here, the fourth component (vacancy search queries)

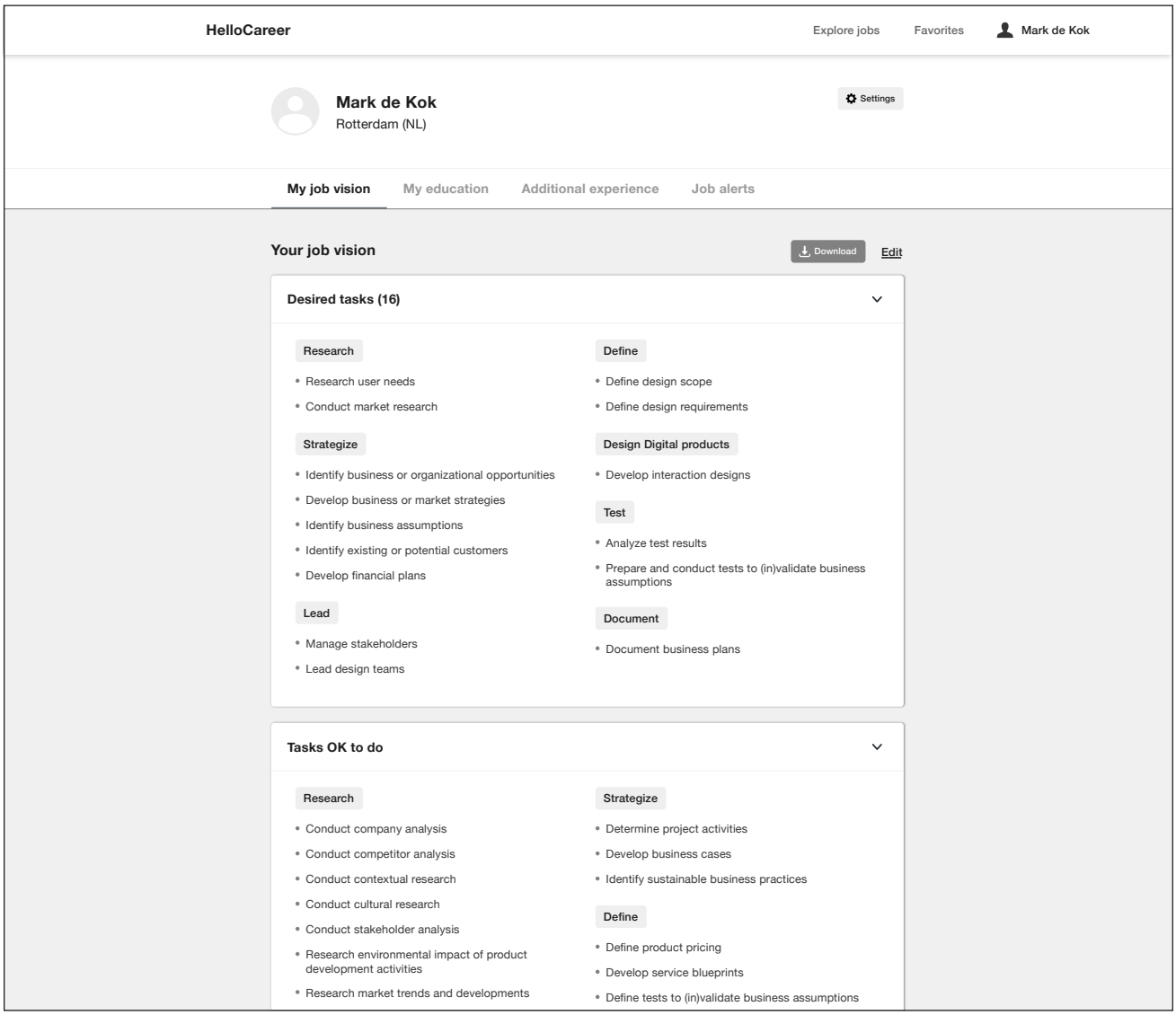


Figure 25: The design of the user profile screen based on the second main component "Personal profile page" from UI Design V1.0

can be accessed as a result from a particular "route" that is chosen in the "Different routes to explore jobs" screen.

To ensure that users feel that the information as presented on this screen relates to them, the users' name is clearly visible and positioned at the top of the screen including a profile picture (which is optional) and a place of residence.

The content of the screen "Personal profile page" is structured in a way that all its sub-pages can be identified on first sight. This ensures that users are aware of the different functionalities that the platform provides. The sub-pages are "My job vision", "My education", "Additional experience" and "Job alerts" and they are designed in the form of tabs. The first tab "My job vision" represents a graduate job seekers' task categorization and is considered as the most important piece of information within a user's profile.

The purpose of the other three tabs is to provide context to a user's profile. However, within the context of the UI Design V1.0 they are not considered as key (sub-)pages and therefore, they have not been designed.

Within the context of the sub-page "My job vision", three main "blocks" can be identified: "Desired tasks", "Tasks OK to do" and "Undesired tasks". Note that the second block is only partially visible and the third block not at all, but that in reality these would be existing and accessible through "scrolling". The purpose of these blocks is to clearly distinguish the three levels of "task desirability" and to group all tasks accordingly.

Furthermore, two buttons are positioned on the right side of the title "Your job vision": "Download" and "Edit". These buttons are positioned on the height of the title and not within one of the blocks, because they apply to all three blocks.

10.8 The UI Design V1.0: Different routes to explore jobs

Based on the third main component, "Different routes to explore jobs", the explore jobs screen was created, see figure 26. This screen is roughly divided into three main parts, which represent three routes, or pathways, to further explore jobs.

The top part "Best overall matches" show the vacancies that are the best overall matches based on a user profile. Like described in design requirement 15, this means that these vacancies contain as many desired tasks and as little undesired tasks. It is assumed that users consider this part as very valuable and therefore, this part is positioned at the top.

Each vacancy is visualized as a card and shows several elements of information: the name of the company, the location of the company, the date when the vacancy was published, the amount of desired tasks and the total amount of tasks. Also, the ratio between the amount of desired tasks to the total amount of tasks is visualized by means of a horizontal bar chart. Whenever users hover over one of the vacancy cards, a pop-up appears that shows all tasks belonging to the vacancy in question. This state is shown in the appendix on page 166.

Note that the vacancies do not show a "job title", an element that most job search platforms generally put at the centre of their vacancy descriptions. Here, the absence of a job title is done on purpose to reflect the general purpose of this platform, namely to encourage people to focus more on the tasks a job involves and less on the preconceptions that come with certain job titles (or diplomas).

The top row shows four vacancy cards of which the fourth card is only partially visible. The partial visibility is a "usecue" to show that the row of vacancies are horizontally scrollable. According to Kanis et al. (2000), "Usecues are conceived as meanings, given to product

characteristics, in terms of what functionalities a product has and how these possibilities can be activated.”. Another usecue to show the scrollable nature of the row is the round button with the arrow pointing to the right that overlays the vacancy card.

The “See all” button (in line with the title “Best overall matches”) enables users to access another page that shows all other “Best overall matches”. Furthermore, the top section includes a button “Search by tasks” through which vacancies can be search based on tasks. Clicking on this button results in the appearance of a new section in which three other routes can be used to search by tasks, namely “Add tasks from profile”, “Add tasks from categories” and the possibility to add tasks via free text input. These routes can be seen in the appendix on page 167. The reason why this section is hidden by default is to prevent users from feeling overwhelmed, but still giving them the possibility to search vacancies based on specific tasks. When the button “Search by tasks” is selected, the button changes into “Hide” through which this section can be hidden again.

The middle section of the screen “Different routes to explore jobs” provides another route

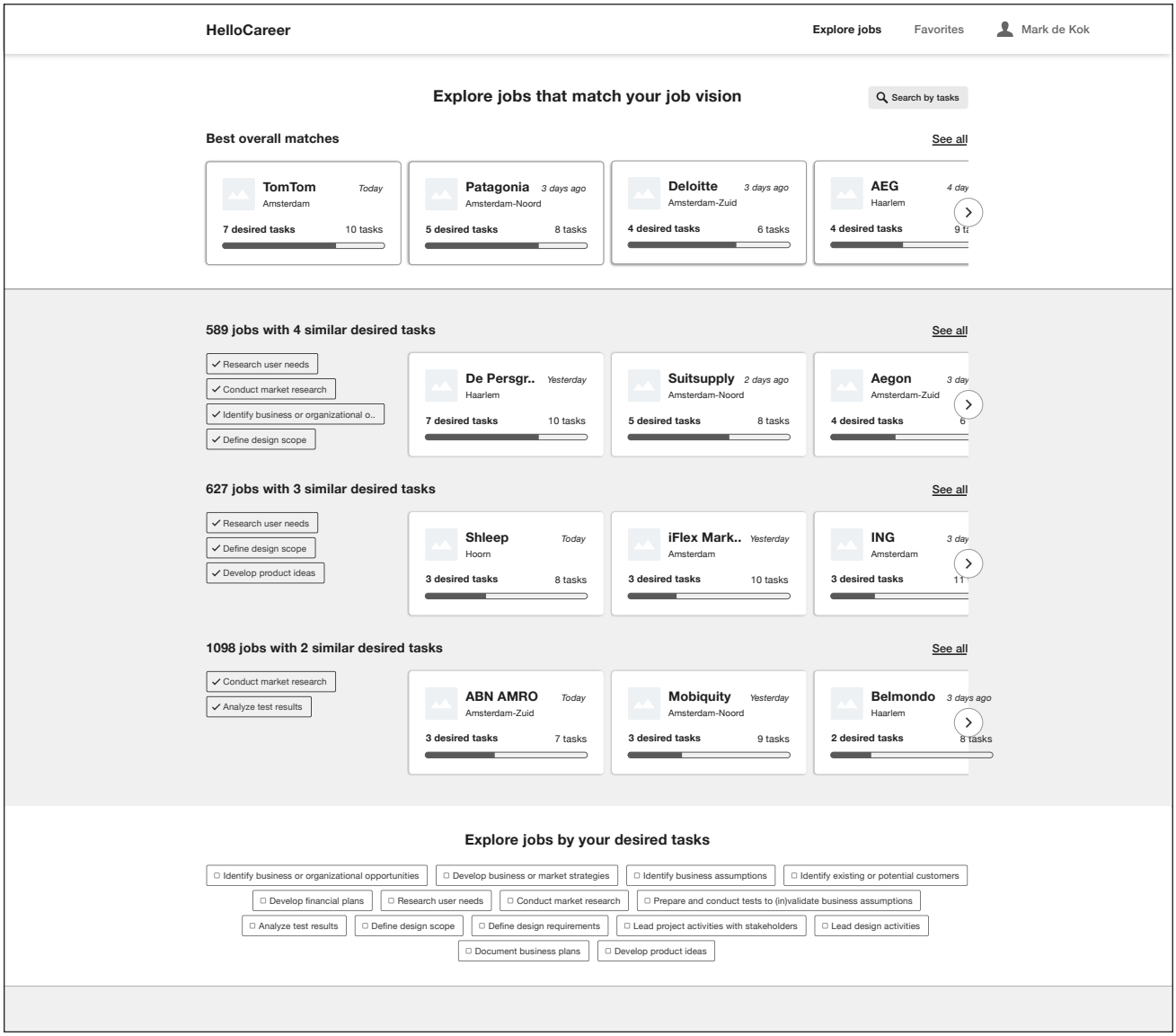


Figure 26: The design of the “explore jobs screen” based on the third main component “Different routes to explore jobs” from UI Design V1.0

through which vacancies can be further explored. This section includes several rows of vacancies where each row contains vacancies that have a similar subset of desired tasks. The subsets of desired tasks for each row is communicated on the left side. Here, the tasks are presented in rectangular boxes with a check mark. The subsets are not just created randomly, but are based on subsets of desired tasks that frequently occur amongst the vacancies on the platform. The aim of these subsets is to show what compositions of desired tasks (from a user profile) are common amongst the vacancies and thereby, to trigger users to think what compositions are interesting to them.

The bottom section "Explore jobs by your desired tasks" provides another route through which vacancies can be further explored. In this section, all desired tasks from a user profile are presented and can be selected. These tasks can be selected separately, but also in any possible composition, to search for vacancies that match to this/these task(s). Once a user selects a first task in this section, a button appears below with the text "Show X jobs". Here, the "X" represents the number of vacancies that match to the selection of tasks. This enables users to quickly know how many vacancies match to a particular selection.

The section "Explore jobs by your desired tasks" is positioned at the bottom of the screen in the philosophy that if the first two sections (where the platform suggest vacancies on the basis of a user profile) did not satisfy a user, he/she can always set their own criteria in terms of tasks to search for vacancies. The appearance of this section in active state can be found in the appendix on page 169.

10.9 The UI Design V1.0: Vacancy search queries

Based on the fourth main component, "Vacancy search queries", the "vacancy search query" screen was created, see figure 27. The top part of this screen captures the essence of the search query, namely by listing the tasks. Since all information on this screen is a result from the tasks within the search query, the search bar is presented on a white background that covers the full width of the screen to create a sense of hierarchy. The link above the search bar informs and reminds the user how the search query was created and enables the user to go back to the previous page "Explore jobs".

The search bar can only visualize a certain amount of tasks, depending on the length of text of each task. Besides the tasks that are visible in the search bar, the search bar communicates how many more tasks are part of the search query through the "+ X more.." sign. Whenever a user clicks on the search bar, it gets "activated" which causes it to pop-up. In this state, all tasks that are part of the search query can be read in whole. Also, more tasks can be added to the search query via various ways, similar to those in the explore jobs screen (add tasks via profile, add tasks via categories and add task via free text). This state can be seen in the appendix on page 170. Page 171 in the appendix also shows the state of the search bar when free text is entered as a way to add another task. Here, the platform suggest tasks through auto-completion.

The element below the search bar, starting with "Common relating tasks", communicates what other tasks commonly relate to the tasks from the search query based on the frequency of their presence amongst the vacancies. This element strongly relates to the search bar as the tasks that are presented within can be added to the search query directly. Therefore, to emphasize this relationship, this element is positioned right below to search bar. Each common relating task comes with a number, shown in between brackets, that communicates the amount of vacancies that include that particular task. Users are able to read the full list of common relating tasks by clicking

on “See all”. This state can be seen in the appendix on page 172.

The imaginary column on the left side of the vacancy search query screen shows the filters that can be used to refine the search results. It is common for “search result filters” to be on the left side of a page. Therefore, to minimize the effort that it takes for users to use the design, the filters have, in this case, also been positioned on the left side of the page. Since the filters are not of major importance, but mainly a way to refine the search results, they are presented without a background, giving them less visual weight in comparison to the other elements on the screen.

The imaginary column in the middle of the vacancy search query screen shows the list of vacancies. To ensure that users easily recognize these elements, the vacancies are presented in exactly the same manner as in the “explore jobs” screen.

The imaginary column on the right side of the vacancy search query screen shows detailed information relating to the vacancy that is selected. In the case as seen in figure 27, the top vacancy is selected. To show that this element in fact belongs to one of the vacancy cards from the middle column, both elements have been given the same shadow and outline. In addition, a few elements, such as the company name, logo, date of publishing and the office address are repeated on top in the right column. Last, the bar chart shows the distribution of the type of tasks (desired, OK, undesired and new) in a more detailed way.

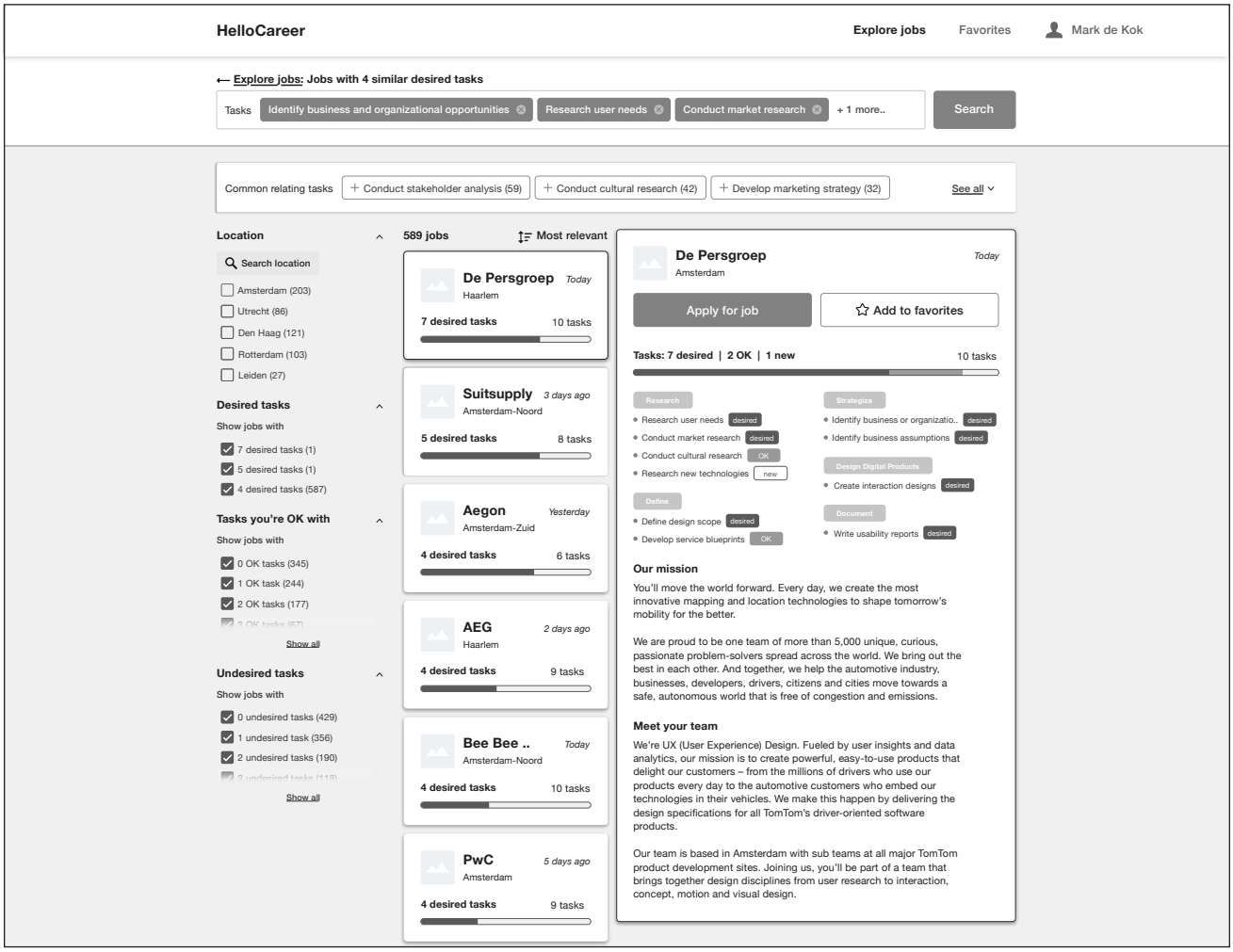


Figure 27: The design of the “vacancy search query” screen based on the fourth main component “Vacancy search queries” from UI Design V1.0

11

User testing: UI Design V1.0

This chapter describes the first formal user test of the first version of the task-based vacancy platform. The user test has been conducted with 5 participants from the target group. This chapter describes the methodology, participants, analysis, results and conclusions.

11.1 Introduction

Now that the first version of the design of the task-based vacancy platform has been explained in previous chapter, it is time to put the design to the test. This chapter concludes with a new, updated, list of design requirements which forms the basis for the platform's UI Design V2.0.

11.2 Methodology

This phase puts the proposed solution to the test which, at this point, is the UI Design V1.0 of the task-based vacancy platform. At the heart of this test phase lies the validation of three assumptions. They are as follows:

1. The UI Design V1.0 provides a valuable way to search for a job. *(Is it desirable?)*

2. The UI Design V1.0 provides an intuitive user experience. *(Is it user friendly?)*

3. The Job Vision overview is able to accurately represent people's professional desires. *(Do people feel autonomous over their self-representation?)*

To get a better understanding about these points, the method used during this phase is "Usability testing" (Sanders & Stappers, 2012), to be more specific: "Lab usability testing" (Hotjar, 2020). Lab usability testing is an effective method to gain in-depth information on how "real" users interact with a product and what issues they encounter. Lab usability testing takes place inside a controlled environment, the "lab". A major benefit of lab usability testing is the control it provides: all sessions are run under the same conditions, which makes it especially useful to compare the data afterwards.

To ensure that all participants would experience the UI Design V1.0 as thoroughly as possible, I defined a set of usage scenarios that, together, would represent a complete user journey through the platform and would allow the participants to experience every feature. The set of usage scenarios can be found in the appendix on page 175.

During the tests I described the scenarios to each individual participant. When each participant performed their actions, I wrote down my observations. Each test ended with a 30-minute structured interview. The interview script that was composed for these interviews was based on the assumptions previously described. The interview script can be found in the appendix on page 176.

11.3 Approach

The "complete user journey", as described in previous section, consisted roughly out

of four parts, namely participants would 1) create their own profile (by categorizing all the tasks), 2) would see their profile in an overview, 3) would experience various routes to explore jobs and 4) would experience the search queries with the ability to refine the results.

Before the test officially began, the participants were given some context about their reason to visit the platform. In addition, a few more points were communicated:

- How the test would roughly elapse
- That the test involved wire-frames of the platform to primarily focus on the functionality and not on the aesthetics
- That they could not do anything wrong and that the design was being tested and not their level of skill
- That it would be appreciated if they could think aloud during the test to share their observations/impressions/experiences
- That they could ask questions during the test, but that I would give as little feedback about their actions as possible
- If they wanted to give consent to the session being recorded by voice and/or video

As the test kicked off, the participants were presented the “on-boarding screen” and the first usage scenario was described. Essentially, the participants were asked to categorize the IDE tasks based on the three dimensions: “Undesired tasks”, “Tasks you’re OK with” and “Desired tasks”. To reduce any existing biases from participants towards specific task categories, such as “Research” or “Test”, these task categories were not shown on the task cards. This ensured that the participants would evaluate each task individually without any preconceptions. This was done to achieve a more accurate representation of someone’s preferences in terms of tasks.

While each participant was categorizing the tasks, I collected small staples of task cards

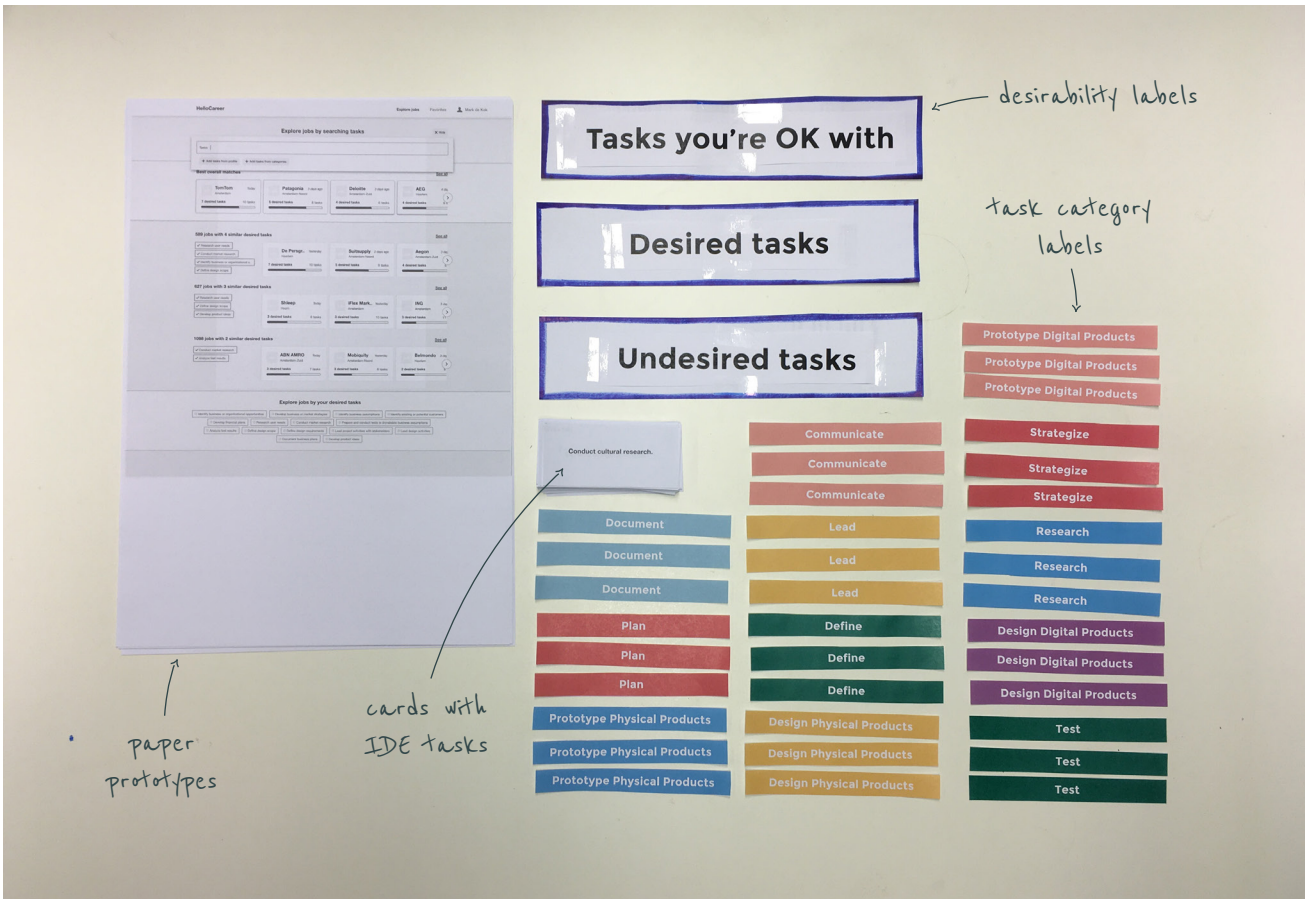


Figure 28: A collection of materials used during the usability testing (own ill.)

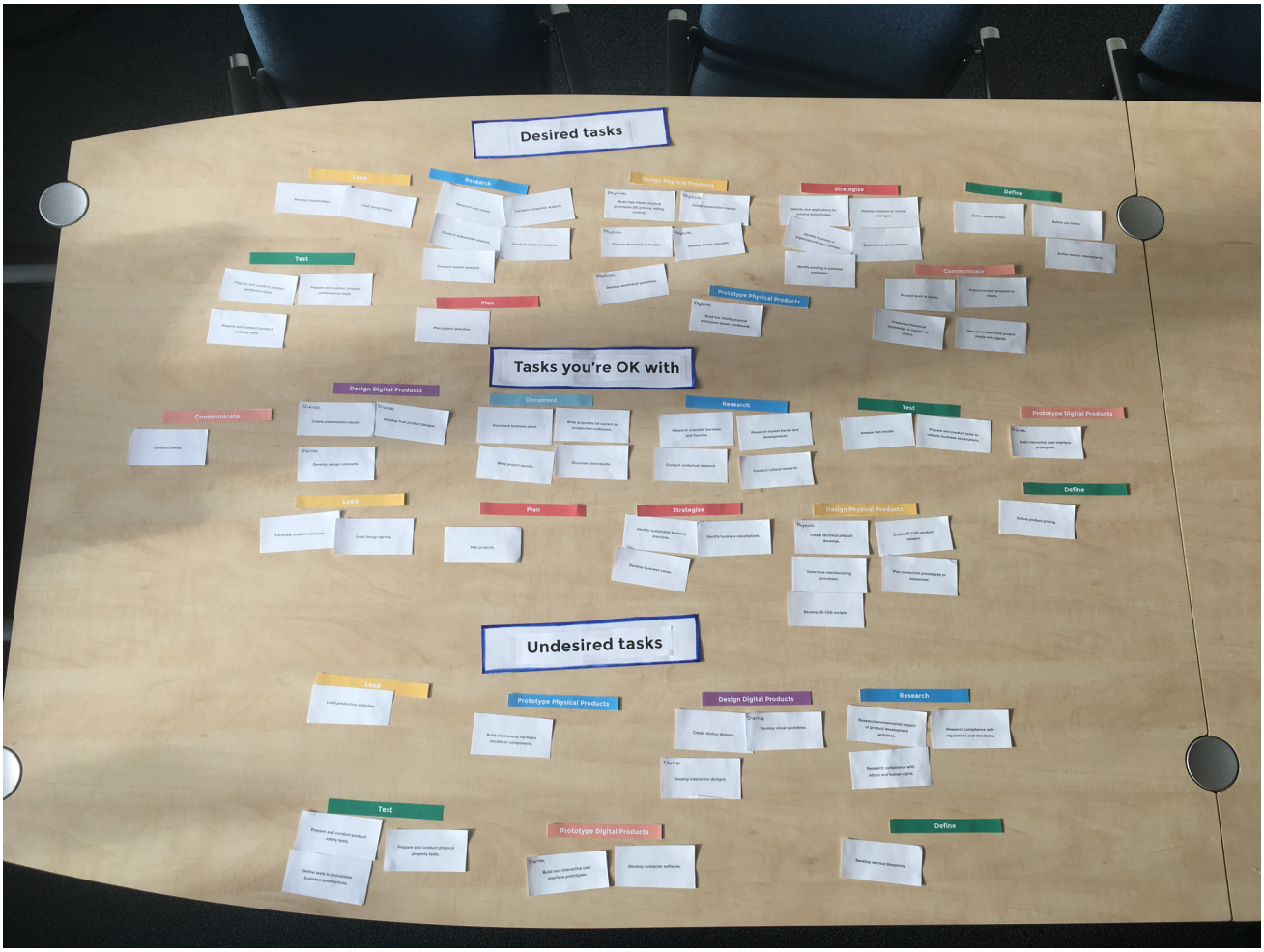


Figure 29: One of the physical "Job Vision" overviews from the usability test (own ill.)

and plotted them in the physical "Job Vision" overview, see figure 29. In this overview, all task cards have been further categorized manually by myself into its task categories by means of the coloured labels, see figure 28. In this overview, the three dimensions were communicated by means of the "desirability labels", see figure 28.

The procedure of categorizing all tasks into its task categories involved a certain level of complexity that made me decide to conduct this test by means of paper prototypes. Although a digital interactive prototype would have mimicked the user journey in a more realistic way, the creation of it would not have been worth the effort.

As the physical Job Vision overview was created, the participants were invited to look at their "profile" and share their impression. Next, the focus would go back to the paper prototypes where the participants were shown a fictional profile including a "Job Vision". The participants were told that in reality their profile would contain their own personal information, such as the categorized tasks. Subsequently, the user journey continued as the other scenarios were described and more "screens" were presented.

Like described in previous section, each usability test ended with a 30-minute in-depth interview where the experiences and impressions of the participants were questioned.

11.4 Participants

For this usability test, a total of five participants were recruited by myself, mostly through Linked In. All participants graduated

with a masters from the IDE faculty somewhere in the past six months. Therefore, these people perfectly fitted the target group and were excellent participants for this usability test. Two of the five participants also participated in previous validation exercise, Validation Part 2: "Canvas".

Each test was individually conducted and took in between 70 and 90 minutes including the introduction and the post-test interview.

Initially, I intended to conduct six usability tests. However, because the fifth test mainly confirmed the insights from the previous tests and did not provide a lot of new ones, I chose to stop after the fifth test.

11.5 Analysis

During all tests, voice recordings were made and during some, also video recordings. These recordings captured the participant's expressions during the tests and the answers to the questions during the post-test interview. All recordings were transcribed word by word. In each transcription, interesting statements were highlighted and subsequently, all results were clustered based on the focus points. From there, conclusions were drawn.

11.6 Results

In this section, the results are discussed and supported by quotes. More quotes can be found in appendix starting on page 177. The results are grouped according to the three assumptions as described earlier in section 11.2. The groups are as follows:

- General perceived value
- User friendliness
- Autonomy over self representation

The part "User friendliness" is split up into three sub parts. They are as follows:

- Screen "Different routes to explore jobs"
- Screen "Vacancy search queries"
- System flow

The part " Autonomy over self-representation" is split up into two sub parts. They are as follows:

- General
- Public visibility

11.6.1 General perceived value

All participants mentioned that they considered the task-based vacancy platform as a valuable means to look for a job. Two participants mentioned that they appreciated the fact that the platform "knows" all tasks that relate to their study.

Participant 1

"*I believe that no other vacancy platform knows what tasks you have to do as a designer. Most job platforms are quite superficial. Really liked that your website knew what kind of tasks relate to me as a designer.*"

Participant 2

"*The most valuable for me is that you get results of which you know that it's intended for your education. With other sites you have to make that judgement yourself.*"

One participant mentioned that where he previously had been searching for jobs on the basis of job titles, this platform focuses on the actual activities of a job, allowing him to discover new things much more effective.

Participant 5

"*In general, it pretty well designed and I would definitely try it out. So far, I have been searching a lot on various job titles, but usually that doesn't bring me new insights. Here it's a whole different approach, more much focussed on the actual activities of a job. That allows me to discover new things much easier.*"

One participant mentioned that he liked the fact that you can find vacancies on the basis of your profile, but to also have the ability to search based on individual tasks from your profile. Another participant mentioned that he liked the fact that the platform does not revolve around tools (or methods), but on tasks.

Participant 3

"*I find the platform really interesting in the sense that it's based on tasks and not on tools like Illustrator or Photoshop.*"

Two participants clarified the difference between tasks and topics. Tasks are types of activities that can, more a less, be done in the context of any topic, while a topic seems more descriptive in terms of the "thing" you want to be engaged with. To them this latter point was an important factor in the context of job searching and was currently missing in the platform.

Participant 4

"*In terms of product idea, it's really nice that its split up into activities. However, I find it important that the vision of the company matches me as a person. I want to contribute to a better future. I don't feel that has been taken into account now. My drive is what I want to work on as a topic, rather than as an activity. I would be nice if you could filter on topics/missions.*"

Participant 3

"*The entire beauty of the platform is that you search based on tasks, that's really nice. However, it would be nice to be able to add topics like "sustainability", "museums", "social change", "communication", "participatory design", "academia", "rapid prototyping". Those words could help to improve your search and enrich your profile.*"

As another point for improvement, one participant mentioned that he would find it helpful to be able to see on the platform what tasks from your study are most prevalent amongst the vacancies.

11.6.2 User friendliness: Screen "Different routes to explore jobs"

Three participants considered the "Best overall matches" route as the most interesting way to further explore jobs, while two participants considered the "Explore jobs by your desired tasks" route as the most interesting way to further explore jobs.

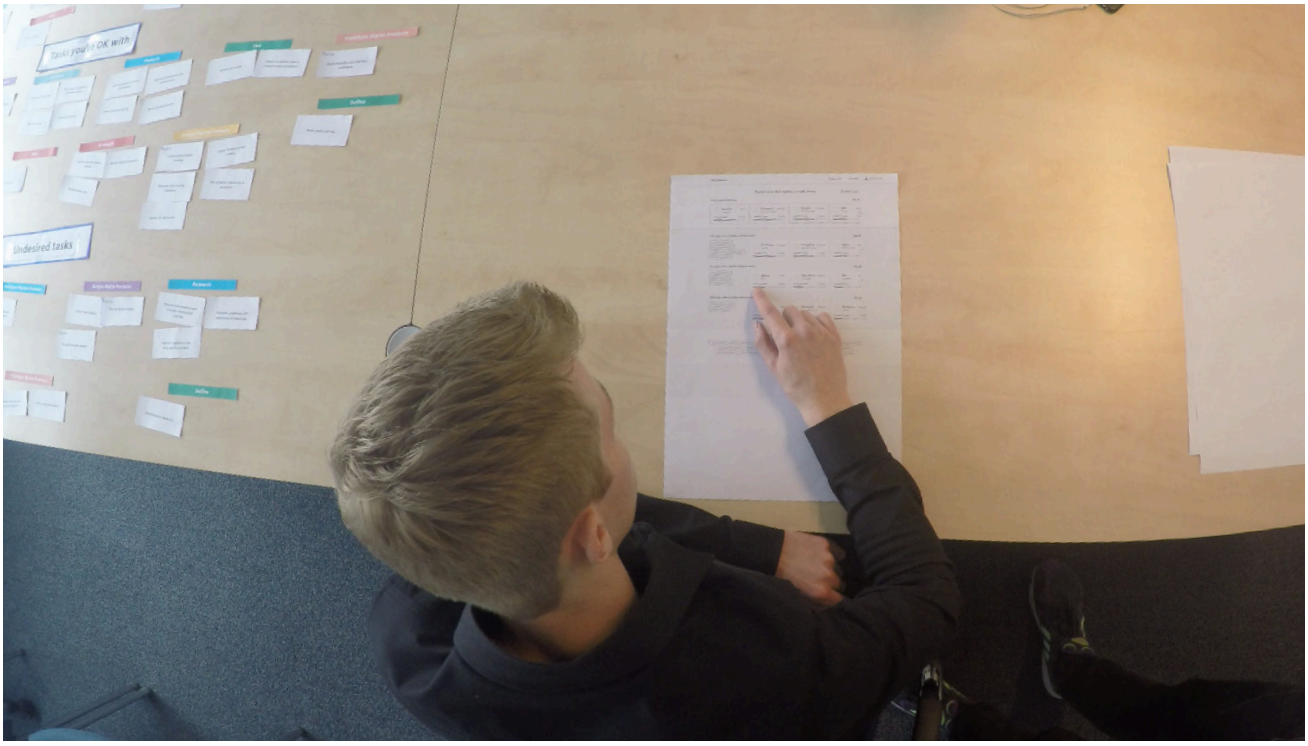


Figure 30: One of the participants during the usability test (own ill.)

Participant 1

"*For me, the best overall matches are the most interesting, because this is the core: what matches me best as a person.*"

Participant 4

"*I find the bottom part most interesting as it allows to search jobs based on the specific tasks I find interesting. Within your desired tasks, you always have a top 3 that stands out even more. You want to be able to search on those.*"

Two participants mentioned that they liked the bar charts that showed to what extent the vacancies matched their personal profile.

Participant 1

"*It's great that all companies are ranked automatically how good they match with you and that it's shown by means of the bar charts.* "

Two participants did not understand that the screen provided three separate routes to further explore jobs as they thought that the middle and bottom part of the screen, respectively "Jobs with similar desired tasks" and "Explore jobs by your desired tasks", belonged to each other and co-operated.

Participant 2

"*I expect that I can add tasks from the bottom section to the middle section by clicking on it and that by doing so, I can create new search queries by a combination of individual tasks.*"

After I explained the intended way of functioning and that the screen presented a total of three different routes to further explore jobs, this participants said the following:

Participant 2

"*I would keep it more simple. I would not present all three things together. Three routes is a bit much, bit much information. Don't know where to start searching. Where is the hierarchy..*"

11.6.2 User friendliness: Screen "Vacancy search queries"

All participants understood the filters on the left side of the screen and understood that the tasks can be removed from the search query by clicking the "X". Three participants mentioned that they found the screen well presented and easy to understand.

Participant 5

"*The screen is well presented. The bar charts communicate clearly how well something matches to your profile, that's nice. If you click, you can see more specifically. You can search on location. You can easily filter on desired, OK or undesired tasks by unchecking the boxes.*"

Three participants were either confused or did not understand the purpose of the feature "Common relating tasks". However, after an explanation two of these participants did consider it a valuable feature.

Participant 2

"*I like the fact that you can add tasks from your profile to the search, but also that the system presents tasks that relate to your search.*"

Three participants did not understand that the search bar was clickable. Also, like described in the section above, three participants were either confused or did not immediately understand the purpose of the feature "Common relating tasks". Furthermore, two participants did not understand the label "New" behind one of the listed tasks in one of the vacancies.

Participant 1

" *I'm not sure what "New" refers to. Maybe I didn't process that task yet.*"

One participants was confused that the search query entailed 4 desired tasks, while the one vacancy showed 7 desired tasks.

This same participant also mentioned that she finds it important to know for how much longer a vacancy will be online, but that the screen doesn't show that.

Participant 4

"*I would like to see for much longer the vacancies will be online, but I don't see that unfortunately.*"

11.6.2 User friendliness: System flow

One participant mentioned that he experienced the transition from the onboarding part to the profile page as "a bit harsh". This, and another, participant both mentioned that they would prefer it when the "explore vacancies page" and the "vacancy result page" would be integrated as this would help them to go less back and forward.

Participant 1

"*The transition from the onboarding part where I categorized the tasks to my personal profile page felt a bit harsh. All of a sudden, on the profile page, I see a lot of buttons and things I'd never seen before. It would be nice to have a sort of result page in between, followed by an overview of all the vacancies that match your preferences.*"

Participant 3

"*It felt like there were a lot of steps until the point I was actually able to read specific vacancies. It would be nice if the "vacancy homepage" and the vacancy result page would be integrated. In that way, you have everything in one screen and you'd have to go back and forward less. To me, that feels more user friendly.*"

Based on a foreseen potential point for improvement relating to the flow of the platform, the participants were asked if they would find it desirable to be able to explore jobs without the creation of a profile, thus by taking the complete set of tasks from your study as a starting point. To this question, all participants answered "Yes".

Participant 2

"*Yes, that would be desirable, because it's nice to see results fast. On the other hand, creating a profile is nice because IPD [MSc Integrated Product Design] is quite broad: you can go very conceptual or very technical. Not all people who did IPD want similar jobs, it's so different for everyone. Therefore, it can really help to create a profile with your desired tasks.*"

Participant 5

"*Yes I think so. Mainly as an orientation to see what kind of functions match your education. First you see all the vacancies and later you can narrow down by creating the profile. So in this way, you can start broad and refine later.*"

Figure 31: Me presenting a new screen to one of the participants during the usability test (own ill.)

11.6.3 Autonomy over self-representation: General

All participants felt that they were well represented by their Job Visions, although two participants, the same participants who made a remark earlier about the difference between tasks and topics (section 11.6.1), mentioned that this was “only on a task-level”. These participants mentioned that their Job Visions covered the basis, but did not provide a complete representation.

Participant 4

“*It represents me well on an activity level, but not on a higher ambition or purpose level. That is actually even more important to me.*”

All participants mentioned that their Job Vision was well organized and provided a good overview. All participants mentioned that the dimensions of “Undesired”, “OK” and “Desired” were easy to understand and considered this an effective framework. In addition, the categories in which the tasks were clustered, such as “Research” and “Communicate” were considered constructive as it improved the readability and helped to interpret the large quantity of information better.

Participant 1

“*The overview is fantastic, very good. It seems like it communicates it better than I could do myself. I know that some tasks relate to each other, but I wouldn’t be able to think of these categories myself. I feel well represented.*”

Participant 4

“*The dimensions are easy to understand. For me, the “OK” is self-explanatory. Undesired and desired are deal makers or breakers. It’s about what makes your work “the spark”, where do you get out of your bed for.*”

One participants mentioned that he liked the distinction between physical and digital product design.

Participant 3

“*It is very nice that there is a difference between digital and physical product design. UX people only think it’s about the digital stuff, while the base is the physical.*”

Figure 32: One of the participants during the usability test (own ill.)

Similar to the previous test with the canvas, participants mentioned that they found it helpful to express what tasks are not desired. None of the participants mentioned that certain tasks were missing from the set.

While four participants seemed to understand the concept of a Job Vision, namely a collection (vision) of desired activities for a future job, one participant did not get the concept.

Participant 3

"*Don't really know what job vision means. For me a job vision refers to tasks that match between you and the company. When I first saw the word vision, I thought mission/goal, but that was merely a guess. It would be nice if it's somewhere explained what a job vision is.*"

Regarding all different tasks that were a part of the test, another participant mentioned that she considers certain tasks, such as "Manage stakeholders' or "Present work to clients" as "just part of the job" and therefore not noteworthy to include in a Job Vision.

Participant 4

"*Desired is the wow activity, things that make your work special, undesired is what you don't want. There are always a lot of things that are just part of the job, such as: "Manage stakeholders", "Present work to clients", "Write project reports" (+ 9 more). To me these are not really noteworthy to express what I want or don't want.*"

11.6.3 Autonomy of self-representation: Public visibility

All participants were asked the question if they would make their profiles publicly visible to enable organizations to contact them. All participants answered this question with "Yes". In this context, all participants wanted their "Personal bio" and "Desired tasks" to be a part of their profile. While some participants were hesitant whether or not they wanted to include the "Tasks I'm OK with", other participants were sure that they did not want to include these. However, all participants were sure that they did not want to include the "Undesired tasks". Three participants mentioned that they wanted to accompany their desired tasks with manually written explanations that provide more personal context.

Participant 4

"*Yes, I'd like to do that, but I'd want to write my desired tasks in my own words in my bio. What I want is that companies approach me for who I am. Then I have to show what I find important. I think you can do that a lot better when I write my own text. Someone can appreciate the task "Design research" for a whole different reason than me. It's important to back it up. However, it would be cool if you could publicly notify that you're looking for a job. Nice when companies then contact you.*"

Participant 5

"*Yes, I would want to show my name, picture, bio and desired tasks. However, It's quite a big list, so I would want to add an explanation, because it's important that they get some context. I would not show the undesired tasks, because that can give a wrong impression to someone. I'm unsure about the OK tasks.*"

One participant mentioned that he wanted his profile to be anonymous. Another participant mentioned that he did not want organizations to be able to contact him, but to use the publicly visible profile for another purpose.

Participant 1

"*I would find it awkward to have to say to a company that I don't want to work there. I prefer to have job alerts, so I don't miss any interesting vacancies and in that way, I don't have to reject any companies. However, it would be interesting to have a profile that I can share with a company that is not on the platform. In that way they can read all that information about me.*"

Three participants mentioned that they would not send their Job Vision in a PDF format to potential employers.

Participant 4

"*I would definitely use this information to enrich my applications, but not in a pdf format. I think an employer cannot do a lot with this. I find it always hard to pinpoint what I can. Now that's easier with this. Would use this information and then use this in my motivation letter with my own description.*"

One participant mentioned that recipients could misunderstand the information due to a lack of context. He thought it would be better if he would be able to send a link of his profile page to share the information.

Participant 1

"*Wouldn't know if I would send a PDF, because employers could misinterpret the information due to a lack on context. It must look cool or the platform should be known. I think it would be better if I could share my personal page via a link.*"

11.7 Conclusions

In general, this test phase was very successful. First, it has been proven that the UI Design V1.0 provides a valuable way to search for a job. The general mechanism of "matching" job seekers with vacancies on the basis of their desired tasks from their study programmes was very positively experienced by the participants. Therefore, we can conclude that assumption 1 from this phase, namely "The UI Design V1.0 provides a valuable way to search for a job.", has been validated and that there is no need for a pivot.

Nonetheless, the feedback from the participants has been taken critically into consideration. For example, two participants mentioned that certain work topics are of major importance to them to evaluate whether a vacancy is interesting. This is also something that

Figure 33: One of the participants during the usability test (own ill.)

has been mentioned earlier by a participant during the previous test with the “Canvas”. Based on these insights, a potential point for improvement for the next design could be the inclusion of topics in vacancy descriptions. This would supplement the task-based search with topic criteria such as “Sustainability”, “Automotive”, “Fashion”, “Academia”, and “Social impact”.

However, this project was initiated in the first place to enable a more explorative way of job searching and step away from present job matching methods that often focus on a job title, topic, and the job seeker’s diploma. Defining vacancies in terms of, among other things, topics may restrict the search space to vacancies that the job seeker would traditionally find using existing job matching platforms. This could be counterproductive with respect to the core purpose of this platform which is to broaden graduate job seekers’ perspectives on the labour market, empowering them to discover new interesting job opportunities. Therefore, I have decided not to act upon this insight right now, but to further investigate this in the future.

Second, during this test phase it has been shown that the UI Design V1.0 provides a fairly intuitive user experience. All features were tested with all participants and the majority of these features seemed to be easy to understand in terms of their purpose and interaction. Therefore, we can conclude that assumption 2 from this phase, namely “The UI Design V1.0 provides an intuitive user experience.”, has been validated, but some improvements will be implemented.

The participants provided valuable feedback how the design, in their opinion, could provide a better user experience. The most fundamental change relating to the user experience for the next design will be a change in the user flow, enabling users to search vacancies without the creation of a profile, and the merging of the two screens “Different routes to explore jobs” and “Vacancy search queries”. The latter change should result in one centralized environment where vacancies can be explored via different routes and simultaneously, search queries can be altered and refined.

Last, it has become evident during this test phase that the Job Vision overview is not yet able to sufficiently represent each participant’s professional desires. Three participants seemed to feel well represented by the Job Vision overview, while two participants did not completely feel that way. These two participants mentioned that the overview lacked the topics of their personal interest, which was something very meaningful to them. Therefore, we can conclude that assumption 3 from this phase, namely “The Job Vision overview is able to accurately represent people’s professional desires.” is not (yet) validated.

Furthermore, in the context of a publicly visible profile, three participants mentioned that they wanted to back up their desired tasks with personal explanations and motivations instead of showing them in the form of a list.

The most fundamental change relating to the autonomy of self-representation for the next design will be the ability to incorporate desired tasks in a personal “bio” text, ensuring that the “task elements” are still searchable by employers, but are accompanied by personal explanations and motivations of the job seekers.

Besides the fundamental changes that are mentioned in this section, some more changes will be implemented in the next design. All changes are captured in the form of design requirements as described in the next section.

11.8 Design requirements V2.0

The following list of design requirements, referred to as "Design requirements V2.0" communicates all changes in relation to "Design requirements V1.0" based on the usability test. These changes mostly relate to requirements that have been added to the previous list, although one requirement from the previous list has also been removed.

Note that the following design requirements only apply to one of the three stakeholders, the graduate job seekers, as the usability test was only conducted with them. Furthermore, the structure is similar as to the list of Design requirements V1.0 as described in section "10.2 Structure".

Also, the two environments that were previously referred to as "Different routes to explore jobs" and "Vacancy search queries" are no longer separated in the UI Design V2.0 as they are merged. Therefore, this new environment is referred to as : "Explore jobs".

EXPLORE JOBS

Behavior

1. The platform shall allow graduate job seekers to search and find vacancies on the basis of a particular study programme from a particular educational institution, thus without the creation of a user profile.

> *Rationale: To provide graduate job seekers a low-barrier to entry on the platform where they can first familiarize themselves with the platform to experience the value of it before "investing" in the creation of a user profile.*

2. The platform shall communicate to graduate job seekers what 5 tasks from their study programme are most in demand amongst the vacancies on the platform.

> *Rationale: To enrich graduate job seekers' perspectives on the labour market.*

3. The platform shall invite and provide graduate job seekers the ability to create a user profile where tasks can be categorized as "desired", "OK" and "undesired".

> *Rationale: To ensure that graduate job seekers are encouraged and able to create a user profile.*

Logic

4. The platform shall calculate what 5 tasks from each study programmeme are most in demand amongst the vacancies on the platform.

> *Rationale: To enrich users' perspectives on the labour market.*

PERSONAL PROFILE PAGE

Behavior

~~14. The platform shall provide graduate job seekers the ability to download a PDF file that lists the categorization of tasks into "desired", "OK" and "undesired".~~ (REMOVED)

~~*Rationale: To enable graduate job seekers to easily share their professional preferences with other parties.*~~

5. The platform shall allow graduate job seekers to share their personal profile page by means of a URL link.

Rationale: To enable graduate job seekers *to easily share their professional preferences with other parties.*

6. The platform shall allow graduate job seekers to incorporate task-links in their personal biography within their user profile. (Autonomy over self-representation)

Rationale: To enable graduate job seekers *to provide a rich context for their desired tasks, yet still remain searchable.*

7. Whenever graduate job seekers make one or more elements of personal information publicly visible on the platform, the platform shall show a "badge" with the word "On" overlaying the tab "Public visibility" on the profile page, otherwise this badge states the word "Off".

Rationale: To inform and remind graduate job seekers *of the fact that their personal information is (not) made publicly visible.*

Behavior

8. The platform shall communicate to graduate job seekers the purpose of a "Job Vision", which is as follows: "*Your Job Vision helps us to prioritize vacancies in the most relevant way for you. We do not exclude vacancies that contain undesired tasks, but they will rank lower*".

Rationale: To ensure that graduate job seekers *are at all times aware of how the algorithm functions.*

11.9 Addition to Value hierarchy

Design requirement 6 was defined in response to the "User test: UI Design V1.0". Here, all five participants wanted to make use the ability to make their user profiles publicly visible. However, three of the five participants mentioned that they wanted to be able to accompany their desired tasks by personal explanations or motivations. These participants mentioned that this would make them feel better represented by their personal profile. Hence, the addition of design requirement 6 (from list of Design requirements V2.0) which states that user are allowed to incorporate task-links in their personal biography. This requirement is a new, second, branch under norm "Personal information" in the value hierarchy, because in addition to design requirement "Profile enrichment", this requirement is also for the sake of personal information.

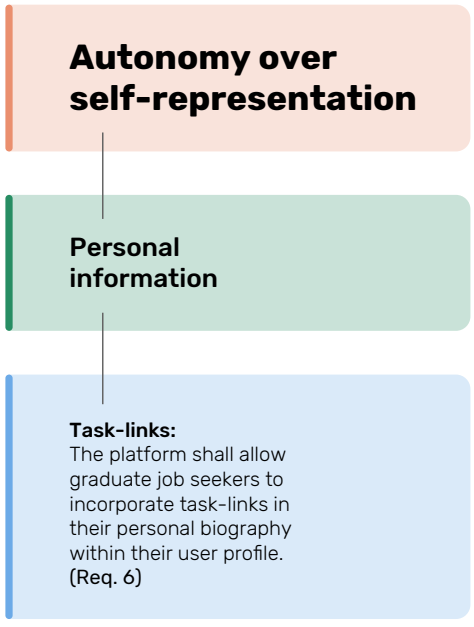


Figure 34: Addition to the Value hierarchy as previously shown in chapter 10. (own ill.)

12

Final Design: UI Design V2.0

This chapter presents the second version of the User Interface (UI) Design for the task-based vacancy platform, the “UI Design V2.0”. In the context of this graduation project, this design is also presented as the final design. This chapter presents the new flow of the design and showcases the actual UI Designs themselves.

12.1 Introduction
The previous chapter described the usability test that was conducted with UI Design V1.0 and concluded with a new, updated, list of design requirements. These requirements have formed the basis for the UI Design V2.0.

This chapter presents the UI Design V2.0 for the task-based vacancy platform, which is also the final design for this graduation project. In addition, a video was created to bring the UI Design V2.0 to life and demonstrate its interaction.

12.2 Fundamental changes
Like described in previous chapter’s conclusion, several fundamental changes have been implemented in the UI Design V2.0 in comparison to the V1.0.

First of all, the new user flow enables users to search vacancies without the creation of a profile. This ensures that users can first familiarize themselves with the platform, so they can experience the value of the platform before investing time in creating a profile (job vision).

Second, the screens that were previously referred to as “Different routes to explore jobs” and “Vacancy search queries” are now merged into one environment where vacancies can be explored and simultaneously, search queries can be altered.

Third, the new design provides users the ability to incorporate desired tasks in a personal biography text. This ensures that job seekers can still be found by employers (if they desire to use this functionality) on the basis of their desired tasks, but that these tasks are accompanied by personal explanations and motivations of the job seekers.

Unlike the UI Design V1.0, the UI Design V2.0 is not created with wireframes, but as a “production ready design” that shows what the platform looks like in reality and that reflects the HelloCareer brand.

12.3 Flow chart
To clarify the flow of the UI Design V2.0, a new flow chart has been made, see figure 36. Similar to the flow chart presented in chapter 11, this new flow chart starts at the top left corner of the diagram (based on a landscape orientation).

To prevent confusion, the new flow chart no longer refers to what was previously described as “the main components”. However, some components may still be recognized.

The new flow chart refers to 5 (new) compo-

nents within the user interface. They are as follows:

1. **Enter website**, which refers to HelloCareer's landing page.

2. **Explore matching jobs to study tasks**, which refers to the environment where jobs can be explored on the basis of a particular study programme from a particular educational institution.

3. **Rank tasks from study** (create Job Vision), which refers to the environment where tasks are categorized based on whether they are considered as "Undesired", "OK" or "Desired" in the context of a future job.

4. **Explore matching jobs to Job Vision,** which refers to the environment where jobs can be explored on the basis of a user's Job Vision.

5. **Profile,** which refers to the environment where a user can view and edit the Job Vision and can enable the functionality "Public pitch" to "pitch" themselves to potential employers.

The video walks through each of these environments in the same order as the new flow chart. The video can be accessed via the following link: https://youtu.be/4zYwNy_vmHg

Also in this flow chart, the actions are generally represented by means of the rectangular shapes. Some actions are facilitated by another action that is performed by the platform itself. These are represented by means of the diamond shapes. The arrows show how all actions are interrelated. The flow chart is shown enlarged in the appendix on page 182.

The following sections describe each new component in more detail. These sections also refer to images of the actual designs.

12.4 Enter website

The component "Enter website" is the screen that is shown when the website of HelloCareer is visited and can be seen in figure 35.

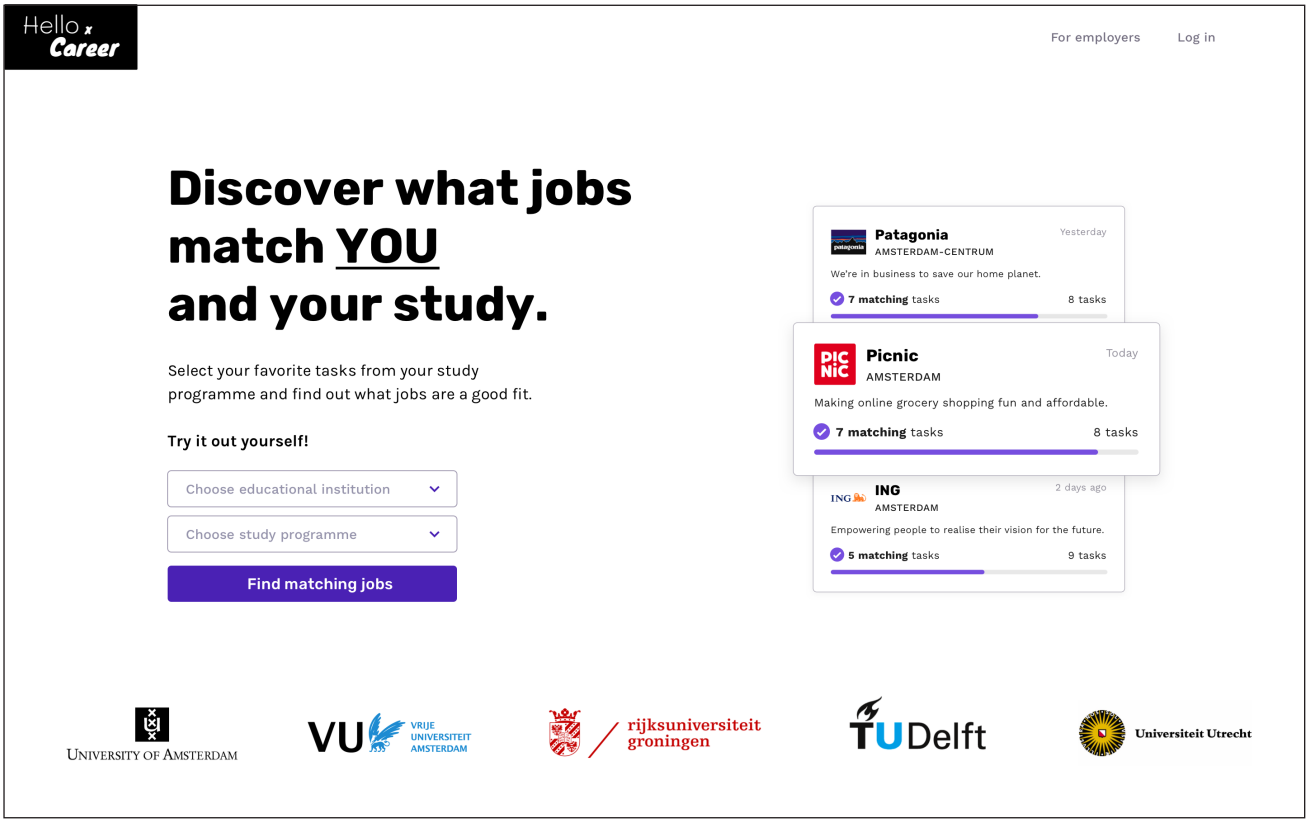


Figure 35: The design of HelloCareer's landing page as a part of UI Design V2.0

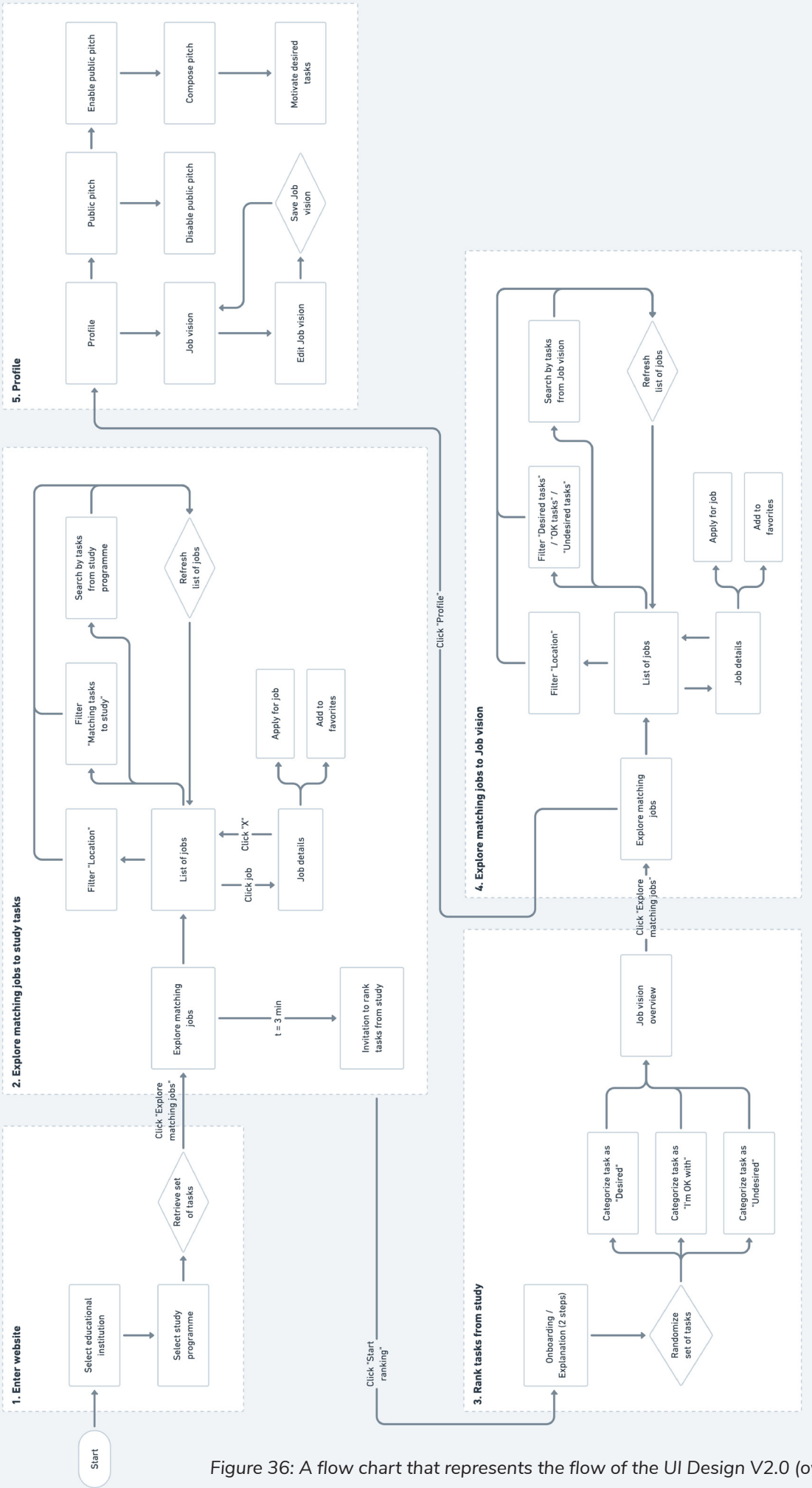


Figure 36: A flow chart that represents the flow of the UI Design V2.0 (own ill.)

This screen states HelloCareer's value proposition to ensure that the value that the platform promises to deliver is clear to anyone. To support the value proposition and to increase the platform's credibility, the logo's of educational institutions are shown below.

In addition, this screen allows users to immediately start looking for jobs that match to their educational study programme, thereby acting as an entry point for new users to experience the platform.

The job cards on the right side of the screen emphasize that the platform is able to recognize to what extend the jobs presented on the platform match to any study programme in terms of their tasks. This is precisely the capability that no other platform has and therefore, it points out to new users how HelloCareer is different from anyone else with this unique approach.

12.5 Explore matching jobs to study tasks

The first screen that belongs to the component "Explore matching jobs to study tasks", as seen in figure 37, shows up after a user has selected an educational institution and a study programme on the landing page. This screen immediately shows all the jobs that match, to some extend, to a particular study programme, starting at the top with the jobs that match best.

The header of the screen clarifies that the user is now in an environment where he/she is exploring jobs. Through the other tabs, there is an entry point for employers, to for example post a job on the platform, and for users to log in.

Below the header is a part of the screen that I refer to as the "top part" of the screen. This part reminds the user which educational institution and study programme has been chosen to clarify that the jobs listed below are based on this choice.

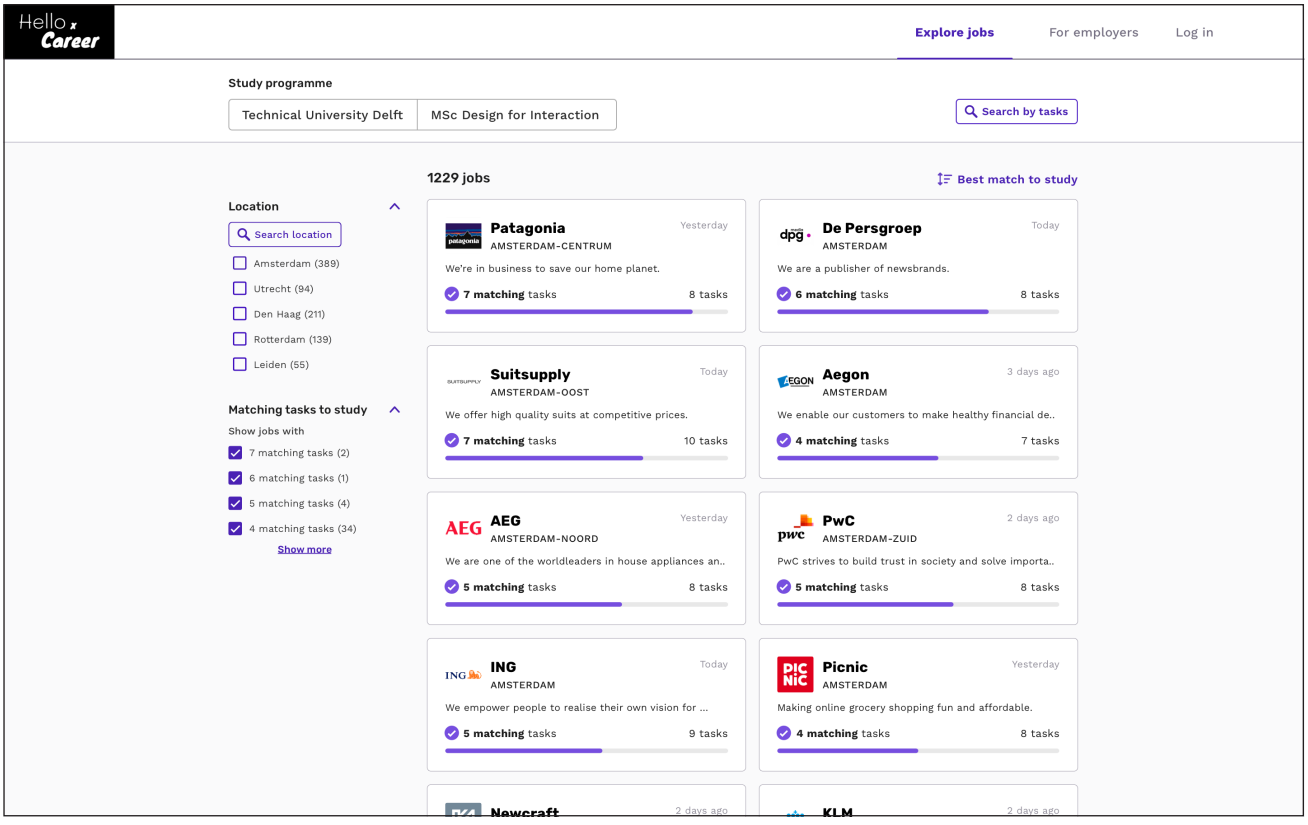


Figure 37: The design of component "Explore matching jobs to study tasks" as a part of UI Design V2.0

In addition, this top part allows users to search by tasks through clicking on the button “Search by tasks”. This button has been designed in a way that it does not draw too much attention, because this functionality is not considered as a primary action. However, it is considered a valuable way to tailor a search query more specifically to the needs of the user and therefore, this button is still easy to identify.

Figure 38 shows the pop-up that appears when the “Search by tasks” button is clicked. Here, multiple routes can be used to search by specific tasks, namely “free text search” via the search bar, “Tasks from study programme” via the first tab which is opened by default and “Categories” via the second tab. The content within this pop-up is scrollable. Presenting all these different routes to search by tasks in one pop-up ensures that users are less overwhelmed or distracted by all these options in the main screen.

Once a user has chosen one or several tasks to search by, a new search query is created. In that case, the job results refresh and the top part of the main screen changes: it mentions the tasks that are a part of the search query. This new presentation, as can be seen in figure 39. During the usability test with the UI Design V1.0, it was not always clear to the participants that they could click on the search bar to add tasks. Therefore, in the UI Design V2.0, the search bar visualization has disappeared, but the tasks remain clearly visible and removable. Instead, to clarify how new tasks can be added to the search query, the button “Search by tasks” has changed into “Add tasks” where the text is supported with a”+” icon.

The section below the top part and on the right side of the screen presents the actual jobs. During the usability test with the UI Design V1.0, it became clear that detailed information about a job was not considered relevant from a first sight. Therefore, this part

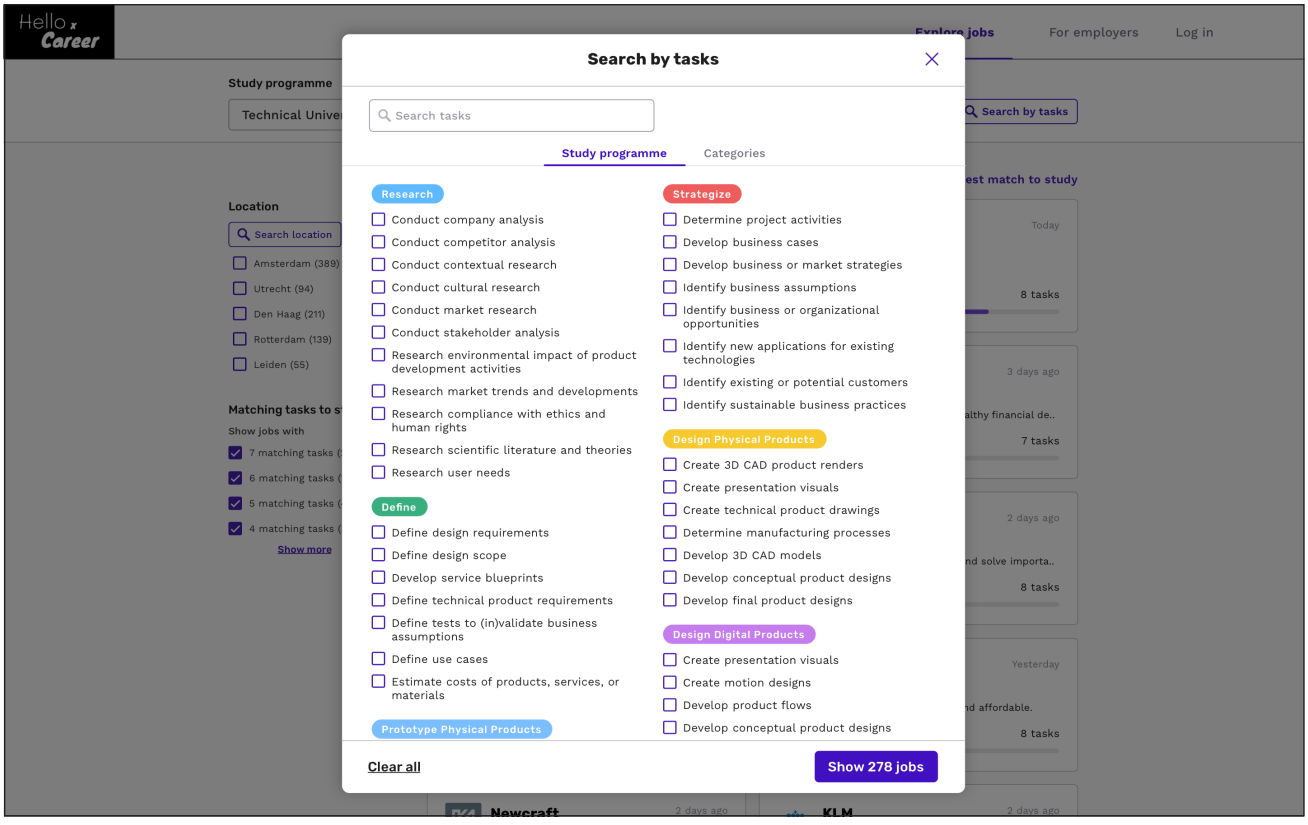


Figure 38: “Search by tasks” screen from component “Explore matching jobs to study tasks” as a part of UI Design V2.0

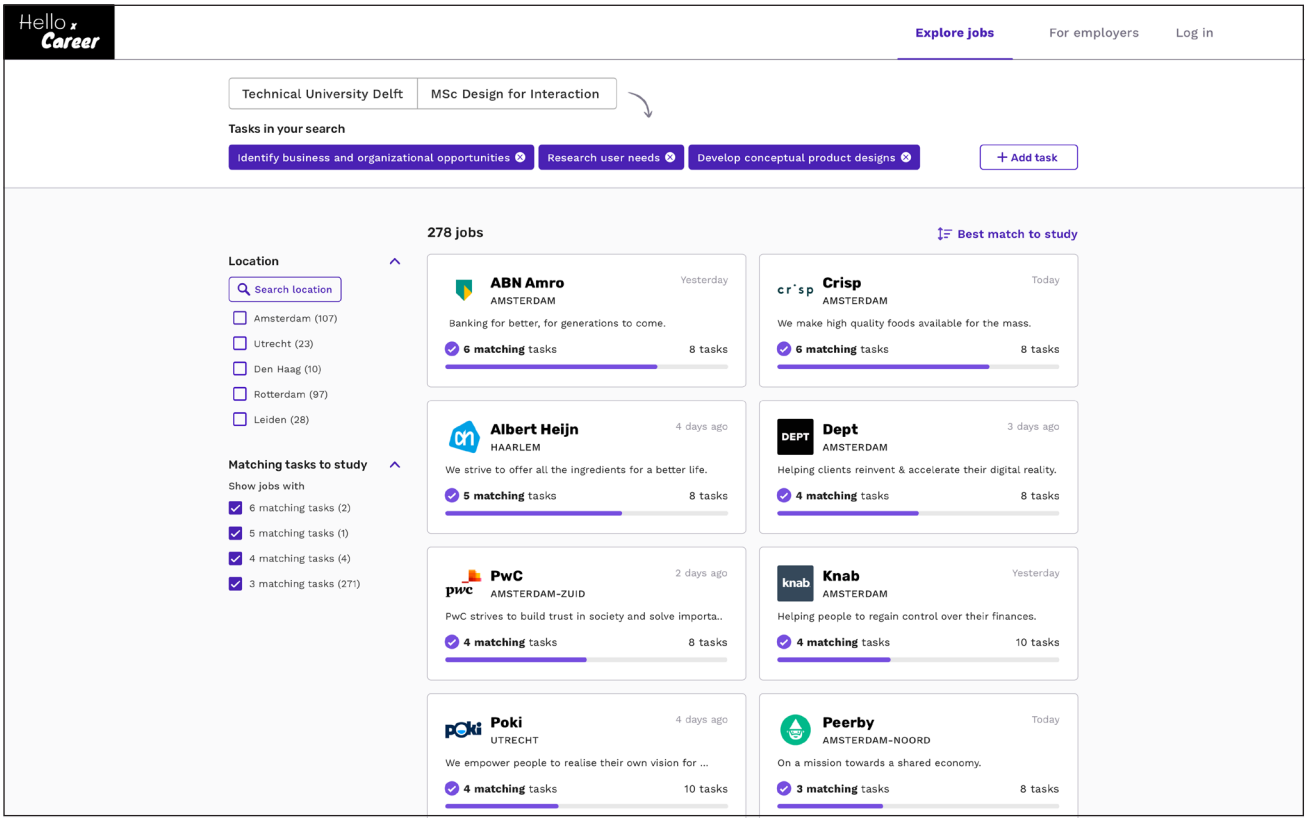


Figure 39: "Search by tasks" from component "Explore matching jobs to study tasks" as a part of UI Design V2.0

was removed and as a result, created room for an additional column of job cards. This enables users to look at, and compare, more jobs at a first sight. Therefore, the UI Design V2.0 has a layout that consists out of two columns of job cards instead of one.

The job cards are designed in a way that the information is presented hierarchically and that they look appealing. Based on the usability test with the UI Design V1.0 where participants pointed out that they considered the bar charts as a very useful piece of information, the bar charts in this new design have been given HelloCareer's primary brand colour, a bright purplish colour. This ensures that the job cards catch attention and clearly communicate to what extend they match to the chosen study programme in terms of their tasks.

The left side of the screen shows the same filters as in UI Design V1.0, namely the "location" and "matching tasks", in the same way.

At this point in the user flow, users have not (yet) categorized tasks based on whether they are considered as "Desired, "OK" and "Undesired". Therefore, these filters are not shown, but instead only the filter "Matching tasks to study" is shown.

Once a user hovers over one of the job cards, a pop-up appears that describes all the tasks that are a part of that particular job. Here, the tasks are grouped according to their task category, something that was highly valued during the previous usability test. Likewise, the pop-up clearly differentiates the "known" from the "unknown" tasks to the study. This hover state can be seen in figure 40.

Once a user clicks on a specific job card, a pop-up appears that shows detailed job information. It shows all the tasks that are a part of the job and also more information about the company. Again, the content within this pop-up is scrollable. The pop-up can be seen in figure 41.

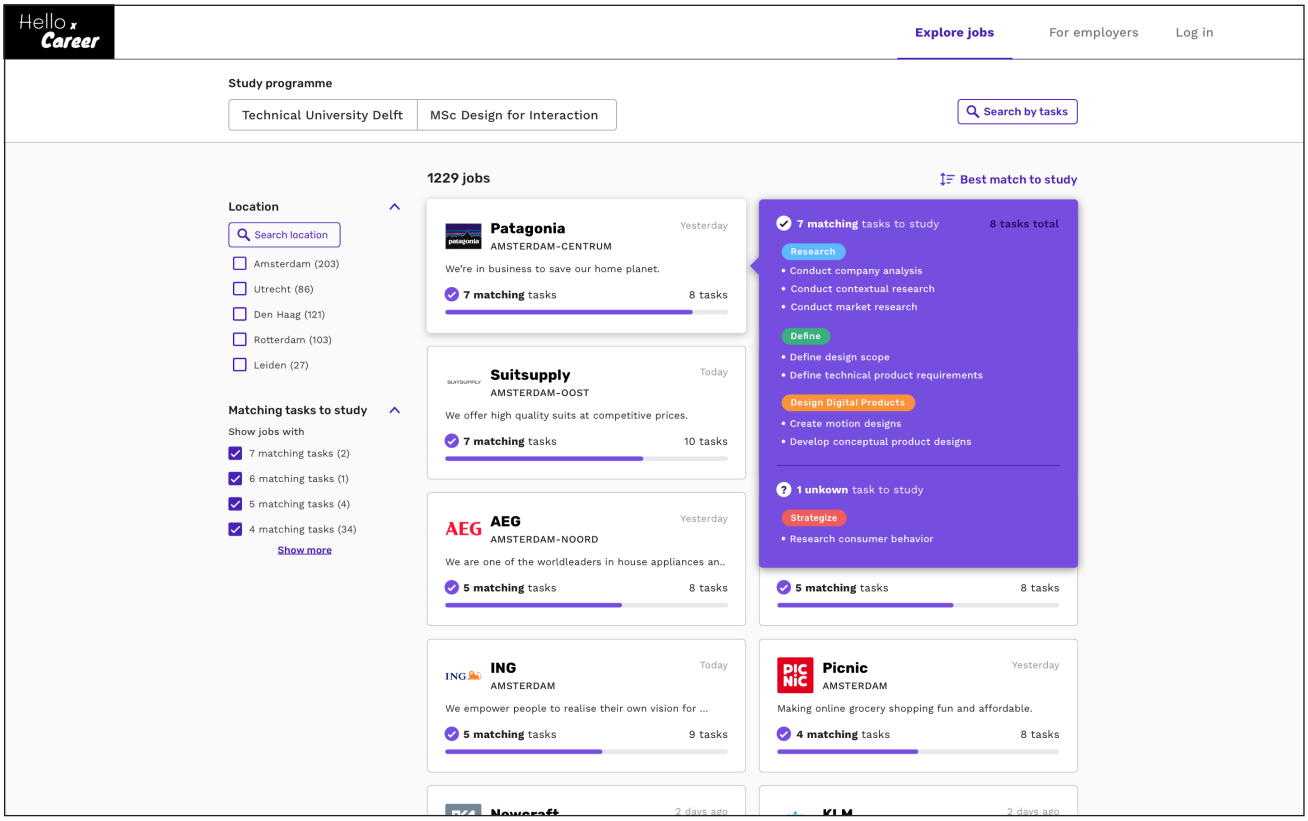


Figure 40: Job card hover state from component "Explore matching jobs to study tasks" as a part of UI Design V2.0

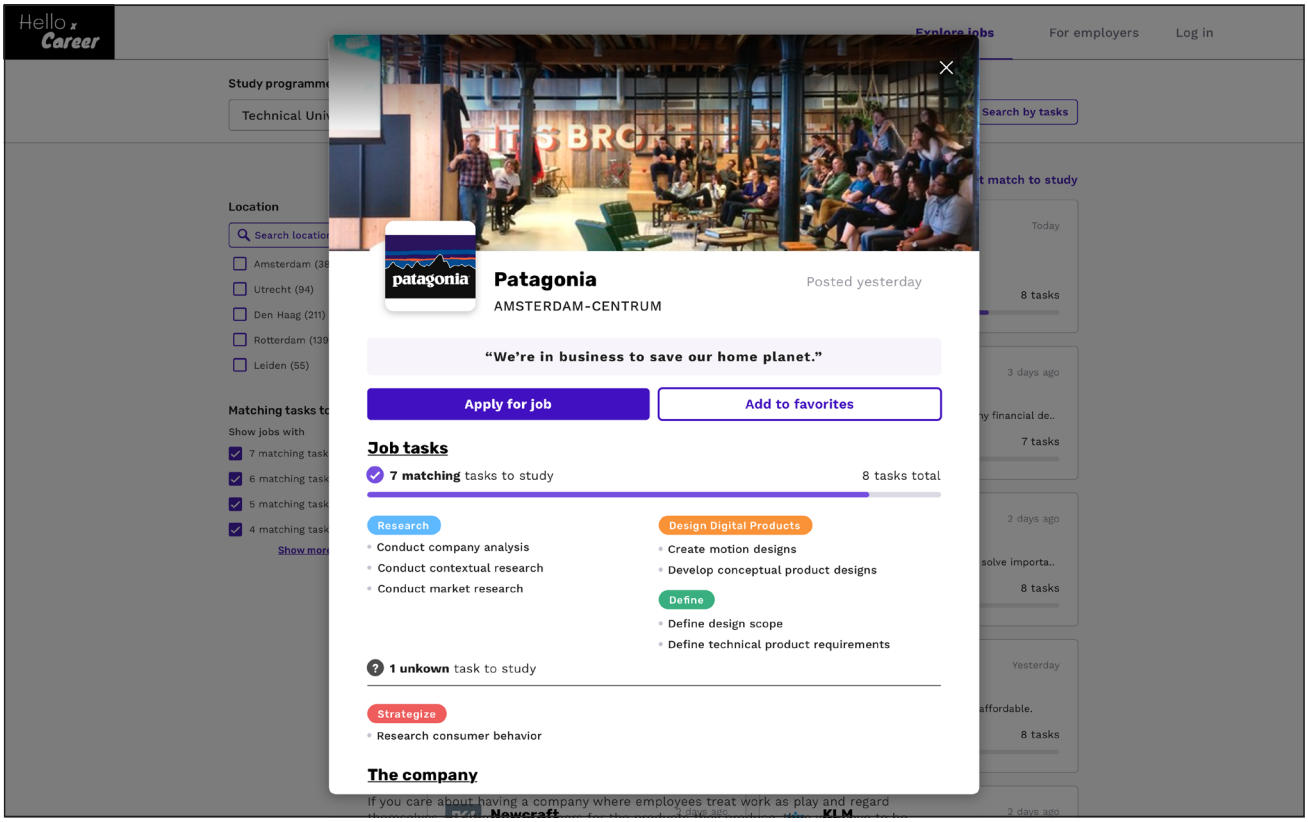


Figure 41: Detailed job information from component "Explore matching jobs to study tasks" as a part of UI Design V2.0

A few minutes after the first screen relating to the “Explore matching jobs to study tasks” component has been launched, a pop-up appears in the bottom right corner. This pop-up invites users to rank the tasks from their study programme, so they can find more relevant results. This pop-up aims to draw attention by its coloured header with the title “Find your dream job!”. Below the header, the pop-up clarifies what the user exactly is invited to do, namely “Rank tasks from [study]”. The button at the bottom part of the pop-up clarifies the call to action: “Start ranking”. The screen with the pop-up can be seen in figure 42.

12.6 Rank tasks from study

The first screen that belongs to the component “Rank tasks from study”, as seen in figure 43, shows up after a user has clicked on the button “Start ranking” in the pop-up as seen in figure 42. This first screen clarifies that all the tasks must be ranked, or categorized, according to the three categories: “Undesired”, “OK” or “Desired”. To ensure that a user understands this, he/she must click “GOT IT” in the pop-up that clarifies this.

Once a user has clicked “GOT IT”, the second screen that belongs to the component “Rank tasks from study” appears. This screen can be seen in figure 44. Note that the screen undergoes a transition where the desirability buttons move down and the task cards and the progress bar appear. This transition can be experienced in full detail in the video that has been created. Similar to the previous screen, this screen also shows a pop-up. This pop-up, however, clarifies that jobs with tasks that have been categorized as “Undesired” rank lower in the overview, but are never excluded from the jobs. Once a user has clicked “GOT IT” again, the ranking begins.

Figure 45 shows a particular moment in the ranking process short after a user ranked a task as “Desired”. Here, the progress bar

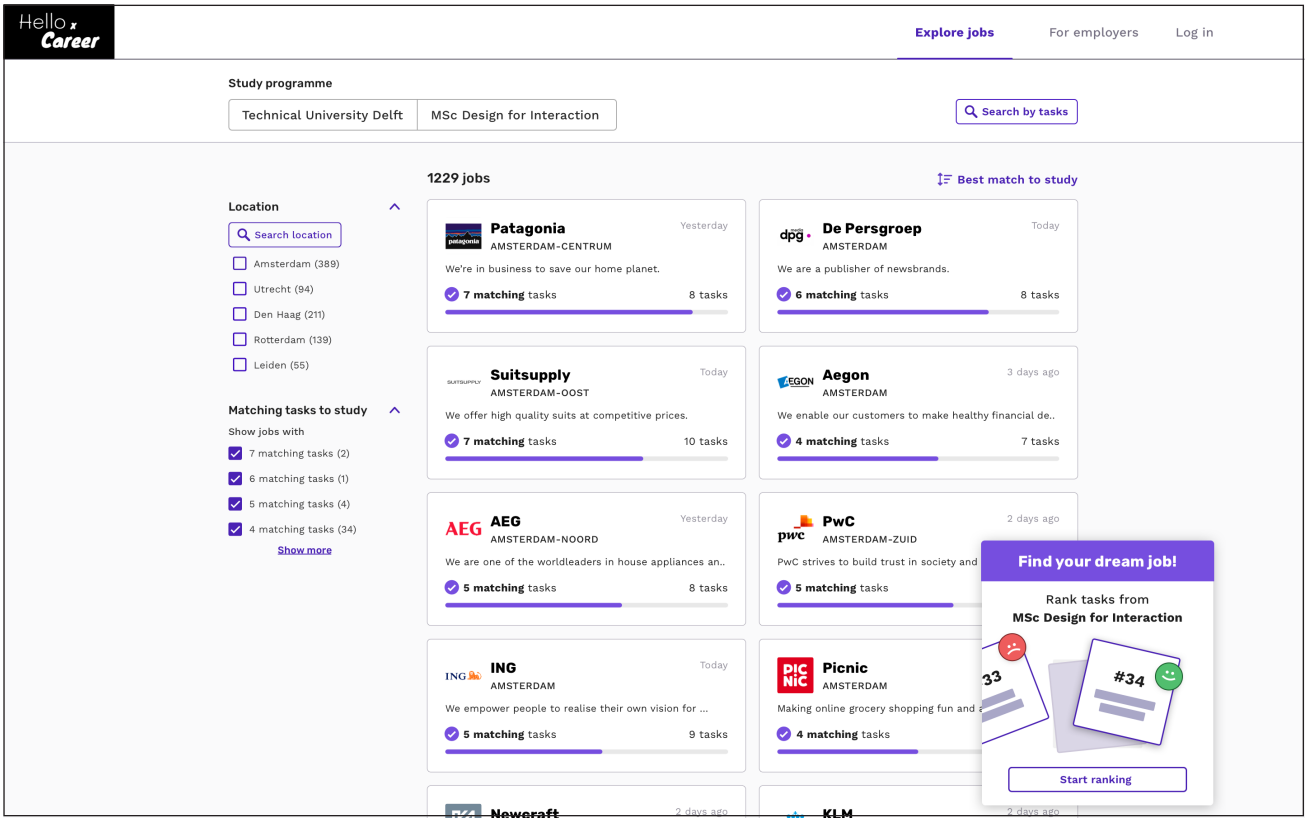


Figure 42: Pop-up “Rank tasks from study” within component “Explore matching jobs to study tasks” as a part of UI Design V2.0

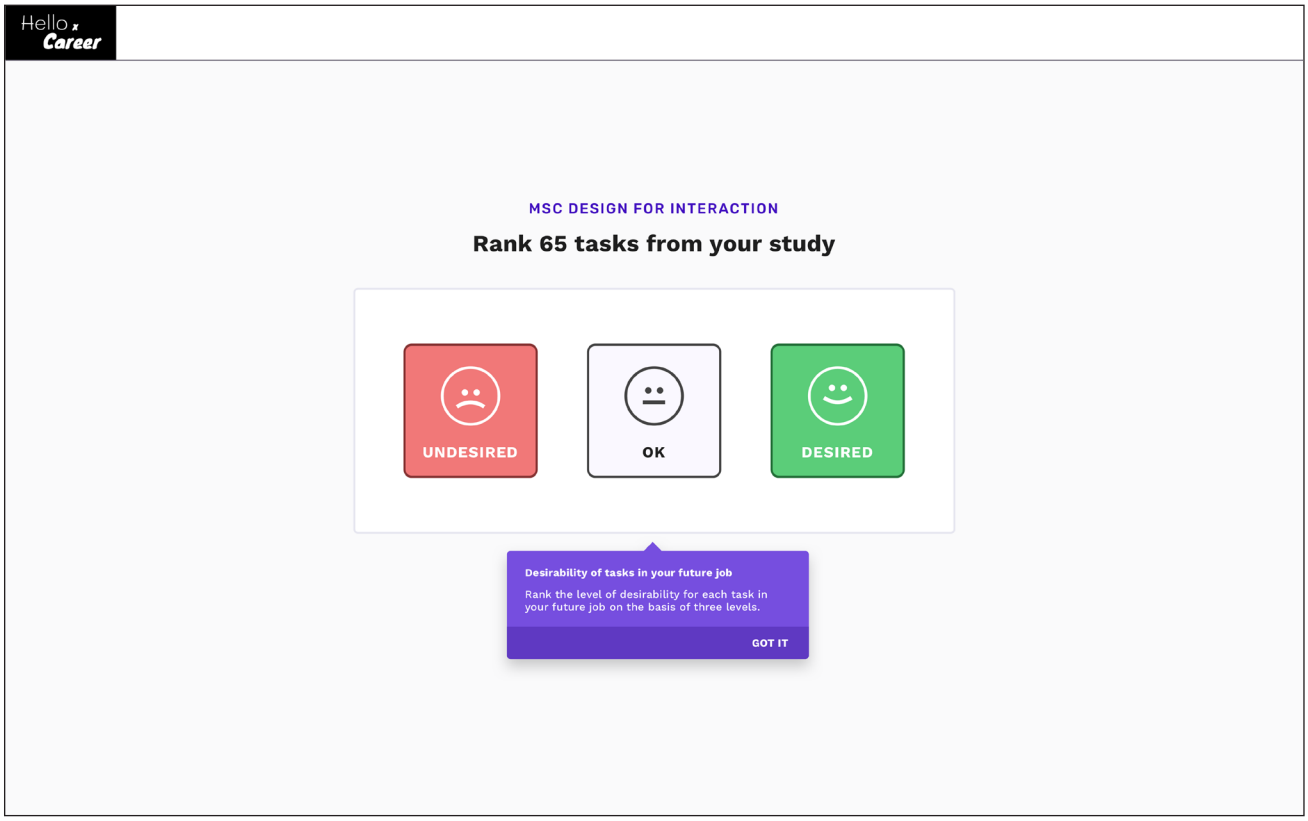


Figure 43: First instruction card within component "Rank tasks from study" as a part of UI Design V2.0

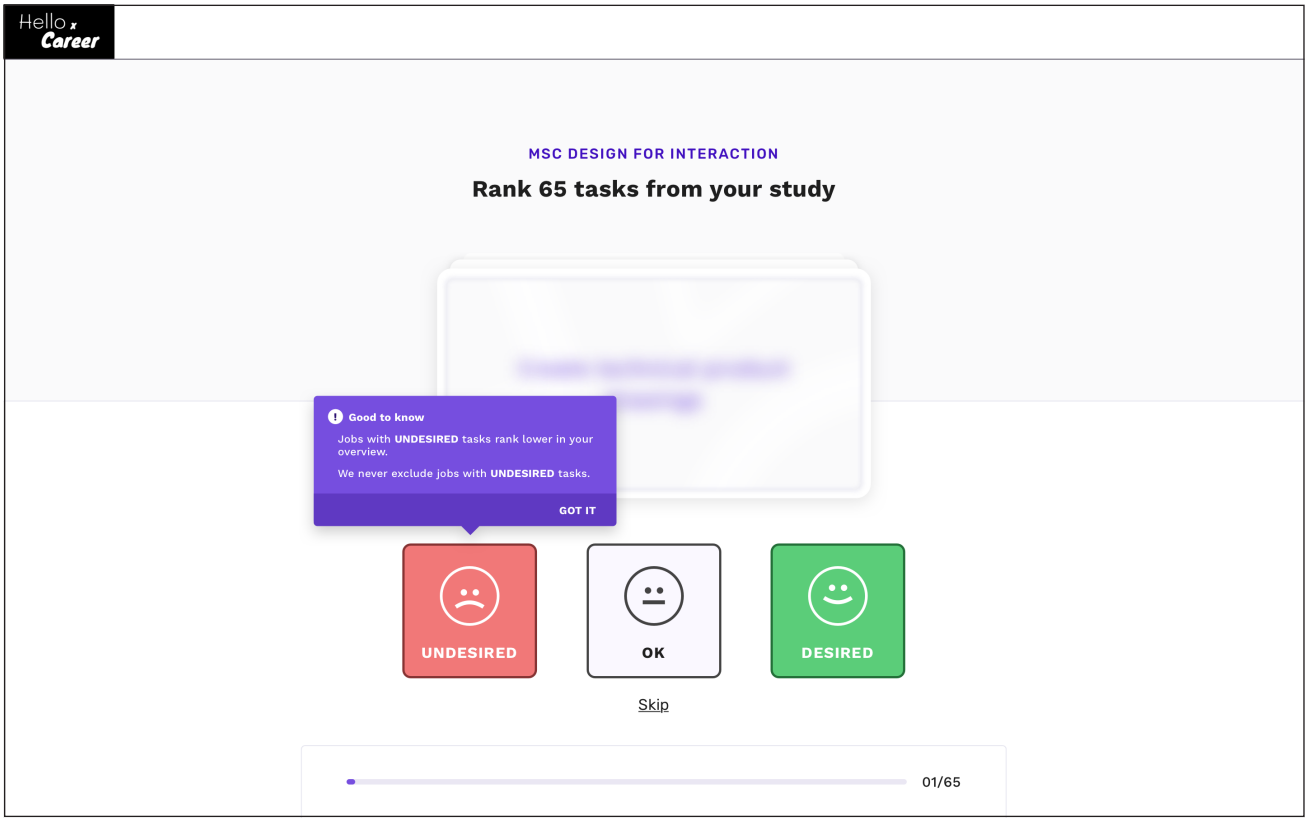


Figure 44: Second instruction card within component "Rank tasks from study" as a part of UI Design V2.0

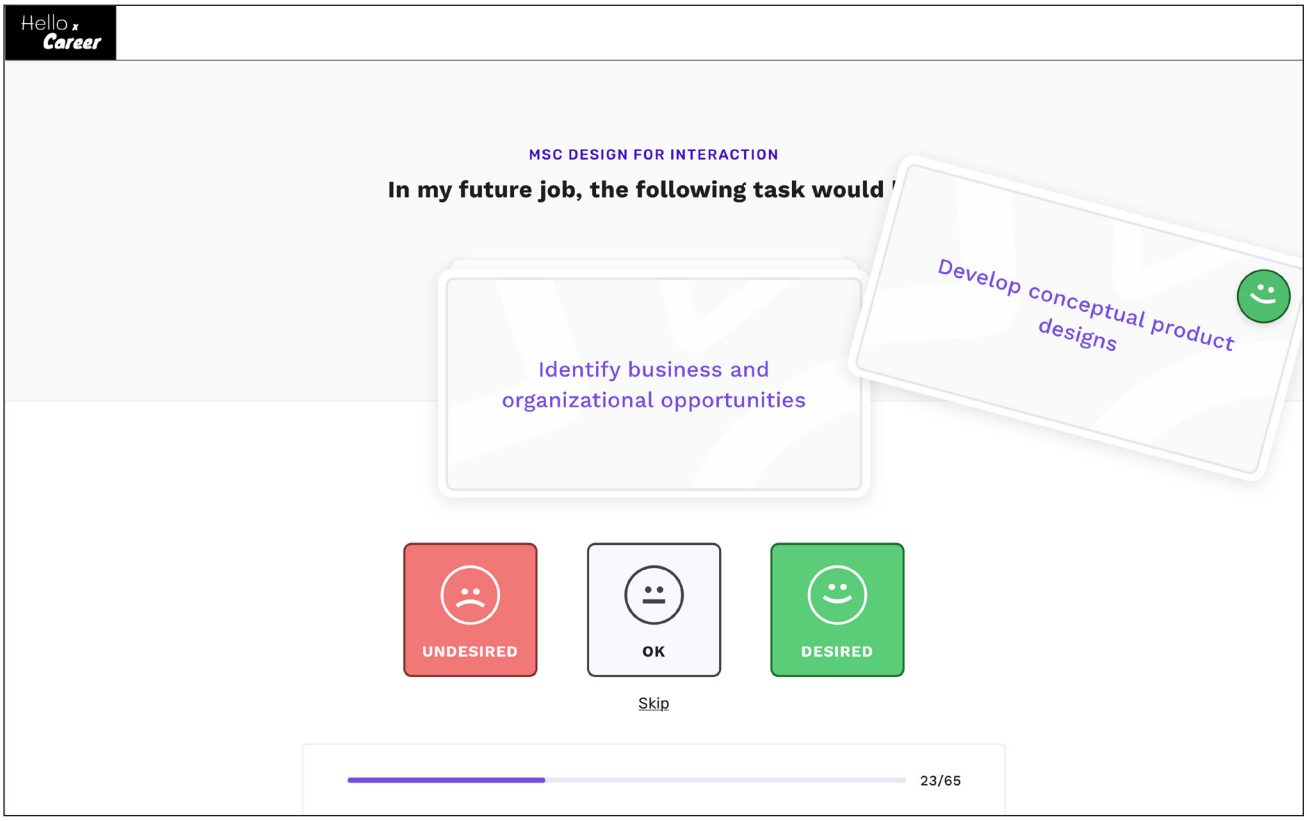


Figure 45: Ranking task as “Desired” within component “Rank tasks from study” as a part of UI Design V2.0

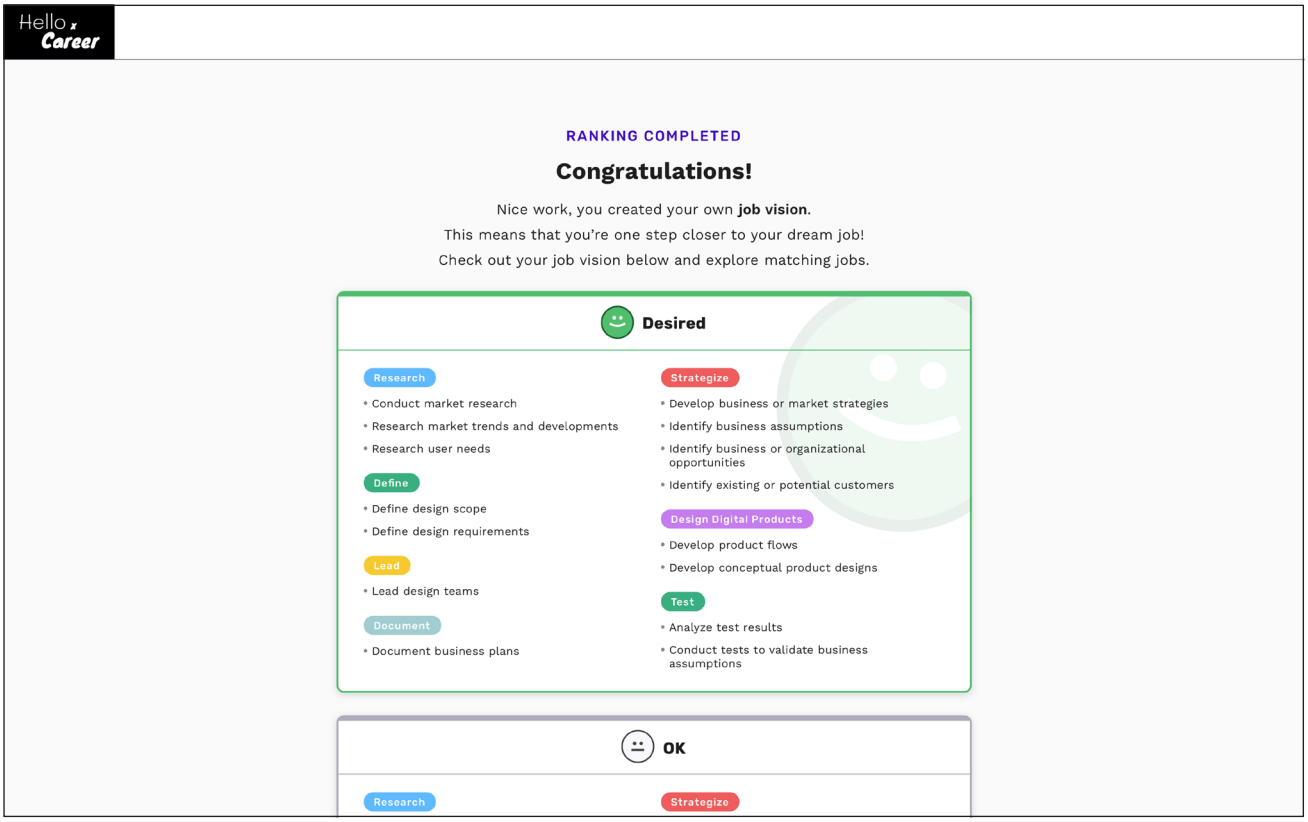


Figure 46: Job Vision overview that appears after ranking is completed within component “Rank tasks from study” as a part of UI Design V2.0

shows the progress of the ranking.

Once the process of ranking has been completed, the final screen that belongs to the component “Rank tasks from study” appears which can be seen in figure 46. Here, the user is congratulated and informed that the process of ranking has been completed. The text informs that, as a result from the ranking, the user has created a job vision. This is an important moment, because this is the first time the term “Job vision” is introduced. From this point on, the term is further used throughout the interface to refer to the categorization of tasks. The content in this screen is scrollable and captures for each level of preference which tasks have been categorized accordingly. When a users scrolls to the bottom, he can continue by clicking the button “Explore matching jobs” to see what jobs match best to his/her job vision.

12.7 Explore matching jobs to job vision

The first screen that belongs to the component “Explore matching jobs to job vision”, as seen in figure 47, shows up after a user has clicked on the button “Explore matching jobs” in the final screen of the “Rank tasks from study” component as seen in figure 46.

In terms of the structure, this screen is almost completely similar to the main screen of the component “Explore matching jobs to study tasks” as seen in figure 37. However, this time there are a few differences.

First of all, this screen has a header that consists out of text and a visual that tells the user he/she can now explore jobs. More importantly, the header informs the user that all the jobs presented within this screen are on the basis of the created job vision. The header also offers a clear entry point to search by specific tasks if desired. Once a user clicks on this button, a pop-up appears as can be seen in figure 48. This pop-up is similar to the one from the main screen in component “Explore matching job to study tasks”, but instead of

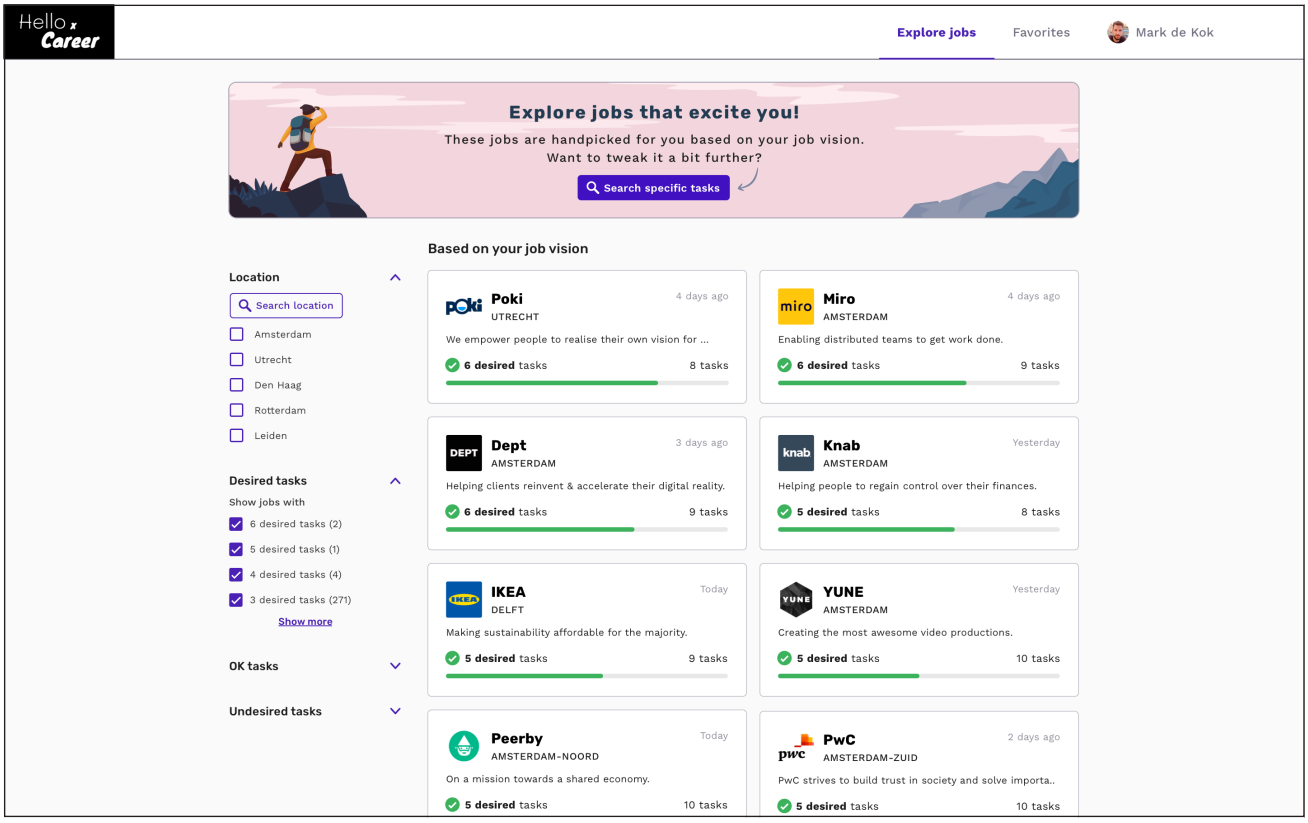


Figure 47: Main screen within component “Explore matching jobs to job vision” as a part of UI Design V2.0

showing “Tasks from study” as a first tab, the first tab shows the tasks according to the job vision.

Another difference can be found in the filter section where users are now able to filter on the basis of “Desired” / “OK” / “Undesired” tasks. Because it is assumed that the “OK” and “Undesired” filters are considered less interesting by users, they are folded to limit distraction.

The last difference compared to the main screen of the component “Explore matching jobs to study tasks” is that the bar charts have been assigned another colour as these now refer to the desired tasks, hence the green colour that corresponds to this category of preference.

12.8 Profile

The last component “Profile” can be accessed when a user clicks on his/her name in the header section. The screen that appears as a result is the profile screen with the first tab, “Job vision”, active and can be seen in figure 49. The content within this screen is scrollable and shows the job vision. Based on the usability test with the UI Design V1.0 where some participants did not seem to understand the concept of “a job vision”, the concept of a job vision has been clarified through text. Similar to the UI Design V1.0, there is the option to edit the job vision by clicking on the button “Edit”.

Once a user clicks on the tab “Public pitch”, he/she arrives at another screen which can be seen in figure 50. Again, this screen is scrollable, but in order to clarify the content of the screen in a proper way, the screen is presented in full “length”.

The screen “Public pitch” has been a result of the new design requirement that was formulated based on the latest insights that were

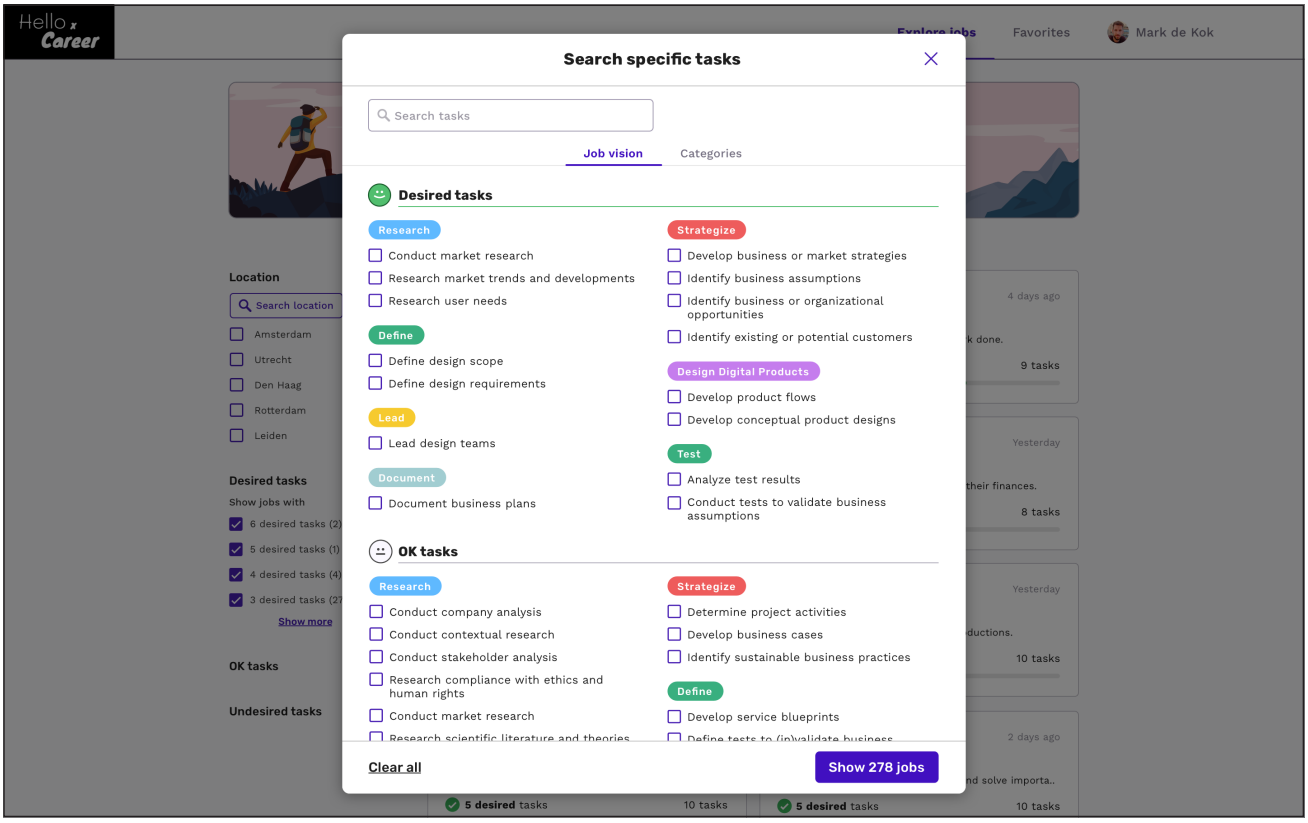


Figure 48: Pop-up that allows to search by specific tasks overlaying the main screen within component “Explore matching jobs to job vision” as a part of UI Design V2.0

gained from the job seekers in relation to the value of autonomy over self-representation (see section 12.9).

The top part of the content section under the tab “Public pitch” first clarifies the functionality by mentioning that this feature allows to “pitch” yourself to potential employers so that they can get in touch with you. At the same time, a user is able to choose if he/she wants to use this functionality by means of the On/Off switch button.

Whenever a user chooses to use this functionality and turns the switch to “On”, the adjacent section below appears. In this section, the user is able to “Compose the pitch”. Here, the user can determine what information he/she wants to share.

Whenever a user turns the switch next to “Show motivation of desired tasks” to “On”, the next adjacent section below appears. In this section, the user is able to motivate his/her desired tasks by a personal explanation. As a result, employers are now able to find the user on the basis of those desired tasks, while these tasks are accompanied by a personal motivation of the job seeker.

Last, the section below the part where users can formulate their motivation shows all desired tasks from the user’s job vision and clarifies which of those are a part of the pitch.

12.9 No further usability testing

Due to the time constraint, I have unfortunately not been able to put the UI Design V2.0 to the test. However, the video that I created of the UI Design V2.0 was shared with a few people and provoked many positive responses. People pointed out that the product seemed clear and intuitive in its use.

In the future, I hope to further iterate on this design with HelloCareer to learn how we can improve it.

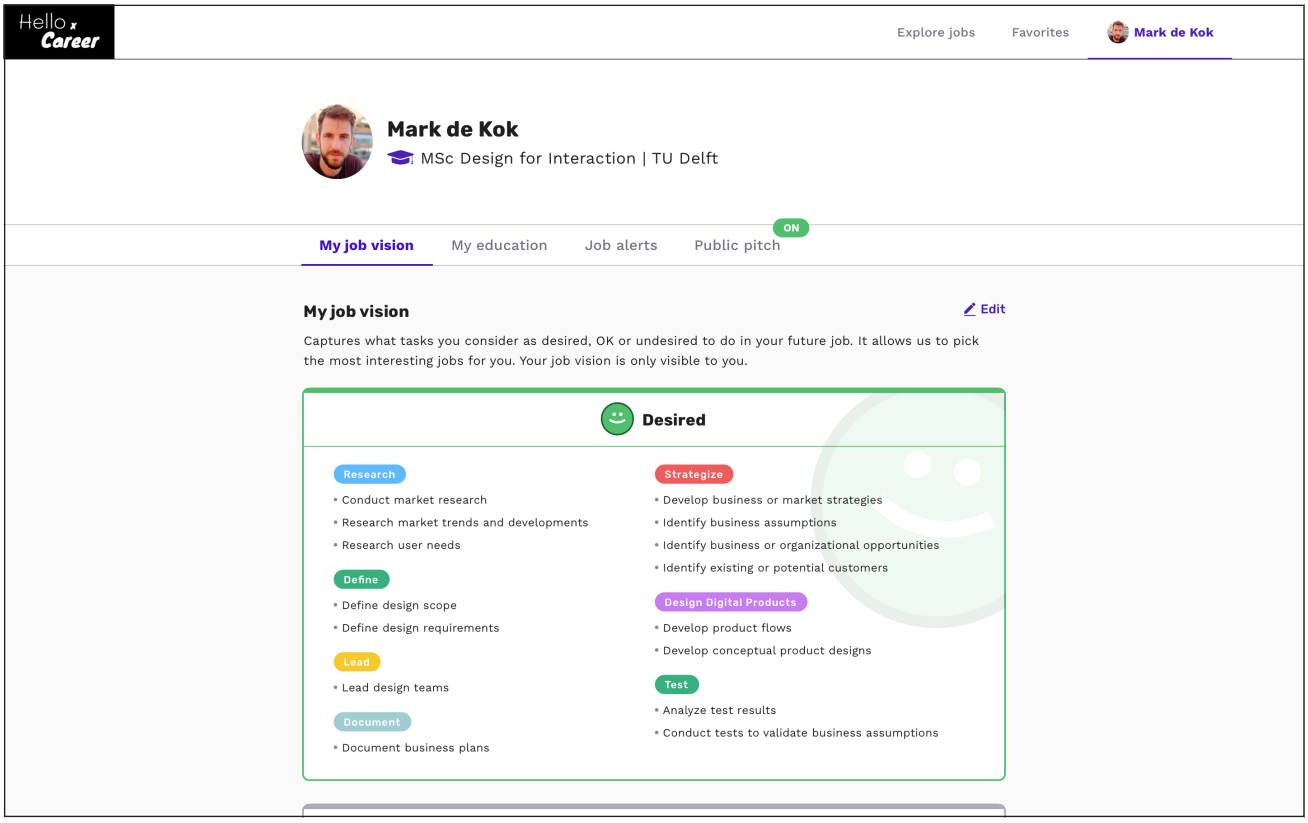


Figure 49: Profile screen with tab “Job vision” active within component “Profile” as a part of UI Design V2.0

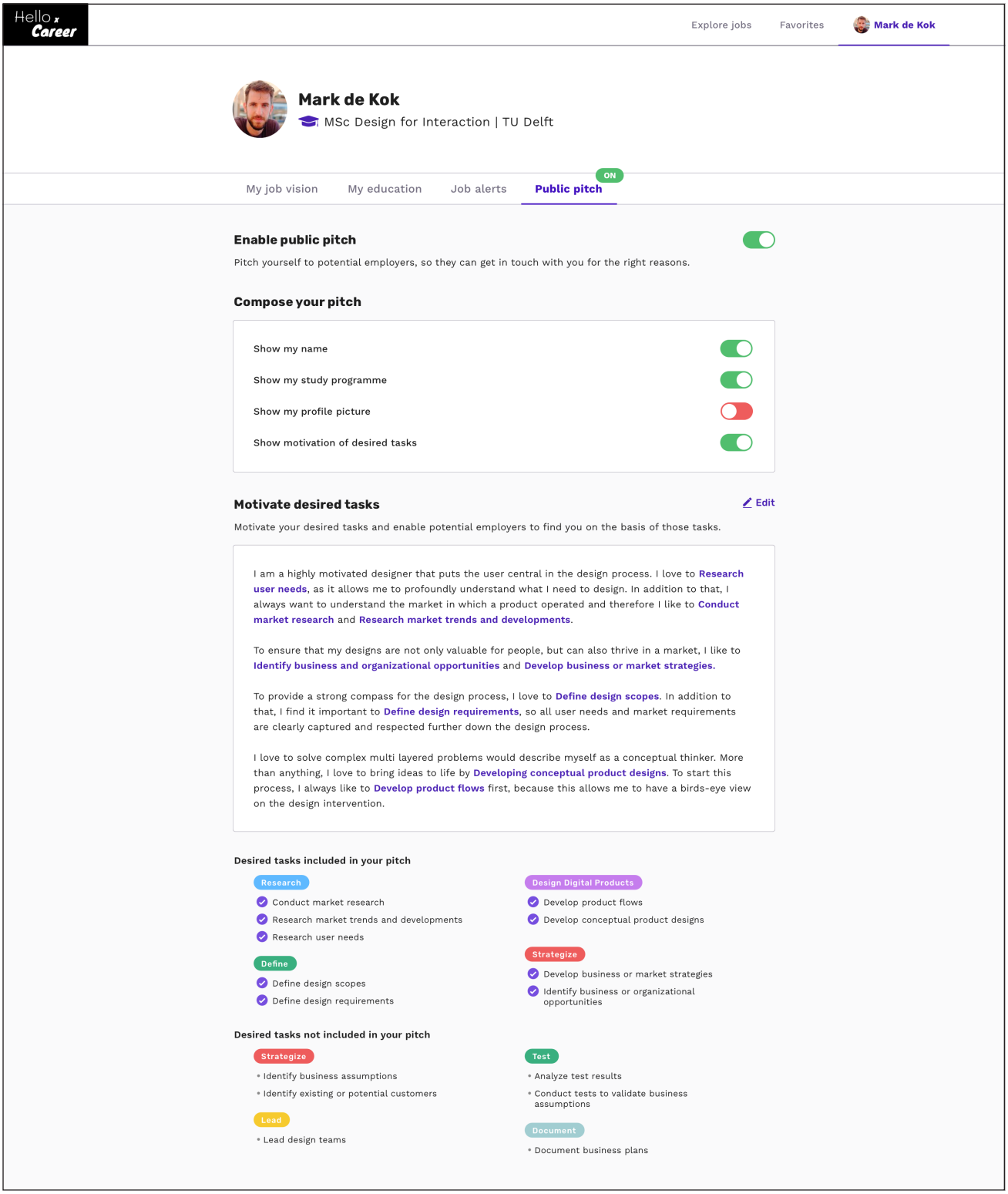


Figure 50: Profile screen with tab "Public pitch" active within component "Profile" as a part of UI Design V2.0

13

Final Reflection

This chapter describes the conclusions, limitations and my personal reflection based on the process that has been followed in this project and the end result that has been achieved.

13.1 Conclusions

This project started with an idea, namely to develop a task-based vacancy platform. Throughout this project, this idea was validated through intense involvement of different stakeholders and eventually developed into a product.

One of my ambitions during this project was to not only focus on the design and interaction of the platform, but to also validate the potential of the envisioned product in the context of an economic market. In other words, if the task-based vacancy platform would be able to solve a problem that people would be willing to pay for.

To do so, I wanted to get a deep understanding of the problems that the task-based vacancy platform was aimed to solve and not immediately start on the development of the envisioned product. Given this attitude, I chose the lean startup approach as a guiding methodology throughout this project. This approach allowed me to break down the envisioned product into the most risky assumptions and explore these individually.

I think that this approach has been very successful, because it provided a lot of structure for the process throughout this project. Within the first two weeks of this project, the envisioned product had been broken down into several risky assumptions. As each risky assumption represented a key component of the envisioned product, I did not have to bother myself with, what appeared to be, a very large undertaking at once, namely the validation of the envisioned product as a whole. Instead, I was able to direct my focus towards each of these components individually which helped me tremendously to think about effective methods to validate and learn about them. As a result, an array of different methods were applied to learn about these different risky assumptions: surveying, exercises, interviews, discussions and eventually, usability tests.

Another guiding factor throughout this project was the design for values approach. With this approach, the value of autonomy over self-representation was chosen as a core value in the development of the task-based vacancy platform. This was a first experience for me in applying a design for values approach.

One of the ways how I put the design for values approach into practice was through the concept of a value hierarchy where the value of autonomy over self-representation was deconstructed into norms and design

requirements. Ironically, I think that value hierarchy has some similarities to the lean startup approach in the sense that you decompose something abstract and "hard to grasp" into something small and "workable". Throughout this project I experienced this approach to be highly effective and useful. This is definitely something that I would want to continue applying in the future.

Although the act of constructing this value hierarchy probably did not have a major influence of the achieved end result, I think that it provided an excellent framework to challenge my thought process and make it more explicit. As a result, it helped to have some interesting discussions with other people. However, since it was a first time for me working with the value hierarchy, most of my time was spent on the creation of it and barely on its actual "usage", namely in supporting discussions with external stakeholders. Nevertheless, I do realize that it was, and still is, a learning process and that it takes practice to get better at it. I want to express my thanks to Evgeni Aizenberg who helped me a lot in this process and made me feel as if we were doing it together.

Overall, I found the design for values approach a very valuable experience as it helped me to realize more that we, as designers, should be extremely conscious about how our creations may or may not affect people. The design for values approach provided me a tool to cope with this. After all, "we" have the ability to impact people's lives at scale through our work and this comes with its responsibilities. Also, I am sure that my experience with the concept of the value hierarchy has contributed to my skill of "system thinking". One way or the other, this concept is definitely something that I will use again in the future.

In conclusion, I could not be more happy with how the project went and the achieved end result. I managed to survey 96 people from the target group, I did an exercise (the Canvas test) with 11 graduate job seekers, I gained in-depth feedback from 11 employers in two phases, I conducted a 90-min usability test with 5 graduate job seekers and developed - what appears to be - a viable product along the way with the potential to positively impact thousands of people's lives. I am very proud on the achieved end result and the learnings that were gained along the way, both professionally and personally.

From the experience of working with my client, Quincy Dalh, and the many joyful conversations that we had, I can happily share that we will be joining forces after this project and continue working on our mission to revolutionize the recruitment industry.

13.2 Limitations

In this project, the graduate job seekers have been considered as the primary stakeholder. The final design that has been presented has been primarily developed on the basis of the input of this stakeholder group. However, it should not be forgotten that, in reality, the employers as just as important, if not more since they would be the paying customers.

One of the limitations of this project is that the task-based vacancy platform has not been validated enough, as a solution, with the other primary stakeholder: the employers. The interviews with this stakeholder group did validate the assumption that they experience difficulties in finding interesting candidates for their entry level job positions. However, whether the task-based vacancy platform is a desirable solution for them has yet to be validated. Here, an obstacle could be that employers hire entry-level employers, because they think they match well to the company on a cultural/personal level and not because they are very skilled at particular tasks.

Another limitation is that we do not have a proper understanding how well the task-language applies to domains outside the scope of Industrial Design Engineering. This project

validated the potential of the task-based vacancy platform from the perspective of an IDE master graduate job seeker. Given the fact that the design discipline is very multidisciplinary in its nature, the task-language seemed to provide a lot of value, because of its ability to identify and distinguish many different types of tasks.

However, several employers pointed out that there are less multidisciplinary domains / professions than design, such as software development. They mentioned that when they hire a junior software developer, their primary concern relates more to the quality to which the candidates can execute certain tasks and not so much on whether the candidate can do a variety of different tasks. As mentioned earlier, the strength of the task language is that it can identify and distinguish many different types of tasks. However, the task-language does not seem like an effective way to communicate how well someone is able to do a certain task. Therefore, more research needs to be done to investigate how valuable the task-language is in the context of other domains and professions.

Last, another limitation is how I came to the list of IDE tasks. Even though I am an IDE student myself, it was still quite a time intensive exercise to compose to the list of IDE tasks. In addition, the list of IDE tasks presumably still has room for improvement as some tasks might be missing or some people might consider certain tasks not as a part of IDE. Even though HelloCareer aims to compose task-languages for study programmes in collaboration with students, graduates and universities, it might still take a considerable amount of time to do this in a proper way. At this point, a documented, methodological, approach on how to compose a task-language for a study programme is still missing.

13.3 Personal reflection

My passion for entrepreneurship and startups resulted in the desire to graduate for a startup. I chose for this graduation project at HelloCareer, because I believed in their vision. I am very grateful that my client, Quincy Dalh, took the leap by giving me the opportunity to join HelloCareer and to turn the vision into reality. What I enjoyed in particular was the fact that Quincy gave me all the freedom to explore and develop whatever I considered as important or necessary. This freedom and responsibility made me feel like the project owner and even more so, as a real entrepreneur. I must say that I love to wear this hat and that my experience during this graduation project reaffirmed my belief that the role of an entrepreneur is the one that suits me best.

Overall, I am very happy with the project's end result. I managed to transform an idea into a concrete and almost "production ready" product within 6 months. Along the way, I strengthened my tool-kit as a designer and entrepreneur.

One thing I particularly enjoyed about this project was the fact that, from the start, there was an envisioned product and a clear mission. Along the journey, this ensured I had (and kept) a clear intention and a clear goal to work towards. This provided a lot of (mental) support throughout the project.

This graduation project was a project where my knowledge and skills about design and entrepreneurship crossed roads and were put into practice together. This graduation project allowed me to demonstrate what I am capable of and now, my time at the TU Delft as a student has come to an end. As a result, I feel equipped to start my journey as a professional, something that I have looked forward to for a long time.

With this final note, I want to thank my supervisory team, Elisa Giaccardi, Evgeni Aizenberg and Alessandro Bozzon, for the support that they provided throughout this graduation project.

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Appendix

4. Validation Part 1: Survey

Survey questions

1. What is your sex?
- Male
- Female
- Other

2. What is your age?
- Under 18 years
- 18 - 20 years
- 23 - 28 years
- Older than 28 years

3. What is the level of your highest education?
- MBO (secondary vocational education)
- HBO (higher professional education)
- University Bachelors
- University Masters
- Other *[open]*

4. Name of study
[open]

5. Are you graduated?
- Yes
- Almost, in less than 3 months
- No

6. For how long are you searching for a job?
- 0 - 1 month
- 1 - 2 months
- 2 - 3 months
- 3 - 4 months
- 4 - 5 months
- 5 - 6 months
- 6 - 9 months
- Longer than 9 months

7. What things do you find important in your future job?
[open]

8. - 17. To decide how interesting a vacancy is, how important do you find:
[7 point Likert scale: Not at all - Very much]
- The location of the company
- The industry / sector of the company
- The products / services of the company
- The reputation of the company
- (My impression of) the company culture
- The size of the company
- The mission of the company
- The activities / tasks that I need to do
- The salary
- The secondary employment conditions (number of holidays, laptop, etc.)

18. How clear is it what jobs are a good fit for you?
[7 point Likert scale: Very unclear - Very Clear]

19. How much do you agree with the statement: "I know exactly what kind of job I'm looking for"
[7 point Likert scale: Very Disagree - Very Agree]

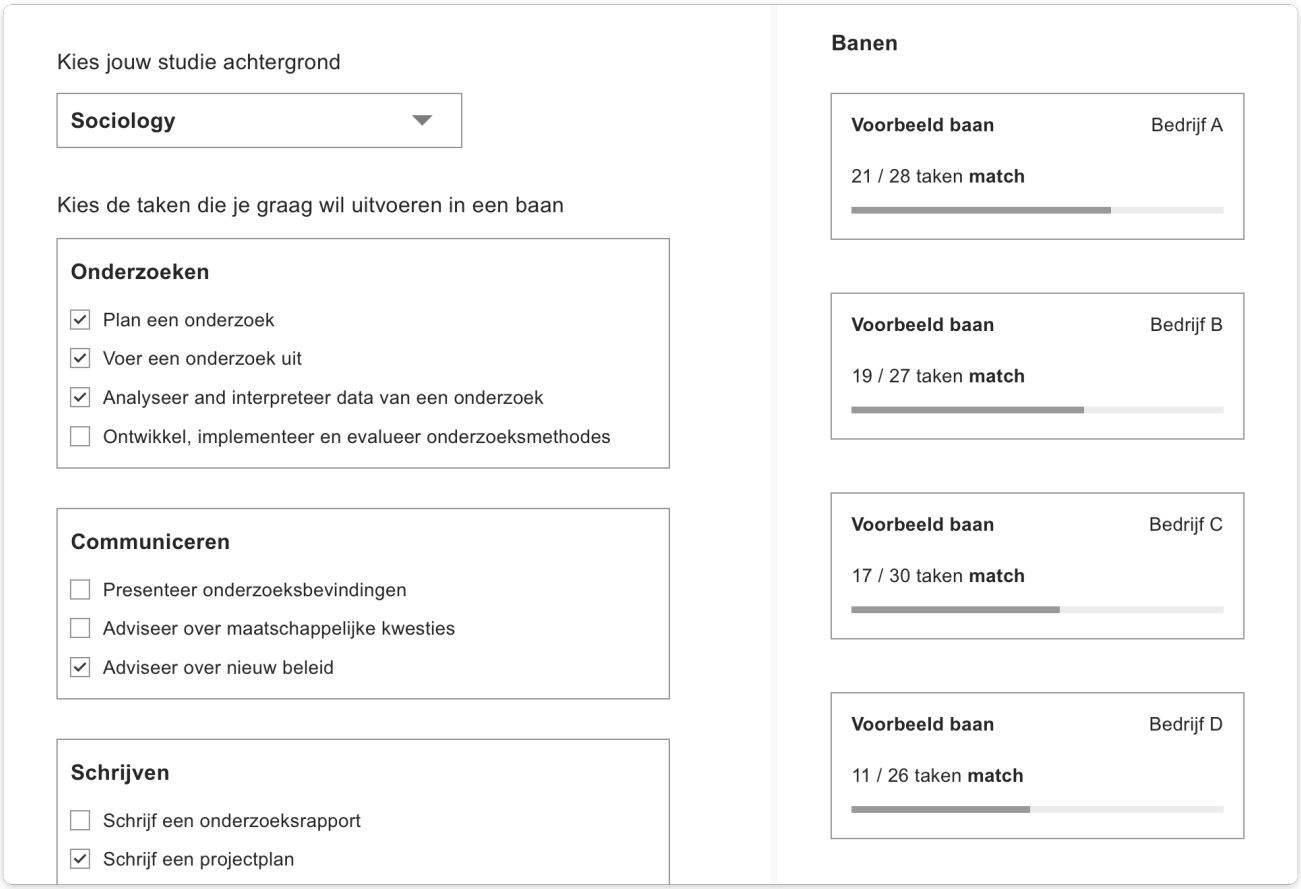
20. What is your biggest challenge in finding a job that is a good fit for you? (Can answer more than 1)
- I don't know what jobs I like and are within my field of studies
- I find it difficult to choose
- I find it difficult to understand what is expected from me
- There are little or no vacancies for what I'm looking for
- I am not invited for job interviews
- I am not invited for follow-ups on job interviews
- It feels like I've not chosen the right field of studies
- I don't have challenges

21. What could possibly help you overcoming these challenges?

[open]

22. A platform is being developed that allows you to search job vacancies based on activities that you like, relating to your field of studies (see example).

How valuable would this platform be for you?
[7 point Likert scale: Totally not valuable - Totally valuable]



23. What would you possibly miss in this platform?
[open]

24. If you'd to subscribe yourself as a member, please give us your email.
[open]

Question 20: Answers per Category

Social & Human Sciences (N=11)	
4	I don't know what jobs I like and are within my field of studies
4	I find it difficult to understand what is expected from me
3	There are little or no vacancies for what I'm looking for
2	I find it difficult to choose
	I am not invited for job interviews
	I don't have challenges
	It feels like I've not chosen the right field of studies
	Not speaking the language of the country I would like to work in
Engineering & Science (N=23)	
9	I don't know what jobs I like and are within my field of studies
9	I find it difficult to choose
6	There are little or no vacancies for what I'm looking for
3	I find it difficult to understand what is expected from me
2	I am not invited for job interviews
	It feels like I've not chosen the right field of studies
	I don't have challenges
	In architecture, first jobs tend to underpay

Accountancy & Economics (N=11)	
8	I find it difficult to choose
3	I don't know what jobs I like and are within my field of studies
3	I find it difficult to understand what is expected from me
	It feels like I've not chosen the right field of studies
Industrial Design (N=27)	
17	There are little or no vacancies for what I'm looking for
7	I don't know what jobs I like and are within my field of studies
7	I am not invited for job interviews
5	I find it difficult to understand what is expected from me
4	I find it difficult to choose
	Finding the balance between a job that 'perfectly fits' and a 70% fit
	Work experience is required for jobs that I like
	I don't have challenges
	Companies don't understand my type of study.
	Many interesting jobs ask for a couple of years ofrelevant working experience
	I am not invited for follow-ups on job interviews
	I find it difficult to get started
	I prefer personal contact to explore but that's not always possible.

Technology, Policy and Management (N=24)	
10	I don't know what jobs I like and are within my field of studies
9	I find it difficult to choose
8	I find it difficult to understand what is expected from me
5	I don't have challenges
3	Language barrier
3	I am not invited for job interviews
2	I am not invited for follow-ups on job interviews
2	There are little or no vacancies for what I'm looking for
	I don't know how to search for it (right keywords)
	It feels like I've not chosen the right field of studies

Questions 8 - 17, 18, 19, 22: Answers per Category

		Locatie	Industry	Products	Reputation	Cu
Social & Human Sciences		4,8	6	4,6	4,9	
Engineering & Science		4,7	6,1	6	5	
Accountancy & Economics		5,3	5,3	5,3	5,1	
Industrial Design		5	5,9	5,6	4,9	
Technology, Policy and Manager		4,8	5,3	5,3	5,3	
	Total average	4,9	5,7	5,5	5	
		Tasks	**Salary**	**Secondairy**		Cl
Social & Human Sciences		5,8	4,4	3,9		
Engineering & Science		6,1	5	4,7		
Accountancy & Economics		6,4	5,4	5,1		
Industrial Design		6,3	4,7	4,6		
Technology, Policy and Manager		6,1	5	5		
	Total average	6,1	4,9	4,7		

ulture	Size	Mission	
6	3,6	4,9	
6	3,1	5,2	
5,9	4,2	5	
6,2	4	5,5	
6	3,9	5,2	
6	3,7	5,2	

larity of jobs	Know exactly what job		Value platform
3,8	3,9		5,4
4	3,5		5,1
3,9	3,5		5,7
4,4	4,4		5,2
4,3	3,8		4,8
4,2	3,9		5,2

Appendix

5. Validation Part 2: “Canvas”

List of tasks IDE V1.0

Research
Research product usage
Research (societal) trends and developments
Research literature and existing theories

Conduct
Conduct competitor analysis
Conduct stakeholder analysis
Conduct market research
Conduct usability tests
Conduct ergonomics tests
Conduct interviews
Conduct observations
Conduct generative sessions
Conduct contextmapping studies
Conduct survey research
Conduct experiments to (in)validate design assumptions

Develop
Develop project plannings
Develop digital design concepts
Develop physical design concepts
Develop customer journeys
Develop service blueprints
Develop product flow charts
Develop possible future scenarios
Develop product ideas
Develop product visions
Develop Arduino software
Develop computer software
Develop product strategies
Develop product roadmaps
Develop customer value propositions
Develop business plans
Develop business cases
Develop brand guidelines
Develop visual style guides
Develop product launch strategies
Develop experiments to (in)validate design assumptions

Define
Define research questions
Define problem space
Define design goals
Define use cases
Define product requirements
Define production costs

Create
Create product wireframes
Create low-fidelity digital prototypes (Sketch, Illustrator, Adobe XD, Figma, Photoshop, Illustrator)
Create high-fidelity digital prototypes (Sketch, Illustrator, Adobe XD, Figma, Photoshop, Illustrator)
Create low-fidelity physical prototypes (paper, cardboard, plastic, wood, waste materials, etc.)
Create high-fidelity physical prototypes (3D printing, laser cutting, extruding, heating, milling, etc.)
Create hand sketches / drawings
Create technical product drawings
Create collages
Create videos (Adobe After Effects, Movie Maker, etc.)
Create posters (Illustrator, Indesign, Photoshop, Sketch)
Create user personas
Create graphic brand assets (logos, layouts)
Create 3D CAD models (AutoCAD, SolidWorks, Rhino, Keyshot)

Design
Design with materials
Design with shapes
Design with colors
Design with lighting
Design with electronic hardware
Design with smell
Design with sound

Finalize
Finalise digital products for production (pixel perfect)
Finalise physical products for production

Facilitate
Facilitate creative sessions

Teach
Teach design (thinking) to colleagues and others

Analyse
Analyse organisation's innovation challenges
Analyse qualitative data, interpret and report results
Analyse quantitative data, interpret and report results
Analyse usability expert reviews
Analyse (similar) design problems
Analyse ideation, interpret and report results

Communicate
Communicate work to stakeholders through oral presentations
Communicate work to colleagues through oral presentations
Communicate work through written reports
Communicate with customers

Consult
Consult clients with respect to design decisions

Gather
Gather feedback from colleagues about processes, approaches, methods and results

Maintain
Maintain "design" knowledge and keep up to date with new tools, methods, processes

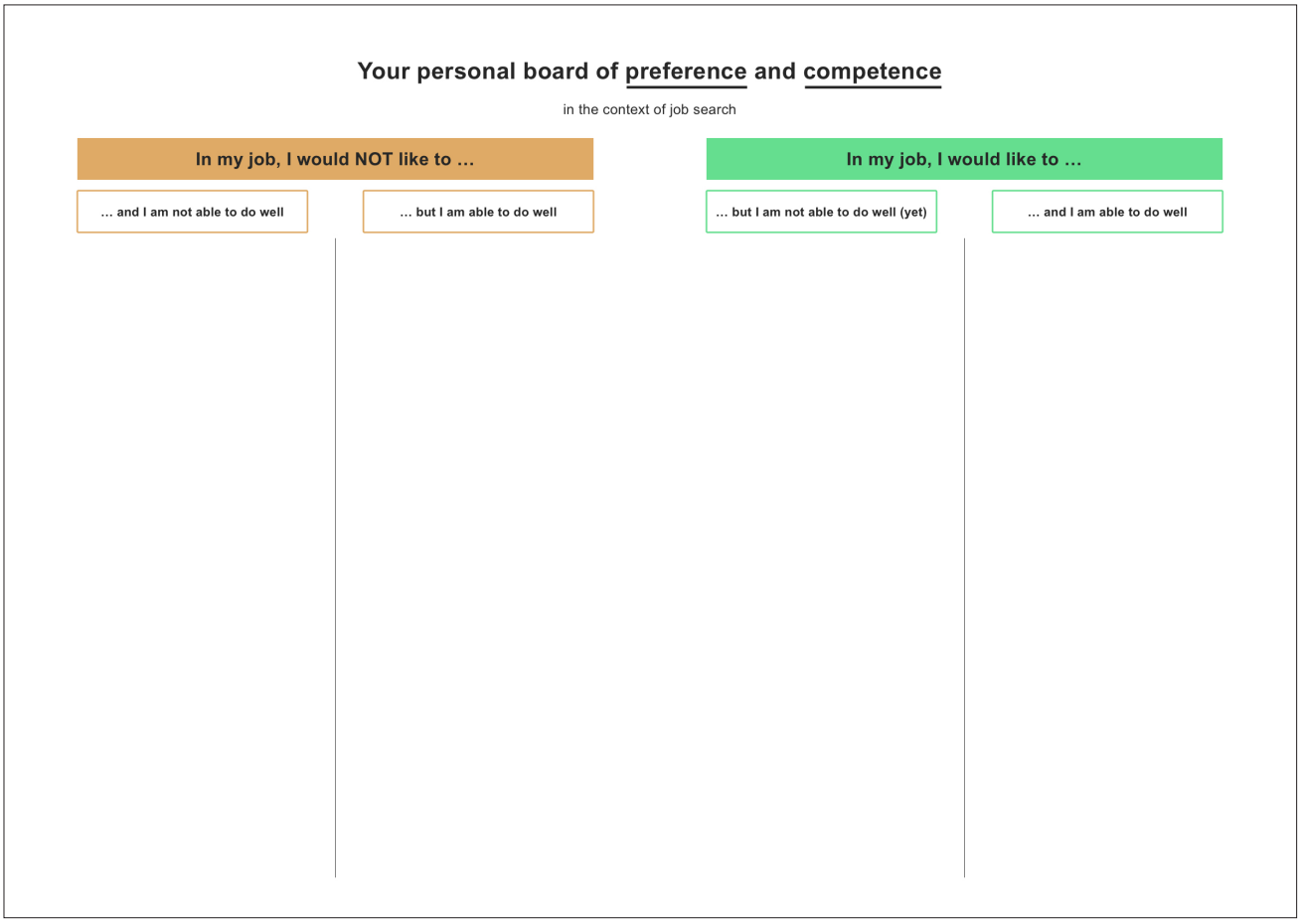
Manage
Manage and coordinate design activities
Manage partner relationships

Select
Select appropriate production methods
Select appropriate research methods
Select appropriate technology hardware
Select appropriate technology software

Lead
Lead client meetings
Lead designer teams
Lead cross-disciplinary teams
Lead organizational departments

Incorporate
Incorporate ethics and human rights into a project

Designed Canvas



This canvas was printed on an A0 sheet.

Post-Experiment Questions

1. How do you feel when you look at your personal board?

2. What do you think of the way in which the activities are defined?

3. In terms of your preferences and capabilities as a professional, do you feel accurately represented by your canvas?

4. Do you feel that some activities that you would like to have in your job are missing on your personal board?

5. Would you find it valuable to read job descriptions with these kind of "activity definitions"?

6. On a scale of 1-7, how interested would you be to find jobs whose tasks match the tasks you categorized under "Would like to do in my job"? Explain.

7. Would you prefer that only you would be able to explore jobs on the basis of your personal board (like a job board that you can filter) OR do you prefer that besides yourself, also companies are able to find you on the basis of your person-

al boards?
- Why / why not?

8. Is there anything you would like to add?

Appendix

6. Validation Part 3: Employers

Interview Guide

1. Participant
- Name
- Organization
- Role in organization

2. What is your role in hiring?
- Experience with hiring entry-level employees

3. What is the motivation to hire entry-level candidates?

4. Process of hiring
- How does a job position arise?
- Who are involved in this?
    - What are their roles?
- How do you make sure you reach the right candidates?

5. Do you receive a lot of applications?
- How many of those are interesting?
- How many of those lead to job interviews?
- When do you make someone an offer?

6. What challenges do you experience in the hiring process?

Showing canvas..
7. What do you think of this?

8. What do you think about using tasks to match candidates with your vacancies (task-based vacancy platform)?

9. Do you foresee any problems?

10. How would you prefer to use these tasks in your recruitment / hiring processes?

Motivation for hiring “fresh” academic graduates

Participant 1

“In a project you always need enough experience to keep everything moving. That means substantive experience and process experience. Also you always need to consider what tomorrow or the day after tomorrow will look like. You need to educate young people who can later have a more leading role within projects. Educating your own people is important, also because we kind of developed our own methodology over the years that you don’t see elsewhere.”

Participant 2

“I don’t find work experience the most important thing. If you have a starter, you have to invest more, so that’s not very handy. But on the other hand, he also costs less and that he learns it with us. Chance it very big that he will become a GameEye developer. If you have a more experienced developer and tell him something to do, he usually does it and usually it goes well, but he does it on his own way. The benefit of starters is that you can shape them.”

Participant 3

“Sometimes people with experience is nice, but especially with developers, it can also be nice when they don’t have a lot of experience yet, because they don’t have those hard dogma’s yet. Some people with experience have some dogma’s how things should go and that can be difficult with the rest of the team.”

Participant 4

“Well young people are the future of our organisation. You want to have diversity in the population. That also translates to different age categories. Recent graduates bring new insights.”

Participant 5

“It’s quite difficult to find good new people. We have the capability to educate people in house, so we prefer doing that so that people can learn our way of working. Also, when someone graduates within the company, you can easily onboard such a person in a very cheap and efficient way.”

Criteria for candidates

Participant 1

“If someone just comes from university, they have a lot of stuff to learn so you scout more on mentality than on experience. It’s about the right mentality to win, wanting to learn, daring to fail, not quitting too fast, and also being capable of doing stuff. A junior will become a medior in two years and senior in five years, so that growth perspective should be in there.”

“First we look if there’s a cultural match and if does someone look “fresh” out of his eyes. In the second round, we look deeper at someone capabilities and ambitions.”

“A job position is more about a responsibility and growth path that you can offer someone. I always ask candidates: what would you want to do here?, What do you want to learn? Then people don’t say “I want to map a customer journey” That’s a means to realize something..”

Participant 2

“Now we have a guy without experience, but he has talent. I find that much more interesting. Talent usually goes hand in hand with being motivated.”

“We look if someone has a good feeling for abstraction and not if someone has very hard skills. I don’t find people’s resume that important. In general, what’s a good indicator is the amount of repositories on GitHub that someone has created. If you started 50 projects, that shows enthusiasm.”

Participant 3

“For us, the coding skills aren’t necessarily the most important, but more the eagerness to learn. We have certain languages that we work in, but the candidate doesn’t necessarily need to have a lot of knowledge in that. People should be flexible, have their own opinion, can work together well with the rest of the team. Collaboration is essential, just like communication. Programmeming skills are not the most important, people can learn that.”

Participant 4

"*We look for people that can think big, people who can create. People with a growth mindset who do not only go in known territories. It's mainly a mindset and the level of intelligence, curiosity in technology and our customers. That's mainly paid attention to. We will not look at study results. We also see that, but it's not a selection criteria.*"

Participant 5

"*I try to look at enthusiasm in the profession. However, it's very difficult to estimate. Also the eagerness to learn. How fast someone is able to pick up stuff, that's so hard to judge from a conversation. I don't really look at what someone is capable of, actually not at all, but more what someone enjoys doing. Also how someone fits in a company culture.*"

When new candidates are hired

Participant 1

"*There's usually a shortage of people or from a project perspective or pipeline perspective. We closely monitor what projects are coming up and what that implicates for the occupancy of the team. If we then see that we have a shortage of people, then we look if that's structural shortage or a incidental shortage. If it's a incidental shortage, we look if a freelancer can pick up this work. If it's a structural shortage, we will open up new positions, because we always prefer to work with our own people.*"

Participant 2

"*We are looking constantly for new people, because we have a lot to do and have big ambitions to grow. The work is not the problem, there's more than enough.*"

Participant 3

"*Two of our previous workers left, so they need to be replaced. Ideally they would be replaced 1:1, but that's difficult, because these people have been in the team for a long time and knew everything. So that's almost impossible to replace. We work with fairly difficult infrastructures. Right now we're looking for inexperienced people that can start with easy tasks and grow towards the core of the programmeming team.*"

Participant 4

"*Every year in The Netherlands, we're looking for around 15 new candidates for our graduate programmes. We got recruiters and talent sources who are constantly in touch with universities and campuses around the world. They organise meet and greets and invite people from there in our organisation.*"

Participant 5

"*We started small and we've grown ever since. We were lucky to have good people at starting positions. Personally I don't like hierarchy, but new people enter at the bottom. Those are junior positions. When we hire is based on the upcoming projects, so what's in the sales pipeline. Also a certain control factor: do we want to grow fast or not. Right now, we're not, so we're more selective when it comes to hiring.*"

Challenges in the hiring process

Participant 1

"We try to describe a role, but this is always a starting point. There's never someone who is exactly that role. It entails the responsibilities on a high level."

"If you want to play the champions league, there are only a few who are capable enough. Therefore, we need to find it in the top 5 percent of humanity."

"We almost never have to put a vacancy online. Usually people know someone or we receive open applications. There's a constant flow of people who are interested, so organically a lot comes in. Via our trainee programme we receive hundreds of applications."

"It's very hard to see up front how someone will perform. When you talk about this profession, people seem to understand each other quickly because we have been raised with the same vocabulary and if you use that vocabulary, you think that you mean the same, but in reality that's not always the case."

Participant 2

"We mostly hire developers, those are hard to find. And then we're also looking for very specific developers. So we speak to a lot of developers that we don't hire."
"We tried all kinds of channels, also recruiters, just for the sake of trying. But the only thing that really works for us is marketing. We kind of have to show that it's fun to work at our company. We have to put that out and then the people will come. One guy found us, because of our press release relating to the investment. I believe that's how you find the right people, not by placing a vacancy. I don't really believe that this works. Not in this market."

"We tried to write our vacancies in a way that people would reply. That doesn't have to do much with the actual work."

Participant 3

"Yes, it's difficult to capture those more abstract criteria in our vacancies. We didn't do that yet. It's the reason why we haven't finished that yet. We have not been able to capture that in words yet."

"There are plenty of candidates, but reaching the right ones is a challenge. And that the process goes fast. The process of thinking who you need. Before you've come to a conclusion with the team, that costs time.. The process of actual translation to a good vacancy text. And then the next stage of actually finding the right candidates, that's a challenge. Time is the most challenging part. Especially when people leave the company, you prefer to have new team members the next day."

Participant 4

"The amount of incoming applications for our graduate programmes is gigantic."

Participant 5

"We are quite known amongst students, because we have relationships with some educational institutions. Therefore, we have a lot of applications coming in."

"We also focus on the aspect what it's like to work at Lifely. You notice that in the stories that you read in the vacancies. It resonates with young people and students."

"To judge how "spongy" someone is, is the most difficult thing. Now we've also evaluated code from challenges, but even with that it so hard to judge if someone followed a tutorial or when someone really understands the challenge. Also, you can look at someone's LinkedIn profile or study background, but usually that doesn't say much about a person. Especially with junior's that is so important to know, because you can not evaluate someone based on expertise because the person does not have the experience yet."

Response to the canvas

Participant 1

"Without having seen the example. The name of the study usually says not much. For me it's already a while ago that I've studied myself, so I don't understand the studies anymore.. So if you can see more on a skill level what someone is capable of, I get a good feeling of that."

"This gives a good indication of someone's ambition."

"The information is there, but it's not well presented. I would cluster things. That would make it more easy to assess whether a person wants to pursue a lead role or has the ambition to go more towards the research/analysis/strategic direction. Don't mistake yourself in the little time we got to assess 20 resumes. The faster you can do that, the better."

"Here someone says he is able to analyse quantitative data and draw conclusions from that, but doesn't like it. What I think then is A, can someone really do that? And B, the way in which this activity has been presented and by whom has a big impact if you like it or not. Perhaps in a whole other context, someone would like to do that activity in her job."

"I see it as a risk how good someone is able to self-assess without shortcoming oneself. For example, I wouldn't invite this person, because he says he is able to facilitate creative sessions, but that he doesn't want to do it in his job."

"If someone says he can't make service blueprints and doesn't want to learn it, I would not invite this person for a interview as a service designer."

Participant 2

"I think it's an interesting approach, because it can say a lot about someone. Especially this column (not able but would like to do). If someone says he can't do Git, you must have some balls. But if you say you want to learn that, then I think yeah let's go. That would be no problem for me. So especially this column I find interesting. It also reflects a certain kind of honesty. That can reflect someone's personality in a way. That I find very interesting."

"My first critique is whether those competences are complete. It can happen that someone who applies has a competence that doesn't matter at all. The list of competences is infinite. With that, it's not perfect, but I think it can still be useful."

"I can imagine that you should be careful when job applicants share the tasks they would not like to do in their jobs with potential employers. This could backfire."

Participant 3

"I think this would be a fun way to do this. Think it's very specific to an industry. It's very useful for an employer to know what someone's ambitions are, where he want to grow towards and what someone is capable of. It's always the question how much of that kind of work can be done, but it could be a tool to have a better discussion. It allows you to ask questions about the things someone thinks he is good at. Then you can ask where they learned that and if they can mention examples. At the same time you can have the discussion about things that can be done during work or what is expected."

"I also studied industrial design at the TU Delft and I can imagine that for Industrial Designers it challenging to express what you can. Everyone I know has ended up in different kind of jobs. Industrial Designers kind of end up everywhere."

"I think this kind of information is very specific to an industry. Also the level of abstraction: from very small tasks to big ones. From very specific things, coding languages, to more soft skills. Finding a good framing for that, is usually the most challenging. Managing to get 80 things on the same conceptual level. That it's not to detailed and not too broad. And doing that for every industry, I think that's a big challenge."

Participant 4

"It can be very interesting to consider this as people's personal job mood-board."

"I think it's interesting. This could align well with our business philosophy, because in job interviews, we focus on people's interests and ambitions and not so much on what they can't do. We do not only dot that for the graduate positions, but for all positions. That's a big topic that has kept our business leaders busy over the last years. "

"If I would receive this as a profile, I would have to take closer look.. What am I looking at?"

"From a candidate perspective, aren't you also screening out on opportunities when you explicitly mention what people wouldn't like to do in their jobs? In a job, there are always things you don't like doing. That's also in my job, but I love my job. I wouldn't want to do anything else."

Participant 5

"I find it interesting. It gives a lot of information about what someone thinks, also the part I was talking about: what someone finds interesting and fun to do."

"I'm scanning through what's in there. I can imagine there are a lot of different kind of tasks. My question is: is this also prioritized from top to bottom? That I would find very interesting, because then you can focus even more on the top layer. When I see these kinds of lists, I interpret the top layer as the most important one. I find the idea pretty good. Also the things on the left side (what I wouldn't like to do in my job) are also very relevant to understand where people don't have the focus or don't want to work. I find it very interesting."

Explaining the task-based vacancy platform

Participant 1

"I don't think that job matching on the basis of these tasks could work, because it's already a pain to write a job. In that case I would have to take specific criteria of an external platform into account to write down what I want, I will never do that."

"I've experienced that creating vacancies in larger organizations is a worthless process. There's no time and knowledge. You're not going to solve that by asking the question on a level deeper. Then you'll get big glass eyes who think wow this is complicated "do I have to select requirements on a industry level knowledge, I have no clue". I don't think you solve it that way. Properly understanding how such a vacancy is created, is very important. Through whose fingers does it go. That's essential to understand where the solution can be."

Participant 2

"I would not have a problem with that. But here we don't do vacancies anymore, because they don't work for us. We tried to write our vacancies in a way that people would reply. That doesn't have to do much with the actual work."

Participant 4

"This could work for us in composing job descriptions, because our recruiters have conversations with hiring managers about what they're looking for in a profile. What they think they can further develop and what competencies they already have enough of."

"I would not like that the red things exclude jobs for someone."

Participant 5

"I would personally prefer to use it as a tool to get to know a job candidate better, rather than a job matchmaking platform. In that case I would be dependent on the candidates in your database. That doesn't mean there can be a best of both worlds. That the platform can suggest and facilitate, but that I can also invite people myself and ask them to fill it out."

"I also have a product development background and to me it feels like this would be of most value when I can use this framework to get to know someone's ambitions better. I question the added value of the part where you do candidate matching. Then the quality should be very good. And in general, the word matching is used a lot, but in task it's very hard to realise."

"Now I have a vacancy for a front-end developer, so I could put in a lot of tasks that have to do with that position, but I can also throw in some tasks that tell something about potential grow paths. That is very interesting. When someone says he wants to grow in a certain direction, but maybe that's not relevant within the company. Then I can better decide if someone is a good fit for us."

"I suggest you to randomize the order in which the tasks are presented in the tool to the candidates when they go through all the tasks. This can enable people to select tasks from categories that initially didn't consider as interesting, but now they do. That's very interesting."

Other suggestions for preferred usage

Participant 1

"I believe that when you can scrape my vacancy text, you should be able to translate my words to these kind of terms. For example, I don't use the word experience, but more UX. There are a lot of words which are close, but not the same."

"Let's say I have an open position for a UX/Visual designer and I get 10 applications. I would like you to pre-identify important criteria when it comes to such a position. Then I want to present my candidates a tool where they can assess themselves on a scale on the basis of those criteria, for example on hand sketching, copy-writing, doing research, wire-framing. Then I want to feed those self assessments into a system where I determine the importance of each criteria on the basis of what I'm looking for and what I mean with that. As a result, the system can prioritize the most relevant candidates. It is very important to me that I'm in control and not the system."

Participant 2

"Why didn't you put the soft skills in here? That's the first thing I want to know about someone. When you work in a team, that's so important. I think generally that people find that more and more important. Especially for developers, soft skills are a things. I would find that an improvement as an addition to your canvas."

Participant 4

"I think it should communicate a scale, for example 1-5, on how much people want to do certain things in their job. And that you get an overview of vacancies and can see that a job is 65 % in your job you would like to do. And to see what items are in there. I think it adds something to getting that clear picture."

Participant 5

"I do not necessarily see the biggest value in using these tasks to shape our vacancies, but more in getting to know the person who's in front of you. I think there's a lot of value in that. I imagine a digital platform that could do that in which we can make a set of possible tasks that you can have when you have a certain position. Or we would like to group a set of tasks cross-function, without mentioning a specific function profile. That you let someone free by asking what they would like to do from all the tasks."

Appendix
7. Vadliation part 4: Prototyping with Employers

Tasks: *Industrial Design*

Research

- Conduct company analysis.
- Conduct competitor analysis.
- Conduct contextual research.
- Conduct cultural research.
- Conduct market research.
- Conduct stakeholder analysis.
- Research environmental impact of product development activities.
- Research market trends and developments.
- Research compliance with ethics and human rights.
- Research compliance with regulations and standards.
- Research scientific literature and theories.
- Research user needs.

Design Physical

- Create 3D CAD product renders.
- Create presentation visuals.
- Create technical product drawings.
- Determine manufacturing processes.
- Develop 3D CAD models.
- Develop conceptual product designs.
- Develop final product designs.

Plan

- Plan projects.
- Plan project activities.
- Plan production procedures or sequences.

Collaborate

- Collaborate in multidisciplinary teams.
- Collaborate with scientists.
- Collaborate with experts.
- Collaborate with third parties.
- Collaborate with technical specialists.

Engineering [TU Delft]

Strategize

etermine project activities.
evelop business cases.
evelop business or market strategies.
evelop financial plans.
entify business assumptions.
entify business or organizational opportunities.
entify new applications for existing technologies.
entify existing or potential customers.
entify sustainable business practices.

Design Digital

reate presentation visuals.
reate motion designs.
evelop process flows.
evelop conceptual product designs.
evelop final product designs.
evelop visual guidelines.

Test

nalyze test results.
repare and conduct physical property tests.
repare and conduct product aesthetics tests.
repare and conduct product performance tests.
repare and conduct product safety tests.
repare and conduct product usability tests.
repare and conduct tests to validate business assumptions.

Communicate

onsult clients.
etermine project needs with clients.
resent professional knowledge to others.
resent project progress to others.
resent work to clients for approval.

Define

- Define design requirements.
- Define design scope.
- Define product pricing.
- Develop service blueprints.
- Define technical product requirements.
- Define tests to (in)validate business assumptions.
- Define use cases.
- Estimate costs of products, services, or materials.

Prototype Digital

- Develop computer software.
- Build non-interactive prototypes.
- Build interactive prototypes.

Prototype Physical

- Build electronical hardware circuits or components.
- Build high-fidelity physical prototypes.
- Build low-fidelity physical prototypes.

Lead

- Lead design teams.
- Lead production activities.
- Facilitate creative sessions.
- Manage stakeholders.

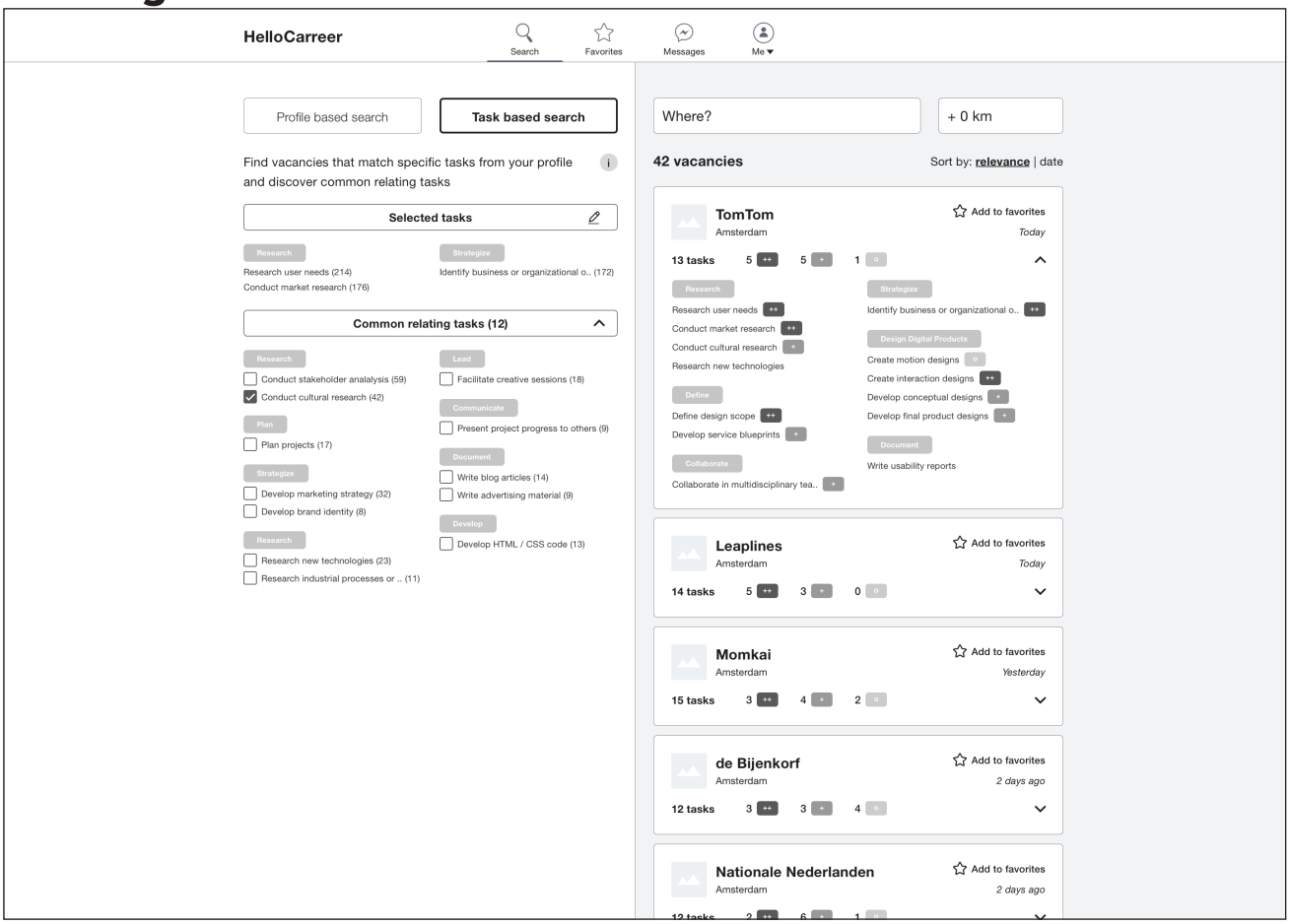
Document

- Document test results.
- Document business plans.
- Write project reports.
- Write proposals for current or prospective customers.

Appendix

10. UI Design V1.0

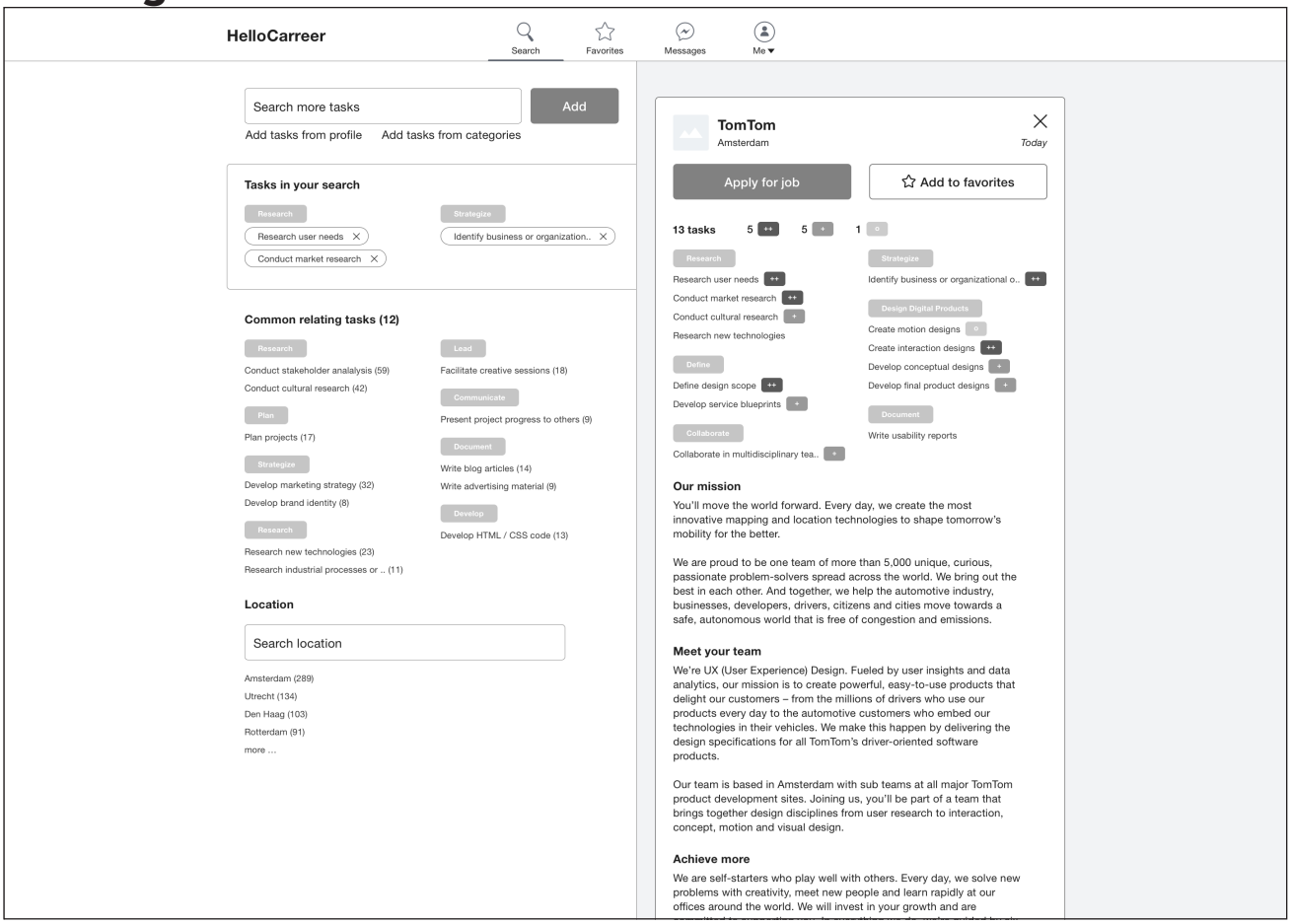
UI Design V0.1



Point for improvement based on the informal usability testing

- **The meaning of the main tabs “Profile based search” and “Task based search” was not understood.** Here, “Profile based search” was meant to only show vacancies that match best to ones’ profile, thus without an “active” search functionality. The tab “Task based search” was meant to facilitate searching for vacancies on the basis of individual tasks.
- **It was unclear which tasks were exactly part of a search query.** The design of this screen enables users to select specific tasks from their profile, see “Selected tasks”, and allows to enrich a search query by adding so called “Common relating tasks”. These common relating tasks are the tasks that commonly occur amongst the vacancies that match to the Selected tasks. However, once a particular task from the list of “Common relating tasks was selected, it did not show up under “Selected tasks”. This made it confusing for users to understand what tasks were a part of their search query, particularly because of the misleading title “Selected tasks”.
- **The option to enter a location and filter on a specific distance was preferred to be positioned in the left column.** People mentioned that the left side of the screen felt more as the input area and the right side more as the output area. Therefore, it was suggested to position the location filter in the left area of the screen.

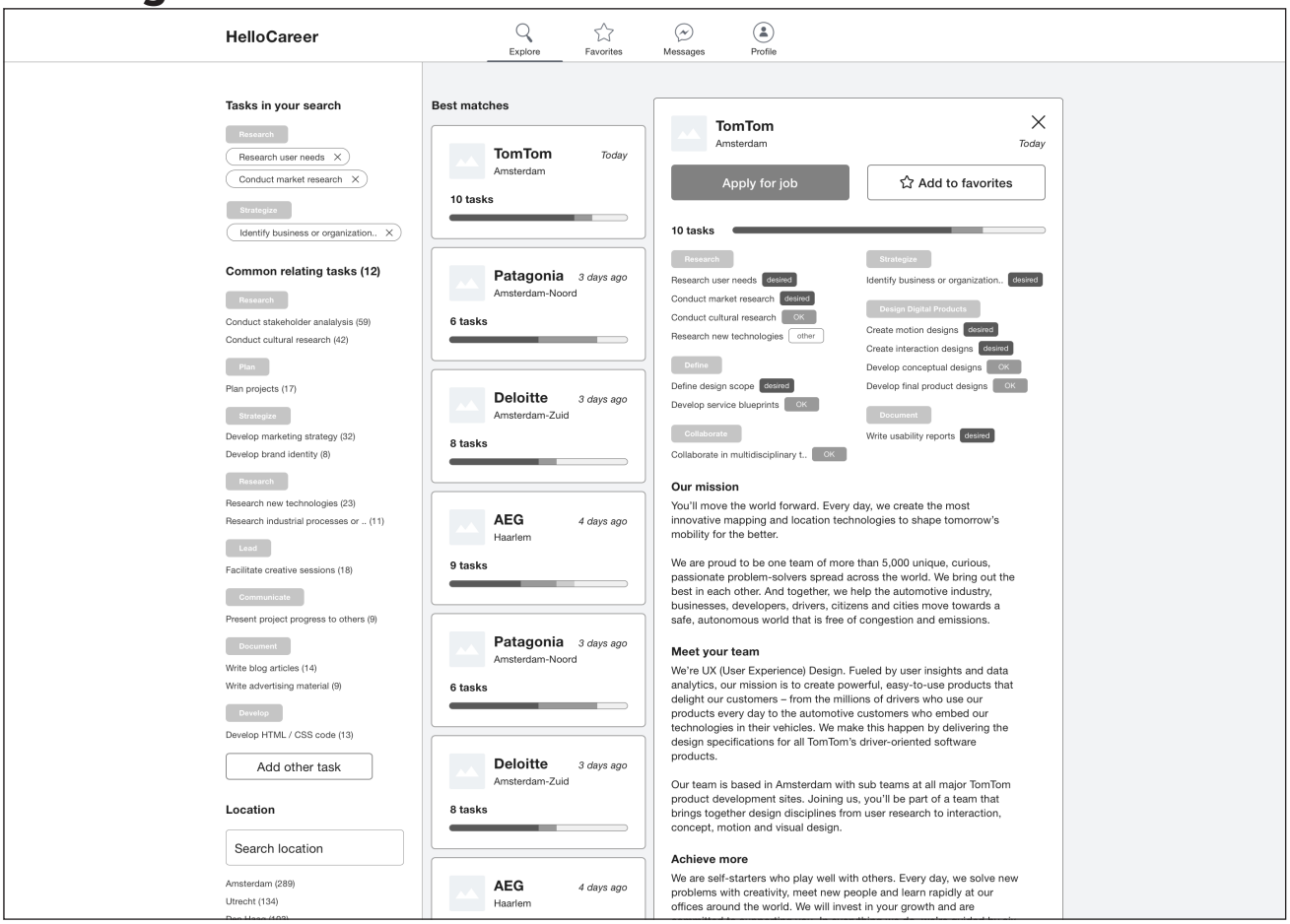
UI Design V0.2



Point for improvement based on the informal usability testing

- **The input side of the screen (left side) took up too much space.** Some people mentioned that the main purpose of this screen is to explore vacancies and that therefore, this should be given the most importance in terms of space occupation. However, to them it felt that the filters were given just as much importance because the left and right side of the screen occupied a similar space. It was suggested to make the "filter column" more narrow in its width.
- **The list of vacancies disappeared when clicking on one of them.** Some people mentioned that they did not want the list of vacancies to disappear when clicking on one of them. They said that they wanted to be able to go back and forward between vacancies and their detailed descriptions. Therefore, it was suggested to add an additional column with all the vacancies presented in a list form and a separate column for more detailed information about vacancies that are selected.

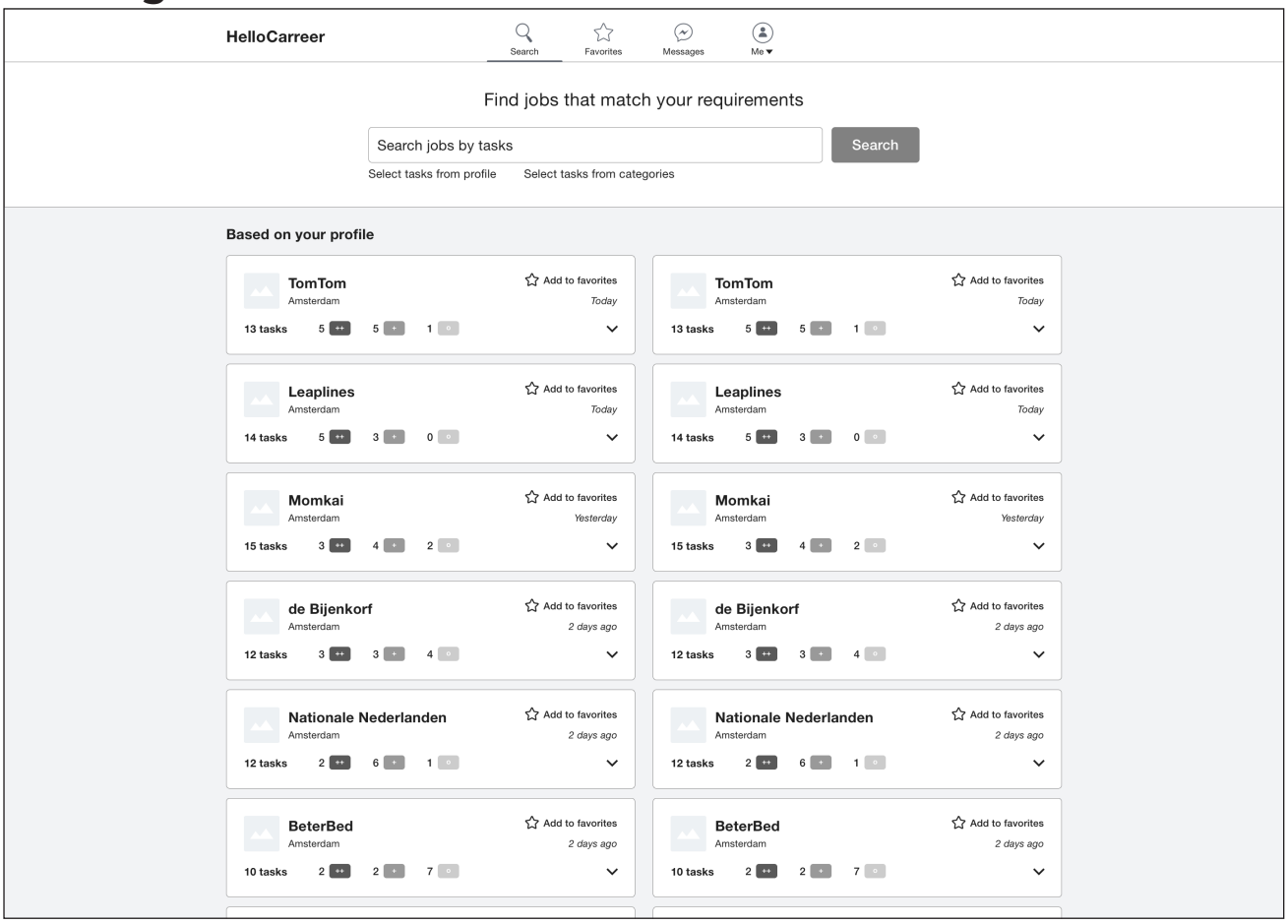
UI Design V0.3



Point for improvement based on the informal usability testing

- **The appearance felt too similar to existing vacancy platforms.** Some people mentioned that they did not find the layout and appearance very inspiring. They mentioned it felt too similar to existing vacancy platforms.

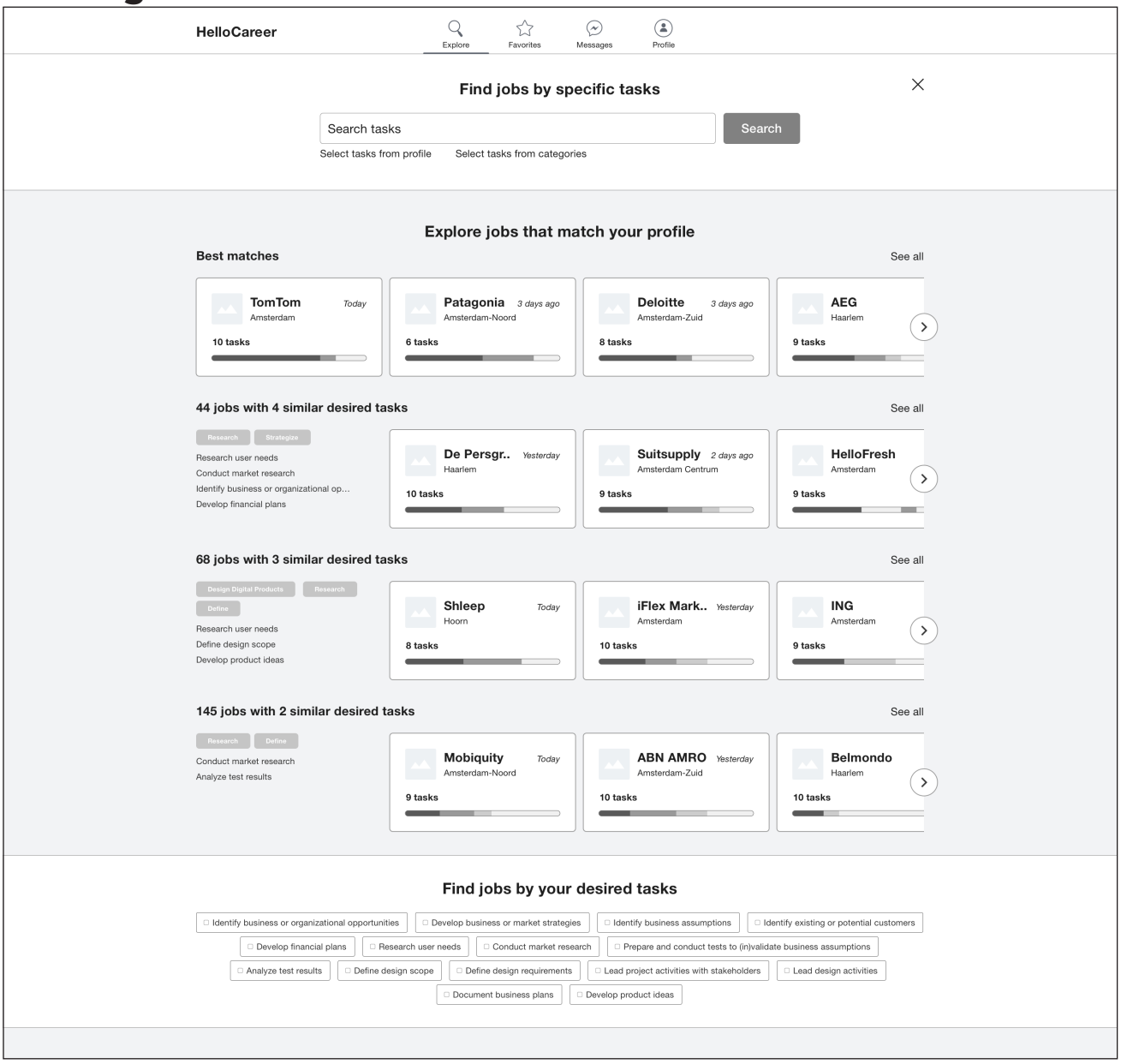
UI Design V0.4



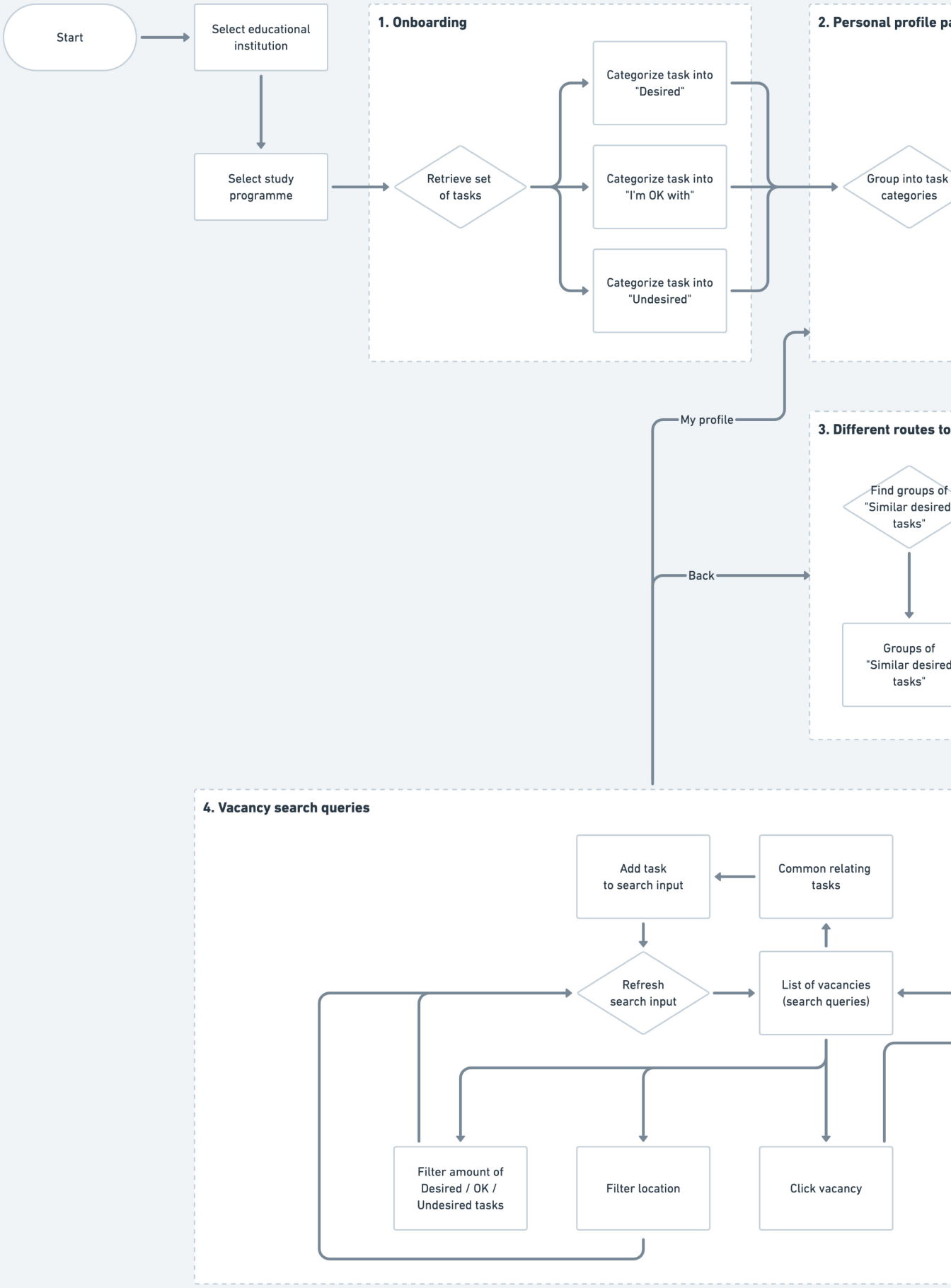
Point for improvement based on the informal usability testing

- **"Shouldn't you be able to explore vacancies in a more inspiring manner after sharing so much of your personal preferences?"** Some people mentioned that when they would categorize 60/70 tasks into undesired/OK/desired, they would expect more inspiring and supportive routes, or pathways, to explore and discover vacancies. Basically, I was challenged to think a bit further about various routes that could be presented on the bases of a users categorization of tasks.

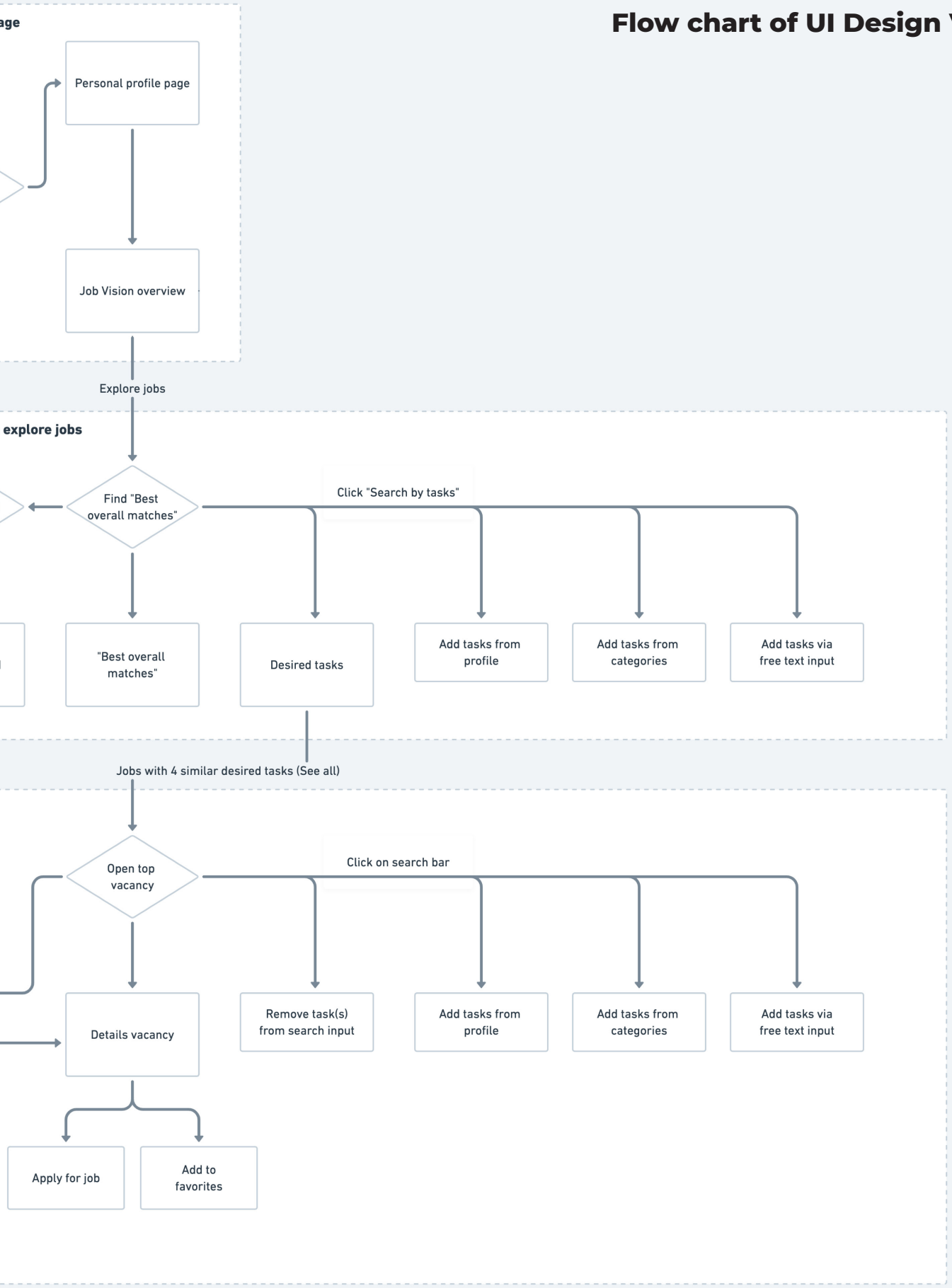
UI Design V0.5



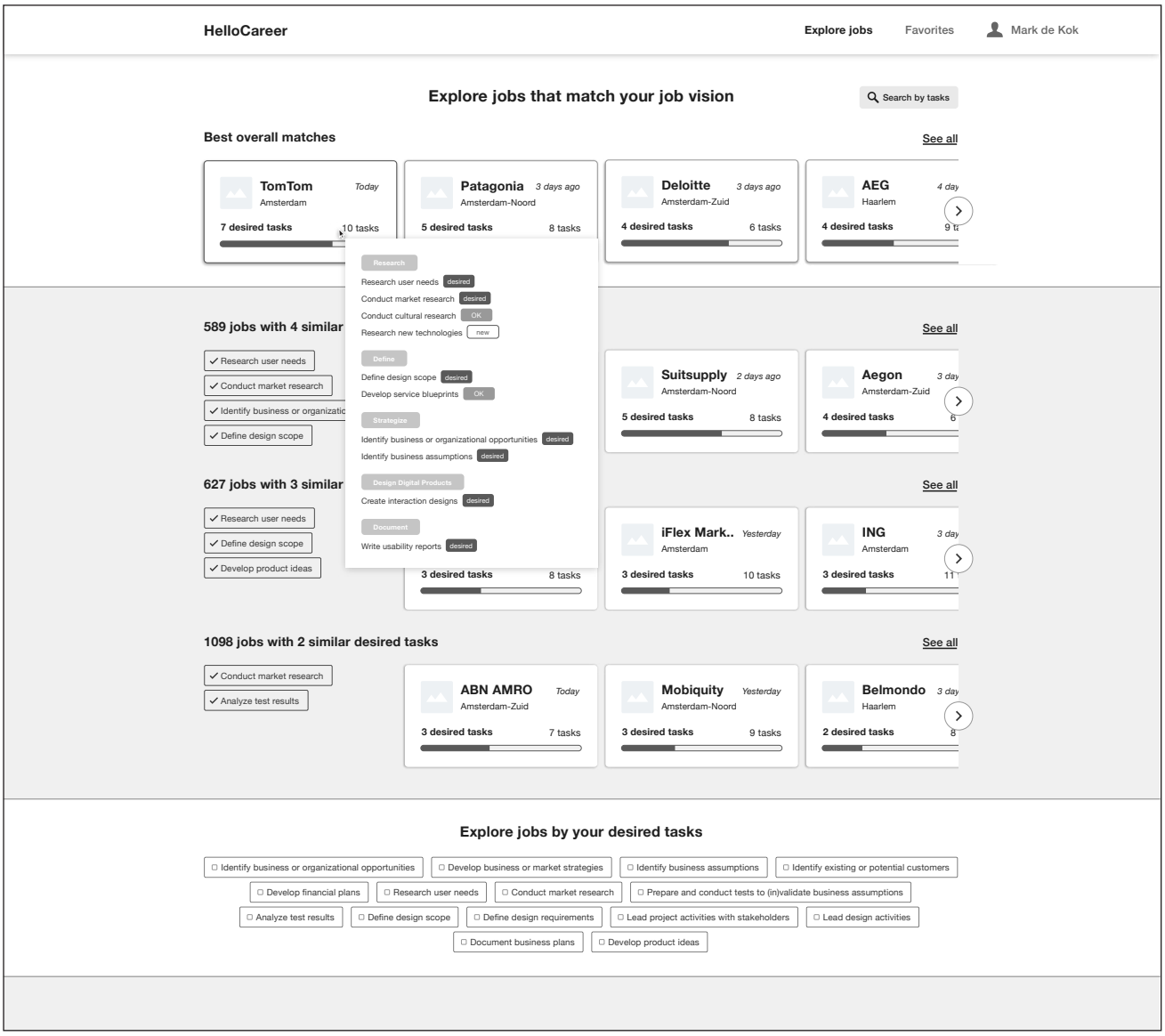
This was more a less the version that was turned into “UI Design V1.0”.


Start
Select educational institution
Select study programme
1. Onboarding
Retrieve set of tasks
Categorize task into "Desired"
Categorize task into "I'm OK with"
Categorize task into "Undesired"
2. Personal profile pa
Group into task categories
My profile
3. Different routes to
Find groups of "Similar desired tasks"
Back
Groups of "Similar desired tasks"
4. Vacancy search queries
Add task to search input
Common relating tasks
Refresh search input
List of vacancies (search queries)
Filter amount of Desired / OK / Undesired tasks
Filter location
Click vacancy

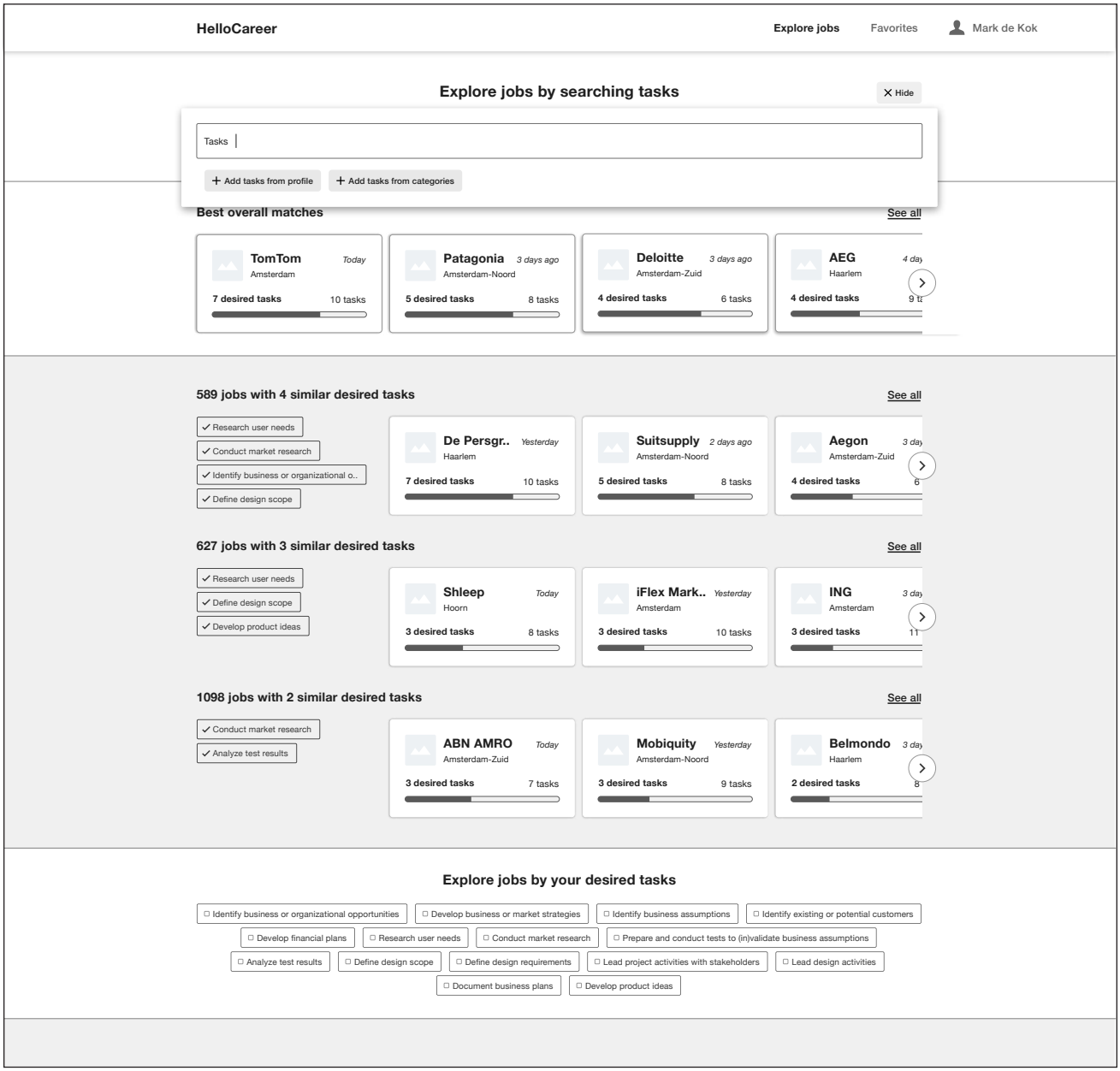
Flow chart of UI Design V1.0



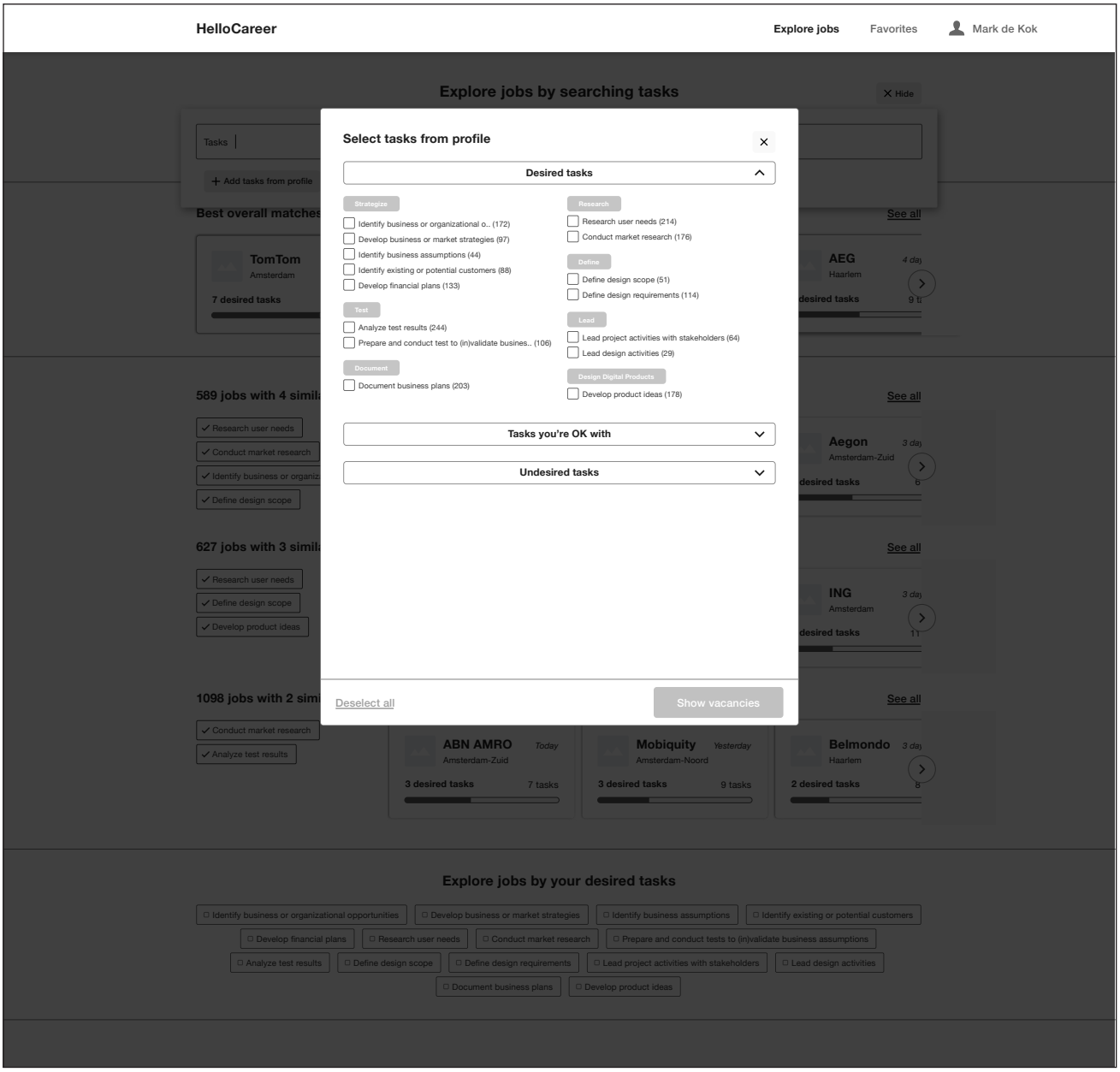
Screen “Different routes to explore jobs” - Hover state



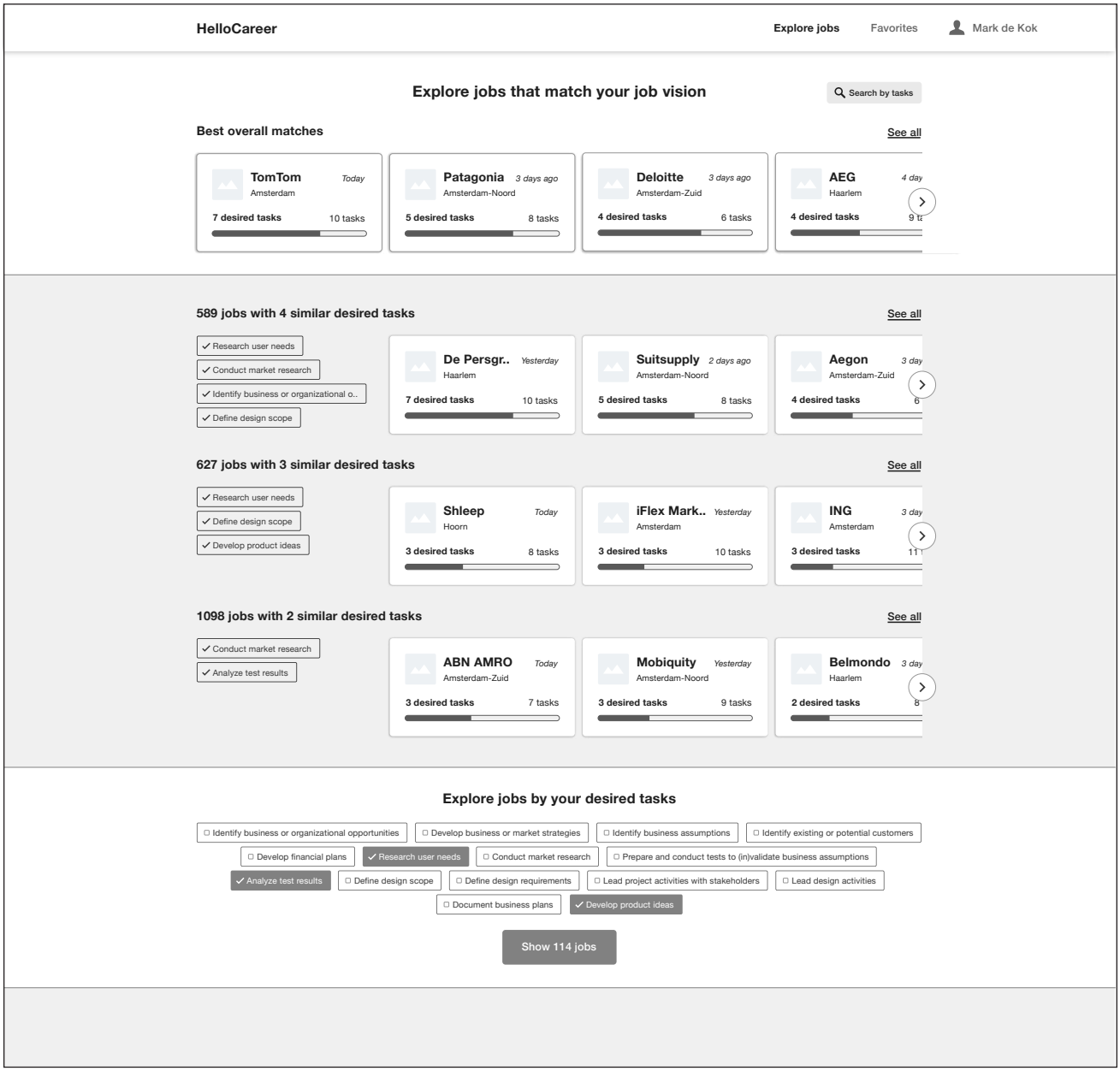
Screen “Different routes to explore jobs” - Button “Search by tasks” activated



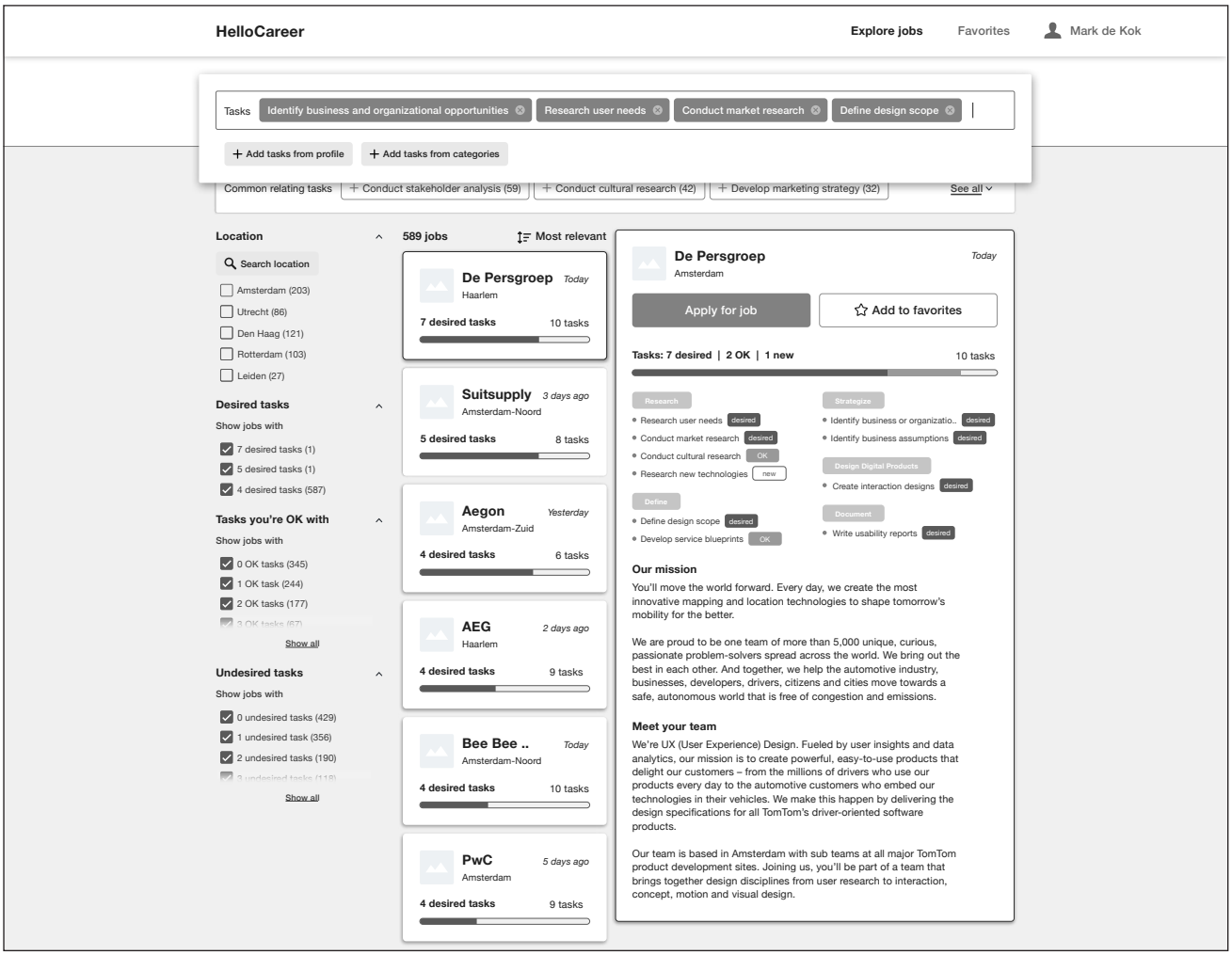
Screen “Different routes to explore jobs” - Button “Search by tasks” activated // “Select tasks from profile”



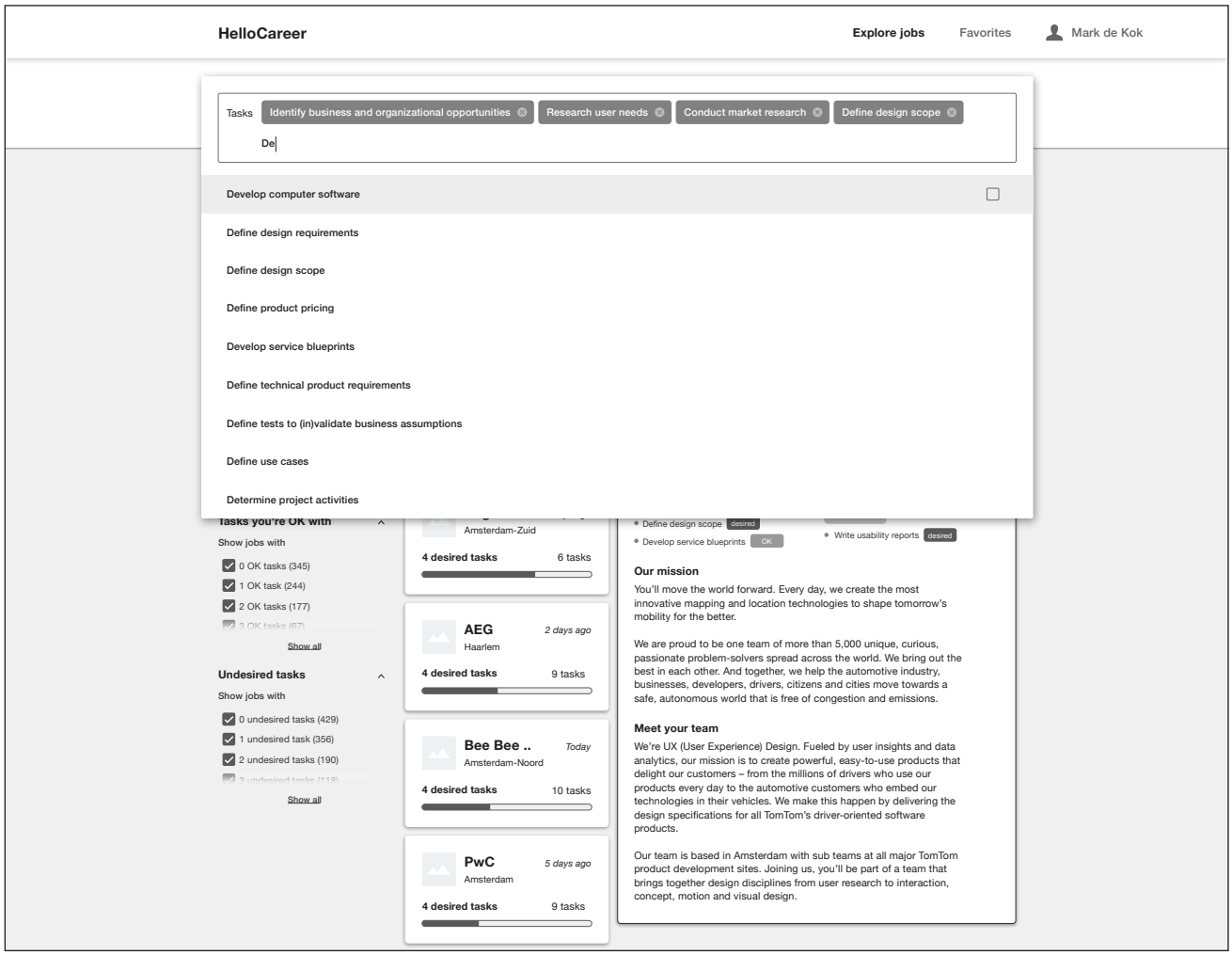
Screen “Different routes to explore jobs” - Section “Search jobs by your desired tasks”: Tasks selected, so button appears



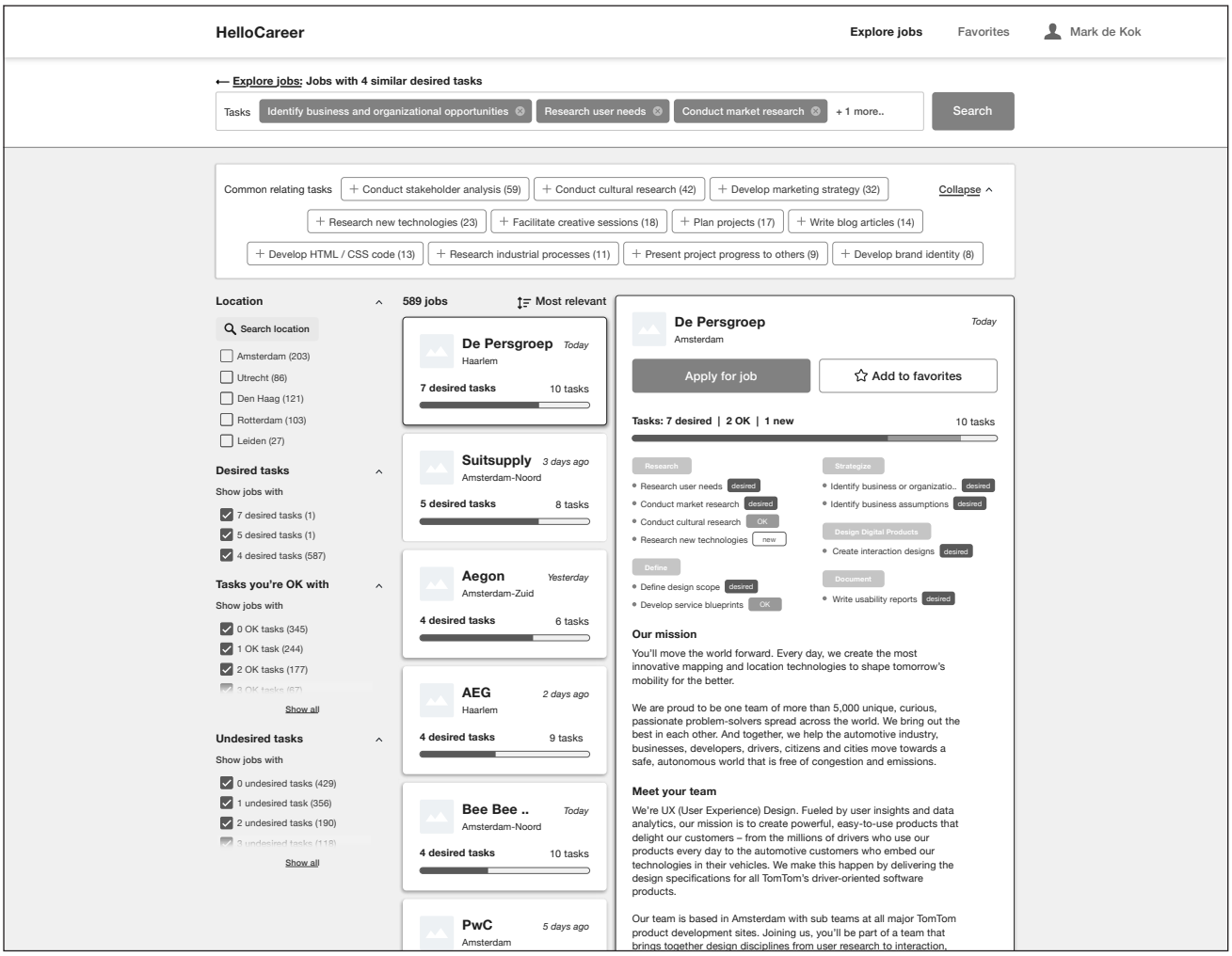
Screen “Vacancy search queries” - Search bar selected



Screen “Vacancy search queries” - Adding task via free text input



Screen “Vacancy search queries” - Common relating tasks un-folded



Appendix

11. User testing: UI Design V1.0

Usage scenarios

Onboarding

1. You want to create your own profile. What do you do?
   - Think aloud while going through the cards

Notice if people are "afraid" to put tasks at "undesired"

Profile: Job Vision

1. What is your impression?

2. You want to make a few changes in your job vision. What do you do?

3. You want to send your "Job Vision" overview to a potential employer that is not on this platform. What do you do?

Screen: Exploring jobs-1

1. What is your impression?
   - *How is "best overall jobs" interpreted?*
   - *How are the clusters of similar desired tasks interpreted?*
   - *How is the bottom section "explore jobs by your desired tasks" interpreted?*

2. You want to explore jobs based on three of your desired tasks: "Research user needs", "Analyse test results" and "Develop product ideas". What do you do?

3. You want to explore jobs based on a few tasks from your profile, but you don't know yet which ones. What do you do?

4. You want to explore all jobs with the four similar desired tasks "Research user needs", "Conduct market research", "Identify business or organizational opportunities" and "Develop financial plans"

Screen: Exploring jobs-2

1. What is your impression?

2. You want to discover what tasks relate to your search query. What do you do?

3. You want to remove the task "Research user needs" from your search query. What do you do?

4. You want to add the task "Define use cases" to your search query. What do you do?

5. You want to discover which of your undesired tasks also fall in this search query. What do you do?

Post-test interview script

General perceived value

1. What did you think of the test?

2. Do you consider the platform you've just experienced a valuable means to explore jobs?

3. What do you (not) like about it?

4. What do you think of this platform in relation to other platform you might have experienced to explore jobs?

User friendliness: Screen "Exploring jobs-1"

1. Which ways to explore jobs did you recognize?

2. Did you find the different ways to explore jobs easy to understand?
   - Route "Best overall matches"
   - Route "Similar desired tasks"
   - Route "Explore by your own desired tasks"

3. What way to explore jobs did you find most valuable?

4. What could be improved?

User friendliness: Screen "Exploring jobs-2"

1. Did you find the way in which the search queries were presented easy to understand?

2. Did you find it easy to change your search inputs?

3. What feature did you find most valuable?

4. What could be improved?

User friendliness: Flow

1. When entering the website for the first time, would you find it desirable to be able to explore jobs without the creation of a personal "Job Vision" overview, thus by taking the complete set of tasks from your study as a starting point?

2. Is there be anything that would improve the concept design for you?

3. Do you have any last comments?

Job Vision overview

1. Do you feel that your "Job Vision" overview accurately represents what you desire in a job?

2. What do you think about the dimensions of "Desired", "OK" and "Undesired"?

3. Do you think that any tasks are missing from the set?

4. Imagine there would be the option on the platform to publicly notify organizations that you're actively looking for a job, allowing them to approach you. Let's say the minimum information you'd have to publicly share in order to do this is the name of your study and your "Job search" status. Would you be interested in this?

5. What additional information would you feel comfortable with in sharing publicly?

Results: General perceived value

Participant 1

"Most interesting is the list with categorization, I really liked that. Second, it's great that all companies are ranked automatically how good they match you by the bar charts. "

"I believe that no other vacancy platform knows what tasks you have to do as a designer. Most job platforms are quite superficial. Really liked that your website knew what kind of tasks relate to me as a designer. Sometimes people send you a message via LinkedIn that does not make any sense. With this website I would trust it much more. In terms of usability, there's room for improvement, but the concept is fantastic."

"I found the best overall matches the most valuable. That's fantastic."

"Like the idea that companies know themselves what they're looking for, that they think about the tasks. That they understand design and what I have to offer."

Participant 2

"The most valuable for me is that you get results of which you know that it's intended for your education. With other sites you have to make that judgement yourself."

"You made kind of a LinkedIn but then for IO. When you search on designer on LinkedIn or Indeed, you get a lot of crap. All vacancies contain the word designer. There are no misleading vacancies here. I find it nice that you can use your profile to search for jobs. To see what jobs match your profile, but also that you can search by individual tasks from your profile."

Participant 3

"I find the platform really interesting in the sense that it's based on tasks and not on tools like Illustrator or Photoshop."

"I like the process of doing this. Really cool that I can say if something is desired, undesired, OK. You can indicate if you want to do more research stuff. I would like to prove that I can do the things I put at desired. I can back those up, because for example I was involved in laboratories and conferences."

"The entire beauty of the platform is that you search based on tasks, that's really nice. However, it would be nice to be able to add topics like "sustainability", "museums", "social change", "communication", "participatory design", "academia", "rapid prototyping". Those words could help to improve your search and enrich your profile."

"This is a very design oriented platform. What I question is how to market this platform and get this to the mass. Honestly, this would be my parallel option with LinkedIn. This platform allows me to see what companies do their homework, know what they're looking for and speak the same language. Platform is nice to explore jobs in a very specific area."

Participant 4

"In terms of product idea, it's really nice that its split up into activities. However, I find it important that the vision of the company matches me as a person. I want to contribute to a better future. I don't feel that has been taken into account now. My drive is what I want to work on as a topic, rather than as an activity. I would be nice if you could filter on topics/missions."

"At first I think, wow it's a lot, but then I think yeah there are a lot of jobs and you want to be able to choose from a lot. I get this feeling because of the amount of activities and all the options. It takes my focus away from the jobs themselves. "

Participant 5

"In general, it pretty well designed and I would definitely try it out. So far, I have been searching a lot on various job titles, but usually that doesn't bring me new insights. Here it's a whole different approach, more much focussed on the actual activities of a job. That allows me to discover new things much easier."

"With the most vacancies, there's a whole list what you do and what the company does. With this you can find fast what matches with you."

"I found that the test illustrated well what you're intending with the platform. What would be nice to add is the ability to contact a person when you have questions. Then you can be in touch casually without doing a formal application."

Results: User friendliness: Screen “Different routes to explore jobs”

Participant 1

“For me, the best overall matches are the most interesting, because this is the core: what matches me best as a person. Charts show how good the jobs are a match. That’s really cool.”

“It’s great that all companies are ranked automatically how good they match with you and that it’s shown by means of the bar charts. ”

Participant 2

“I expect that I can add tasks from the bottom section to the middle section by clicking on it and that by doing so, I can create new search queries by a combination of individual tasks.”

“I find the best overall matches super clear and most interesting to click on. Would open them all in taps and read them. Would also check how much work experience they require.”

“I would keep it more simple. I would not present all three things together. Three routes is a bit much, bit much information. Don’t know where to start searching. Where is the hierarchy..”

Participant 3

“I consider the bottom part as most important as think that this should be on the top, because your desired tasks are most important. Then second, what overall best matches to your job vision. It’s nice if this would be at the top, that your search results would be updated right away.”

”I find it very nice to see the categories again when selecting tasks from profile. Also, I find the mouse-over very valuable, because it allows you to quickly see what a company is looking for.”

Participant 4

“I find the bottom part most interesting as it allows to search jobs based on the specific tasks I find interesting. Within your desired tasks, you always have a top 3 that stands out even more. You want to be able to search on those.”

“Oh yes the mouse-over. At first, I would say wouldn’t know. Probably these are the tasks from the employer and then added how I rated it. But I don’t know what new means.”

Participant 5

“I think that by clicking on labels at the bottom, the tasks are either added to one of the “Similar desired task searches”

“Most valuable way of search is the best overall matches, because those are jobs that match the most of your desired tasks.”

Results: User friendliness: Screen “Vacancy search queries”

Participant 1

“ I’m not sure what “New” refers to. Maybe I didn’t process that task yet. Also Top part is a bit difficult to understand”

“I prefer the pop up with task from profile, because there you have the categories, I really like that addition, as opposed to the bottom section on the explore page. In this way, you can scan the categories and have to read less.”

“I think there should be a separation between desired & OK and undesired. That undesired is sort of presented below a line. Would not like that undesired is in the same list. Then you really have to pay attention to the details.”

“Research new technologies is “new”, maybe I didn’t process that task yet.”

Participant 2

“I like the fact that you can add tasks from your profile to the search, but also that the system presents tasks that relate to your search.”

“I find the screen very clear. A bit how you’re used to, it seems very familiar. The search bar on top correlates with the previous tasks. If you click on the common relating tasks, they will be added to the search query. Can refine the search results. Could not think of a way to improve this.”

Participant 3

"*I find it really easy to understand. Feels like a formal job posting website. "*

"*I would like to be able to set the location earlier. I want to put more constraint earlier, because this is the deep.*"

"*I don't immediately understand the purpose of the common relating tasks. (Explanation...) I think that it should not be in this area. Should be on the side, more presented as a suggestion. Something that you can use to enrich. "Companies that are looking for these skills, are also looking for these skills". For me something additional, more than a main component..*"

Participant 4

"*I like it a lot that it the filter options show how many jobs they relate to in between brackets. I always want to ensure that I didn't miss anything. This helps.*"

"*I would like to see for much longer the vacancies will be online, but I don't see that unfortunately.*"

"*I find it confusing that the search queries entails 4 tasks, but that there are vacancies with 7 desired tasks.*"

Participant 5

"*The screen is well presented. The bar charts communicate clearly how well something matches to your profile, that's nice. If you click, you can see more specifically. You can search on location. You can easily filter on desired, OK or undesired tasks by unchecking the boxes.*"

"*I'm a bit confused about the "Common related tasks". Here you see tasks with the amount of jobs in between brackets (correct). These are all tasks, desired, undesired and OK. Think that these are desired tasks, but that are not in your search query.*"

Results: User friendliness: Flow

Participant 1

"*The transition from the onboarding part where I categorized the tasks to my personal profile page felt a bit harsh. All of a sudden, on the profile page, I see a lot of buttons and things I'd never seen before. It would be nice to have a sort of result page in between, followed by an overview of all the vacancies that match your preferences.*"

Would you find it desirable to be able to explore jobs without the creation of a profile?

"*Yes, then you can get an overview in a faster way. But I would want to be able to create my own profile. But for a quick overview what matches with IPD, to see what tasks are a part of that is very interesting. If I want to go deeper on my personal preferences, I'd want to fill out the list.*"

Participant 2

Would you find it desirable to be able to explore jobs without the creation of a profile?

"*Yes, that would be desirable, because it's nice to see results fast. On the other hand, creating a profile is nice because IPD is quite broad: you can go very conceptual or very technical. Not all people who did IPD want similar jobs, it's so different for everyone. Therefore, it can really help to create a profile with your desired tasks.*"

Participant 3

"*It felt like there were a lot of steps until the point I was actually able to read specific vacancies. It would be nice if the "vacancy homepage" and the vacancy result page would be integrated. In that way, you have everything in one screen and you'd have to go back and forward less. To me, that feels more user friendly.*"

Would you find it desirable to be able to explore jobs without the creation of a profile?

"*Maybe in the process of entering this platform. Maybe a tiny moment, because first it could allow me to understand what companies are looking for. But what I like here, is that I can refine and go a little bit deeper.*"

Participant 4

Would you find it desirable to be able to explore jobs without the creation of a profile?

"*Yes, because you don't always have the time. In that way, you already know what you want and don't want. Would want to create a profile later.*"

Participant 5

Would you find it desirable to be able to explore jobs without the creation of a profile?

"*Yes I think so. Mainly as an orientation to see what kind of functions match your education. First you see all the vacancies and later you can narrow down by creating the profile. So in this way, you can start broad and refine later.*"

Results: Autonomy of self-representation: General

Participant 1

"*The overview is fantastic, very good. It seems like it communicates it better than I could do myself. I know that some tasks relate to each other, but I wouldn't be able to think of these categories myself. I feel well represented.*"

What do you think about the Desirable / OK / Undesirable ?

"*I find it good. There are always things you want to do very much, things that are a part of that but that you don't want to do all day. Undesired are the tasks I don't want to do or that I don't like. That other people can do better than me.*"

Do you feel that any tasks are missing?

"*No I don't feel that anything's missing*"

Participant 2

"*The overview is fantastic, very good. It seems like it communicates it better than I could do myself. I know that some tasks relate to each other, but I wouldn't be able to think of these categories myself. I feel well represented.*"

What do you think about the Desirable / OK / Undesirable ?

"*I find it good. There are always things you want to do very much, things that are a part of that but that you don't want to do all day. Undesired are the tasks I don't want to do or that I don't like. That other people can do better than me.*"

Do you feel that any tasks are missing?

"*No I don't think so..*"

Participant 3

"*In terms of the general idea, this helps to map on a general level. Maybe it would be interesting to add # or words that relate to. This is a nice way to represent what you want but also helps you to deepen why you like this or why you want to focus on this. In my case "conduct cultural research", is a very general concept. But I'd like to add why I want to do those things. It's not like a super important thing, but more to add.*"

"*It is very nice that there is a difference between digital and physical product design. UX people only think it's about the digital stuff, while the base is the physical.*"

"*Don't really know what job vision means. For me a job vision refers to tasks that match between you and the company. When I first saw the word vision, I thought mission/goal, but that was merely a guess. It would be nice if it's somewhere explained what a job vision is.*"

What do you think about the Desirable / OK / Undesirable ?

"*For me this is new. Normally you don't focus on what you don't want, but now you do it becomes more clear what you do want. It is kind of an exercise for yourself.*

Do you feel that any tasks are missing?

"*Hmm, let me see. No I don't think something misses.*"

Participant 4

"*It represents me well on an activity level, but not on a higher ambition or purpose level. That is actually even more important to me.*"

What do you think about the Desirable / OK / Undesirable ?

"*The dimensions are easy to understand. For me, the "OK" is self-explanatory. Undesired and desired are deal makers or breakers. It's about what makes your work "the spark", where do you get out of your bed for.*"

"*Desired is the wow activity, things that make your work special, undesired is what you don't want. There are always a lot of things that are just part of the job, such as: "Manage stakeholders", "Present work to clients", "Write project reports" (+ 9 more). To me these are not really noteworthy to express what I want or don't want.*"

Do you feel that any tasks are missing?

"*Hmm... Think it's been covered. Design is also so broad.*"

Participant 5

"*Think that it shows well what you want. Quite a lot of different tasks. Think that when you're searching, you can change your mind easily. Maybe you see a certain OK task appear a lot, that makes you replace it to desired. Think it shows well what you can do and want to do.*"

What do you think about the Desirable / OK / Undesirable ?

"*Find it good. Exclusion always helps. What OK is, that is relatable. There are always things you like less. This allows to see for yourself to what extend certain jobs match with you. Probably sometimes you have to write a report, that's always the case. Then you have an OK task.*"

Do you feel that any tasks are missing?

"*Hmm.. no I think you covered the most.*"

Results: Autonomy of self-representation: Public visbility

Participant 1

Would you like to make your profile publicly visible?

"*I would find it awkward to have to say to a company that I don't want to work there. I prefer to have job alerts, so I don't miss any interesting vacancies and in that way, I don't have to reject any companies. However, it would be interesting to have a profile that I can share with a company that is not on the platform. In that way they can read all that information about me.*"

Participant 2

Would you like to make your profile publicly visible?

"*Yes for sure. Find it difficult to decide what I want to publicly expose.. I would say my bio and my desired tasks and perhaps also my picture, but not my name. If you want people to approach you, you want to share your desired tasks. I would find it more interesting to share what I do want, rather than what I would not want.*"

Participant 3

Would you like to make your profile publicly visible?

"*Yes, but it should not be anonymous. I would make everything publicly visible, except for the undesired tasks, because companies could misinterpret that. As a recruiter, you wouldn't want to see 40 tasks at desired, because that doesn't show a clear focus. You want to know someone's focus.*"

Participant 4

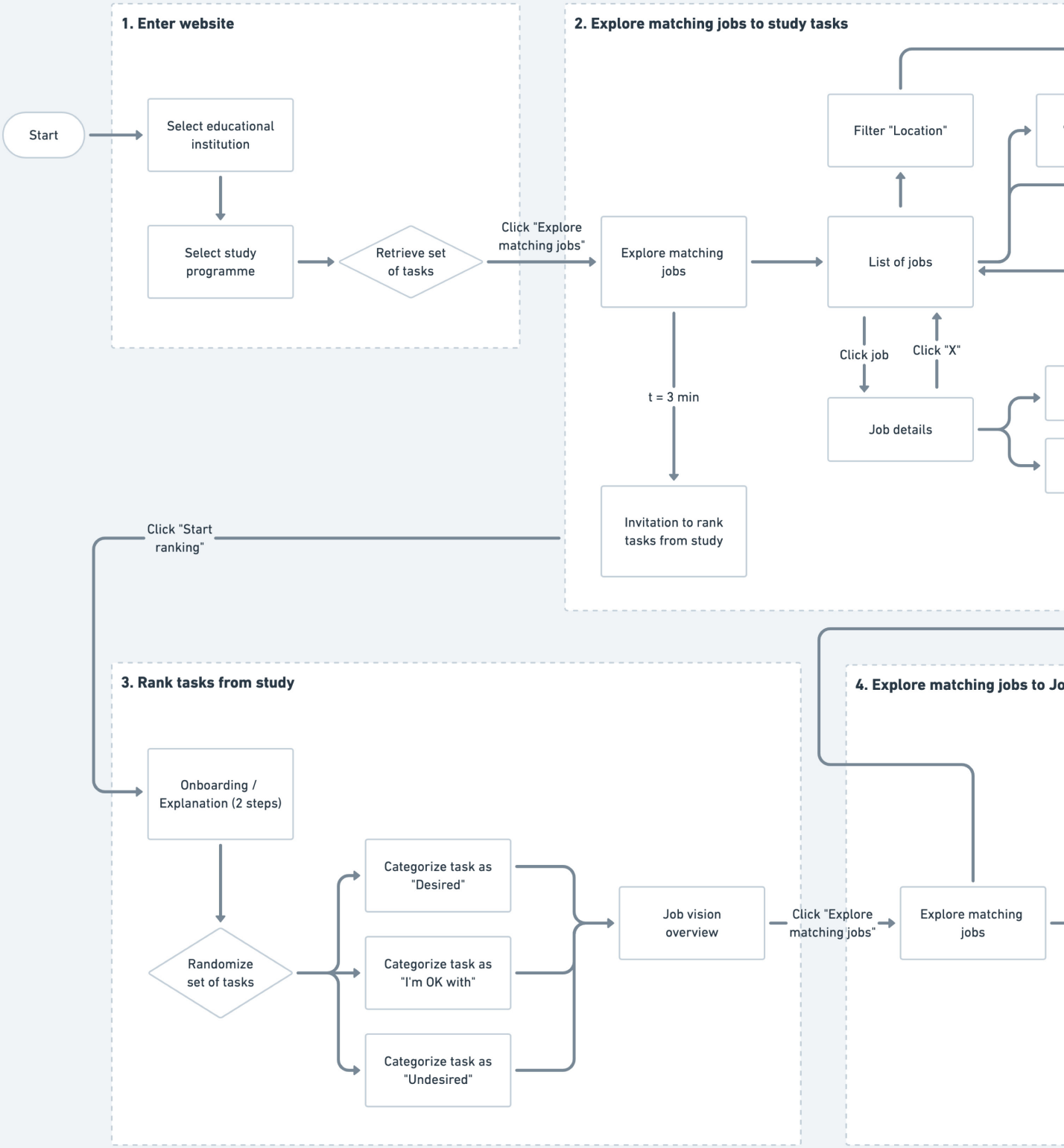
Would you like to make your profile publicly visible?

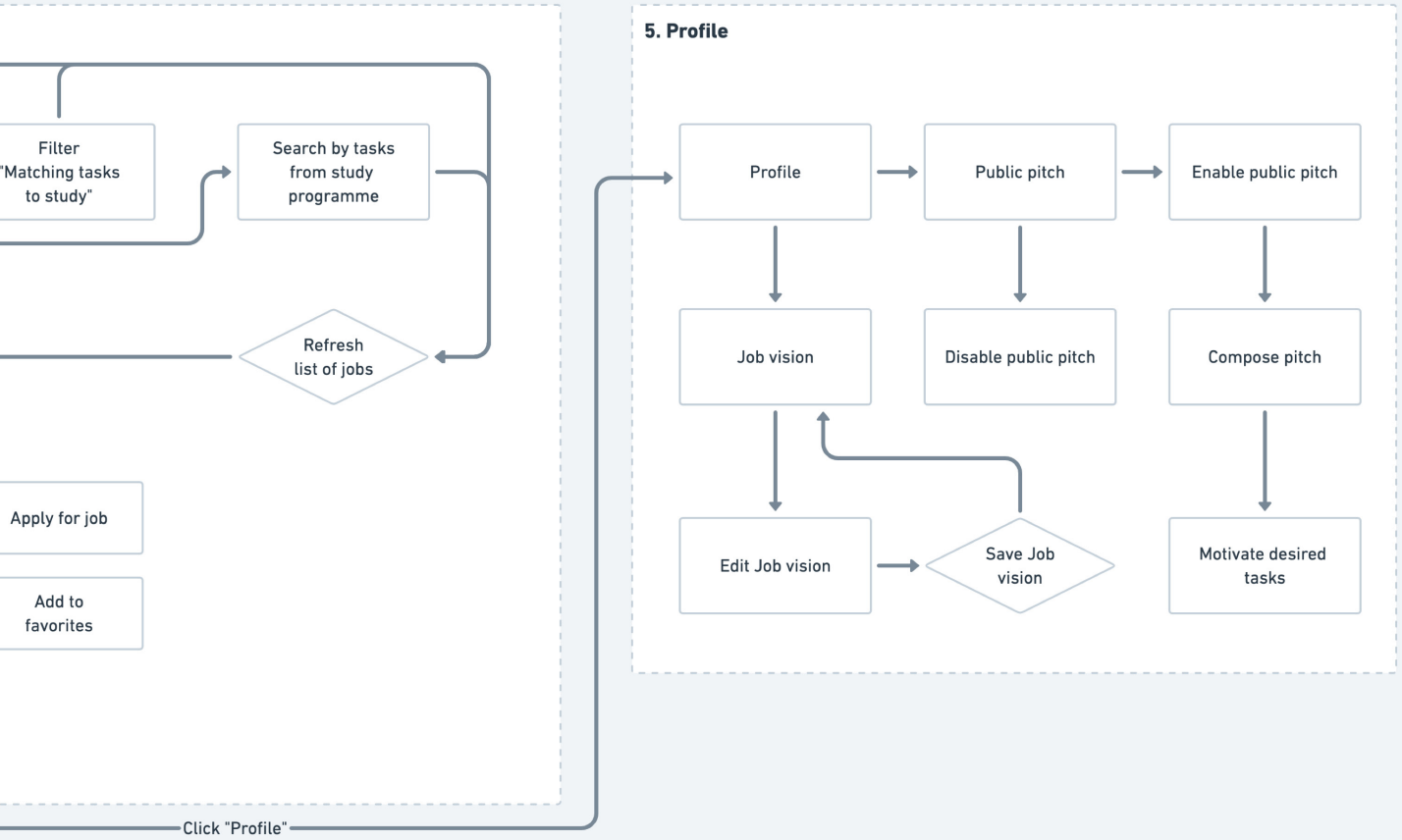
"*Yes, I'd like to do that, but I'd want to write my desired tasks in my own words in my bio. What I want is that companies approach me for who I am. Then I have to show what I find important. I think you can do that a lot better when I write my own text. Someone can appreciate the task "Design research" for a whole different reason than me. It's important to back it up. However, it would be cool if you could publicly notify that you're looking for a job. Nice when companies then contact you.*"

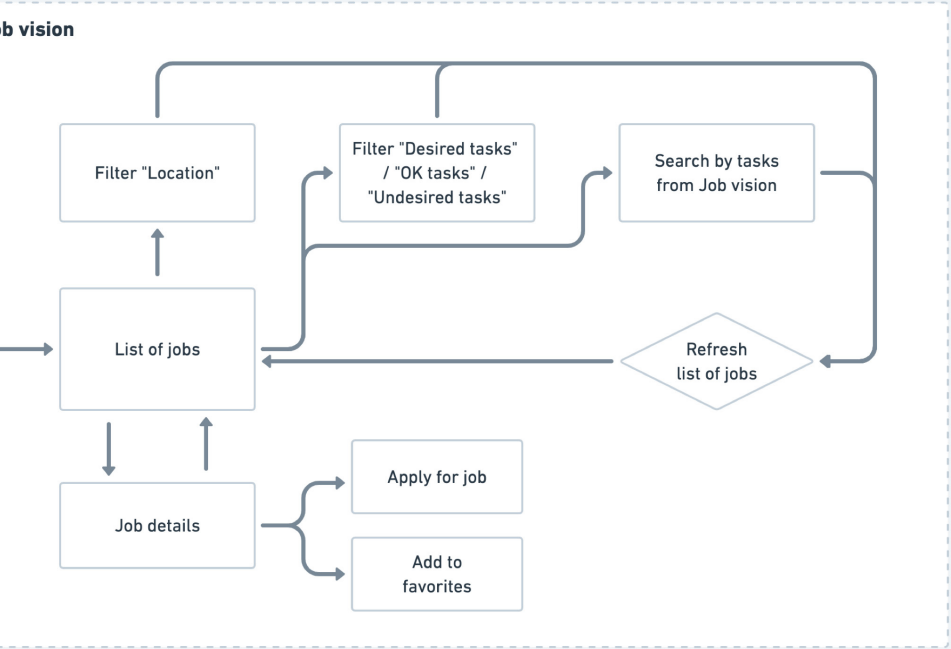
Participant 5

Would you like to make your profile publicly visible?

"*Yes, I would want to show my name, picture, bio and desired tasks. However, It's quite a big list, so I would want to add an explanation, because it's important that they get some context. I would not show the undesired tasks, because that can give a wrong impression to someone. I'm unsure about the OK tasks.*"


1. Enter website
Start
Select educational institution
Select study programme
Retrieve set of tasks
Click "Explore matching jobs"
2. Explore matching jobs to study tasks
Explore matching jobs
Filter "Location"
List of jobs
Click job
Click "X"
Job details
t = 3 min
Invitation to rank tasks from study
Click "Start ranking"
3. Rank tasks from study
Onboarding / Explanation (2 steps)
Randomize set of tasks
Categorize task as "Desired"
Categorize task as "I'm OK with"
Categorize task as "Undesired"
Job vision overview
Click "Explore matching jobs"
Explore matching jobs
4. Explore matching jobs to Jo


Filter
"Matching tasks
to study"
Search by tasks
from study
programme
Refresh
list of jobs
Apply for job
Add to
favorites
Click "Profile"
5. Profile
Profile
Public pitch
Enable public pitch
Job vision
Disable public pitch
Compose pitch
Edit Job vision
Save Job
vision
Motivate desired
tasks


b vision
Filter "Location"
Filter "Desired tasks"
/ "OK tasks" /
"Undesired tasks"
Search by tasks
from Job vision
List of jobs
Refresh
list of jobs
Job details
Apply for job
Add to
favorites