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Expedition Career

supporting graduate students in their discovery of ‘what is next?’

Final Master Project

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picture taken by Twycer

Executive Summary

Personal and Professional Development (PPD) is crucial to leading a successful and fulfilling life. The integration of such programs into current educational programs is therefore very important and necessary. However, for higher education, having such programs is not the standard and having good support specifically for career development is often absent. This report before you presents the extensive design and research process done to design a solution for this purpose. The objective of the project was to design (an) artifact(s) that would be a new type of career development and guidance support system for students in higher education at the faculty of Industrial Design at the Eindhoven University of Technology.

Adopting a Reflective Transformative Design Process with a user-centered focus, allowed for the developed of Expedition Career; a series of four games supported by a digital platform. Throughout the design and research process, collaborative efforts with students, faculty staff, designers, and experts were made to create a proof-of-concept for a new type of PPD learning line that is ready to be implemented. The final design of Expedition Career consists of four stand-alone games that are ready to be played and each have an integrated digital layer ready to share more resources, save current progress and plan the next steps.

Continuous collaboration, validation, and other testing with stakeholders resulted in a strong business positioning that affirms the potential of the games for diverse future deployment and development.

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Introduction

Whenever you enter any educational system, the formalization of your personal and professional development (PPD) begins. Big steps in this department are made during your years at secondary school, where you are prepped to make big decisions (e.g. study choice) that will impact your life greatly (Warps et al., 2017). Once chosen to pursue higher education, PPD often becomes integrated into your study program and gets tailored to your needs and demands of the workplace (Smith et al., 2009).

At our own university, Eindhoven University of Technology, we have started with PPD integration into the bachelor college that uses Challenge-Based Learning (CBL) as the approach to education. Within our own faculty, PPD has always been integrated into a program that we call Professional Identity and Vision (PIV). The goal of this learning line is to support students in their development as a designer. We find it important that students discover what type of designers they are, what type of design they like or how they want to apply their skills and knowledge, but also how they envision the future of society and where they see themselves working. However, all this support currently stops the moment you enter your graduate semester (example figure 1). At that moment, another crucial decision needs to be made; what is next? But how are supposed to figure that out without any support?

Our PIV learning line preps the student for quite a lot but not for career development as students confirmed in interviews. In an initial survey done during my M2.1, I asked students if they were aware of the available

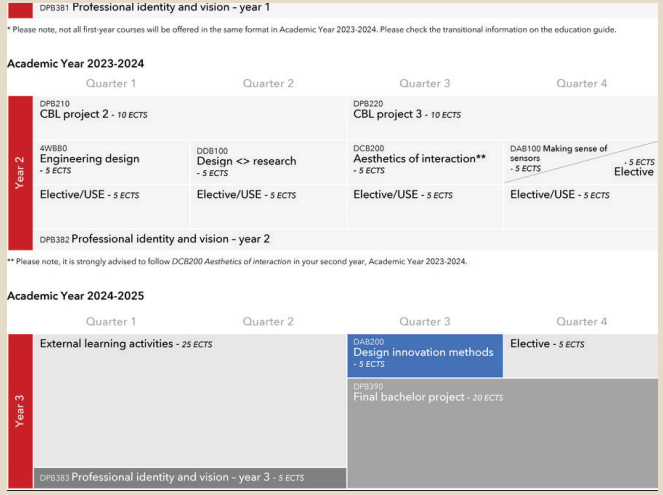


figure 1 - current bachelor program (accessed from the ID studyguide)

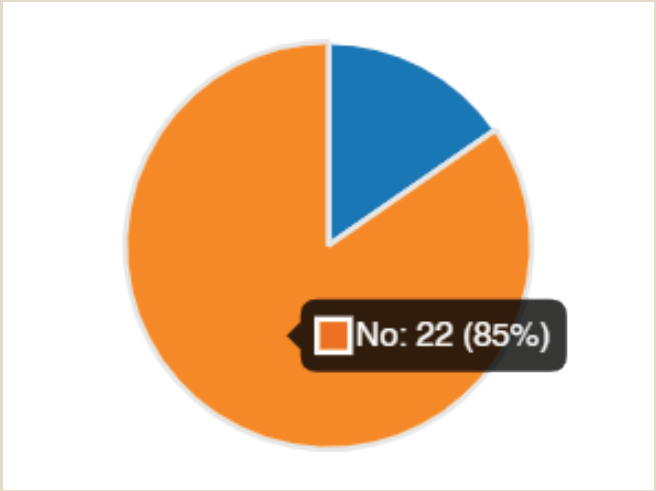


figure 2 - response initial survey

support for career guidance and development where the majority answered no (figure 2). Even though there is not much integration of career guidance in our own program, there are resources, activities, people and more out there that can help students. However, students commented that they do not know where to start, which is what inspired this project.

During my M2.1 and FMP projects, I set out to help our graduate students with problems they were facing in their career development. My goal during my previous project was to design something that is able to support graduate students in their PPD journey on career development. With the aim to raise awareness and provide clarity, I designed Expedition Career; the Board Game. Whilst developing this game, that leveraged gamification for educational purposes to create richer learning experiences, more and more opportunities for expansion arose.

Therefore, I decided to continue on this journey and created the following research question to be answered:

“How can the design of new artifacts extend the world of Expedition Career to further enrich the PPD learning experiences of graduate students whilst addressing the needs for career development and guidance at the department of Industrial Design?”

Based on these findings, three mini games and a digital platform were created to help graduate students further develop themselves in their career. With this extension, a learning line of sorts can be integrated into current and future PPD practices at our department but also potentially at others at the TU/e. It aims to further support students where needed and creates a foundation of resources, activities, people and more to help them figure out ‘what is next?’.

Project Goals

The primary objectives of this project is the expansion of the world of Expedition Career through the creation of new artifacts that support graduate students in their career development.

With aims to teach, inspire and encourage students to explore their career development, this project will extend upon the outcomes of the previous project.

The board game provided a good first step of creating support in the form of awareness, but more support is needed beyond that.

In the FMP proposal several requirements for artifacts were defined, here an updated and extended version of the requirements as design goals is presented.

real value & support

It is crucial to consider their real value and ability of the artifacts to create desired support for graduate students.

In order to claim the artifacts to be of value, active engagement with multiple diverse stakeholder throughout this project is needed.

extending the world

The design of the new artifacts should build on previous design and research efforts.

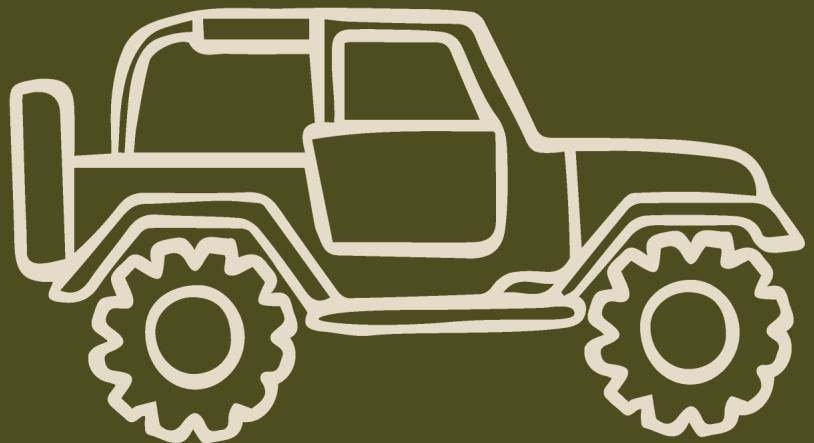
The artifacts purpose is to assist students in career development and should therefore in the end all come together to create a unified learning line (aesthetic and purpose-wise) but should also be able to independently be used to target individual needs.

seamless integration at ID

A future proof business strategy needs to be developed in order to provide a seamless integration at our department.

To optimize the design of artifacts and their business potential, continuous collaboration with our faculty is essential. Developing such a business strategy, including an implementation plan, could lead to successful implementation and deployment.

Background



Related Work

The following chapter describes three topics crucial to this project. Personal and Professional Development is introduced and described, giving insight into the value and what tools are used to practice this. By exploring career development and guidance, we can extend on research done on PPD in general. Specifics about career development and guidance are given, impact on people and society is discussed and current gaps are identified. These research explorations form the foundation of this project and highlight current practices, benefits and more where inspiration is taken from throughout the process. The last section describes serious games, what they are and how they can be used. With this, the use of gamification and using it for educational purposes can be argued.

Personal and Professional Development

Personal and Professional Development (PPD) can be defined as the continuous process of acquiring skills, knowledge, experiences and more that can enhance an individual's success and satisfaction in both personal and professional domains (Rhoton & Bowers, 2001; Friedman & Philips, 2004). As it is crucial to living a thriving life, research has been focusing on exploring the various facets of the topic, in order to provide insights and recommendations on how to implement it into educational and workplace programs (Welch, et al., 2017). PPD requires a pro-active and reflective approach (Webster & Andre, 2018), also known as self-directed learning, which allows and encourages an individual to take charge of their developmental journey by tailoring it to their needs and goals (Hiemstra, 1994). Reflective elements are important to PPD, as they offer a way for people to be critical towards their own progress and through examining their experiences they are able to discover valuable insights for future development (Nottingham, 1998; Gustafsson & Fagerberg, 2004; Moon, 2013).

The real value of PPD is found in its ability to help prepare individuals for life in an ever-changing world by fostering a growth mindset, resilience and adaptability (Davies & Preston, 2002; Lewis & Shaha, 2003). Studies have shown that PPD is able to go beyond the acquisition of skills and knowledge into the discovery of the self (Borg, 2018). Using a self-directed learning approach, educational institutes are able to use PPD as a way to increase student engagement, motivation and academic achievements (Miller et al., 1998 ; Mittendorf et al., 2008; Aaltonen, 2019). By integrating PPD into educational programs, students are better prepared for the demands of the workforce and better equipped to steer and direct their professional successes (Moxley et al., 2013; Te Wierik et al. 2015; Choate et al., 2016).

A variety of resources are available to facilitate PPD. Research has been on the forefront of developing such tools such as the Myers-Briggs Type Indicator (MBTI) (Myers, 1962) and CliftonStrenghts (Watkins et al., 2022). Tools like these are able to help individuals assess themselves on their strengths and weaknesses, which enables them to tailor their developmental efforts more effectively (Brandtstädter, 2009). Personal Development Plans (PDP), sometimes known as Individual Development Plans (IDP), offer more broad and structured approaches for setting and achieving specific developmental goals (Day, 1994). It is widely used in several different contexts, from education to career development and the workplace (Beausaert et al., 2011) because of its holistic approach to enable effectivity and its ability to enhance personal and professional well-being (Bullock & Jamieson, 1998; Evans et al., 2002).

Career Development and Guidance

Closely related to PPD is career development and guidance, a sub-topic that focusses on an individual's career path and preparing them for it (Herr, 2001). Career guidance provides insights into career options, educational pathways and other opportunities aligned with the individual's aspirations (Hiebert et al., 2014). Career development focuses more on continuous learning and skill enhancement to be able to adapt to evolving job markets and career opportunities (Super & Hall, 1978). Both career guidance and development are integral components of PPD, as they aim to enhance the employability, job satisfaction and overall career success of people (Maguire, 2004; Robertson, 2013; Dodd et al., 2022).

Studies have shown that good career development and guidance is crucial to an individual's professional success (Sampson et al., 2011). By enabling people to look inward and gain clarity about their career goals and aspirations, they are better able to make informed decisions that align with their interests, values and skills for the future (Roy, 2020). Good career guidance is also able to provide insights into career paths and educational opportunities, which in turn encourages strategic planning and empowers individuals to pro-actively manage their careers (Choi et al., 2015).

Related Work

Even though research has shown the importance of integrated career development and guidance programs in education (Moly, 2007; Holman, 2014; Hiebert et al., 2014; Te Wierik et al., 2015) and educational institutions do find it important to integrate it (Abelha et al., 2020), it is not government mandated which means it is left to the educators to design and implement such programs themselves (Athanasou & Van Esbroeck, 2008; Whiston et al., 2019).

The OECD (2004) created insight into policy issues in European education that need to be targeted in order to improve career guidance across the board. Specifically for tertiary (i.e. higher) education, they mention the (often) total absence of career guidance that is available to students. Small efforts are made to improve career development in higher education (Bimrose & Barnes, 2006) but students are still afraid, anxious or uncertain about life after graduation (Lairio & Penttinen, 2006; Pisarik et al., 2017). Other studies have commented on the role of lifelong learning and the impact on the workforce, emphasizing the positive impact good career guidance has on students and their career expectancy (Hooley & Dodd, 2015; Arghode et al., 2021). Career guidance in transition phases (e.g. graduating and starting a job) have been marked to be crucial moments in an individual's personal and professional development journey (Hansen, 2006; Orellana, 2015). These moments have been defined as sink or swim moments where good support is needed to enable a smooth transition (Christie, 2016). Such complex transitions have been heavily researched and explored to see how the use of mentorships, internships, job placement services and more can help ease the transition but many are not able to fully target the challenges faces by individuals going through these transitions (Hodkinson et al., 2006; Kalchik & Oertle, 2010; Boerlijst, 2013; Jyoti & Sharma, 2015).

Serious Games

Serious games are games designed for purposes beyond enjoyment, typically to educate, train, simulate, or solve real-world problems (Stege et al., 2011; Zhonggen, 2019). Unlike traditional games, serious games aim to integrate educational content into the gameplay, aiming to engage players whilst they are achieving specific learning objectives (Stapleton, 2004; Susi et al., 2007; Laamarti et al., 2014). These games span various genres and media, from physical board games with interactive tangible elements to VR video games designed to train someone in a real-world environment (Susi et al., 2007; De Lope & Medina-Medina, 2017). These types of games are able to offer students more immersive learning environments that have shown to positively influence engagement and participation (Sawyer, 2007; Ravyse et al., 2017; Checa & Bustillo, 2020).

Simultaneously, serious games are powerful tools to be used for skill acquisition (Slootmaker et al., 2014), as they encourage students to learn, practice, and apply skills in a safe environment (Wouters et al., 2009; Bellotti et al., 2010). Serious games are designed with personalization and adaptability in mind, enabling educators to transfer learning to real-world concepts and contexts (Anastasiadis et al., 2018). Next to this, they offer a way of collaborative learning that uses social interaction as a foundation for learning experiences (Corrigan et al., 2015). By interacting with peers and sharing experiences in serious games, teamwork is promoted which allows students to enhance their professional skills and cultivates a sense of community (Guenaga et al., 2014; Wang & Huang, 2021).

Specifically tangible games represent a unique approach to creating interactive experience where physical objects and technologies can come together to create immersive and engaging learning experiences (Berta et al., 2016). Traditional video games rely primarily on screens and controllers whereas tangible games that incorporate physical objects, such as cards, tokens or custom-made items, offer players a new way of manipulating and interacting with (digital) interfaces or environments (Verhaegh et al., 2008). Especially in educational contexts, tangible games are able to facilitate more active learning and retention of educational concepts by making abstract ideas or thoughts physical and accessible (Lee, 2016).

Benchmark

To get a better understanding of the market- and design landscape of PPD and career guidance/development, a competitor analysis was executed (figure 3). Doing this created insight in what is available to students currently and what can be used as inspiration. Next to this, an analysis of support systems was also done to extend on this by taking a look inward, towards the options within the faculty and TU/e (figure 4). Finally, research into student projects related to this one was done as well, to understand and take inspiration from their processes and deliverables (figure 5).

The results of these benchmark efforts, helped gain insight into current gaps and opportunities in the market-, design- and research landscape of PPD and career guidance/development. It confirmed that there are currently no big competitors addressing the same challenges as this project is doing and therefore validated the design directions taken. Inspiration was taken from these activities and informed some design decisions, but it mainly helped whilst reflecting on project and personal progress.

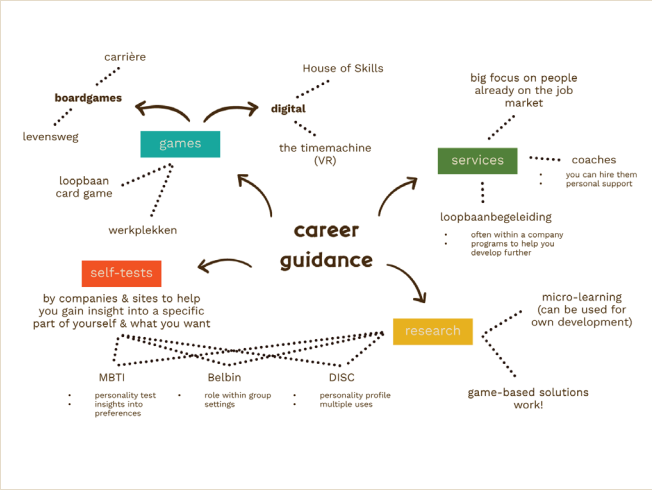


figure 3 - initial benchmark

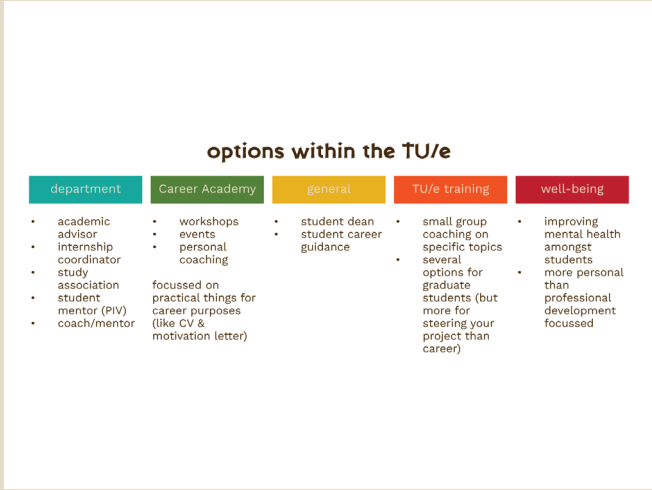


figure 4 - benchmark TU/e

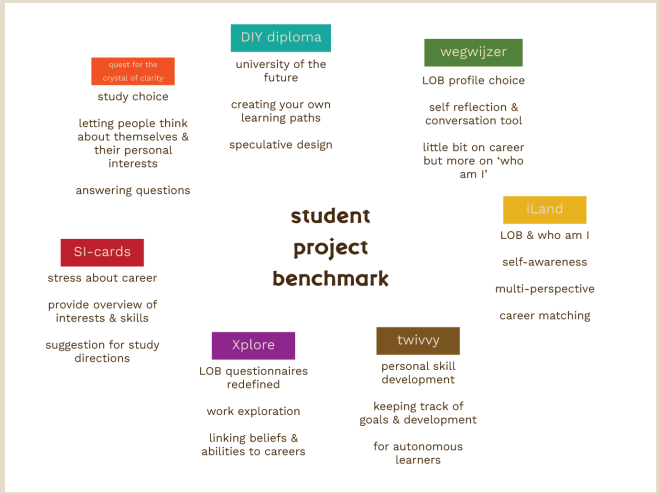
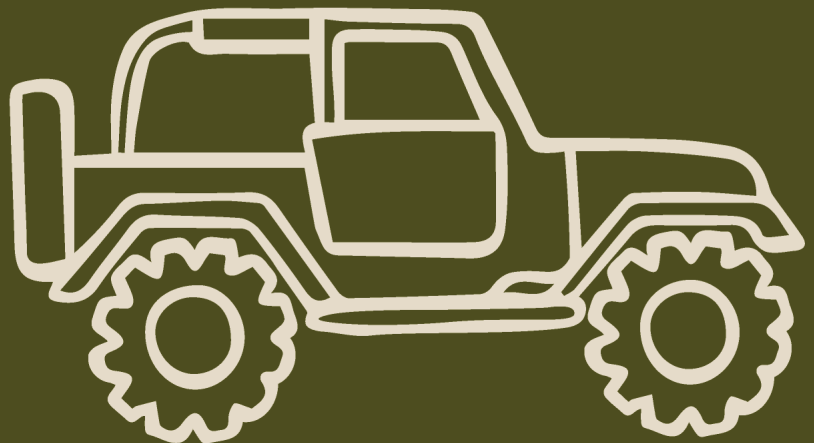


figure 5 - student project benchmark

Design Process



Starting Point & Methodologies

This chapter will describe in chronological order the Design and Research Process that was taken to design Expedition Career and all it further entails.

A combination of two design process methodologies were chosen that led the iterations throughout the project; Reflective Transformative Design Process (RTDP) (figure 6)(Hummels & Frens, 2009) and User-Centered Design (UCD)(Abras et al., 2004).

Research into business-oriented and stakeholder-oriented approaches was done to determine the most suitable methodology for this project, but none offered the reflective approach of RTDP and the user driven approach of UCD which fit greatly with how I like to take on projects and what I value in my work.

The RTDP is similar to the more traditional Double Diamond (Design Council, 2005) or Lean Startup (Reis, 2011) process, but offers more room for flexibility and individuality. In combination with UCD, the emphasis is strongly placed on collaborating with many stakeholders at various times in the process and letting iterations be guided by the data gathered at such moments.

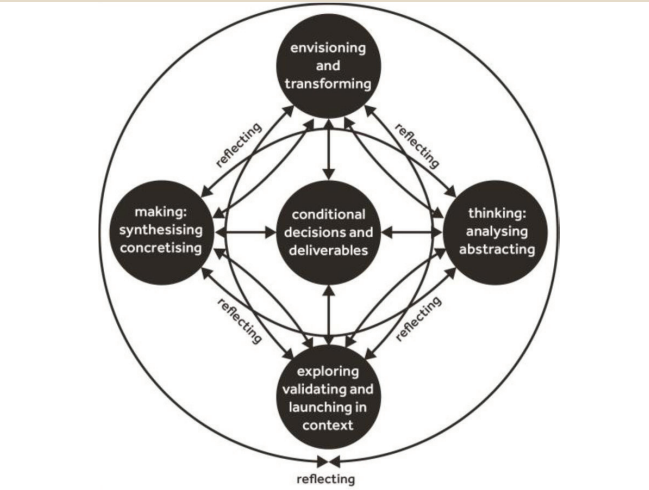


figure 6 - RTDP (Hummels & Frens, 2009)

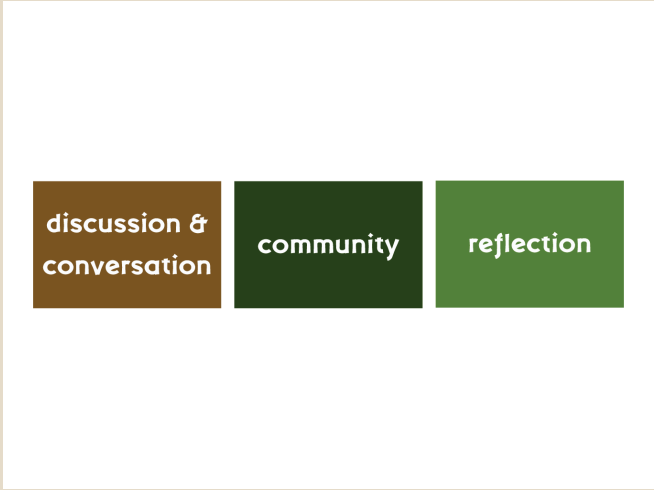


figure 7 - FMP proposal results

Final Master Project Proposal

During the Preparation FMP project, Expedition Career; the board game was developed as a first step to create better support for ID graduate students in their career development process. The results of this project showed great promise for developing the game itself further but also several other aspects of career guidance and development that were deemed important. I self-identified three of those aspects (figure 7) which formed the starting point for this semester project together with playtesting the board game, as due to sickness this was not possible before. The goal of this semester was to see what more could be designed in the realm of Expedition Career but beyond the bounds of the board game.

Playtesting Board Game

The first step in this process was to evaluate the designed board game with ID graduates in order to a) assess the current game play (i.e. mechanics, dynamics and aesthetics (Hunicke et al., 2004)) and b) assess its impact on career development and guidance.

Set-Up

The set-up (figure 8)(Appendix F) was designed and described in detail in the previous report, no changes were deemed necessary. In total three sessions, each comprised of 4 ID graduate students, were done to playtest the game. During each session, participants were asked to describe their current experiences and thoughts on career development and guidance after which they played the game together. Post-playing, they filled in a series of surveys that included the Game-Experience Questionnaire (GEQ)(IJsselsteijn et al., 2013), a set of self-developed questions to assess the impact of the game and the Tast Model as an evaluation tool (Appendix E).

Analysis

The quantitative data consists of Likert-scale questions. The GEQ provided their own method of analysis that was used, for the self-developed qualitative questions and Tast Model a similar method to the GEQ was adopted to analyze the data.

The qualitative data was analyzed using Inductive Thematic Analysis (Braun & Clark, 2006) to look for common themes and trends.

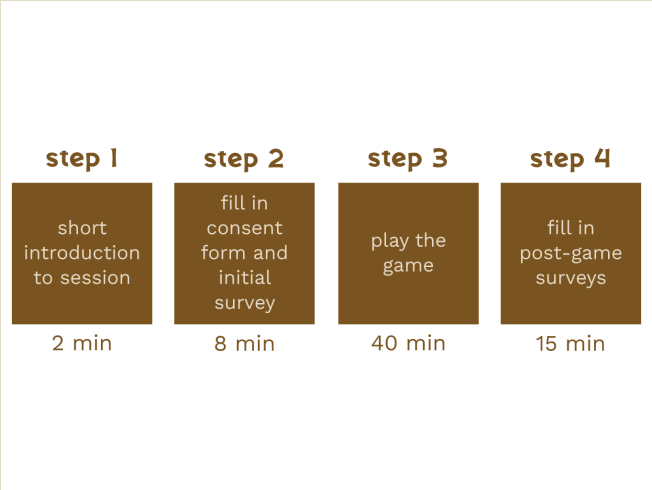


figure 8 - set-up playtesting

figure 9 - results initial survey

Results

The results from the initial surveys (figure 9) confirmed again that many students (9 out of 12) are not at all/not really aware of the available support for career development. The students also mentioned that they mostly just talked to others (e.g. peers, coaches, experts) about their PPD and were sometimes planning to take more action like visiting events but that was the current extent of their career development.

Post-playing, as expected there were many comments on the game itself (i.e. mechanics, dynamics and aesthetics). Participants commented on the nice aesthetic (6 out of 12), the social aspect (6 out of 12), the strategy of the game (9 out of 12) amongst other things.

"you want to play with it, mechanics and dynamics are also interesting"
"sparking social connections"

"i liked that you had to plan out your routes that where most efficient"

But they also highlighted the imperfections in the game rules and flow, emphasizing the need for further development on things like card collection (8 out of 12) and color identification (4 out of 12).

"took a long time to get the right cards"

"too high card stands, cannot really see the board"

"the colors of the cards and areas looked too similar"

Playtesting Board Game

The results from the quantitative results complemented these findings. The GEQ results (figure 10) showed fairly neutral scores and no big negative impacts on game experience. Although the Tast Model is not a validated research tool, it did give similar results to the GEQ (figure 11) but tended to give a little higher scores on game features.

Overall Scores (average value of its items)	out of 0-4	
Competence	1,87	
Sensory & Imaginative Immersion	1,79	
Flow	2,32	
Tension/Annoyance	0,64	*so no tension or annoyance*
Challenge	1,28	*so not a lot of challenge*
Negative affect	0,50	*so no negative affect*
Positive affect	2,92	
0.0 - 1.5	bad	
1.6 - 2.5	neutral	
2.6 - 4.0	good	

figure 10 - GEQ core module results

Overall Scores (average value of its items)	out of 1-7
inviting	5,4
intuitive	4,6
reflective	2,7
personal	3,5
interactive	5,4
flexible	3,8
social	4,1
1.0 - 3.0	bad
3.1 - 4.9	neutral
5.0 - 7.0	good

figure 11 - TAST model results

Participants were also asked to assess the value and impact of the game on career guidance and development. Many mentioned the value of the game being in the ability to create and spark awareness on career guidance (9 out of 12) and the 'socialness' it created by bringing students together (5 out of 12). They deemed this awareness to have great potential to help students in their developmental journey and the 'socialness' to help with learning from and with each other. But they also highlighted the missed opportunities for active reflection, more personalization and post-play support. The self-developed quantitative question analysis (figure 12) supported these findings and showed that there is room for improvement of the game.

"having an overview of career-activity options"

"the way it sparks a social activity between fellow students you do not know yet"

"just knowing what is out there helps me start the journey"

Overall Scores (average value of its items)	out of 1-7
Feeling supported	2,7
Feeling aware	2,9
Impact on decision after graduation	3,3
1.0 - 3.0	bad
3.1 - 4.9	neutral
5.0 - 7.0	good

figure 12 - results of own questions

"link between career opportunities & possibilities should be more integrated in the game"

"learn more about the options throughout the game"

"integrations of destination guide into the game is a must that would help me more"

"integrate personal development more throughout the gameplay to stimulate conscious reflection"

"connecting the game with the learning goals"

For the full set-up and results, see Appendix F.

Reflection Moment

The results of the playtesting sessions were similar to what was expected. Designing a board game of this caliber, needing to have to integrate many different aspects into a fun format that has a real impact, was quite a challenge. The sessions helped understand what development was needed to not only improve game experience but also impact. The game experience could be easily improved with small changes in practical things (e.g. changing some colors) but the impact needs to be explored a bit more in order to improve it. Creative solutions are needed to tackle the content of the game and make sure it is better suited to the students needs. I feel that this game was a good start to creating innovative support solutions for graduate students and their career development as well as my own development as a (game) designer.

Iteration 1

The next step was to take a step back and not only reflect on the direction of my project but also on my own (prospective) development. I did so by updating my PDP with the discoveries I made about myself in my past projects. Even though they were not big changes, I felt more able to add nuances in the way I describe myself as a designer and how I view (future) society. The past project and the project ahead only confirmed my passion for supporting individuals in their developmental journeys in life which led to me being able to address this further and better in my identity, vision and goals. On top of this, I used my FMP proposal goals as a reference point to look at the FMP rubrics and reflect on the development that was still needed and that I desired for the upcoming months. By doing this, I feel more confident to steer my project and development in the right direction and will take several moments to reflect and discuss with peers, coaches and experts to make sure I stay on track.

Benchmark Update

When my Final Master Proposal was accepted, the assessors highlighted a potential need for further benchmarking than I had done before to assess whether there were more (unconventional) products, systems or services to be included in my benchmarking and business analysis. In the updated version, I researched and explored student projects in the realm of education with a focus on PPD in any shape or form. The results (figure 13) are included in the benchmark chapter and business analysis (Appendix B) and helped create a better foundation of information for the future design of PPD artifacts in this project. Not only that, it helped inspire and explore new design/research avenues and approaches that I used my iterations.

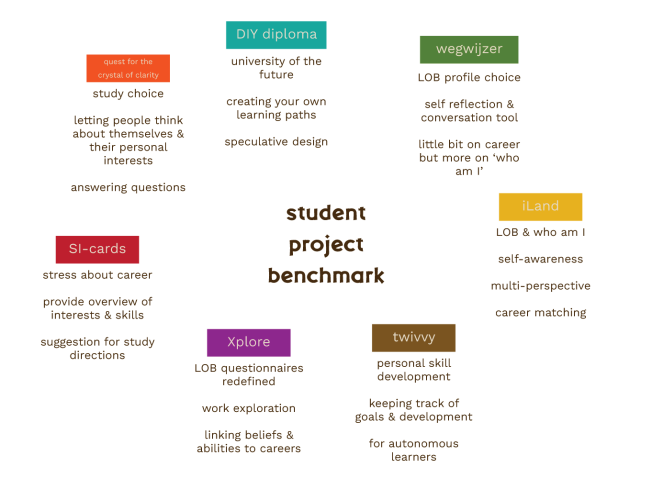


figure 13 - benchmark student projects

Pressure Cooker

A typical start to my work, is the use of a pressure cooker (Kulcsar, 2013). I prefer this method at the beginning of a project as a way to get out of a research phase and into a making phase. I feel that with the ending of my Preparation FMP and everything that followed, as described before, came with new insights, research and data to be included in a whole new design format and process. Therefore a pressure cooker was deemed suitable to help a) get an idea of what possible directions there are to explore in this project, b) create initial ideas for such artifacts, and c) put on my 'doing hat' instead of my 'thinking hat'.

Several new (to me) and old types of brainstorming activities were used to do a pressure cooker, including: lotus exercise (Lucid Meetings, n.d.), question storming (Means, 2023), starbursting (Kitch, 2023), and crazy eight's (Google, n.d.). The results varied from things to incorporate in designs to actual ideas (figure 14). Five ideas were taken, worked out a further on paper, and paper prototyped (figure 15, next page). The results from the pressure cooker showed that all ideas could still be linked directly to one of the three, or more, initial ideas described in my proposal (i.e. reflection, discussion and community). I also posed myself the question if they could be combined into one concept or if independent exploration was the way to go. Even though I created several ideas to explore further, I was unsure of what to do next and therefore decided to involve stakeholders to help me.

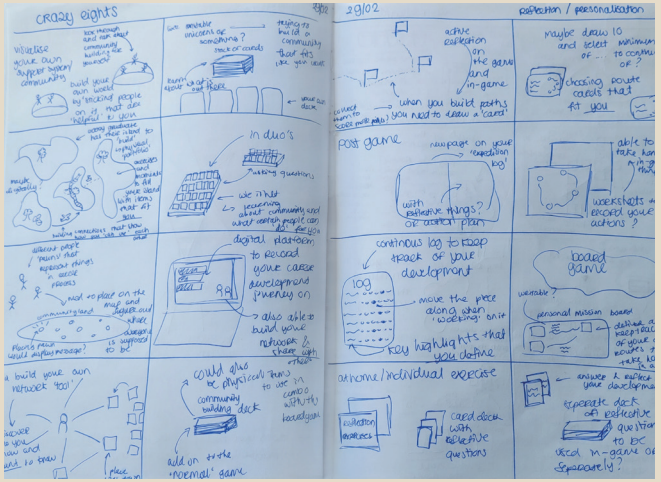


figure 14 - results pressure cooker

Iteration 1

figure 15 - paper prototypes

Involving Stakeholders

One of the opportunities identified in my SWOT analysis in my M2.1 was to work with our own faculty more in order to be able to design something that would be in line with their practices (figure 16). I reached out to Lu Yuan, our director of education, to get her perspective on my project and ideas as an expert on designing and shaping education.

I conducted an informal semi-structured interview (set-up: Appendix G) where we discussed a) the importance of PPD, b) PPD implementation at ID and TU/e, c) my project direction, and d) general thoughts and ideas on what is needed. The results showed two big opportunities for me to explore during this project. On the one hand, an embedded system approach could be done in order to design something that is 'ready' to be implemented and handed over to the department by looking at what is really needed and designing for the whole user journey. On the other hand, experience design is possible where the focus would be on creating a well-rounded learning experience with the product where the user's learning is put front and center. By Lu Yuan showing me her values and thoughts on the topic, I was able to further define a path for myself with some next steps. The interview helped me gain a sense of direction whilst also providing me with information that I could use to shape my designs so it will be ready for our department, which is an important feature to include to me.

	HELPFUL	HARMFUL
INTERNAL	**STRENGTHS** new form of support ID specific resources engaging & social real world representative	**WEAKNESSES** how to get students to play the game practical: how big will the box be, how to bring it to the students
EXTERNAL	**OPPORTUNITIES** expanding the world through adding more features working closely with the department to ensure it suits current education and could easily be integrated	**THREATS** digital games that are easily played department creating a new form of PPD support for graduate students

figure 16 - SWOT M2.1

My next step was to reach out to fellow designers and do a co-creation session (set-up: Appendix G)(Ind & Coates, 2013) to help explore several topics more in-depth. The goal was to have more inspiration that I could use to determine which direction to pursue and validate some ideas of my own by comparing it to the output of this session. 8 designers participated and brainstormed, using the crazy eights method, to explore these four topics: awareness, social & community, personalization & reflection, and conversation & discussion. The results (figure 17) showed a wide variety of small ideas for design solutions and mainly provided the inspiration that was needed to determine what to do next.

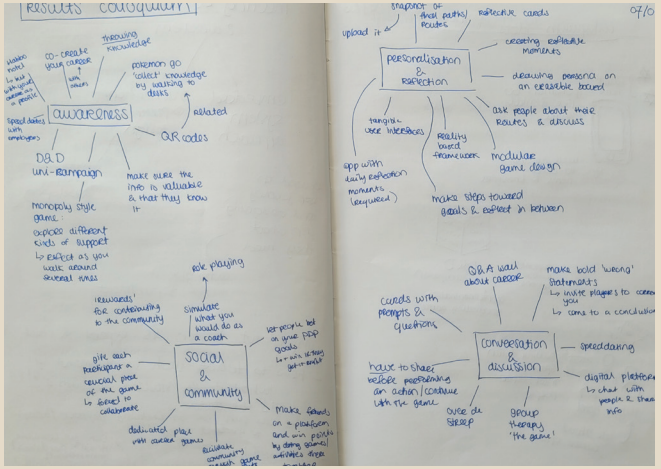


figure 17 - results designer co-creation

New Direction

Using the data gathered during stakeholder engagement moments in combination with the results of my own pressure cooker, I was able to define a direction for my project and deliverables. I chose to go the 'embedded system' route and focus on creating something that is in line with our educational practices at ID but also focusses on the bigger picture of PPD and career development so it can be ready to hand over to the department.

The direction is two-folded (figure 18, next page), my main focus will be the design of mini-games/expansion packs that are able to extend the world of Expedition Career beyond the board game and into the specific

Iteration 1

topics that were deemed important and ready for more in-depth exploration. During brainstorming, I realized that each topic could be integrated into separate designs or in one big design. My goal is to create solutions that target real needs, and by combining everything into one and trying to achieve it all, it would not be able to do so. By rather approaching it from a world of games, that would fit together but could stand alone, I felt all the needs could be addressed in-depth in individual games that are fast and easy to play which suited the context the best.

Secondly, I will include a digital platform where students are able to track their career development. By adding digital layers to the games, players can access more resources easily and save them for later. This moment of reflection and definition of the project definition marks the end of iteration 1 where the initial ideas were explored and used to determine ‘what is next?’.

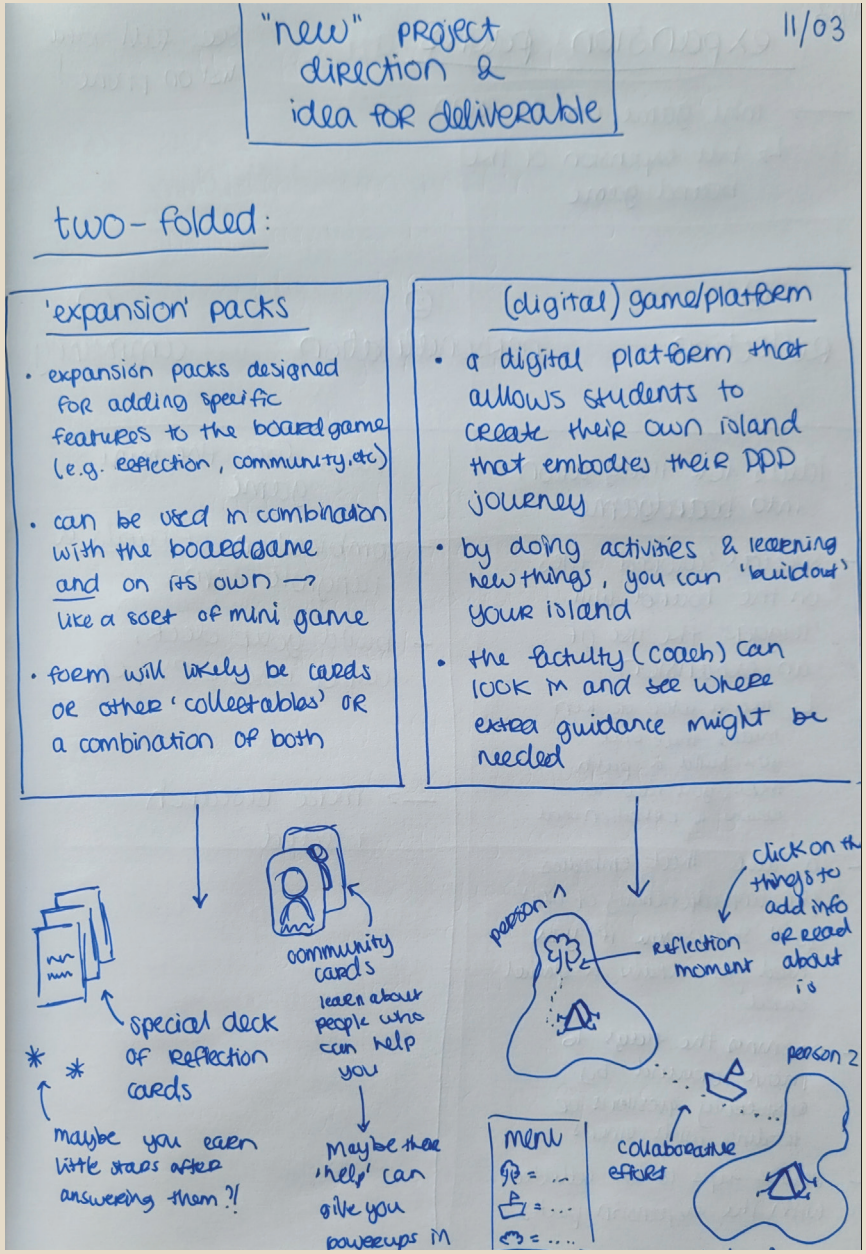


figure 18 - new project direction

Iteration 2

The second iteration centers around the exploration and design of the mini-games/ expansion packs. During my previous project, I designed my first full-fledged game from scratch using the MDA-framework (figure 19) (Hunicke et al., 2004). I found the process quite difficult and tried to use the framework as a tool to set up my own iteration activities to help me build the game. I decided that this time, to instead look at the market landscape and see what type of short form games (i.e. games that are easy and fast to play) are out there and analyze them using the MDA-framework (i.e. reverse engineering).

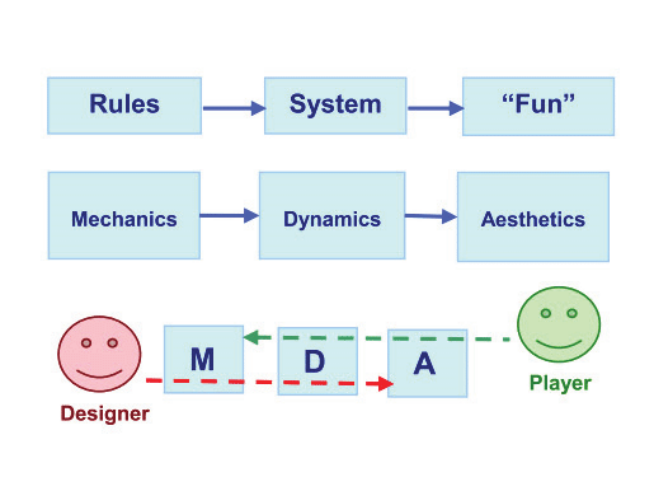


figure 19 - MDA framework (Hunicke et al., 2004)

In total, I reviewed around 70 games from various brands by watching their game explanations in the form of YouTube videos. YouTube is filled with videos where creators, either the brand or independent content creators, explain and review the game. This way, you can easily understand a game and its features by watching a 10-20 minute video (example figure 20) and see how it works without having to buy and play everything. Taking this approach allowed me to explore many games beyond what I have experience with and research what mechanics, dynamics and aesthetics they use. I ended up 25 in-depth reviews on short form games (figure 21) where 10 games were deemed suitable for further exploration using my own topics.

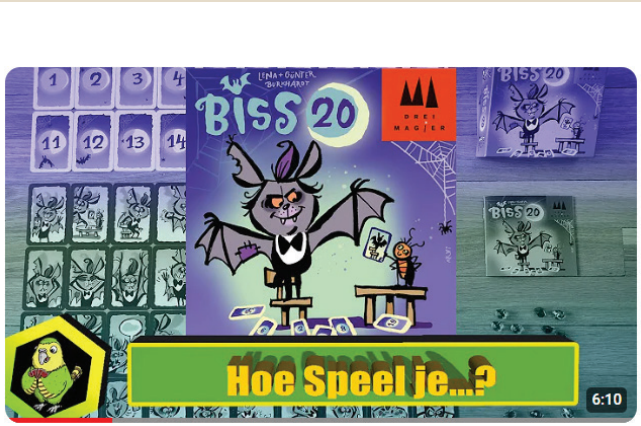


figure 20 - example of YouTube video by Lucky Bastard

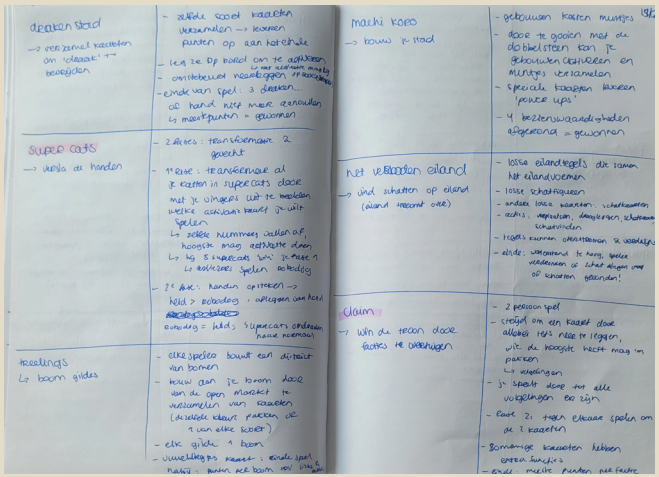


figure 21 - example page of in-depth game review

Mini Game Design

I used 10 in-depth game reviews (figure 22) to create four mini-games. The goal of this was to take the format of the 'real' game and apply my content to it so it would be suitable for career development and guidance. In the first versions I explored how the game flow and rules could be adapted to suit my context, after which I realized basic prototypes to test them out (figures 23).

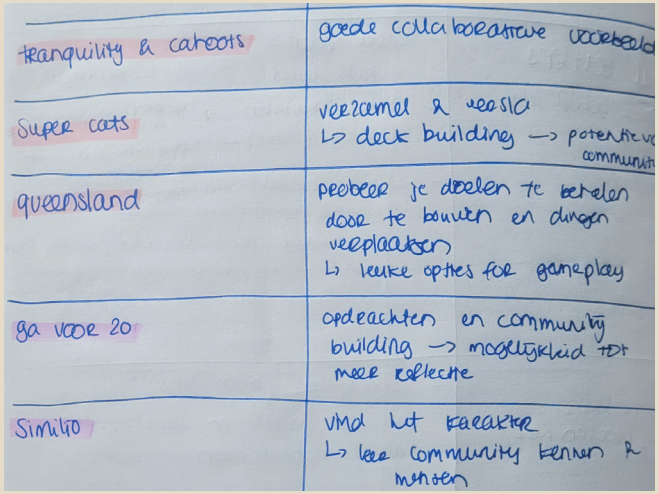


figure 22 - section of 10 game review options

figure 23 - mini game prototype

Iteration 2

Mini Game Testing

I reviewed the four mini-games (examples in figures 24 & 25) with 9 students. Each student reviewed one to two games by playing it against another student. I myself participated in the playing part when the number of players was too low to play the game, I did not evaluate them myself.

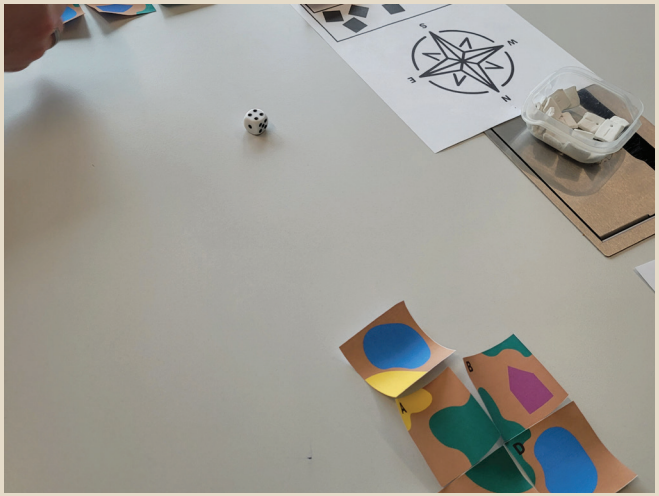


figure 24 - picture testing session 1

figure 25 - picture testing session 1

The goal of these sessions was not to see how much impact the games would have on career development and guidance but to see what their potential was. The games were very basic and used as a first probe to assess where there is room for improvement and impact.

After playing, participants answered a series of questions that asked them about their game experience and their perspective on the perceived impact of the game, as well as what was still needed to achieve this in the future. The results show great scores for game experience and as expected, lower scores on the impact and value for career development and guidance (figure 26). There was room for suggestions to be given by participants which helped to determine which games had the most potential game experience-wise and impact-wise.

For a full set-up and results of the mini game sessions, see Appendix G.

"i liked the part where we could tactically bid against each other" (based on 5 torens)

"There was more going on as you had to move pieces by the throw of other players as well. I also liked that it is a combination of strategy and a puzzle." (based on Queensland)

"By making the people mentioned on the cards have a bigger role in the game rather than them "just" being linked to a certain action" (based on Artisjokken)

"Tiles having different levels (difficulty)" (based on Queensland)

"Improvement on the questions that can provide support" (based on ga for 20)

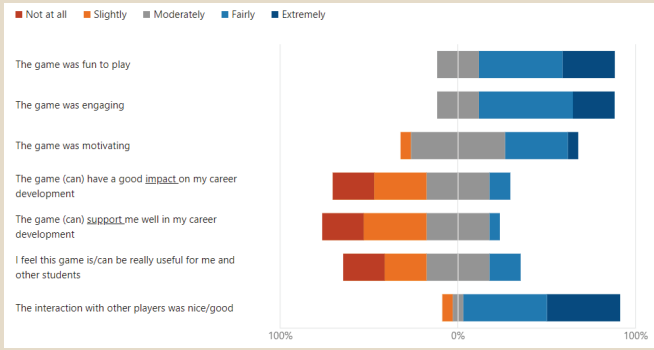


figure 26 - quantitative results

Reflection Moment

The playtesting sessions helped determine which games were ready for more development whilst trying a different approach to game design. This method allowed me to design a game based on content and use tried-and-true mechanics and dynamics to build it up. It made the process easier and enabled me to create several games and not just one. This approach helped show that and confirmed for me that this was a good direction to pursue where I would be able to tackle several important aspects and giving them the individual attention that each deserves in the form of an independent game.

On top of this, the potential impact of each game gave insight into what is needed in order for the game to have real value beyond a good game experience. The results provided me with inspiration on how to better integrate career development content into the games so that it would create such value. I used this input in the next steps to do so.

Iteration 3

Evaluating the mini games marked the ending of the second iteration and started this next phase of redesigning and further developing each game independently. I took a moment to evaluate each game myself using the data from the game review, the playtesting sessions and previous expert data. I then determined three out of the four games would be perfect to pursue further where each game would be able to focus on one of the three topics defined beforehand (i.e. reflection, conversation, community).

I redesigned each game (figures 27, 28, and 29) and made them full-fledged independent games created specifically for career development. Before, the career development aspect was just 'added' as a layer of sauce on top. In this new version, each aspect is more thought out and well-defined so it would, hopefully, be clear to players what the value of the game is. At this moment, I determined that a better look at the bigger picture was needed in order to refine the game designs and how they would function together. On top of this, the digital platform could now be conceptualized as the games were starting to take shape and gaps started to exist where the platform could be of use.

Involving Stakeholders

To help me take a look at the bigger picture and help me refine my ideas for the mini games, I approached two stakeholders: Linda Martens, our bachelor coordinator, and Martijn Westera, the innovation manager of Heutink (brand of education materials).

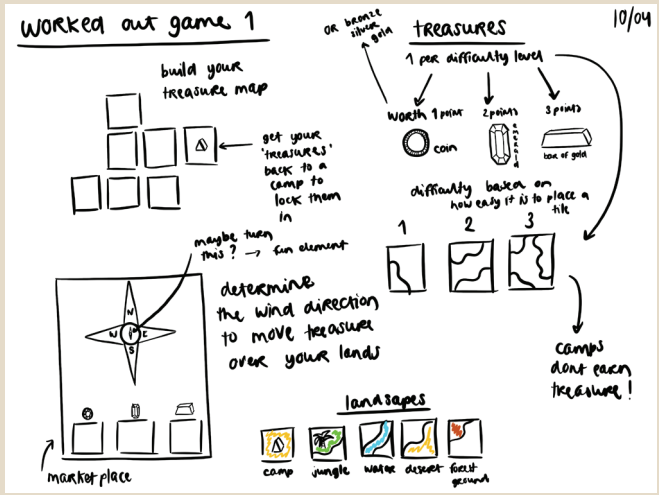


figure 27 - redesign game 1

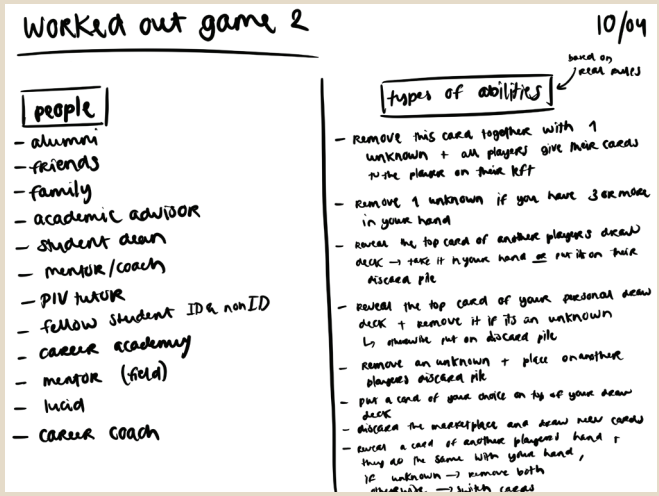


figure 28 - redesign game 2

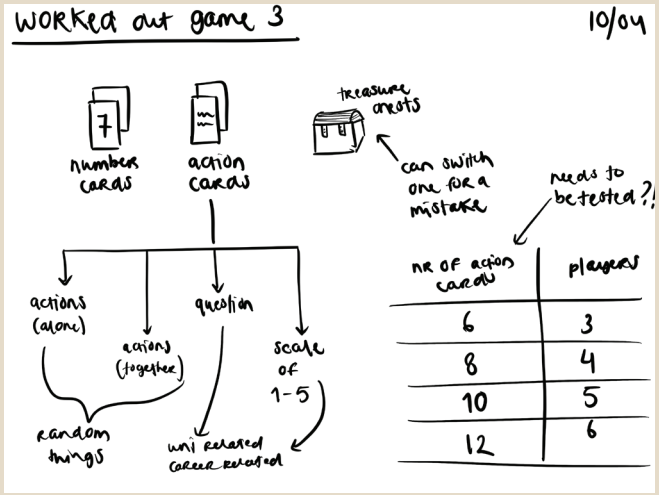


figure 29 - redesign game 3

With Linda I pursued an explorative (set-up: Appendix G) expert evaluation session. The goal was to explore current game designs and see where there is room for improvement. As our bachelor coordinator, Linda is at the front of designing the PPD learning lines for the bachelor, meaning that her perspective did help identify what are current strong features and which oversights were missed. Her input helped validate the project direction and the exploration of the three topics in the form of mini games. She also commented on our departments way of designing education using the Bloom's taxonomy (figure 30)(Bloom et al.,, 1956). Getting this input helped me assess the bigger picture of a potential learning line that my games could create for PPD but also look at what is still needed in order to align with the departments educational practices.

Iteration 3

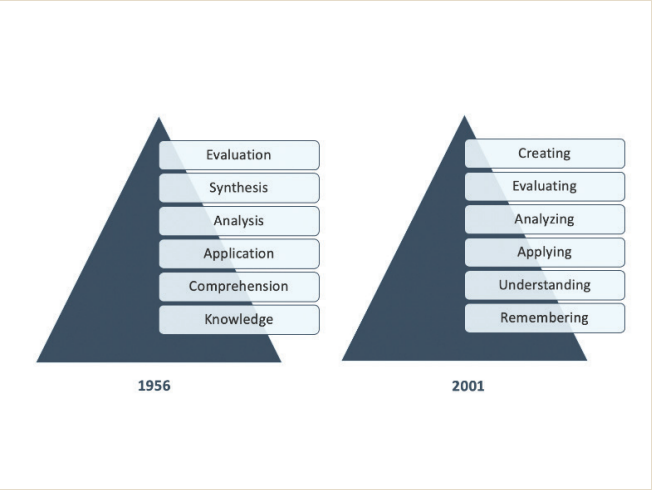


figure 30 - Bloom's taxonomy (Boom et al., 1956)

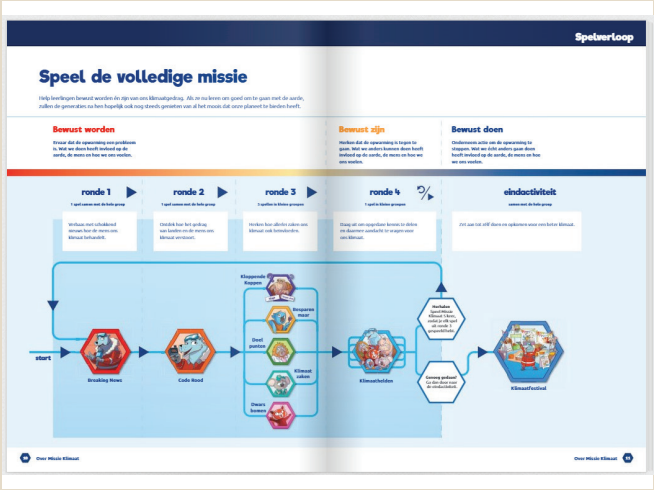


figure 31 - example project visualization Heutink

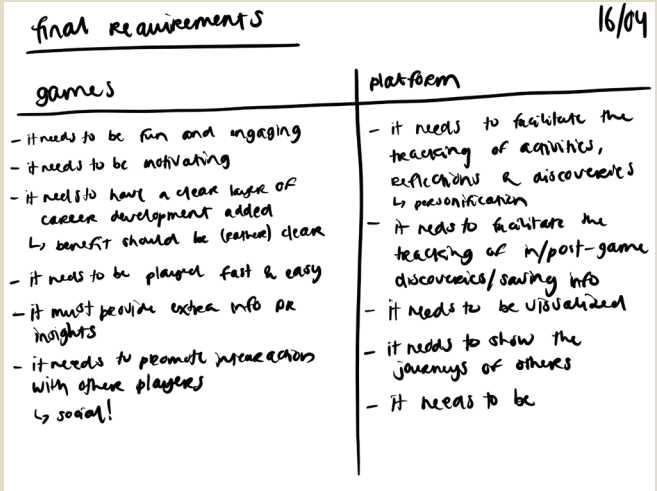


figure 32 - final requirements

Martijn was part of one of our squad events (of Games & Play) and during this session, I reached out to him and set up an explorative brainstorm session (set-up: Appendix G) to help me with making sense of the bigger picture behind my ideas. Even though Heutink primarily designs for primary education in the Netherlands, he is responsible for overseeing the bigger picture of innovation and design projects. He showed me several examples of ways to visualize and define learning lines (figure 31) in order to inspire me on how to approach that myself. His input helped see how my world of Expedition Career could come together and how they are to be used in relation to each other.

Final Requirements

The stakeholder involvements helped gain a sense of clarity of how to approach the next steps, which will on the one hand consist of realizing the games I have designed but also define how the bigger picture will look. These sessions itself were more informal and allowed for open brainstorming to find solutions to the challenges I was facing. I took a moment of reflection to evaluate what the final requirements of my design would be and visualize how it would all fit together. Using several business analysis tools, like SWOT and Unique Selling Points (USP's)(Appendix B), I was able to refine the requirement list (figure 32).

After doing so, I created a more structured planning of how I would be realizing this and see what I still wanted to achieve in my project and development. Being able to do this, helped me feel more confident in my work and process as well as provide a moment of critical reflection to assess if I was still on track of what I had intended and wanted to achieve.

Iteration 4

With the creation of the final requirements list and the USP's, I decided to create a new concept overview (figure 33) that I wanted to use to reach out to more diverse stakeholders and experts. In my proposal, I identified several risks to be managed during this project, one of which was that the products were currently only designed for ID students. I wanted to address this one specifically in two ways. First, I want to reach out to directors of education (or someone of similar statute) at other departments to discuss their approach to PPD and how well such games would suit them. And secondly, test one of the games with a group of non-ID students to see how the format and impact of such a game is experienced by people that are maybe not used to serious games for learning.

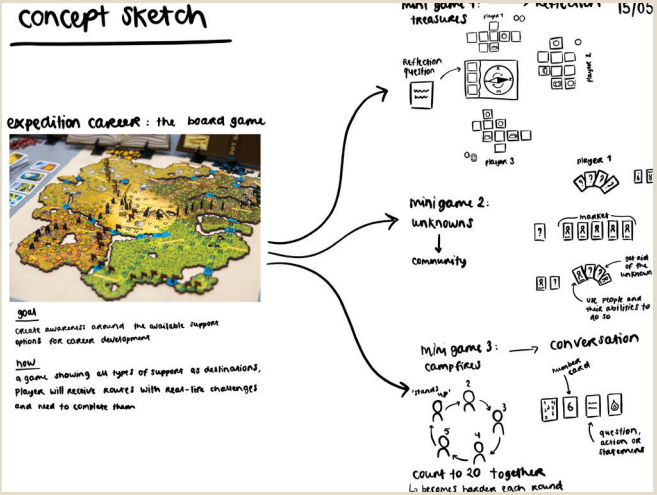


figure 33 - concept overview

Involving Stakeholders

The first step was to reach out again to Lu Yuan and do a similar session (set-up: Appendix G) to before to a) evaluate current ideas, and also b) discuss options for reaching out to other non-ID stakeholders. During the first part of our session, she gave some great input for the concept visual and how to further refine it and confirmed the formatting of the games and its contents were still aligned with her thoughts and opinions for PPD as program director. During the second part of the session, we discussed ways to reach out to others and she suggested she could talk to the other directors of education during a meeting and sending them a mini-proposal with an invitation to talk to me. With her help I was able to send out a short description, several photos and the USP's to all other directors of education and other important ESA people related to PPD.

"after I play the game I forget, so this (referring to digital platform integration) is good'

"if you have this, there should be a serious development, it should turn into educational activities"

"I first need this (referring to the concept) to propose the idea, then we need this (referring to the educational setup) to implement"

Through her contacts, I was able to set up a meeting with Paul Koenraad, the director of education for Applied Physics and Graduate School. During my session with him, we did a cognitive walkthrough (Lewis & Wharton, 1997) (set-up: Appendix G) of my project and everything I designed. We discussed the importance of PPD and specifically career development at the whole TU/e and he gave great insight into how other departments implement it and what their needs are. He was excited about the formats I had chosen to design support, and was interested in how the games functioned and what value they had to offer. He was specifically very invested in the reflective elements and commented frequently that such moments are crucial for any good PPD development of any student at the TU/e.

As expected, he did not have much design-related input for further refinement of the game design but did give me some great food for thought and insight on how such games could be useful and implemented in other departments. Figure 34 summarizes the key insights of this session.

"yes, I find this one really essential; self-reflection. And if I could realize a dream in the master, is that every student would have a coach that enables reflection"

"it can maybe already be too advanced for others" (referring to the learning line)

"good questions, all of them"

figure 34 - key insights session Paul

Iteration 4

At these moments, more meetings were scheduled. Paul Koenraad and Inge van Segelen-Damen, from General Affairs, will visit on Demoday to see the results of my project. Afterwards, a new meeting with Paul will be planned to discuss possibilities for pursuing this project further as he is really enthusiastic about its potential. A meeting with Deirde Homminga and Kathinka Rijk, responsible for PPD integration in CBL education across TU/e, is also on the books. Results from these moments will likely be discussed later on as most are scheduled after the report deadline.

Creation of Final Designs

Simultaneously, the creation of the final designs commenced. At first, the full branding of the project was redone in order to accommodate for the creation of three new mini games and a platform. This resulted in the creation of individual branding per game that is designed to fit together by sharing fonts and assets (figure 35). Doing so, also helps expand the business potential as all games can be seen and played as individual products but also come together as a one whole product.

After doing so, each mini game was realized (figure 36) in a few steps (Appendix D). The content for each game was created based on previous data and my own knowledge as PIV student mentor. For one of the games, unknowns, a mock-up of the platform integration was realized to include the information per person included in the game. This was done as a first proof-of-concept of how the platform is envisioned to be incorporated in the game experience and provide the information students likely need post-game play.

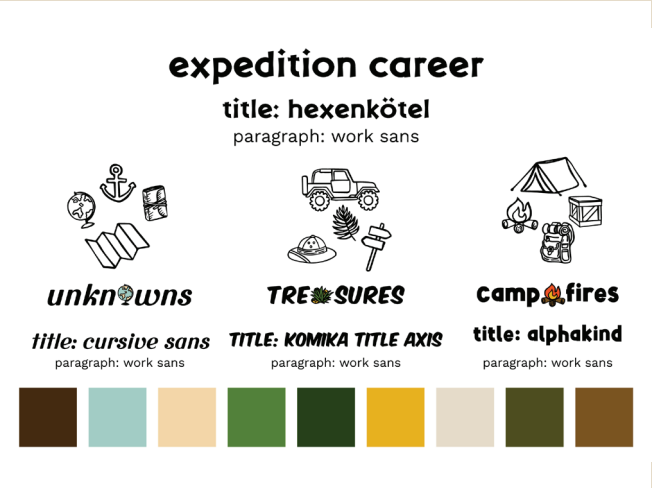


figure 35 - new branding

figure 36 - design mini games

The board game was also redesigned. A critical look at the data was taken to establish what improvements were needed (figure 37). These were then taken and used to create an improved board game (figure 38). All new prototypes were presented at Demoday and used for final testing.

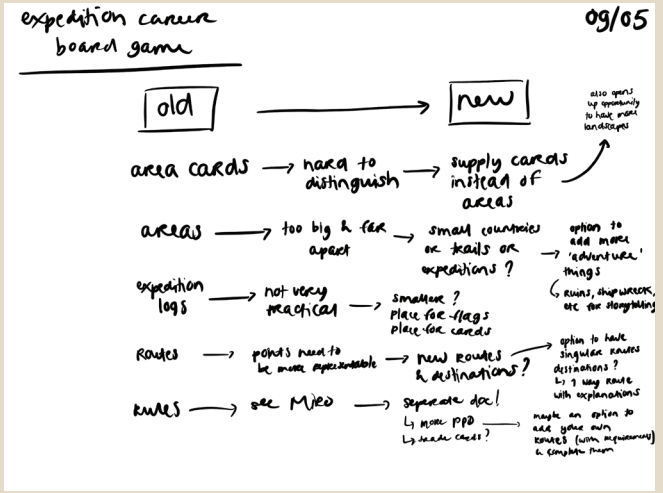


figure 37 - improvements needed board game

figure 38 - improved board game

The full set-up and results are described in the next section. Each game is fully described in the final design chapter as well as the conceptualization of the platform. For a more extensive version of how the final designs were created, see Appendix D.

Iteration 4

Digital Platform

Throughout the creation of the mini games, several gaps were identified and addressed with the use of a digital platform (figure 39). The platform was first conceptualized through several sketches portraying the main features (figures 40, 41, and 42). As described before, only the platform integration of Unknowns was mocked-up in Adobe XD.
I decided to take a different approach to conceptualizing and developing the platform further than I have previously done. By doing so, I felt I could develop myself further in several other expertise areas whilst actually learning how one could set up a platform like the professionals would.

I reached to an expert on web/software development, Pim Knops, lead tech at Studio Tast. During our meeting, he shared his expertise on developing such platforms and together we walked through the necessary steps I would need to take in order to realize my ideas. He shared several examples and approaches that I could use and we determined creating a High-Level Design (HLD)(Reeves, 1992) and database design (Wiederhold, 1983) would be suitable for my project. Instead of creating a full mock-up of the platform, I opted to look more into the realization of the platform, both front- and backend. Details of the platform, as a concept, is described in the next chapter, the HLD and database design can be found in Appendix C.

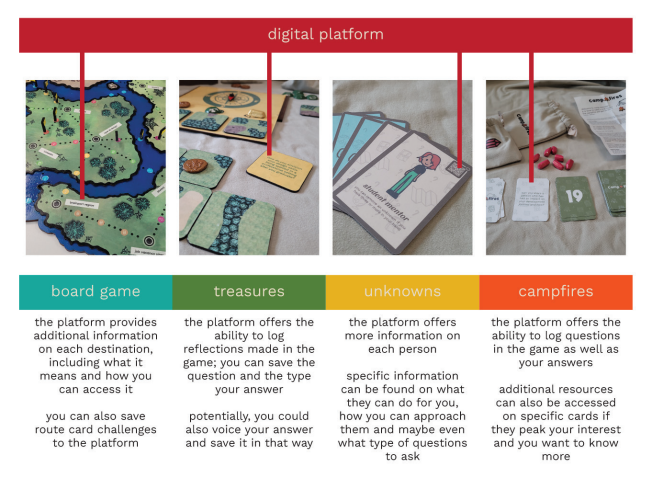


figure 39 - integration digital platform

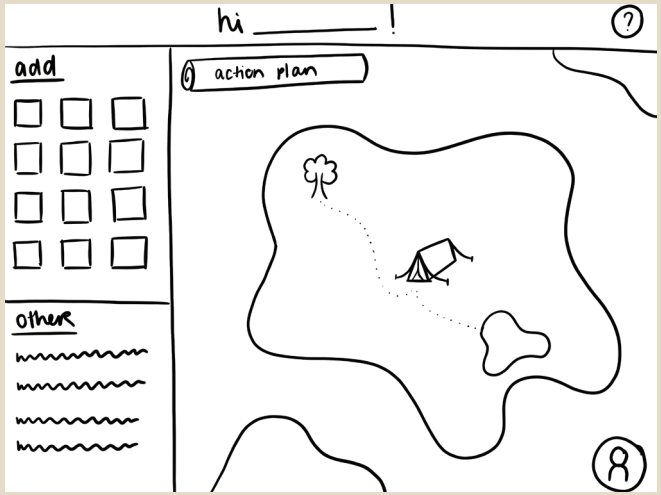


figure 40 - digital platform sketch 1

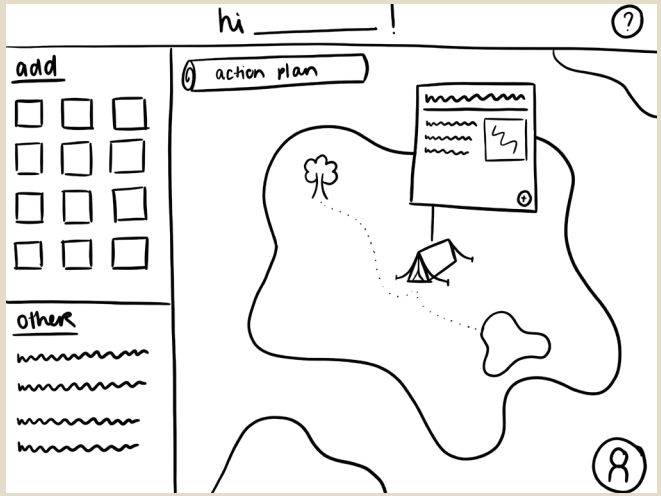


figure 41 - digital platform sketch 2

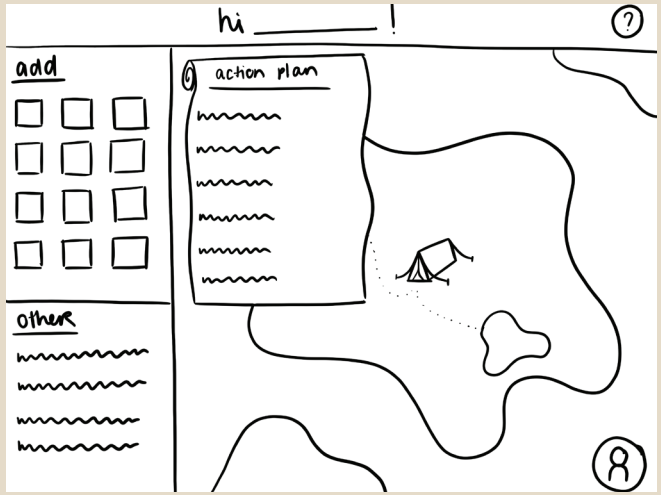


figure 42 - digital platform sketch 3

Playtesting & Validation

In total, 23 people participated in various sessions, with 20 ID students and 3 Electrical Engineering (EE) students. Figure 43 shows an overview of which games where played by how many people and how many times. The EE students were asked to play and evaluate the board game as this was designed to be the first step in the envisioned career development 'learning line'. Their data was not analyzed separately, as it was deemed not necessary to split it into two data sets due to the comparable results.

The set-up of all sessions was similar (figure 44). All participants were first asked to describe and evaluate their current experiences with career guidance and development, after which they were invited to play one or more games. After playing, each participant filled in an evaluative survey to assess the game experience and the impact of the game on career development. The post-game surveys featured the GEQ (core module and social presence) (IJsselsteijn et al., 2013) and a series of self-developed questions.

For the full set-up and results, see Appendix H.

Results

Initial Survey

When asked about their plans for after graduation, 11 out of 23 participants commented that they did not know or were still very unsure about their plans. The others that did reach a decision, and mentioned they talked to people or used past experiences as reflections to figure it out.

figure 43 - overview participants

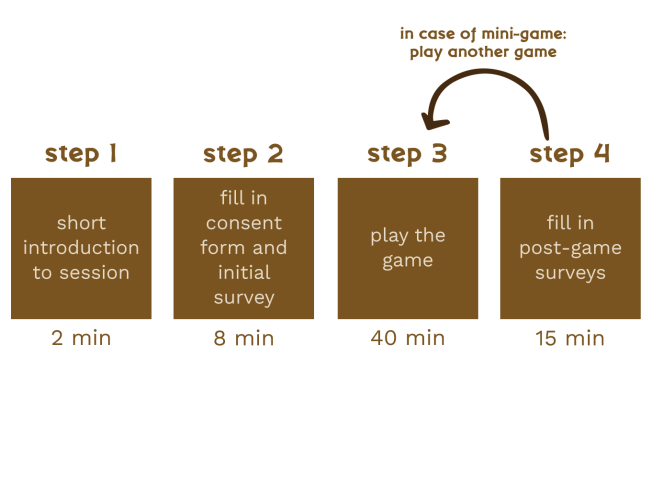


figure 44 - set-up

figure 45 - initial survey results 1

figure 46 - initial survey results 2

When asked on how supported they feel, more than half (figure 47), answered that they do not feel supported, many also reporting they are not aware of available options (figure 46). Their explanations range from not knowing what is out there to the standard things do not cover it and it all has to come from them.

Playtesting & Validation

The Board Game

The results of the board game are quite positive. The scores from the GEQ core module (figure 47) show an increased score for many elements compared to the first round of playtesting (figure 48). Also scores for the social module (figure 49) show slight increased empathy but comparable to previous results (figure 50). The results from the self-developed questions (figure 51) show a good score for game experience but a lower than expected one for impact on career development.

Looking at the qualitative data, we do find an explanation for the lower score of the impact of the game. Many participants commented that it would be a good icebreaker but that the link to career could be made more explicit. Some suggestions were also given on how to achieve this, so it the game could achieve its goal better (i.e. raising awareness).

"If you want it to be career focussed, it didn't feel currently to be really implemented, it helps with getting to know some terms though."

"Not how it is now as there is not really focus on the topic. Perhaps make an additional step when you accomplished a route to discuss the quote"

"would be nice as a reminder to what is out there, making it more aware"

"The way that it makes you realize about all possibilities. Because all things are on there and it makes you think a little about have I done this"

Overall Scores (average value of its items)	out of 1-5
Competence	3,63
Sensory & Imaginative Immersion	3,22
Flow	3,80
Tension/Annoyance	2,00
Challenge	2,20
Negative affect	1,67
Positive affect	4,54
1.0 - 2.5	bad
2.6 - 3.5	neutral
3.6 - 5.0	good

figure 47 - results GEQ core module

Overall Scores (average value of its items)	out of 1-5
Competence	2,87
Sensory & Imaginative Immersion	2,79
Flow	3,32
Tension/Annoyance	1,64
Challenge	2,28
Negative affect	1,50
Positive affect	3,92
1.0 - 2.5	bad
2.6 - 3.5	neutral
3.6 - 5.0	good

figure 48 - results GEQ core module playtesting round 1 (changed format so they can be compared)

Overall Scores (average value of its items)	out of 1-5
Physchological involvement - empathy	3,3
Physchological involvement - negative feelings	2,3
Behavioral involvement	1,9
1.0 - 2.5	bad
2.6 - 3.5	neutral
3.6 - 5.0	good

figure 49 - results GEQ social module

Overall Scores (average value of its items)	out of 1-5
Physchological involvement - empathy	3,0
Physchological involvement - negative feelings	2,1
Behavioral involvement	2,1
1.0 - 2.5	bad
2.6 - 3.5	neutral
3.6 - 5.0	good

figure 50 - results GEQ social module playtesting round 1 (changed format so they can be compared)

Overall Scores (average value of its items)	out of 1-5
Impact on Graduation	2,5
Game Experience	4,1
1.0 - 2.5	bad
2.6 - 3.5	neutral
3.6 - 5.0	good

figure 51 - results own questions

Playtesting & Validation

Unknowns

Unknowns (figure 52) turned out to be one of the more difficult games, with several participants mentioning difficulties with setting up. After getting it, participants mentioned the fast pace of the game and their liking of it. They also liked the socialness of it, both playing it with others but also learning about the people around you.

"Playing it as a social game"

"It was fun, I like that I can get cards from other players deck, affecting their gameplay based on my actions."

"i felt motivated to be as good as the others and try to snatch the cards from the market before they could"

Looking at the quantitative results, the scores are not too great. All scores are either on the neutral side (i.e. not good but also not bad) or on the bad side (figures 53 and 54). This confirms the qualitative results and highlights a need for more game development. The scores of the impact are very low (figure 55). Looking at the qualitative data, we can see that that is due to players not understanding what the value is. Some do mention that such a game would be beneficial, but many comments suggest that a better information integration (i.e. what information is integrated in the game and how) is needed to improve the impact of the game.

"What is the value for me?"

figure 52 - unknowns session

Overall Scores (average value of its items)	out of 1-5	
Competence	2,88	
Sensory & Imaginative Immersion	2,92	
Flow	2,60	
Tension/Annoyance	2,00	*this is good*
Challenge	2,18	
Negative affect	2,31	*this is good*
Positive affect	3,28	
1.0 - 2.5	bad	
2.6 - 3.5	neutral	
3.6 - 5.0	good	

figure 53 - results GEQ core module

"I am not sure how it has an impact there."

"I did immediately recognize the people in relation to career choice etc"

"i feel indifferent about this, i liked how it worked but i did not think oh i really really want to play this again to think about my career development. i put a lot of value to the connection to career development"

Overall Scores (average value of its items)	out of 1-5	
Physchological involvement - empathy	2,9	
Physchological involvement - negative feelings	2,5	*this is good*
Behavioral involvement	3,0	
1.0 - 2.5	bad	
2.6 - 3.5	neutral	
3.6 - 5.0	good	

figure 54 - results GEQ social module

Overall Scores (average value of its items)	out of 1-5
Impact on Graduation	1,9
Game Experience	2,8
1.0 - 2.5	bad
2.6 - 3.5	neutral
3.6 - 5.0	good

figure 55 - results own questions

During quantitative analysis, there were some potential outliers found in the dataset. Participant 6 often inputted a very low score in several surveys. Other participants were also highlighted when repeating a rating continuously. The qualitative data of these participants did not suggest such seemingly strong opinions so further research needs to be done to determine whether this was a one-time outlier or not.

Playtesting & Validation

Treasures

Treasures (figure 56) was given positive scores on several important aspects. Out of the four games, this one received the highest score on impact on career development (figure 59). The other quantitative data complements this result with neutral to good scores (figures 57 and 58), highlighting the overall positive experience of the game.

When looking at the qualitative data, you can see the positive feedback given on the look-and-feel of the game, the game play and the impact. Several of the frustrations mentioned are centred around the repetitiveness of some questions but no other big issues were raised.

"It actually made you reflect together with the other people about your life after university. Doing it with others makes me do this more properly."

"Aesthetics, trying to puzzle how a new piece would fit, thinking about my career, getting a camp each time after a certain player's turn"

"youre kinda just waiting for your turn, there's some discussion but it's better to not interact as much so you don't have to wait so long for your turn"

"Some questions felt very similar so looked like you answered questions twice. And somewhat frustrating if there is a question about something you are unsure about or don't really know"

The value, according to the participants, is found in the answering of the questions.

figure 56 - treasures session

Overall Scores (average value of its items)	out of 1-5	
Competence	3,20	
Sensory & Imaginative Immersion	3,33	
Flow	2,43	
Tension/Annoyance	1,62	this is good
Challenge	1,77	
Negative affect	2,07	this is good
Positive affect	3,71	
1.0 - 2.5	bad	
2.6 - 3.5	neutral	
3.6 - 5.0	good	

figure 57 - results GEQ core module

Doing so together makes it more motivating, players can learn from each other, you are forced to actively think about it and overall reflection is really happening actively in the game. Many participants also support the use of this game in PPD/career development settings and some suggestions are made to improve the impact even further.

Overall Scores (average value of its items)	out of 1-5	
Physchological involvement - empathy	3,4	
Physchological involvement - negative feelings	2,2	that is good
Behavioral involvement	3,0	
1.0 - 2.5	bad	
2.6 - 3.5	neutral	
3.6 - 5.0	good	

figure 58 - results GEQ social module

Overall Scores (average value of its items)	out of 1-5
Impact on Graduation	3,5
Game Experience	3,4
1.0 - 2.5	bad
2.6 - 3.5	neutral
3.6 - 5.0	good

figure 59 - results own questions

"I think it would be fun, it gives you an opportunity to come together with other students to reflect."

"it helps to more concretely think about your PI&V. But i wouldn't use this for first years and it might help to put some resources where you can find more info into the game/have a game master that can explain these resources"

"Maybe in combination with actionable conclusions/ references to resources available right now it mostly feels like thinking and discussing about your issues and I usually already do that"

"Could be nice to add to the piv sessions"

Playtesting & Validation

Campfires
Evaluated by the most participants, is Campfires (figure 60). Participants share their positive experiences of the game, which can be seen in the results of the GEQ (figures 61 and 62). The collaborative aspect of the game also presents higher scores on the social module (figure 63) when comparing it to the other games. Even though the impact is rated rather neutral, the quantitative data suggests a positive overall (learning) experience.

The qualitative data further extends on these findings by giving explanations to several of the scores given. Participants often mention the social aspect of the game in different ways, emphasizing the fun that it brought them and the impact that had on their experience. No big concerns were raised, and suggestions were centered around practical things like the rules and the answering of the questions (e.g. how to do so in this game setting).

"Fast-paced, fun"

"The questions felt more like a challenge to overcome than really answering them serieously"

"Thinking about graduation was very valuable and the interaction with other we had with that"

"Feeling capable remembering each prompt and focusing not to get stuff wrong or laughing when somebody else got it wrong."

"Adds a bit of play element to answering the questions."

figure 60 - campfires session

Overall Scores (average value of its items)	out of 1-5	
Competence	3,52	
Sensory & Imaginative Immersion	2,92	
Flow	3,33	
Tension/Annoyance	1,64	*this is good*
Challenge	2,83	
Negative affect	1,75	*this is good*
Positive affect	4,35	
1.0 - 2.5	bad	
2.6 - 3.5	neutral	
3.6 - 5.0	good	

figure 61 - results GEQ core module

When looking at the impact of the game, the overall consensus was that it would be fun and valuable to use in the context of PPD but some participants mentioned more development could help. They commented on the type of questions and prompts and taking actionable conclusions from it. But in the end, more than half propose it can have a place in career development support.

Overall Scores (average value of its items)	out of 1-5
Physchological involvement - empathy	3,9
Physchological involvement - negative feelings	2,3
Behavioral involvement	4,0
1.0 - 2.5	bad
2.6 - 3.5	neutral
3.6 - 5.0	good

figure 62 - results GEQ social module

Overall Scores (average value of its items)	out of 1-5
Impact on Graduation	2,8
Game Experience	4,2
1.0 - 2.5	bad
2.6 - 3.5	neutral
3.6 - 5.0	good

figure 63 - results own questions

"Yes, quick and fun way to discuss it."

"In this way not really since I feel that the questions are not important enough"

"Yes as it is a funny and witty way to discuss it"

"A bit, but the prompts go quite quickly in this game and sometimes i didn't remember the exact prompt."

Playtesting & Validation

Conclusion
Testing these four games gave a good impression into both the game experience and the impact of the game on career guidance and development. As I expected and hoped, the game experiences were scored quite positively across the board. The players often reported having fun and enjoyable experiences with small improvements to be made to make that even better. The impact of the games was not where I had hoped it would be but looking at all the data, is understandable. I believe it is crucial to each game how the information integration is done, in other words, which resources of career development are integrated and how that is done. For example, the unknowns game had quite a lot of information but did not present it to the players in an logical way. The board game still presented issues with the information integration as well, participants highlighting they did not use the destination guide at all. With new development, the information integration can be finetuned to the needs of all stakeholders (i.e. students and staff). And with improving that, I believe the impact of each game can be even better than before.

Involving the Faculty
Next to the playtesting sessions with students, several faculty members (pseudonymized) due to ERB requirements) were asked to evaluate the mini games. The goal of these sessions was to figure out if the format would work, if the aspects (i.e. reflection, conversation and community) were worked out well enough and identify if there any gaps or areas for improvement.

On top of this, we discussed potential next steps and what would be needed for implementation and deployment. This last part was used to create an implementation plan (Appendix B) which is to be used to assess the business potential and address steps for future development. All sessions followed a cognitive walkthrough format (Lewis & Wharton, 1997).

For the full set-up and results, see Appendix H.

First, participant 1 was consulted. Most comments and feedback on the mini games were centered around practical aspects. Due to their involvement throughout the project, each game was already validated throughout and no big issues to address were identified.

Several areas of improvement were addressed in each of the games, most to do with the integration of the information in the games. To the faculty it is important that it aligns with their needs and practices as well as with the students. This goes for really practical things like which people, resources and activities to include (i.e. as not to forget anything) but also for which descriptions and questions to use. Overall, the results were positive. Some good suggestions were given for future development, specifically how to make handover to the department possible. A suggestion was given to combine my results and proposal into an implementation plan to show the faculty what is needed to take such a project further.

“I think, for seeing it fast like this, it is definitely a logical structure for who can help you and how.” (unknowns)

“The questions are really good and nice, so not really any comments other than that.” (campfires)

“Does this (referring to the games) need to have another place? I was thinking about the information and how that then needs to be more specific.” (general comment)

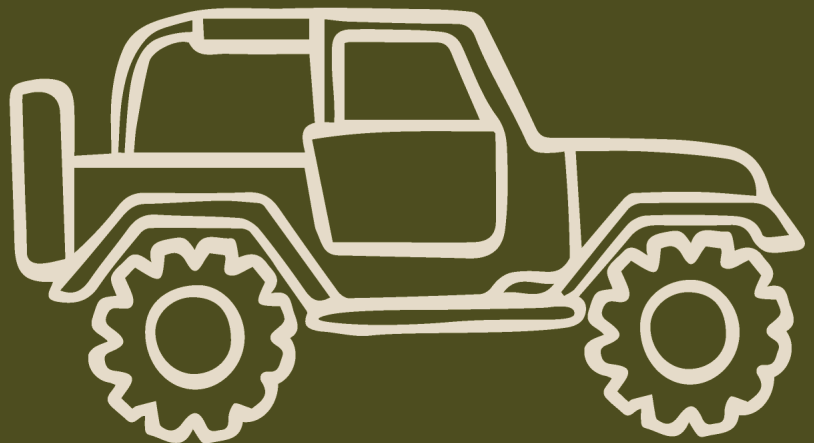
“Who determines whether an answer is good enough?” (treasures)

“I am thinking, if we would do something with this (referring to the games) how would we deploy this?” (general comment)

“If you would use this in a learning line, you would need to take a better look at this information to make sure all parties are involved and the information is correct.” (unknowns)

Secondly, other participants were also included in this validation. But these sessions are planned after the deadline of this report and will therefore be included at a later time.

Finalizing



Final Design

The final design of Expedition Career consists of a series of games and a supporting digital platform. Each is explained individually after which they are described as a learning line.

Expedition Career; the Board Game
The board game, suitable for 3-4 players, was designed primarily during my M2.1 project (figure 64) but received an update (figure 65). The goal is to raise awareness in graduate students at ID about available support for their career development by showing real-world resources, activities, people and reflection moments in the form of destinations on the map. Players need to complete route cards (figure 66) to earn points to win. Each route card displays a challenge faced by graduates that can be solved by visiting those two destinations.

figure 64 - M2.1 board game

figure 65 - FMP board game

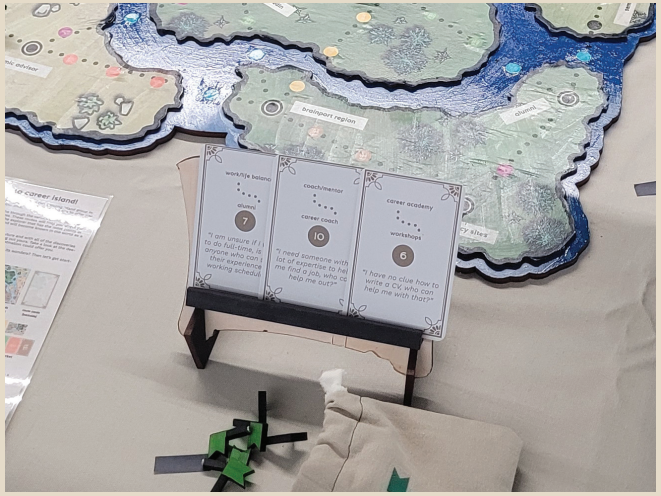


figure 66 - route cards

Players move across the board, starting in the middle and branching out from there. By collecting specifc gear, in the form of cards (figure 67), they can build paths. Once players collected the same amount of cards as dots between destinations, they can pay and place down their magnetic flags marks their expedition (figure 68).

figure 67 - gear cards

figure 68 - creating paths

Final Design

Treasures
Treasures (figure 69), suitable for 3-4 players, is designed for active reflection. Players are given four start tiles (figure 70) and sit in a wind direction determined by the compass and market in the center of the table. During a turn, players choose a tile from the market, ranging from easy to hard to place down. Players get rewarded with a bigger treasure, worth more points, if they are able to place it down in their landscape where all sides needs to be matching.

After a player has chosen a tile, they will turn it over and answer the question (figure 71). These questions are designed to target sub-topics concerning career guidance and development and range from easy to harder to answer. When a satisfactory answer is given, determined by other players, players can place it down and put the assigned treasure on top.

figure 69 - treasures

figure 70 - start tiles

figure 71 - question example

The goal of the game is to get the treasures into their camps where it is safe (figure 72), treasures in the camp turn into points (coins are worth 1 point, gems 2, and gold bars 3). Then the wind blows and moves the treasures to a nearby tile, the direction is determined by spinning the compass (figure 73).

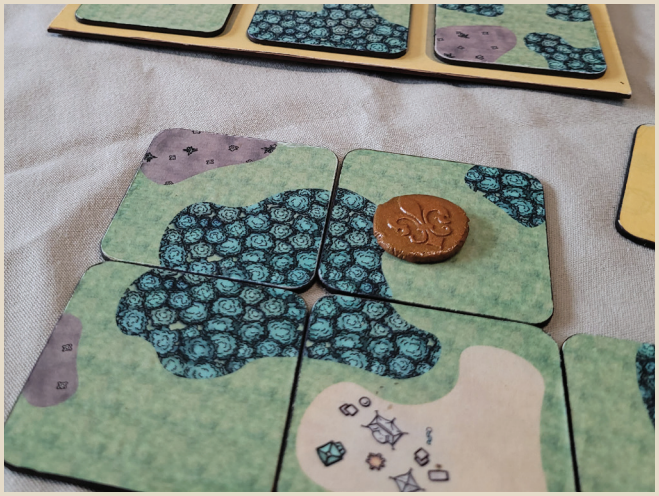


figure 72 - treasures and camp

figure 73 - compass

All players need to move all of their treasures in their landscapes one tile in the direction of the wind, hopefully getting it to camp. Once a player has a certain amount of points, the game ends and a winner is determined.

Final Design

Unknowns
Unknowns (figure 74), suitable for 2-4 players, aims to teach players about the people who can support you in your career development. The goal of the game is to get rid of the unknowns, a metaphor for not knowing what you want, by using people's abilities. The value sits in that students get to know the people that can help them, and also learn how they can 'use' them. Every person has an ability, something that they can help you with, these are translated into in-game abilities on the cards (figure 75). By gathering and playing these cards, players are able to get rid of the unknowns.

Players start with 5 unknowns (blue cards) in their hand (figure 76) and once they get rid of them, they win. By picking people from the market and using their abilities, they can do so and more.

figure 74 - unknowns

figure 75 - in-game abilities

figure 76 - example of unknown cards

Each time they need to put the cards they played on a discard pile and fill their hand up till 5 cards. Once you are lucky enough to grab no new unknowns, you have won.

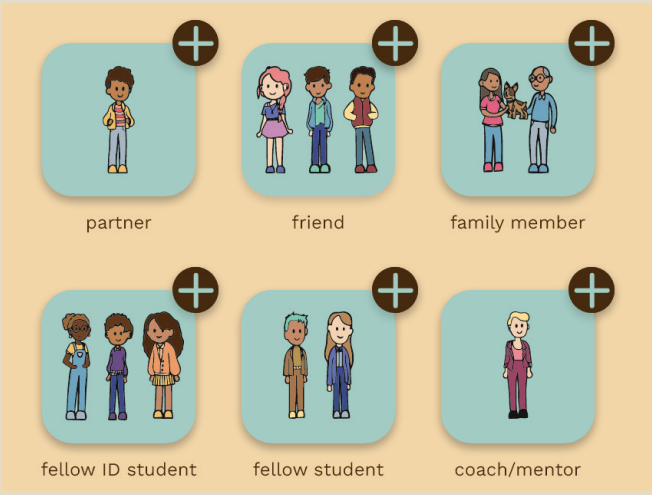


figure 77 - mock-up platform

figure 78 - description platform

The QR code leads to a mock-up of the digital platform integration (figure 77). Each person on the card is included and by clicking on them (figure 78), you can read about how they can help you. Future explorations could be done to see what kind of information can be shown here.

Final Design

Campfires
Campfires (figure 79), suitable for 3-6 players, is a collaborative game that aims to spark conversation in a social setting between students. Players play together to defeat the game in a simple way; counting to 20. It sounds easier than it is, because every time they successfully do so, a new action gets linked to a number, making it harder to remember if you need to say the number or perform an action.

The action cards (figure 80) feature four different categories (figure 81). Players shuffle this deck and draw the amount of action cards needed for their group size. Each time, they turn over an action card and a number card, after which these two will be linked. So instead of saying 7, you might need to put your hands over your ears.

Each round, a new action gets added, so all players need to remember these whilst counting. Once they make a mistake, they will need to use one of their crystals of regeneration (figure 82) to revive the team and start again. Once they have successfully counted and played all their action cards, they win.

Before starting the count, players need to discuss their answers. This opens up the conversation on career development. With a big selection of questions and actions, the game can be played various times and not be the same once.

figure 79 - campfires

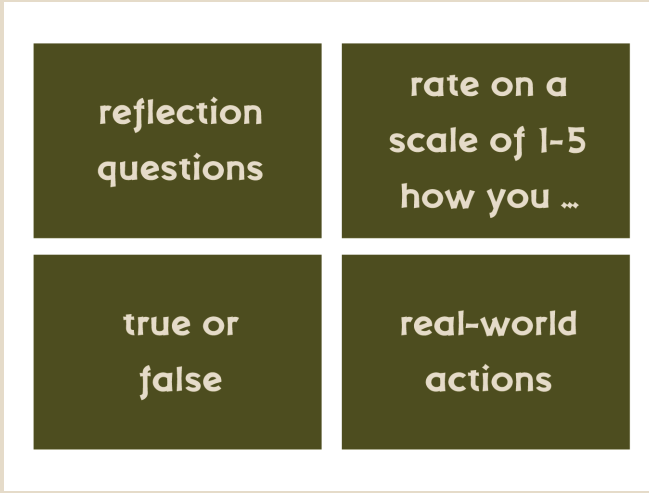


figure 81 - action categories

figure 80 - action cards

figure 82 - crystals of regeneration

Final Design

Digital Platform

The digital platform is designed to support the games and offer a new way of tracking career development. It consists of a 'portfolio' (figure 83), where every student can log their activities, discoveries and reflections on their island as well as future plans. The big sea holds all islands, so you can look at other student's development and get inspired. Each island is filled by drag-and-dropping elements on the island that are representative of an activity you have done (figure 84). For instance, visiting an industry event could be represented by a market stand.

The platform is also designed to provide additional resources to the games and log in-game experiences (figure 85). By integrating a digital layer to each game, students have the opportunity to it in-game which enables them to keep better track of their development and creating a seamless learning environment.

The digital platform was worked out in a High-Level Design (HLD)(Reeves, 1992) and a database design (Wiederhold, 1983)(figure 86). Taking this approach allows me to realize the digital platform differently than I had done before, challenging my skills, and makes it ready to be created by software developers.

The High-Level Design and database design can be found in Appendix C.

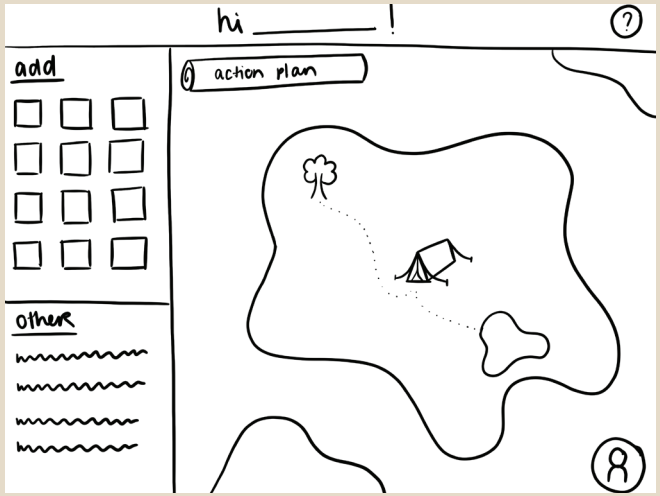


figure 83 - portfolio island

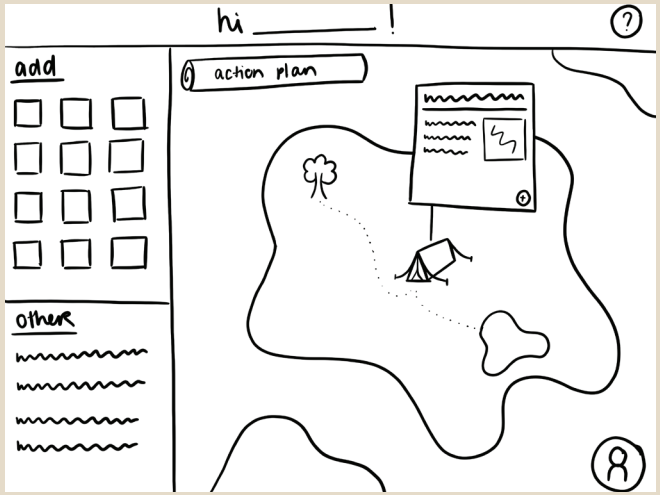


figure 84 - dropping elements

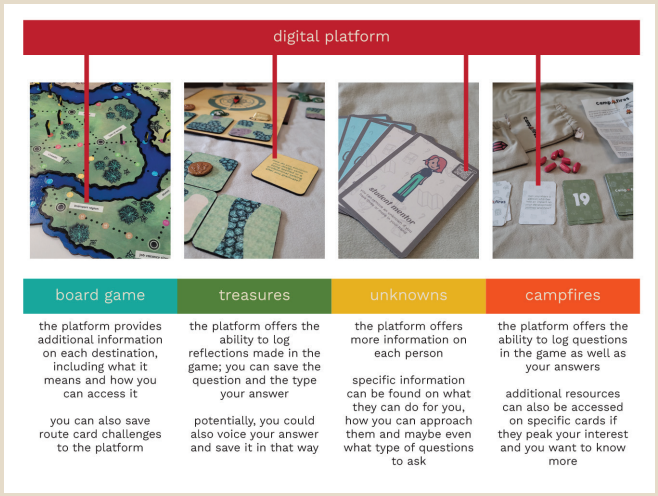


figure 85 - integration platform in games

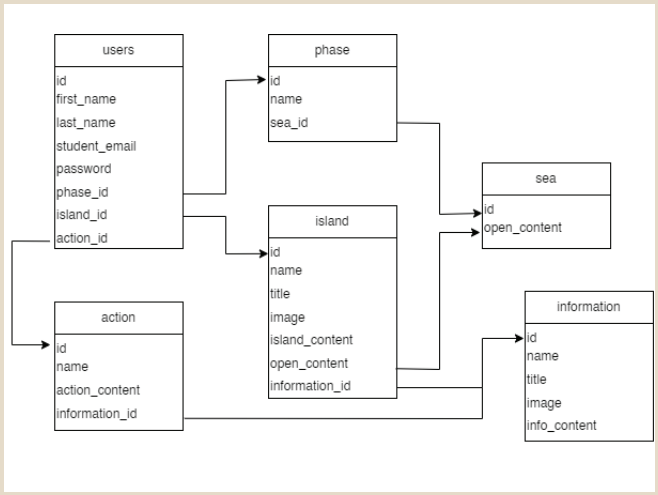


figure 86 - database design

Final Design

Expedition Career as Learning Line
All of this come together as one 'learning line'. Figure 87 shows the layers to this learning line, highlighting the bigger picture that these games and learning line fit in.

Figure 89 extends on this, visualizing how each game can be used and how the digital platform is integrated. It aims to show the relation between each game and how it is designed to be used on its own or in combination with others. Expedition Career is designed to be flexible and can be used to address specific learning objectives/needs (figure 88).

The learning line can be integrated in the current PPD/PIV programs and is suitable for all students. By integrating career guidance and development earlier, common problems that are currently experienced by graduates can be solved before they arise.

figure 88 - game play

figure 87 - the bigger picture

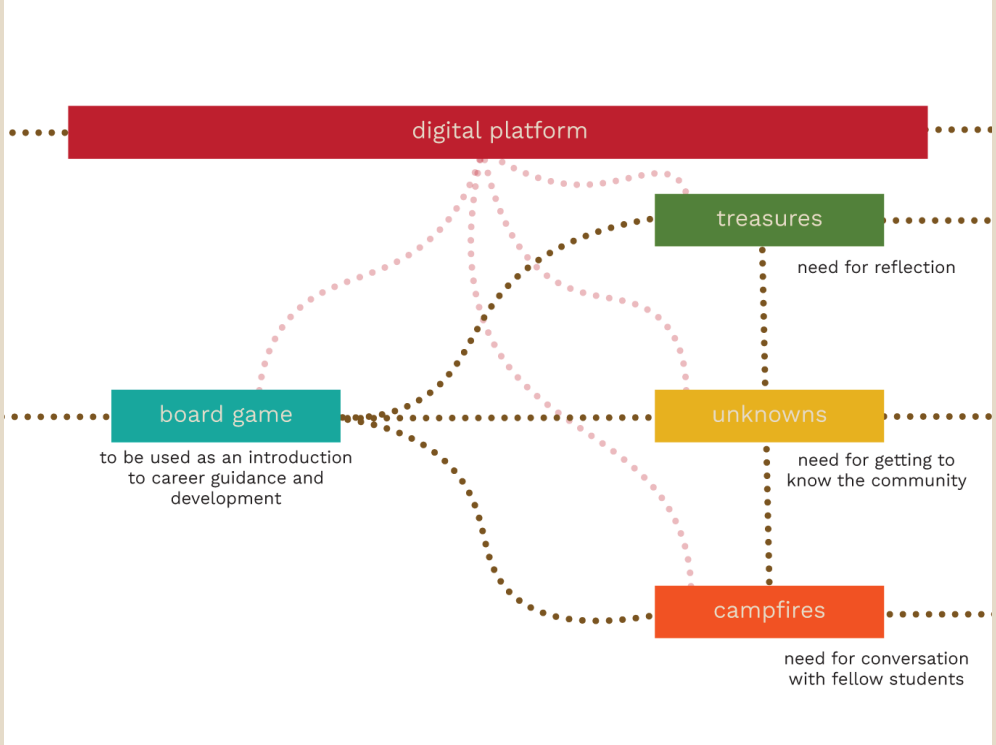


figure 89 - learning line

Business Considerations

The previous section showed how the games and platform relate to each other and to the bigger picture. This chapter extends on these findings by considering business strategies appropriate to take Expedition Career to the next level. In order to define this, a series of business tools were used to assess the current product and explore how it can be deployed. A suggestion was made to create an implementation plan, that would combine results from business analysis and user data into an actionable plan that the department can be used to see whether they want to pursue this further.

Before creating this plan, the SWOT analysis and USP's were revisited. I re-evaluated them and made small changes where needed (figures 90 and 91). Both analysis still showed a strong positioning of Expedition Career in the current design- and market landscape as there are limited competitors. What is good to note, is several most weaknesses/ threats are grounded in game development, confirmed by user data to be the resources and information that is integrated into the games that will determine the actual value. But with future development, this can be addressed.

Inspired by a customer/user journey map (Endmann & Kebner, 2016), I was able to map out the use of the products in a real-world scenario by using data from various stakeholders (figure 92). Creating this visualization helped understand how Expedition Career could be used in relation to PPD and extend on current practices. I elaborated upon this with the creation of the integration visualization (figure 93). This shows where the new learning line can be added and combined with current practises.

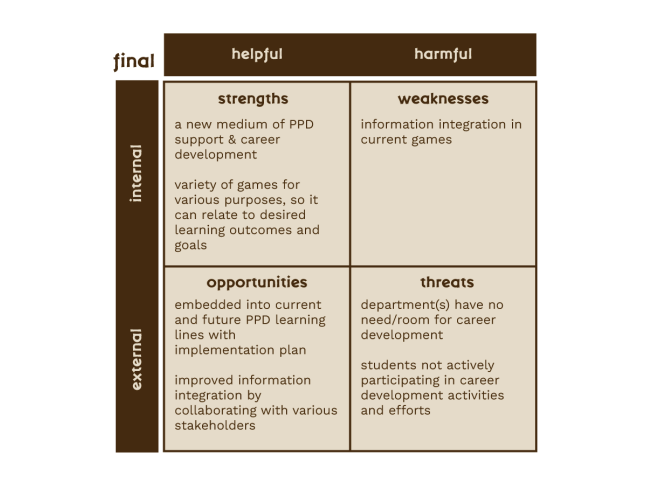


figure 90 - final SWOT

figure 91 - final USP's

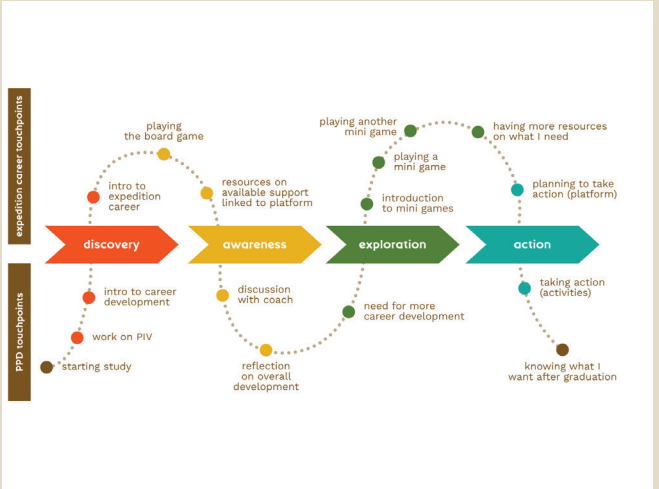


figure 92 - customer/user journey map

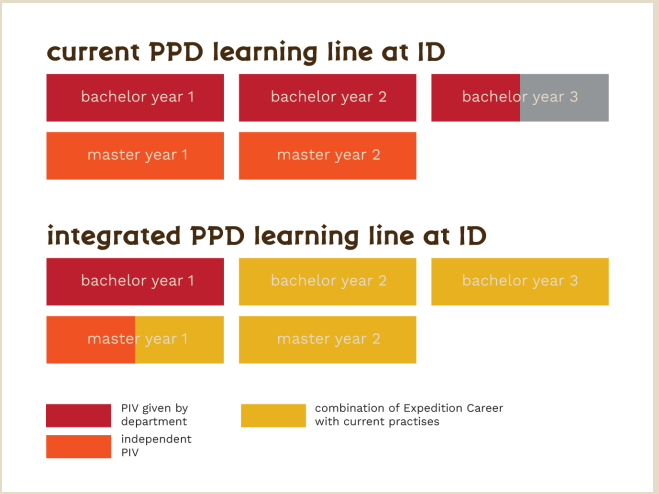


figure 93- Integration at ID

I combined all of the aforementioned results in an implementation plan, visualized in figure 94. This implementation plan aims to show what is needed in order to deploy this learning line at the department.

The full plan, including descriptions, can be found in Appendix B.

Business Considerations

Recommendations can also be made to introduce Expedition Career at other departments. Data from the sessions with EE students showed no big differences in learning experiences from the ID students, thus confirming that these types of tools can be used at other departments as well. Paul Koenraad also commented on the use of the games at other faculties, highlighting the importance of involving students and staff to make it suitable for their educational practices and mentioned that with more development it would be possible. Future testing and development should confirm whether these initial findings stay true but current results are promising.

Conclusion

All of the activities and analysis helped shape the business strategy suitable to take this project to the next level. In an ideal world, the department would want to pursue this project and the implementation plan gives insight into how we can do so. What role I would have in this, is still undefined but I would like to continue to collaborate and achieve the goals I have set out to do. The results presented here, helped assess the real potential of Expedition Career from different perspectives and with this I feel more confident to pitch this project with the proof-of-concept I have created. Conversations to do so are still in progress, and updates will be included at a later time.

figure 94 - implementation plan visualization

Discussion

The main objective of this project was to design new artifacts to extend the world of Expedition Career to further enrich the PPD learning experiences of graduate students whilst addressing the needs for career development and guidance at the department of Industrial Design. Whilst there are still many things to develop further, a proof-of-concept and notable progress in addressing the design goals was made.

Real Value & Support
The design of all artifacts were done using a foundation of information created from stakeholder data. Even though the information integration in the games could be better tailored, current findings support the claim that it is a good way of providing support and students do value all artifacts.

Extending the World
The design of all artifacts was done using previous design and research efforts. Even though all games can be used independently, several explorations were done to make sure they are able to come together in one learning line. Figure 92 shows what the world of Expedition Career consists of and how it is to be used successfully.

Seamless Integration at ID
A future proof business strategy was developed to assess the potential of a good integration into current PPD programs. Frequent collaboration efforts were made to gather data on how this could be done successfully which provided the main input for the proposed business strategy and fitting implementation plan that portrays future steps needed to implement and deploy this project successfully.

Limitations
Despite the proof-of-concept this project was able to deliver, there are several limitations to address.

One of the risks identified in the FMP proposal concerned the use of diverse stakeholders. I put a lot of effort into reaching out to stakeholders where appropriate and necessary, but feel there is still some missed potential. Reaching out to Lu Yuan, helped me approach other directors of education. Even though that brought great input, many did not even respond to her request.

There is a real need for PPD development due to the bachelor college redesign so I had hoped that more would share interest. Maybe the timing of the request did not fit their schedules but I would have liked to include more perspectives from other departments to help make a stronger recommendation that such a learning line could also be easily adapted and used in their PPD programs. This would have strengthened and expanded the business strategy and broaden the scope to create value and support beyond ID.

Another limitation, is the development of the digital platform. My aim was to extend the world of Expedition Career but I mainly focused on creating tangible design solutions. My strength is in creating such artifacts but I did want to put effort in developing a platform to challenge myself. In the end, I was able to create a High-Level Design (HLD)(Reeves, 1992) and database design (Wiederhold , 1983) that helped me expand my skills in this area.

I had hoped to create integrated mock-ups for each game but only one was achievable, the others were conceptualized. Doing so, could have led to better responses in playtesting on information integration, which was one of the main concerns.

Future Work
As an extension on the goals and limitations, several steps can be undertaken to successfully pursue Expedition Career further.

Improve Game Experience
To further improve the game experience, a closer look needs to be taken into the current mechanics, dynamics and aesthetics of the games. Playtesting sessions confirmed that several things could have gone better. Areas of improvement need to be identified and addressed in order to ensure smooth game set-up, flow and experience.

Improve Value
The games are currently assessed as having value or potential but development is needed to strengthen that claim. Current information integration (i.e. how resources and information is integrated in the game) can be improved, as confirmed by playtesting. New testing needs to be done in order to establish what needs to be improved upon. Co-creation/co-design with stakeholders can be used to determine the most appropriate and effective information integration for each game.

Discussion

Implementation & Deployment
In order to assess the effectiveness of the learning line, the implementation plan (figure 95) needs to be tested. Testing on a bigger scale, with students and staff, is crucial to ensure success. Data from such sessions can be used to determine whether a) such a learning line is wanted and needed, b) appropriate for educational practices, and c) if there are any gaps to address.

Involving other Faculties and Universities
The world of Expedition Career is currently designed for ID graduate students, strong recommendations can be made that it can create value for other departments too. To further examine this, more faculties (students and staff) need to be consulted. Also a redesign per department is likely, as each will have specific needs for their students that need to be targeted. In this way, the world of Expedition Career can be even further extended beyond its current games by the creation of more games that tailor to the needs of other stakeholders. After successfully working with other TU/e faculties, other higher education institutes could be included as well.

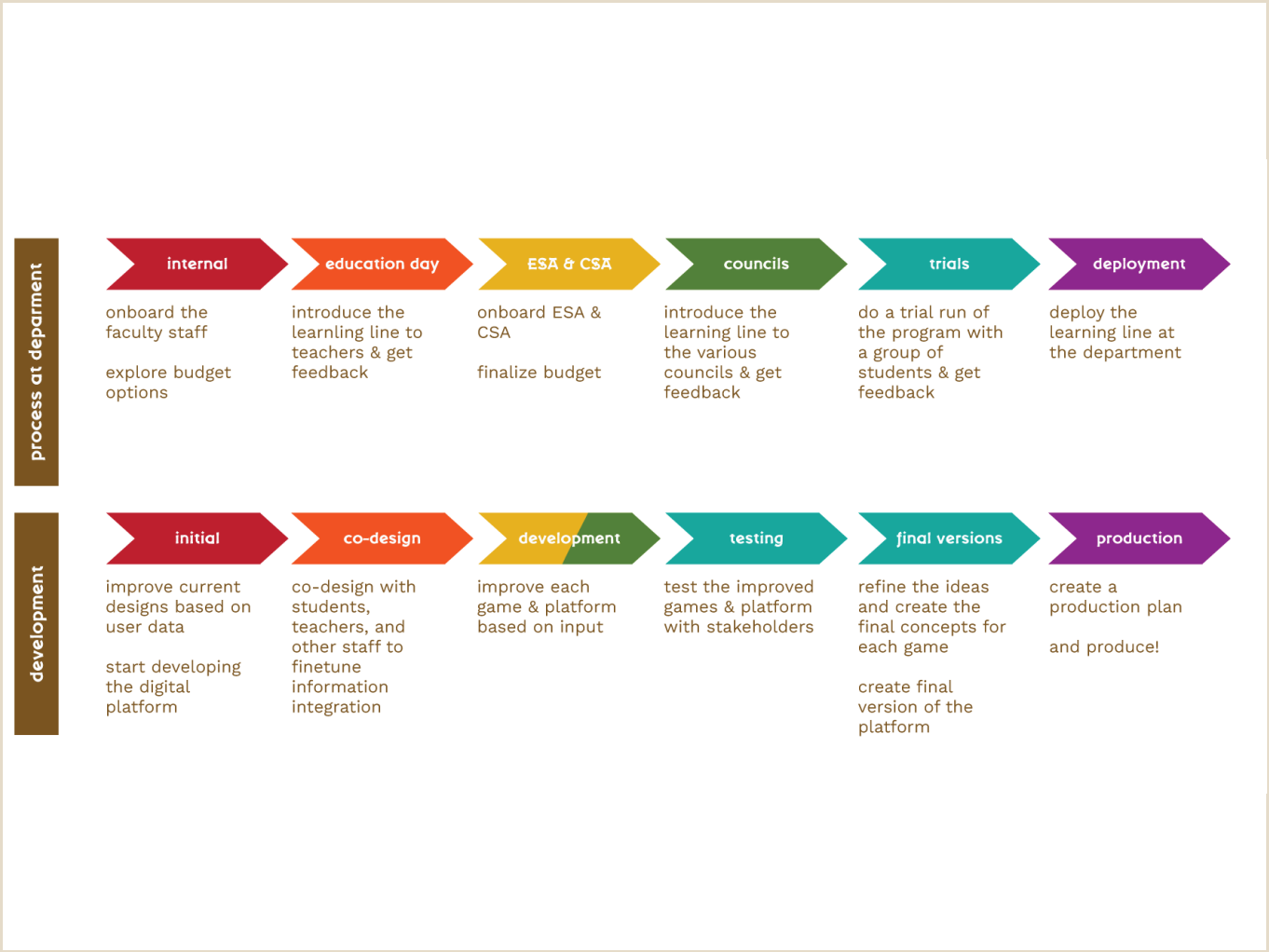


figure 95 - implementation plan visualization

Conclusion

This report provides a proof-of-concept and lays out a plan to take this project further. The world of Expedition Career as a learning line is able to support career guidance and development at the department of Industrial Design in a new innovative way.

Each game is designed to support a specific need addressed by stakeholders in an engaging, motivating and educational way. The process of creating such artifacts (figure 96) proved great insight into the current challenges and opportunities in the domain of PPD in higher education and ways to address them. Looking to the future, an implementation plan realizes the future-proof business strategy in a way that makes successful integration and deployment into our educational practices possible.

The iterative, reflective and user-centered approach to this project helped achieve the design goals defined at the beginning of the project. With the help of various diverse stakeholders, ranging from student to staff and other experts, a foundation of information was created that was used to design effective and valuable tools for career guidance and development.

Overall, the world of Expedition Career offers students a new way of learning through gamification to create richer learning experiences. Conversations are still being held on pursuing it further, but all ideas are met with great enthusiasm and motivation which only emphasizes the potential and importance that such educational tools can have on all students.

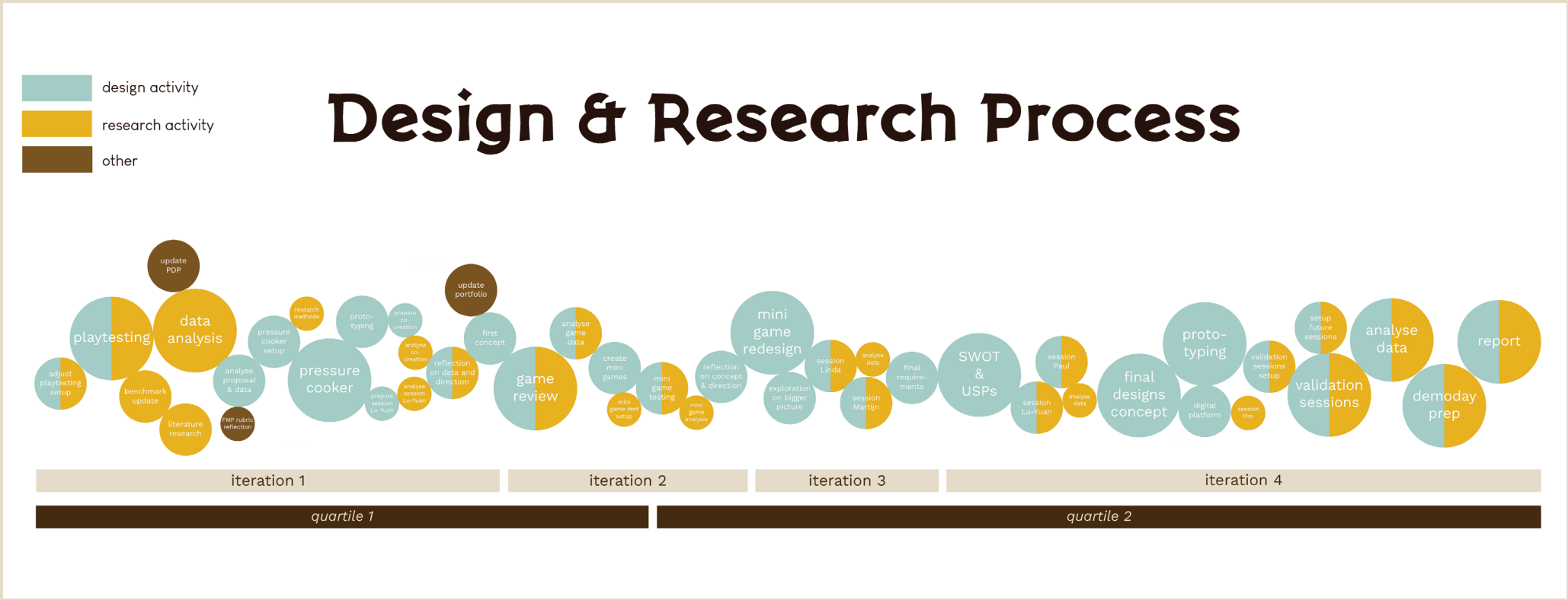


figure 96 - Design and Research Process Visualization

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Appendix

A: Design & Research Process Visual

B: Business Analysis
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  - Results
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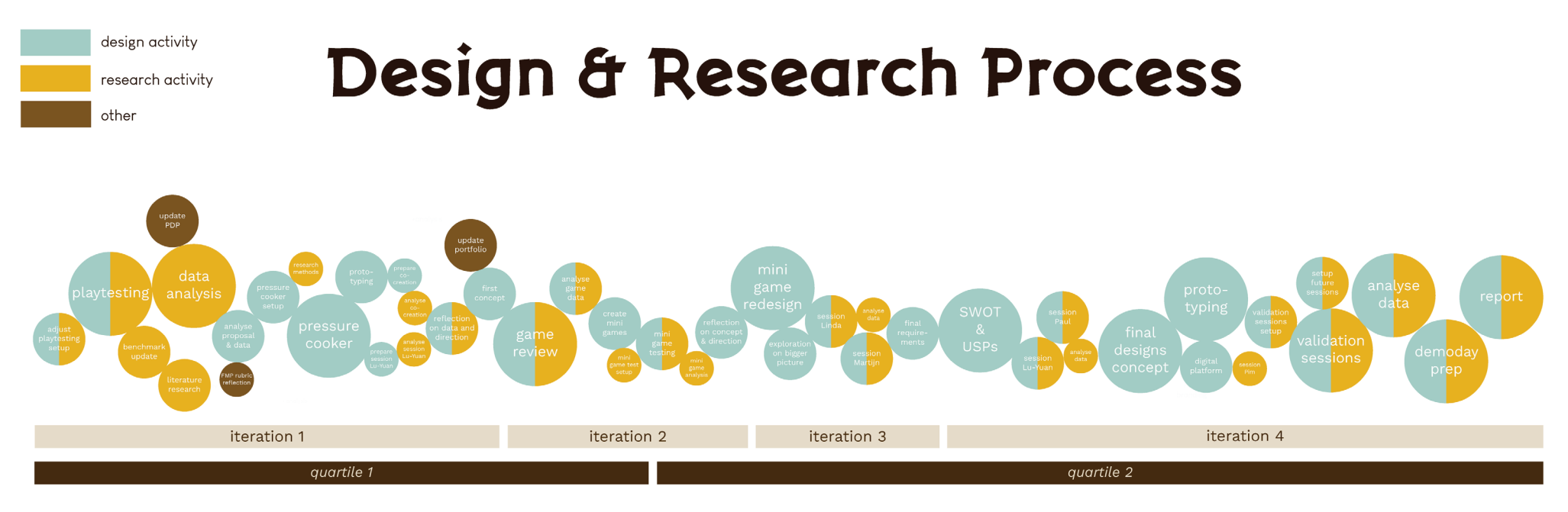
- H4: Playtesting Mini Games - Results
- H5: Cognitive Walkthrough
  - Set-Up
  - Results

I: ERB's

Appendix A - Design & Research Process Visual



Appendix B - Business Analysis

In order to create a strong business positioning of Expedition Career, several tools and assessments were done next to the validation and user research efforts. This section describes the mains steps taken and combines the results in an implementation plan.

B1: Benchmark

During this project, several benchmarks or competitor analysis's were done in order to understand and assess the market- and design landscape surrounding the project/ game.

Initial Benchmark (M2.1)

The initial benchmark was done with the aim to get a good understanding of current tools out there with the same purpose of supporting with career guidance. Within this initial analysis, I looked into games, tools developed by companies and tools developed through research. Figure 1 shows an overview of the results.

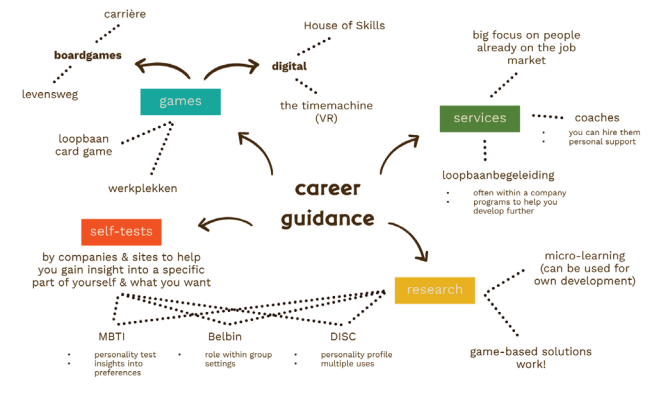


figure 1 - initial benchmark

The results indicate that there was no similar product, service or system currently available for career guidance. Talking specifically about graduate students, there were even slimmer pickings. This meant there was an opportunity and space in the market for developing a tool. The identified 'competitors' were used in future steps as inspiration sources, using elements that their customers/users thought to be impactful/ useful to inform design decisions.

Support within Faculty and TU/e (M2.1)

After doing an initial benchmark, it was clear that more information was needed about the available options within our own faculty and TU/e. I myself did not even know many options available in our educational institute which led me to think there might be more out there that graduate students were also unaware of. Doing this analysis, led me to the following mapping shown in figure 2 and 3.

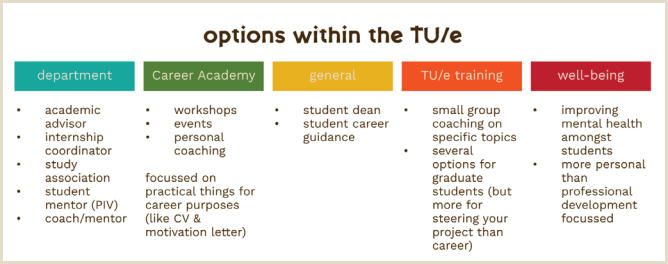


figure 2 - overview of TU/e options

figure 3 - supporting stakeholder options

I gathered this data in various ways, most of them I found doing an extensive internet search on current TU/e websites and platforms whilst I got a few from doing user research. Several interviewees also mentioned the TU/e and faculty are currently working on making this type of information more explicit to the students, but posters containing this information is mostly targeted towards students with personal challenges not career ones specifically. This mapping was mainly used during the project during the development of the platforms which later turned into the destinations. I used the information gathered during this activity and translated it into game elements whilst also providing more options in the destination guide of the information I found here.

Business Analysis

To extend upon the previous benchmarking done, mainly in the M2.1 project, a student project analysis was performed. The aim of this new round of benchmarking was to find similar projects, in the educational space, that could inspire and give insight into undiscovered opportunities for project direction and deliverables as well as missed literature research. Figure 4 shows an overview of the results of this benchmark, highlighting several student projects found on the Demoday website. For each project, the report was accessed and analysed for insights.

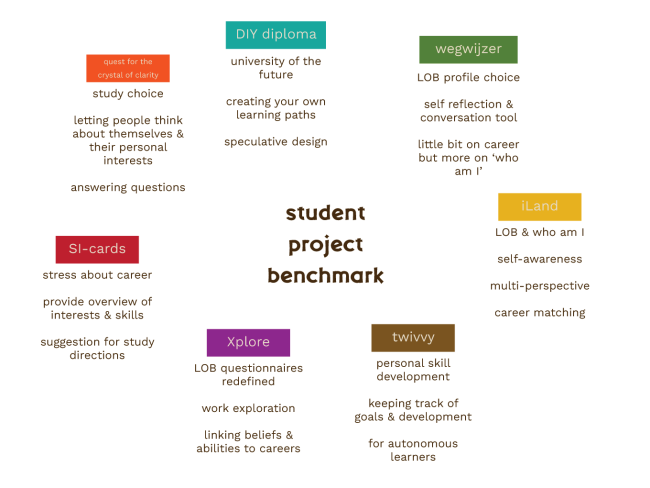


figure 4 - student project benchmark

The results of this benchmark helped find some new areas of research potentially interesting to the project. Desk research was done to assess the usability of these reports and papers. In the end, the benchmark provided some new inspiration on how to take on the project and determine a suitable direction.

B2: SWOT

Throughout the project, several SWOT analysis were conducted in order to reflect and assess the current business potential of the project. This section shows and describes each one, including a final version that concludes the final positioning of the project.

First, an analysis of the mini games was done to see what the weaknesses were that could still be addressed in development. Using the mini game testing data and the outcomes of conversations with stakeholders, the following SWOT was filled in. The identified weaknesses and threats were used in the redesign of the mini games and addressed accordingly in order to tackle them in the best way.

mini games	helpful	harmful
internal	**strengths** easily played (accessible) fast play fun & interactive (social) embedded layer of career development	**weaknesses** how to facilitate actual play? (get students over threshold to play) how to integrate in new/current system?
external	**opportunities** embed in current education by collaboration with the faculty making it for all graduate students (not just ID)	**threats** department(s) not interested in gamified education new programs/courses that solve the same problems the games do

figure 5 - SWOT mini games

A separate SWOT was done on the platform to also identify the gaps existing in the current concept. One of the weaknesses was used in development and turned into a session with an expert that shared their expertise on how to solve this challenge. The strengths and opportunities formed a foundation for future development and was used to guide design decisions.

digital platform	helpful	harmful
internal	**strengths** new medium for more information & resources facilitating tracking of career development	**weaknesses** it is another digital platform how to create a good structure that is expandable and flexible to stakeholder needs?
external	**opportunities** incorporate needs of students so the options align same for faculty seamless integration of platform into world of expedition carer	**threats** the acquisition of new platform(s) that offer similar features students do not want/need to track their development

figure 6 - SWOT digital platform

The final SWOT combines the findings of all results throughout this project. With this analysis, the USP's were easily identified. The current weaknesses, and an approach to how to solve them, are mainly addressed in the main report. The threats are controlled by outside 'forces' and therefore future strategies should mitigate the risks expected by them.

final	helpful	harmful
internal	**strengths** a new medium of PPD support & career development variety of games for various purposes, so it can relate to desired learning outcomes and goals	**weaknesses** information integration in current games
external	**opportunities** embedded into current and future PPD learning lines with implementation plan improved information integration by collaborating with various stakeholders	**threats** department(s) have no need/room for career development students not actively participating in career development activities and efforts

figure 7 - final SWOT

Business Analysis

B3: Unique Selling Points (USP's)

Nine different unique selling points (figure 8) were defined based on current benchmarking, SWOT, stakeholder data and more. These USP's were used to pitch the project to various stakeholders at the TU/e in order to get a meeting with them to discuss the project and its potential. They provide insight into what value Expedition Career creates for all stakeholders and how it does that differently than other products, systems and services in the current market- and design landscape.

figure 8 - Unique Selling Points

B4: Customer/User Journey Map

A customer/user journey map was done in order to visualize and comprehend the journey a student goes through in the envisioned learning line (figure 9). Inspiration was taken from customer/user journey maps, but not their exact structure was deemed suitable for this project as the user will not be a customer but their journey and the integration of Expedition Career in that journey is crucial to defining a successful business strategy. Therefore this visualization highlights the envisioned integration of Expedition Career into PPD practices.

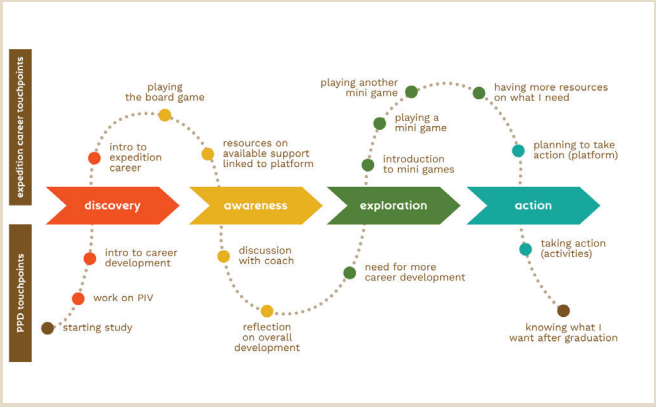


figure 9 - Customer/User Journey Map

The mapping helped gain insight into the bigger picture of Expedition Career and understand how it can be used in a real-world setting. It helped understand the potential scenarios for Expedition Career and was used to create the bigger picture.

B5: Bigger Picture

The customer/user journey map provided a foundation to create the final bigger picture visualization (figure 10 on the next page). This visualization shows how all games and platform relate to each other and how the learning line can be put together. Because the world of Expedition Career is quite extensive and encompasses various games and a platform that work independently but also together, it is quite important to create insight into the bigger picture and all of the levels within that picture.

The mapping helps to understand how each game can function independently based on the desired learning goals and outcomes, but also how they can be used together. There is no right way to do all of these games and explore the platform, there is room for flexibility based on what is needed for student and staff.

B6: Implementation Plan

The implementation plan features a series of steps needed in order to realize the envisioned learning line for career guidance and development with Expedition Career. Figure 11 (next page) shows these steps in chronological order.

The top row of steps displays the expected steps the department needs to take in order to pursue the integration of Expedition Career. These steps are based on user data gathered in conversations with stakeholders but is open to change. I am not fully aware of every step that needs to be taken, so there might be slight changes needed to address the nuances and account for everything.

The bottom row displays the expected steps needed for the future development of Expedition Career before actual integration and deployment at the department of ID. The steps are mainly centered around new iterations and concept refinement. Attention needs to be paid to the information integration in each game/platform and by involving the stakeholders at various moments this can be achieved.

The implementation plan aims to give insight into the future steps of pursuing this project further. In order to actually realize and integrate it into educational practices, these steps (at the least) are needed to create a successful result.

Business Analysis

figure 10 - bigger picture visualization

figure 11 - implementation plan

Appendix C - Digital Platform

This section consists of the High-Level Design (HLD) and database design created to conceptualize the digital platform as described in the main report.

The High-Level Design often takes the shape of a document outlining the architecture that is used to create a system, or platform in this case. The HLD provides an overview of the entire system and includes all main components that would need to be developed in order to realize the product and its interfaces.

A database design is often a visualization of the organization of data of a system, in this case the platform. This visualization can be used to identify and structure what data needs to be stored, how that is done, and how they link to each other.

Pim Knops, lead tech at Studio Tast, was consulted to learn more about how to create the aforementioned items and his expertise helped shape what is presented here.

C1: High-Level Design (HLD)
The following sections are included to describe the High-Level Design of the digital platform.

1. Description of the System
2. System Overview
3. System Architecture

Description of the System
The digital platform aims to support students in the tracking of their career development. It acts as a type of portfolio where students can log their activities, reflections and get in-game content such as extra information.

The following sketches aim to show how that would look like and what the main features of the system will be.

Each student receives their own digital island (figure 1), a place where all their development will be saved to. These islands are in a big sea filled with more islands of other students. This means that you are able to see other people's progress and take inspiration from their development.

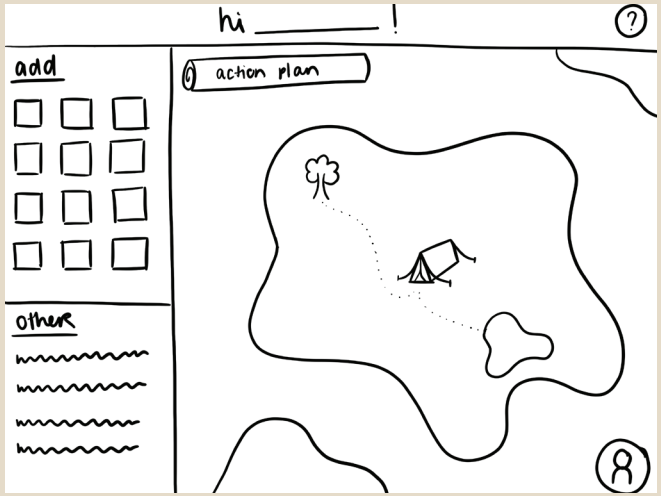


figure 1 - sketch 1

Students are able to drag-and-drop items on their island that represent their development (figure 2). For instance, a student might place a camp in the middle of the island which represents their starting point.

From there, they might put down different island/expedition/travel related items that represent activities, conversations with people, reflections made, games played and more. The aim of the platform is to visualize development in a way that suits Expedition Career and therefore makes use of digital representations. When clicking on these representations, students will be able to add more information and view past additions. They can use this to share their thoughts with others or start a conversation with their coach.

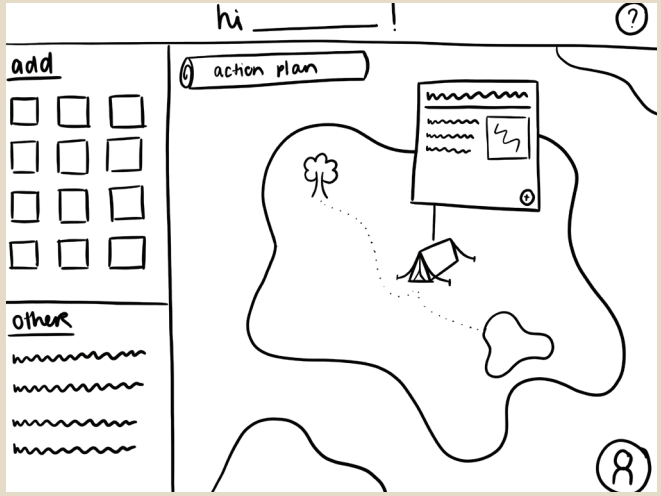


figure 2 - sketch 2

The parchment map acts as an action plan that students are able to fill in (figure 3, see next page). The action plan provides students with a format to plan their expected progress. Activities or other steps can be added based on previous insights. Whilst playing the game, they might feel like they want to talk to a certain person about their development and with the platform integration this can be automatically added to their action list. In this way, ideas can be added easily and fast.

Digital Platform

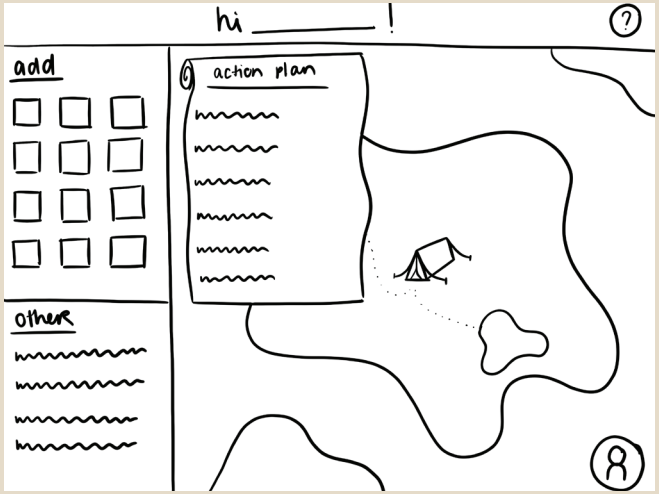


figure 3 - sketch 3

System Overview
The system consists of the following functions:

- ***Login***
  The login allows students to access their own unique individual islands. Each student receives their own personal login.
- ***Islands***
  Each student gets an island. This is the place where they store their activities, resources, reflections and more by using the representations. An island is able to visualize a student's career development.
- ***Sea of Islands***
  Each island exists in a sea filled with other islands from other students. Students can view each other's islands and take inspiration from them. Students are able to manage what information other students are able to access so privacy is ensured.
- ***Representations***
  Each activity, reflection, resource, step, information or other item is represented by a visualization. These visualizations will be developed at a later stage but will be in theme of travel, expedition, islands, nature and more.
- ***Information***
  Several types of information is available to students. Students can access in-game information, needed or used to improve the game experience. Other information can also be accessed at a later time if needed. Standard information about people, activities, resources are included but students can also add their own.
- ***Tracking of progress***
  Tracking the progress of career development is possible with the timeline function. In this way, you can see the order of things added to the island and keep track of your progress. Keeping track of your progress is also the island visualization.
- ***Managing islands***
  Faculty staff can manage the islands of students. They are able to add/delete islands but not access any of the data unless students have allowed this.
- ***Managing users***
  Faculty staff are able to add new users or delete graduated ones from the platform. New users are then provided with a new login and island.

System Architecture
The digital platform will be a web-based application, build using the React Architecture model. Using React allows for component-based programming, where the UI is broken down into reusable components. This allows for a modular approach that promotes code reusability and simplifies maintenance later on. A modular approach is valuable so that the Minimum-Viable Product (MVP) can be extended with new features later on and so that the development experience can be streamlined.

Backend
A PHP application based on the Laravel framework will be used. A RESTful API is integrated that will be used by the web-application, this API facilitates the exchange of information securely over the internet between two computer systems. The communication will take place over HTTPS, as that provides safe communication, and the API needs to be open source. The web-application can be created as an Azure Web Service.

For the back-end, Lavarel was recommended by Pim as a backend framework. Many other options can be considered, but it was decided to follow his expertise in this area as I myself do not have the experience to decide which backend framework is better than the other. Using these systems will encourage a seamless integration between frontend and backend, which will simplify maintenance and development to increase user-experience.

Database
For the database, a SQL Database will be used. When using Azure, a Microsoft platform for internet services, it can be equipped in a way that allows it to be fully manageable.

Azure Diagram
An example of an Azure structure is shown in figure 4. This displays the exchanges between different parts of the platform. This structure was created based on an example shown by Pim.

Digital Platform

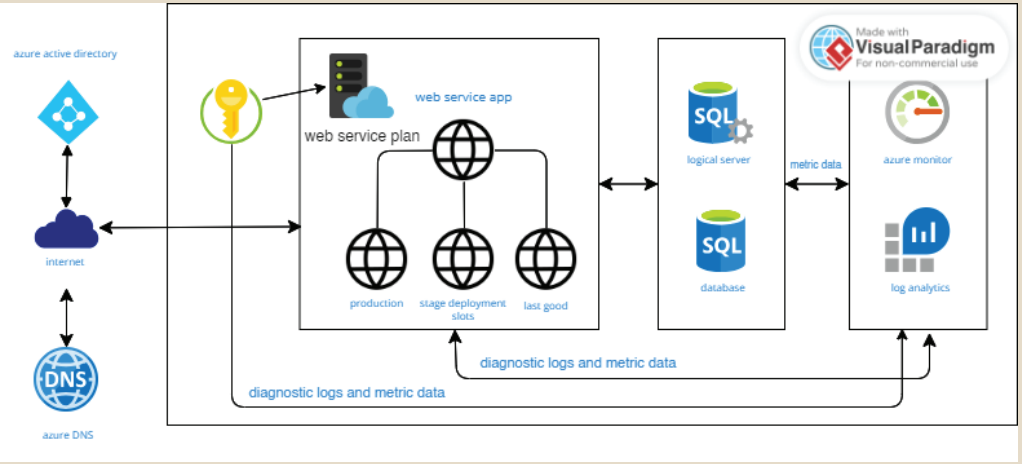


figure 4 - Azure diagram

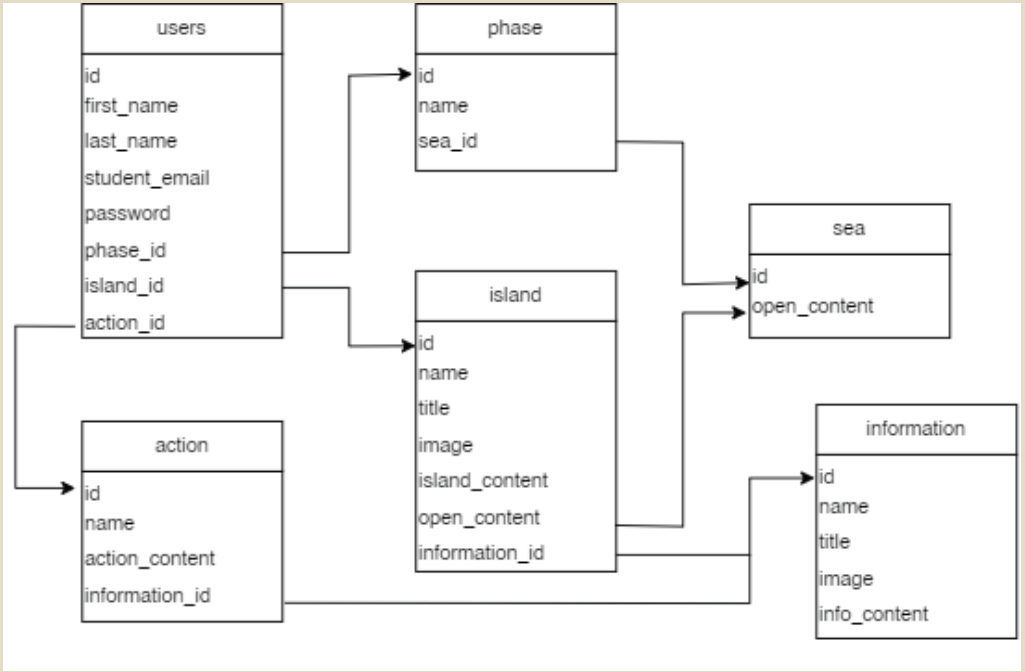


figure 5 - database design

C2: Database Design

Figure 5 shows an overview of the envisioned database structure used for the digital platform. It shows what data is stored, how it is categorized and how it links together.

Appendix D - Prototype Process Final Designs

This chapter consists of a photo series aimed to demonstrate and share insight into how the prototype was made. Several descriptions are added underneath these photo's to further explain the steps taken. Not all steps are photographed, but the main ones are included here.

Branding

The first step of creating the final designs was the branding. During the previous projects, a visual language was developed for the game but with the addition of more games it needed to be updated.

Instead of updating it to accomodate three new games, the decision was made to re-do it completely. A full rebrand would allow for the independent visual language of the four games but also would allow for it to fit together in the bigger picture. Creating independent yet coherent branding also influences the business prospects of the products positively.

Figure 1 shows an analysis of visual languages for games. The intent was to find something to use for the world of Expedition Career.

After doing this, an exploration was done to determine and create a suitable style for this project. Figure 2 shows the results of this exploration where the mood, colors and several graphics were created.

After this, the first logo's for each game where developped (figure 3). These were then turned into real usable logo's in illustrator, including font options and style items (figure 4).

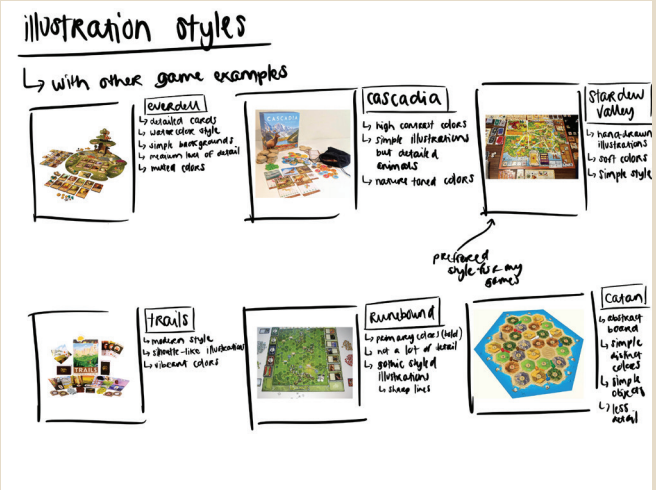


figure 1 - exploration of visual styles

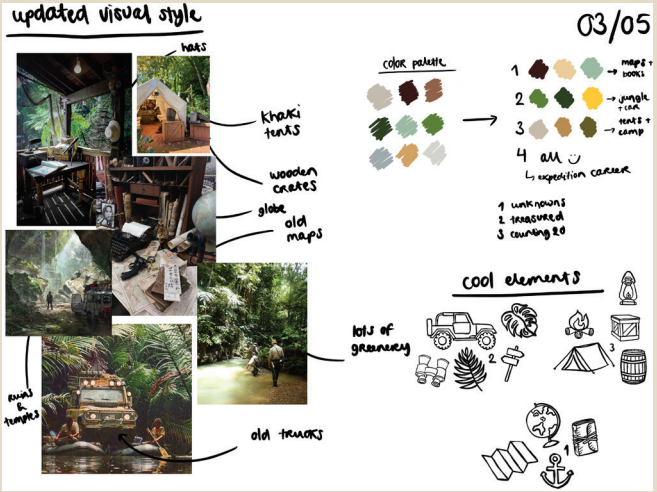


figure 2 - branding exploration

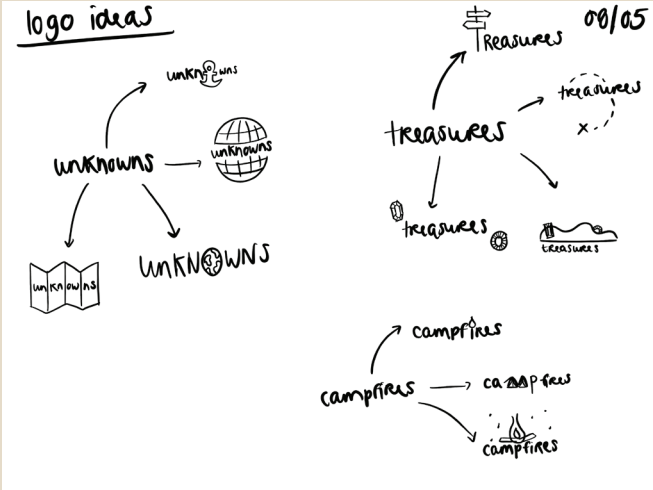


figure 3 - first logo development

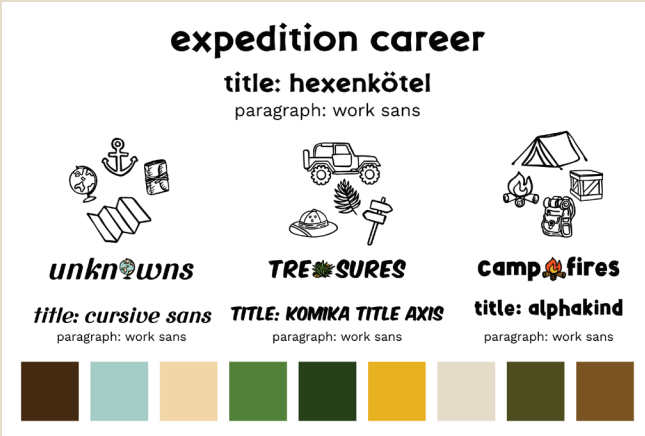


figure 4 - final logo's

Prototype Process Final Designs

Design Board Game

figure 5 - digital map

The board game is made out of three layers of MDF wood, lasercutted to size. First, a digital version of the board game was designed in Inkarnate (figure 5). Inkarnate is an online software tool that helps people design maps, it is frequently used by D&D campaigns and was deemed suitable for designing this.

The map was updated based on user data, seperate islands and more landscapes where added to randomize the destination lay-out a bit more.

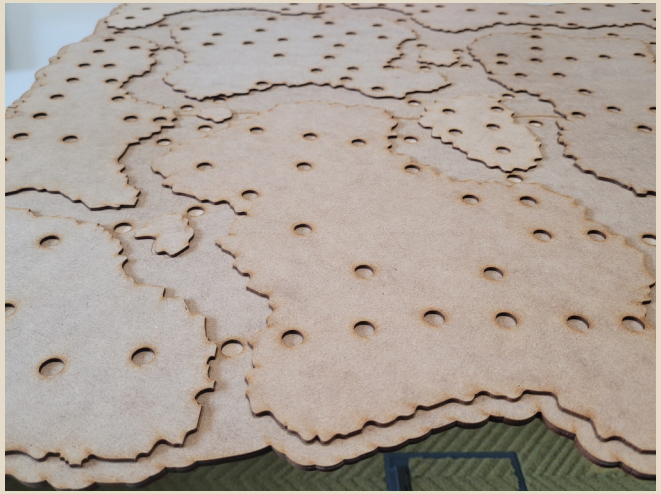


figure 6 - MDF layers

The top layer of MDF are the islands, with holes made for the magnets to hold the flags. The middle layer is the water layer, and holds the holes for the water magnets. The final layer acts as a ground plate that everything can be glued to.

After the water layer was painted, everything was glued together and magnets were added in the holes. After this, the digital map was printed and glued on. The finish consists of several layers of high gloss vernis. The result is shown in figure 7.

After completing the board, the accompaying items where developped: flags, cards & parchment maps. The flags were lasercut, painted and attached to small magnets. The cards where designed, printed and cutted (figure 8). And the maps for holding the route cards were lasercut and printed llustrations were added.

figure 7 - result board game

figure 8 - overview demoday setup with cards & parchment maps

Prototype Process Final Designs

Mini Games
All the mini games were created simultaneously.

Figures 9, 10, and 11 show the final concept of each game.

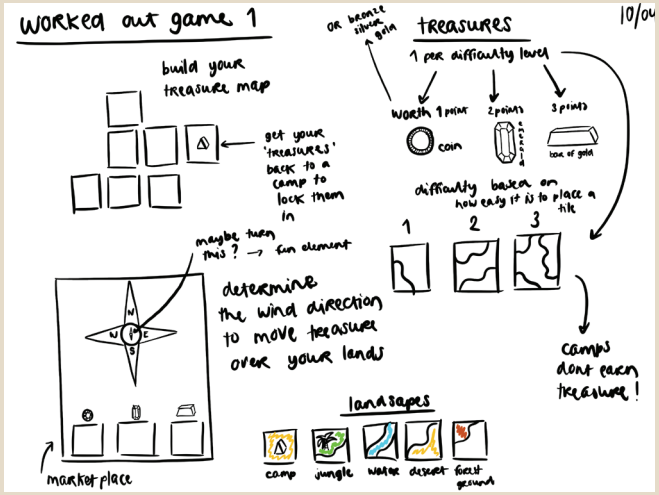


figure 9 - worked out Treasures

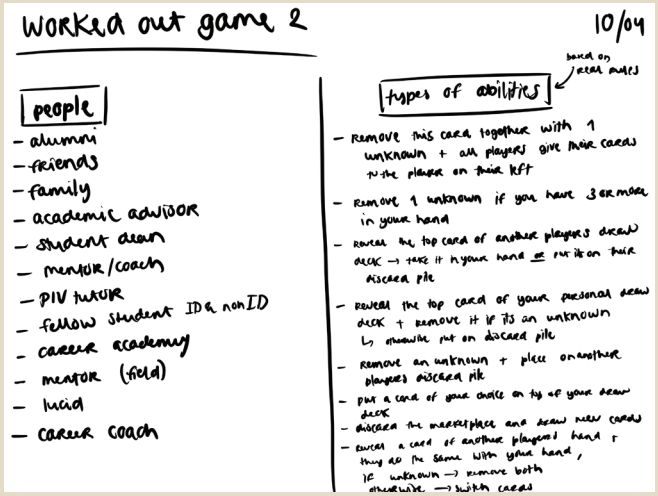


figure 10 - worked out Unknowns

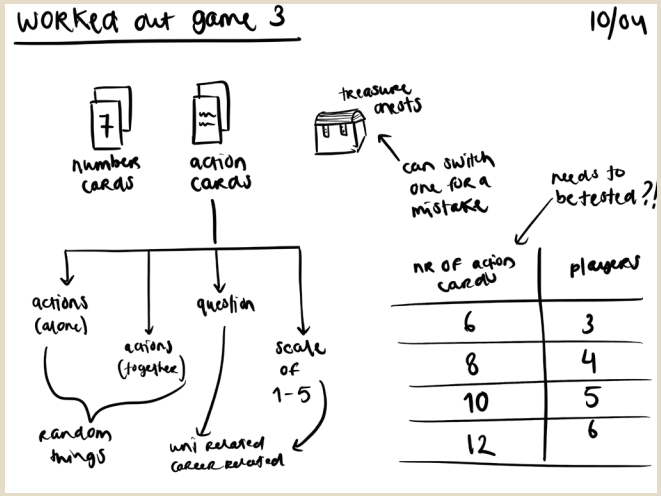


figure 11 - worked out Campfires

After this conceptualization, each game was realized.

Figures 12 and 13 show what was needed to make Treasures. Figure 14 shows the molds created and used for the clay treasures.

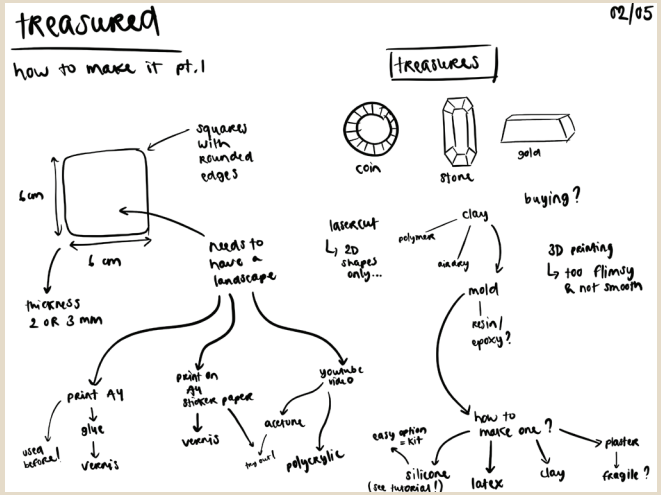


figure 12 - treasures realization

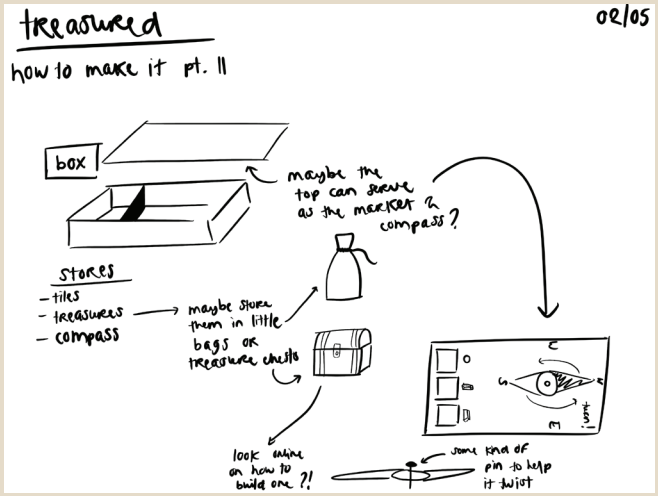


figure 13 - treasures realization 2

figure 14 - clay & mold exploration

Prototype Process Final Designs

At the same time, the lasercut wooden box was created (figure 15).

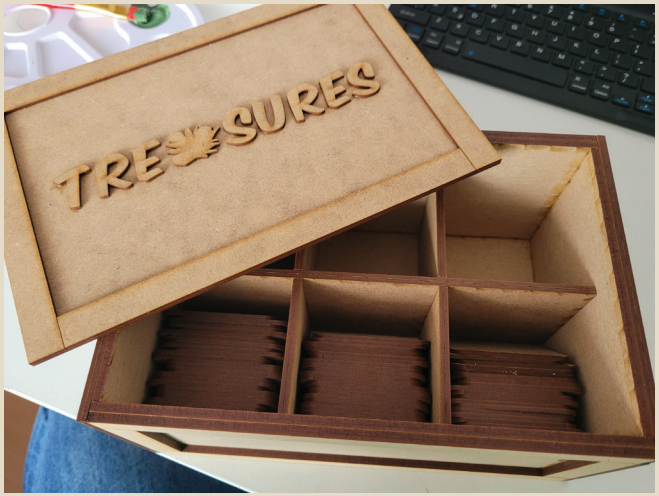


figure 15 - treasures box

For Unknowns, the people illustrations were made and the digital cards were created (figures 16 and 17)

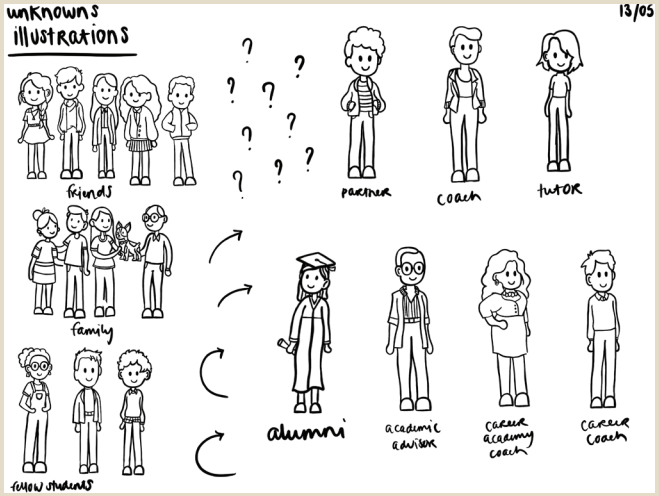


figure 16 - illustrations unknowns

figure 17 - digital card design Unknowns

For Campfires, cards were also designed (figure 18) and the crystals were designed out of clay.

figure 17 - digital card design Campfires

Almost every game needed a pouch to store items, these pouches were made by hand (figure 18) and icons were added to label them (figure 19).

figure 18 - making pouches by hand

figure 19 - several pouches with 'label'

Prototype Process Final Designs

After all the cards were cut and all the packaging was designed and finished, the mini games were done (figure 20).

Not all steps of each game part was included here.

- For Treasured the design of the tiles was done digitally, the tiles were lasercut and then assembled by glueing and varnishing.
- Also the clay treasures were painted and varnished.
- The compass and market was designed digitally first after which they were assembled and glued onto the lasercutted wood. The compass functions as the lid of the box as well.
- Each card was handmade, printed and cut.
- Other pouches for the board game were created to store flags, map holders and parchment maps.

figure 20 - final mini games

Prototype Process Final Designs

This page includes several pictures of the Demoday setup. All four games were displayed and presented at this moment.

figure 21 - demoday setup 1

figure 22 - demoday setup 2

Appendix E - Playtesting Tools

This chapter includes the tools used for playtesting at various moments in the design process.

The following things are included:

- Initial Survey (used for playtesting 1)
- Initial Survey (used mini game testing & playtesting 2)
- Surveys used for playtesting 1 (post-play)
- GEQ core module
- GEQ social module
- GEQ post-game module
- TAST model
- Own questions
- Survey Mini Game Testing (post-play)
- Surveys used for final testing (post-play)
- GEQ core module
- GEQ social module
- Own questions (playtesting 2)

Initial Survey

What phase of your study are you currently in? (mention bachelor/master and type of project)

Do you know what you will be doing after you graduate?

How did you came to this decision?

Are you currently aware of the available opportunities to help you prepare for life after graduation? (circle the correct answer)

not at all aware – not really aware – somewhat aware – fully aware

Did or are you planning to use any resources to figure out what you will be doing after graduation? (information sources, people you talked to, events you visited, workshops you did to learn certain skills like creating a CV etc.) If yes, please list them here and what you used/will use it for.

Mini-Game Sessions Final Testing - pre play survey

* Vereist

1. This informed consent form before you entail the details of voluntary participation in a playtesting session where you will be asked to play one or more games and/or review the digital platform with the goal to assess the game-flow, experience and impact of the game.

   • I have read and understood the information of the corresponding information form for participants.

   • I have been given the opportunity to ask questions. My questions are sufficiently answered, and I had sufficient time to decide whether I participate. (please email l.y.smits@student.tue.nl for questions)

   • I know that only the researcher (Laure Smits) has access to the data and that the data will be stored locally for 12 months after the study.

   • I know that my participation is completely voluntary. I know that I can refuse participation and that I can stop participation at any time during the study, without giving any reasons. I know that I can withdraw permission to use the data at any given moment during the study.

   • I agree with the voluntary participation of me in this study.

   • I know that no information that can be used to personally identify or my responses in this study will be shared with anyone outside of the research team.

   Do you consent? (please type yes or no) *

2. What is the participant number you have been given? *

3. What phase of your study are you currently in? (mention bachelor/master and type of project) *

4. Do you know what you will be doing after you graduate? And if so, what? *

5. How did you came to this decision? *

6. How supported do you currently feel when figuring out what to do after graduation? (1 not at all - 5 very well supported) *

1	2	3	4	5

7. Could you explain why you do or do not feel supported? And what you need or would like in order to feel supported? *

8. Are you currently aware of the available opportunities/resources to help you in this process? (1 not at all aware - 5 fully aware) *

1	2	3	4	5

9. If so, which people/activities/other things have you used to help you? And how do/did they support you? *

Post-Game Surveys

You will now be asked to fill in a series of survey questions on various pages. Please provide your honest answers. Some sections might ask you similar questions, this is done on purpose.

Section 1

Please indicate how you felt while playing the game for each of the items on the following scale:
0 – not at all
1 – slightly
2 – moderately
3 – fairly
4 – extremely

I felt content
I felt skillful
I was interested in the game's story
I thought it was fun
I was fully occupied with the game
I felt happy
It game me a bad mood
I thought about other things
I found it tiresome
I felt competent
I thought it was hard
It was aesthetically pleasing
I forgot everything around me
I felt good
I was good at it
I felt bored
I felt successful
I felt imaginative
I felt that I could explore thing
I enjoyed it
I was fast at reaching the game's targets
I felt annoyed
I felt pressured
I felt irritable
I lost track of time
I felt challenged
I found it impressive
I was deeply concentrated in the game
I felt frustrated
It felt like a rich experience
I lost connection with the outside world
I felt time pressure
I had to put a lot of effort into it

Would you like to explain one or more ratings you have given to an item? (you can elaborate upon your one or more of your scores here if you like, but it is not mandatory)

Section 2

Please indicate how you felt while playing the game for each of the items on the following scale:
0 – not at all
1 – slightly
2 – moderately
3 – fairly
4 – extremely

I empathized with the others
My actions depended on the others actions
The other's actions were dependent on my actions
I felt connected to the others
The others paid close attention to me
I paid close attention to the others
I felt jealous about the others
I found it enjoyable to be with the others
When I was happy, the others were happy
When the others were happy, I was happy
I influenced the mood of the others
I was influenced by the others moods
I admired the others
What the others did affected what I did
What I did affected what the others did
I felt revengeful
I felt schadenfreude (malicious delight)

Would you like to explain one or more ratings you have given to an item? (you can elaborate upon your one or more of your scores here if you like, but it is not mandatory)

Section 3

Please indicate how you felt after you finished playing the game for each of the items on the following scale:
0 – not at all
1 – slightly
2 – moderately
3 – fairly
4 – extremely

I felt revived
I felt bad
I found it hard to get back to reality
I felt guilty
It felt like a victory
I found it a waste of time
I felt energized
I felt satisfied
I felt disoriented
I felt exhausted
I felt that I could have done more useful things
I felt powerful
I felt weary
I felt proud
I had a sense that I had returned from a journey

Would you like to explain one or more ratings you have given to an item? (you can elaborate upon your one or more of your scores here if you like, but it is not mandatory)

Section 4

Please indicate how you feel about the game itself for each of the following items on the following scale:
1 – fully disagree
2 – disagree
3 – somewhat disagree
4 – neutral
5 – somewhat agree
6 – agree
7 – fully agree

The game is inviting
The game is attractive
The game is accessible and approachable
A player would want to use the product
The game is intuitive
The game does not need a complex manual
The player is triggered to act
The player feels safe and guaranteed
The game is reflective (inspires/enables reflection)
The player is aware of what is being learned
The game stimulates the reflective capabilities of the player
The player makes new learning goals (during/after playing)
The game is personal
The game is flexible in use
The player feels motivated and stimulated
The player receives personalized resources
The game is interactive
The game responds to the players interactions
The player has freedom in actions and interactions
The player choses the steps (instruction, action and reflection)
The game is flexible
The content grows with the player (zone of proximal development)
The game follows the thinking steps of the player
The game guards development
The game is social
The player learns with and from others
The content is presented from context
The player experiences the values of learned knowledge

Would you like to explain one or more ratings you have given to an item? (you can elaborate upon your one or more of your scores here if you like, but it is not mandatory)

Section 5

These are a series of open-ended questions, please answer them to the best of your abilities.

What did you like about the game?

What frustrated or confused you about the game?

What do you consider the priority issue(s) for the game developer to address?

Are there any comments, suggestions or other things you would like to mention to the game developer? (this can be about the game itself, its features, the value it brings, ideas for the future, etc)

Section 6

This last section is dedicated to coming back to the initial questions you answered before playing the game to help understand the game's value and impact.

Please indicate for each of the following items on the following scale:
1 – fully disagree
2 – disagree
3 – somewhat disagree
4 – neutral
5 – somewhat agree
6 – agree
7 – fully agree

I feel more confident in making a choice of what to do after graduation
I feel more supported in making a choice of what to do after graduation
I am more informed about how to make a choice of what to do after graduation
I feel more aware of the available options to help me figure out what to do after graduation
I am going to use the things I learned in the game to help me figure out what to do after graduation
I feel more at ease knowing what support is available to me as a graduate student
I feel more at ease knowing how to make a well-informed decision about life after graduation
I am reflecting more on my life after graduation because of this game
I will be thinking more about life after graduation because of this game
I will be taking action to figure out life after graduation because of this game

Would you like to explain one or more ratings you have given to an item? (you can elaborate upon your one or more of your scores here if you like, but it is not mandatory)

Which features/benefits of the game are the most valuable to you? And why?

Which features/benefits of the game are the least valuable to you? And why?

Mini-Game Sessions - after play survey

* Vereist

1. What is your participant number? *

2. Which game did you just play? *

3. Please rate the following items on a scale of 1-5 *

	Not at all	Slightly	Moderately	Fairly	Extremely
The game was fun to play	◯	◯	◯	◯	◯
The game was engaging	◯	◯	◯	◯	◯
The game was motivating	◯	◯	◯	◯	◯
The game (can) have a good impact on my career development	◯	◯	◯	◯	◯
The game (can) support me well in my career development	◯	◯	◯	◯	◯
I feel this game is/can be really useful for me and other students	◯	◯	◯	◯	◯
The interaction with other players was nice/good	◯	◯	◯	◯	◯

4. What did you like about the game? *

5. What frustrated or confused you about the game? *

6. How could the game be made more fun, engaging or interactive (e.g. game-flow and experience)? *

7. How could the game have more impact (e.g. helping better with figuring out what is next)? *

8. Do you have any other suggestions to improve the game, game-flow, value, benefit? Or things you want to mention about the game? Please describe them here! *

Mini-Game Sessions Final Testing - post play survey

* Vereist

1. What is the participant number you have been given? *

2. What game did you just play? *

Game Experience

3. Please indicate how you felt while playing the game for each of the items on the following scale *

	Not at all	Slightly	Moderately	Fairly	Extremely
I felt content	◯	◯	◯	◯	◯
I felt skillful	◯	◯	◯	◯	◯
I was interested in the game's story	◯	◯	◯	◯	◯
I thought it was fun	◯	◯	◯	◯	◯
I was fully occupied with the game	◯	◯	◯	◯	◯
I felt happy	◯	◯	◯	◯	◯
It gave me a bad mood	◯	◯	◯	◯	◯
I thought about other things	◯	◯	◯	◯	◯
I found it tiresome	◯	◯	◯	◯	◯
I felt competent	◯	◯	◯	◯	◯
I thought it was hard	◯	◯	◯	◯	◯
It was aesthetically pleasing	◯	◯	◯	◯	◯
I forgot everything around me	◯	◯	◯	◯	◯
I felt good	◯	◯	◯	◯	◯
I was good at it	◯	◯	◯	◯	◯
I felt bored	◯	◯	◯	◯	◯
I felt successful	◯	◯	◯	◯	◯
I felt imaginative	◯	◯	◯	◯	◯
I felt that I could explore things	◯	◯	◯	◯	◯
I enjoyed it	◯	◯	◯	◯	◯

4. Please indicate how you felt while playing the game for each of the items on the following scale *

	Not at all	Slightly	Moderately	Fairly	Extremely
I was fast at reaching the game's target	◯	◯	◯	◯	◯
I felt annoyed	◯	◯	◯	◯	◯
I felt pressured	◯	◯	◯	◯	◯
I felt irritable	◯	◯	◯	◯	◯
I lost track of time	◯	◯	◯	◯	◯
I felt challenged	◯	◯	◯	◯	◯
I found the game impressive	◯	◯	◯	◯	◯
I was deeply concentrated in the game	◯	◯	◯	◯	◯
I felt frustrated	◯	◯	◯	◯	◯
It felt like a rich experience	◯	◯	◯	◯	◯
I lost connection with the outside world	◯	◯	◯	◯	◯
I felt time pressure	◯	◯	◯	◯	◯
I had to put a lot of effort in	◯	◯	◯	◯	◯

5. Would you like to explain one or more ratings you have given to an item? (you can elaborate upon your one or more of your scores here if you like, but it is not mandatory)

6. Please indicate how you felt while playing the game for each of the items on the following scale

	Not at all	Slightly	Moderately	Fairly	Extremely
I empathized with others	○	○	○	○	○
My actions depended on the others actions	○	○	○	○	○
The other's actions were dependent on my actions	○	○	○	○	○
I felt connected to the others	○	○	○	○	○
The others played close attention to me	○	○	○	○	○
I paid close attention to the others	○	○	○	○	○
I felt jealous about the others	○	○	○	○	○
I found it enjoyable to be with the others	○	○	○	○	○
When I was happy, the others were happy	○	○	○	○	○
When the others were happy, I was happy	○	○	○	○	○
I influenced the mood of others	○	○	○	○	○
I was influenced by the others mood	○	○	○	○	○
I admired the others	○	○	○	○	○
What the others did affected what I did	○	○	○	○	○
What I did affected what the others did	○	○	○	○	○
I felt revengeful	○	○	○	○	○
I felt schadenfreude (malicious delight)	○	○	○	○	○

7. Would you like to explain one or more ratings you have given to an item? (you can elaborate upon your one or more of your scores here if you like, but it is not mandatory)

8. What did you like about the game? *

9. What frustrated or confused you about the game? *

10. What do you consider the priority issue(s) for the game developer to address? *

Impact on Career Development

11. Please indicate how you felt while playing the game for each of the items on the following scale *

	Not at all	Slightly	Moderately	Fairly	Extremely
The game (can) have a good impact on career development in general	◯	◯	◯	◯	◯
The game (can) have a good impact on MY career development	◯	◯	◯	◯	◯
I feel this game is/can be really useful for me and other students	◯	◯	◯	◯	◯
The game was fun to play	◯	◯	◯	◯	◯
The game was motivating	◯	◯	◯	◯	◯
The game was engaging	◯	◯	◯	◯	◯

12. What features/benefits of the game are most valuable to you? And why? *

13. What features are the least valuable to you? And why? *

14. Do you feel this/these games should be implemented into our Personal and Professional Development learning lines? Why or why not? *

15. Are there any other comments, improvements or suggestions you would like to mention? *

Appendix F - Playtesting

This chapter includes the set-up and results of the playtesting mentioned at the beginning of the design process.

F1: Set-Up
Figure 1 shows an overview of the set-up for the playtesting sessions.

In total, 12 ID graduates participated in these sessions. In this sample were 5 FBP students, 4 M2.1 students and 3 FMP students.

Participants were recruited from the personal and professional circles of the researcher.

Each session took around 60 minutes and were done in a meeting room at the TU/e.

F2: Results
This section includes the results of the playtesting.

Visualizations of the qualitative data are included. They were analysed in Miro, an online tool, and categorised per type of question answered. Within that category, they are grouped together based on similar answers to discover themes.

Figure 2 shows an overview of the results of the initial survey.

Figures 3 and 4 shows an overview of the post-game playtesting data.

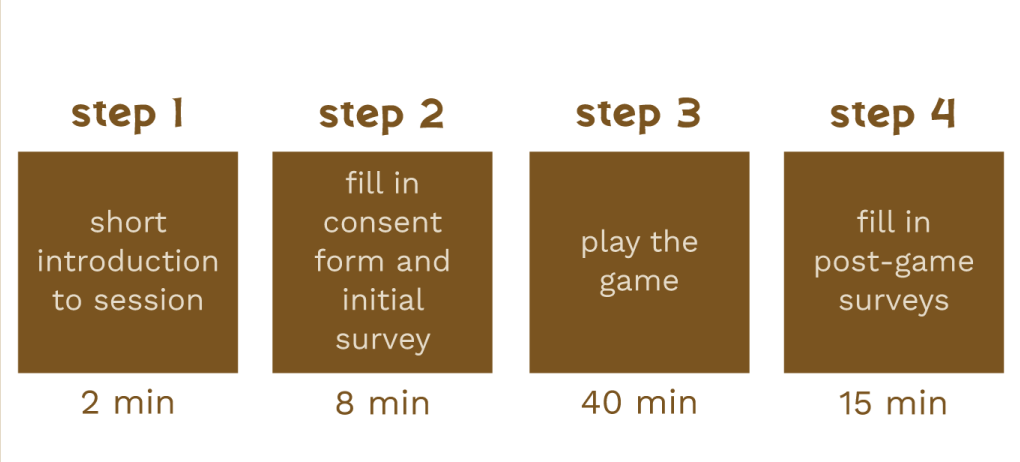


figure 1 - set-up

figure 2 - initial survey results

Playtesting

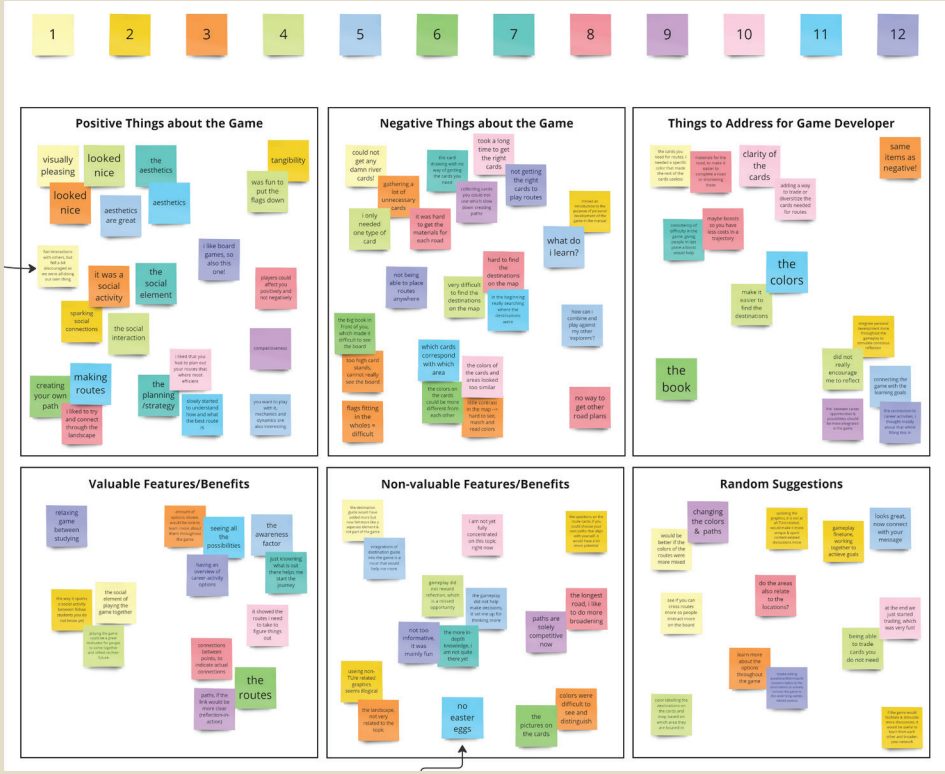


figure 3 - qualitative results 1

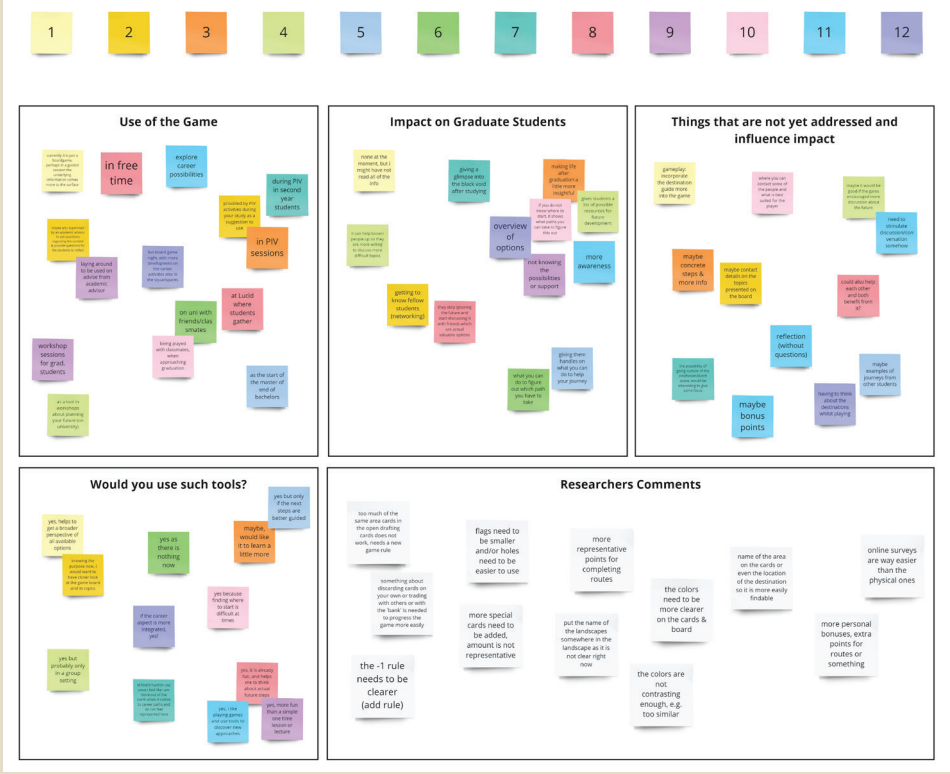


figure 4 - qualitative results 2

Playtesting

Overall Scores (average value of its items)	out of 0-4	
Competence	1,87	
Sensory & Imaginative Immersion	1,79	
Flow	2,32	
Tension/Annoyance	0,64	*so no tension or annoyance*
Challenge	1,28	*so not a lot of challenge*
Negative affect	0,50	*so no negative affect*
Positive affect	2,92	
0.0 - 1.5	bad	
1.6 - 2.5	neutral	
2.6 - 4.0	good	

figure 4 - results GEQ core module

Overall Scores (average value of its items)	out of 1-7
inviting	5,4
intuitive	4,6
reflective	2,7
personal	3,5
interactive	5,4
flexible	3,8
social	4,1
1.0 - 3.0	bad
3.1 - 4.9	neutral
5.0 - 7.0	good

figure 7 - TAST results

Overall Scores (average value of its items)	out of 0-4	
Physchological involvement - empathy	2,0	
Physchological involvement - negative feelings	1,1	*so no negative feelings*
Behavioral involvement	1,1	*so no behavioral involvement*
0.0 - 1.5	bad	
1.6 - 2.5	neutral	
2.6 - 4.0	good	

figure 5 - results GEQ social module

Overall Scores (average value of its items)	out of 1-7
Feeling supported	2,7
Feeling aware	2,9
Impact on decision after graduation	3,3
1.0 - 3.0	bad
3.1 - 4.9	neutral
5.0 - 7.0	good

figure 5 - results own questioins

Overall Scores (average value of its items)	out of 0-4	
Positive experience	1,6	
Negative experience	0,5	*so no negative impact*
Tiredness	0,3	*so no tiredness*
Returning to Reality	0,6	*so no problem returning to reality*
0.0 - 1.5	bad	
1.6 - 2.5	neutral	
2.6 - 4.0	good	

figure 6 - results GEQ post-game module

Interpretation of Results

The GEQ core module suggests neutral to positive ratings of the items. The positive affect is rated the highest, showing that the players did have a good game experience. The tension and annoyance was low, which further complements this finding as well as the negative affect. The challenge is rated a bit lower than expected, but more challenge in the game can be created with future development.

The social module shows there is a bit of empathy towards other players but it is not rated highly. Connectedness amongst players can be improved through adaptation of the rules in order to facilitate a more social game play.

The post-game module shares similar results. Not scoring as highly as before, but the game experience is rated neutrally.

The TAST-model used as an experimental tool to assess the learning experience design (LXD) of the game, shows promising results. Based on these ratings, the game is inviting and interactive. Both crucial to a good LXD. Other scores are neutral except for reflection. Reflection was not integrated as a main component of the game, so this was to be expected. Overall, the ratings do seem to suggest a postive LXD.

The scores on the value of the game are not as high as hoped. But the qualitative data does give insight into that; more development is needed to achieve real value.

Appendix G: User Study Set-Ups

This chapter includes all set-ups for stakeholder involvements mentioned throughout the main report that are not addressed seperately.

The set-up of each moment is described here, in chronological order, and linked to the section in the main report.

Conversation Lu-Yuan (iteration 1)
This session was held at the TU/e and took around 30 minutes.

I set-up an informal semi-structured interview where we discussed a) the importance of PPD, b) PPD implementation at ID and TU/e, c) my project direction, and d) general thoughts and ideas on what is needed. I used a series of questions to help guide the conversation:

1. Can you share current practises of PPD at our department?
2. What is your experience with current PPD practises?
3. What are your first thoughts when hearing/seeing these ideas?
4. What do you think is most valuable in this concept?
5. Are there any gaps or opportunities to still address?
6. Are there any other suggestions or comments?

Co-Creation Designers (iteration 1)
This session was held at the TU/e and took around 60 minutes.

In total 6 designers participated in an explorative co-creation session. The goal was to create ideas based on the four topics: : awareness, social & community, personalization & reflection, and conversation & discussion.

Participants were given a topic and 2 minutes to write down or draw an idea on a post-it note. After the 2 minutes, they would discuss their answered based on the topic and repeat the same process for each topic.

At the end, all ideas were discussed and other suggestions were made for potential directions in the project.

The post-its were analysed and ideas described as mentioned in the main report. Due to the anonimity of the participants, the post-it notes are not shared.

Mini Game Testing (iteration 2)
This session was held at the TU/e and took around 60 minutes.

A total of 9 students participated in the testing of the first round of mini games. Within this sample were 6 Master students and 4 Bachelor students.

The goal of these sessions was not to see how much impact the games would have on career development and guidance but to see what their potential was.

Before playing, they were asked to fill in a survey (same as the one used in final testing). Then they were asked to play 2 mini games, each taking around 30 minutes including play and evaluation with a post-play survey.

User Study Set-Ups

Conversation Linda Martens (iteration 3)
This session was held at the TU/e and took around 30 minutes.

I set-up an expert evaluation session but a bit more open-ended to allow room for flexibility. We discussed my concepts and ideas for games. The following questions were used to guide the session.

1. What are your first thoughts when hearing/seeing these ideas?
2. What do you think is most valuable in this game?
3. Are there any gaps or opportunities to still address?
4. Are there any other suggestions or comments?

Conversation Martijn Westera (iteration 3)
This session was held at the TU/e and took around 30 minutes.

I did not prepare any questions beforehand but rather used old questions as a foundation for this conversation. We mainly used the time to discuss my project and brainstorm on how I could explore the bigger picture.

Conversation Lu-Yuan (iteration 4)
This session was held at the TU/e and took around 30 minutes.

I created some questions to guide our conversation but kept it open-ended to allow room for flexibility. The following questions were asked:

1. What are your first thoughts when seeing these ideas?
2. What do you think is most valuable in this game?
3. Are there any gaps or opportunities to still address?
4. Do you feel this concept visual embodied the story I just told you?
5. What do you think is a good approach to reaching faculty staff at other departments?
6. Are there any other suggestions or comments?

Conversation Paul Koenraad (iteration 4)
This session was held at the TU/e and took around 45 minutes.

I used a cognitive walk-through format as the foundation for this conversation but flexibility was created so thoughts could be shared openly. The conversation turned out a bit more informal than planned, but the following structure helped guide the conversation and got me the knowledge and validation I was looking for.

First, I introduced myself and my project and shared the concept visual I created. Then I shared my games, one by one. The following questions were used to lead the cognitive walk-through:

1. What are your first thoughts when seeing this idea?
2. What do you think is most valuable in this game?
3. What do you is the least valuable in this game?
4. Do you feel this can also be used at other faculties?
5. What is needed in order to facilitate that?
6. Are there any other suggestions or comments?

Appendix H - Final Testing

This chapter includes the results for the final rounds of testing and evaluation at the end of the project. First, the set-up and result of the initial survey is shown after which the main three sections are shown.

These sections include: board game results, mini game results and cognitive walkthrough results.

Initial Survey
The initial survey included the consent form, in the form of a question, and several questions aimed to discover current thoughts and experiences of career guidance and development. The following questions were asked:

1. What is the participant number you have been given?
2. What phase of your study are you currently in? (mention bachelor/master and type of project)
3. Do you know what you will be doing after you graduate? And if so, what?
4. How did you come to this decision?
5. How supported do you currently feel when figuring out what to do after graduation? (1 not at all - 5 very well supported)
6. Could you explain why you do or do not feel supported? And what you need or would like in order to feel supported?
7. Are you currently aware of the available opportunities/resources to help you in this process? (1 not at all aware - 5 fully aware)
8. If so, which people/activities/other things have you used to help you? and how do/ did they support you?
9.

Results
Figure 1 and 2 show the quantitative results of the initial survey. Below are some quoted grouped per open question.

Question 4
"Through my experience with projects so far (feeding into identity and vision)"

"Lots of thinking, talking to people about it mixing vision, business prospects and interests. Also based on what I'm good at."

"Discussions with peers and coach"

Question 6
"There's no real guidance, i feel you are a bit on your own and have to be pro-active to find out what you want. I would like some more structured guidance/some workshops to help define my career"

"There's the standard piv stuff however the process is pretty hands of. I remember having a bit more structured presentations by professionals etc. And that really helped."

"Sometimes information isn't clear, and you as person have to do it yourself mainly I feel"

Question 8
"Mostly coach conversations and some conferences"

Alumni, talking about it"

"i am aware that there are people who can help me, but i don't know exactly who and where i can find them. i have not used them yet."

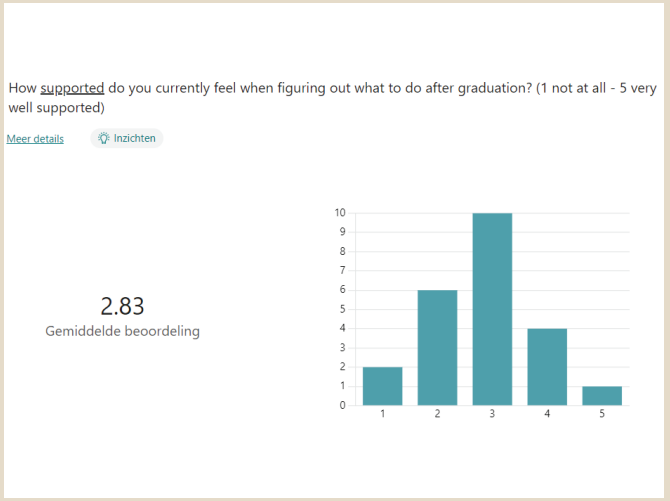


figure 1 - results initial survey 1

figure 2 - results initial survey 2

To gain access to the full dataset, please reach out to the researcher.

Final Testing #2

Set-Up
Figure 1 shows an overview of the set-up for the playtesting sessions.

In total, 23 people participated. This sample consisted of 20 ID students and 3 EE students. The ID student sample included 9 Master students and 11 Bachelor students. The EE student sample included 2 FBP and 1 Master student.

Participants were recruited from the personal and professional circles of the researcher.

Each session took around 60 minutes and were done in a meeting room at the TU/e.

For the board game sessions, only the board game was played. For the mini-game sessions, each participant was asked to play 2 mini games. These sessions in total took around 60 minutes.

Figure 2 shows an overview of which game was played and how many times they were evaluated.

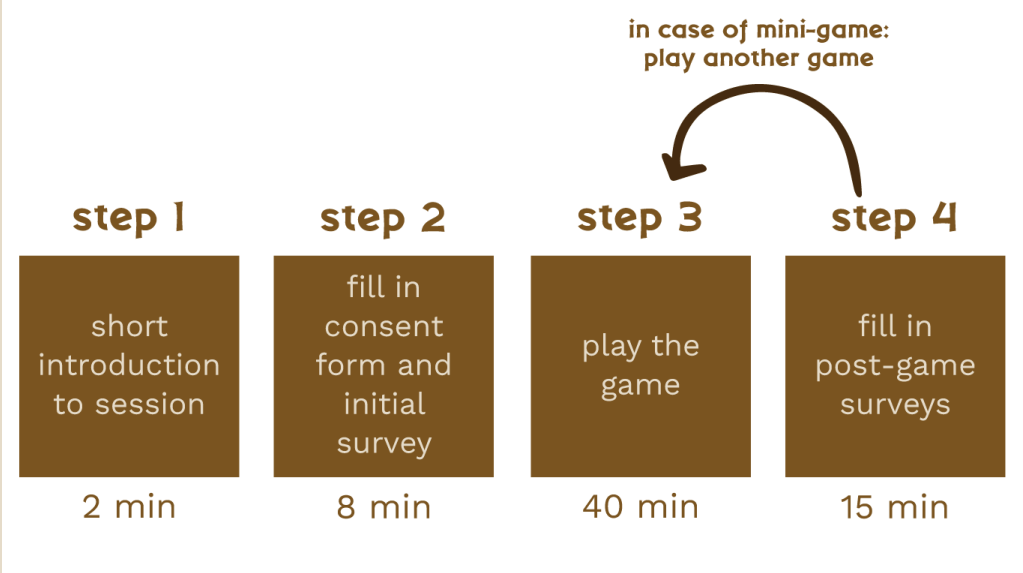


figure 1 - set-up

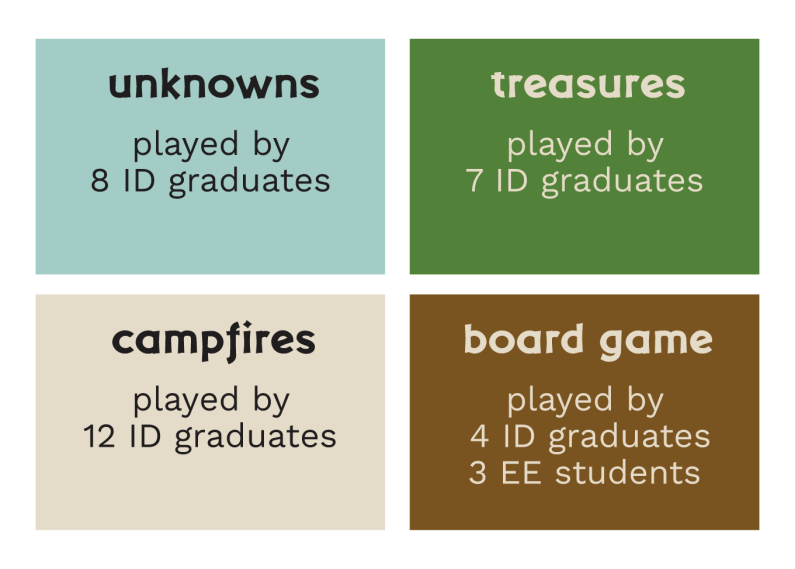


figure 2 - games played

Final Testing #3

Board Game

Overall Scores (average value of its items)	out of 1-5
Competence	3,63
Sensory & Imaginative Immersion	3,22
Flow	3,80
Tension/Annoyance	2,00
Challenge	2,20
Negative affect	1,67
Positive affect	4,54
1.0 - 2.5	bad
2.6 - 3.5	neutral
3.6 - 5.0	good

figure 1 - results GEQ core module

Overall Scores (average value of its items)	out of 1-5
Physchological involvement - empathy	3,3
Physchological involvement - negative feelings	2,3
Behavioral involvement	1,9
1.0 - 2.5	bad
2.6 - 3.5	neutral
3.6 - 5.0	good

figure 2 - results GEQ social module

Overall Scores (average value of its items)	out of 1-5
Impact on Graduation	2,5
Game Experience	4,1
1.0 - 2.5	bad
2.6 - 3.5	neutral
3.6 - 5.0	good

figure 3 - results own questions

The scores of the boardgame are improved in comparison to the first round of playtesting. Specifically the experience of the game, is rated higher than before, indicating that several changes did have the expected effect.

The social module shows that the feeling of connectedness and socialness is still a bit low. The game currently does not allow for a lot of social interaction beyond basic gameplay but could in the future include this a bit better by adding some rules to discuss cards upon completion.

The impact is rated lower than expected and is still not that great. The qualitative data shows that that is mainly due to the informaton integration of the game. The destination guide is currently still a seperate item that many players did not use. More development is needed to see how such resources can be better incorporated into gameplay and turn-taking. This will hopefully lead to better impact scores.

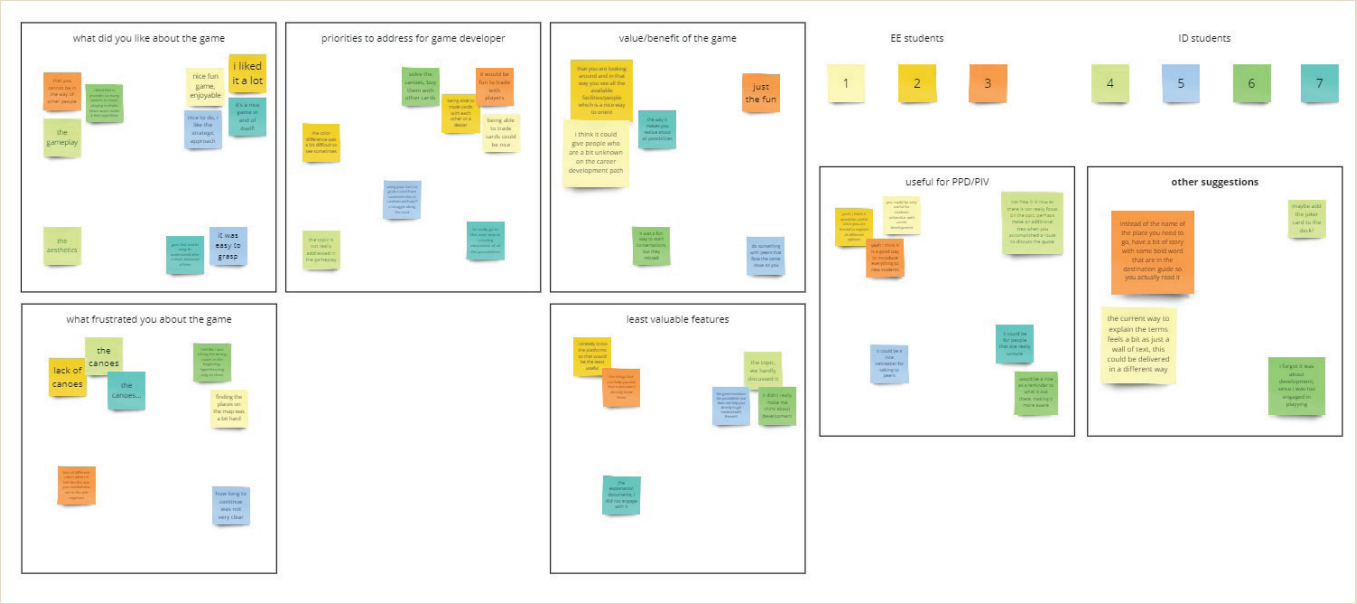


figure 3 - qualitative results 2

Final Testing #4

Treasures

Overall Scores (average value of its items)	out of 1-5	
Competence	3,20	
Sensory & Imaginative Immersion	3,33	
Flow	2,43	
Tension/Annoyance	1,62	*this is good*
Challenge	1,77	
Negative affect	2,07	*this is good*
Positive affect	3,71	
1.0 - 2.5	bad	
2.6 - 3.5	neutral	
3.6 - 5.0	good	

figure 1 - results GEQ core module

Overall Scores (average value of its items)	out of 1-5	
Physchological involvement - empathy	3,4	
Physchological involvement - negative feelings	2,2	*that is good*
Behavioral involvement	3,0	
1.0 - 2.5	bad	
2.6 - 3.5	neutral	
3.6 - 5.0	good	

figure 2 - results GEQ social module

Overall Scores (average value of its items)	out of 1-5
Impact on Graduation	3,5
Game Experience	3,4
1.0 - 2.5	bad
2.6 - 3.5	neutral
3.6 - 5.0	good

figure 3 - results own questions

Treasures is rated rather neutrally across the board but did receive great scores on impact. The qualitative data shows that many practical improvements, such as updated game rules, could create a better game flow and experience.

The social module shows higher scores than the board game, indicating that this game is a bit better at promoting social connection. More rules can be added to encourage conversation and discussion whilst reflecting to improve this score.

Several comments were made on the questions included in the game. More development is needed to make sure questions are not as repetitive and fit the difficulty level they are part of.

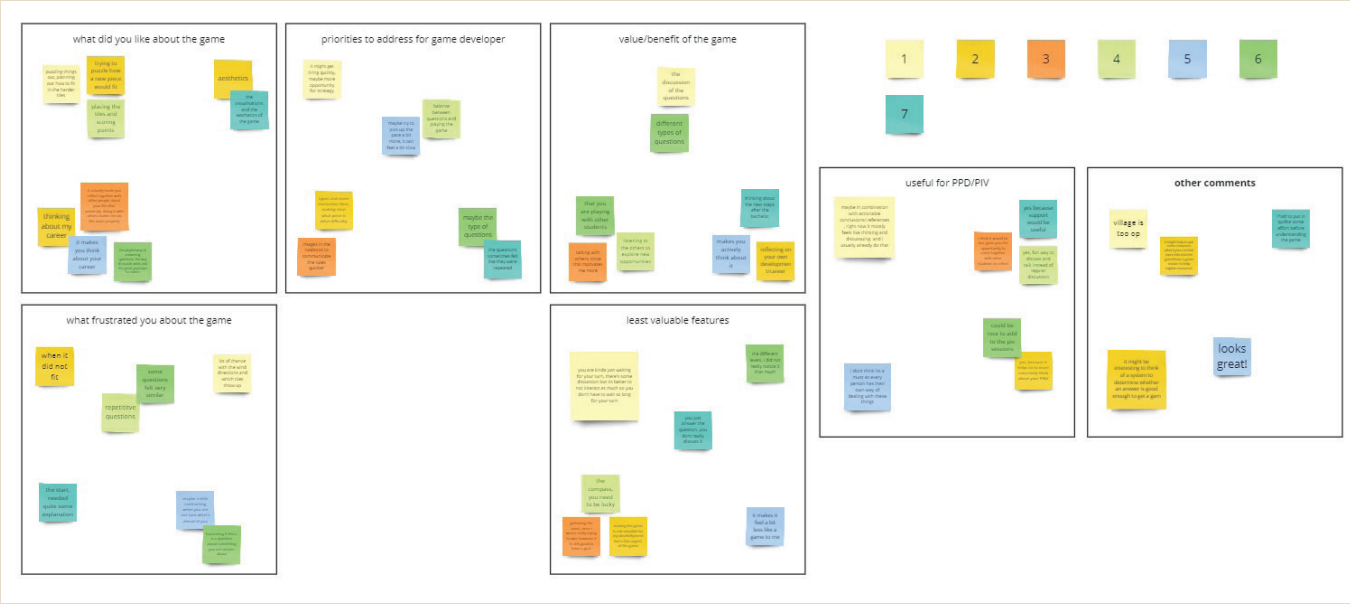


figure 3 - qualitative results 2

Final Testing #4

Unknowns

Overall Scores (average value of its items)	out of 1-5	
Competence	2,88	
Sensory & Imaginative Immersion	2,92	
Flow	2,60	
Tension/Annoyance	2,00	*this is good*
Challenge	2,18	
Negative affect	2,31	*this is good*
Positive affect	3,28	
1.0 - 2.5	bad	
2.6 - 3.5	neutral	
3.6 - 5.0	good	

figure 1 - results GEQ core module

Overall Scores (average value of its items)	out of 1-5	
Physchological involvement - empathy	2,9	
Physchological involvement - negative feelings	2,5	*this is good*
Behavioral involvement	3,0	
1.0 - 2.5	bad	
2.6 - 3.5	neutral	
3.6 - 5.0	good	

figure 2 - results GEQ social module

Overall Scores (average value of its items)	out of 1-5
Impact on Graduation	1,9
Game Experience	2,8
1.0 - 2.5	bad
2.6 - 3.5	neutral
3.6 - 5.0	good

figure 3 - results own questions

This game is unfortunately not rated greatly, with bad to neutral scores across the board. Many participants commented on the difficulty of starting this game, which might have influenced the results a bit more than expected.

The social scores are fortunately not that bad compared to the other games, but more connectedness can be created through encouraging conversation in the game. Updated game rules that reward interaction can also be added to improve these ratings.

The impact is rated very low, showing that much development is needed to make this game valuable. As discussed before, this was probably due to bad information integration. The people were nice as a reminder but their information and value was not integrated in a suitable way. More exploration is needed to determine a suitable way, because some participants mentioned that they did like to see who can help them and how.

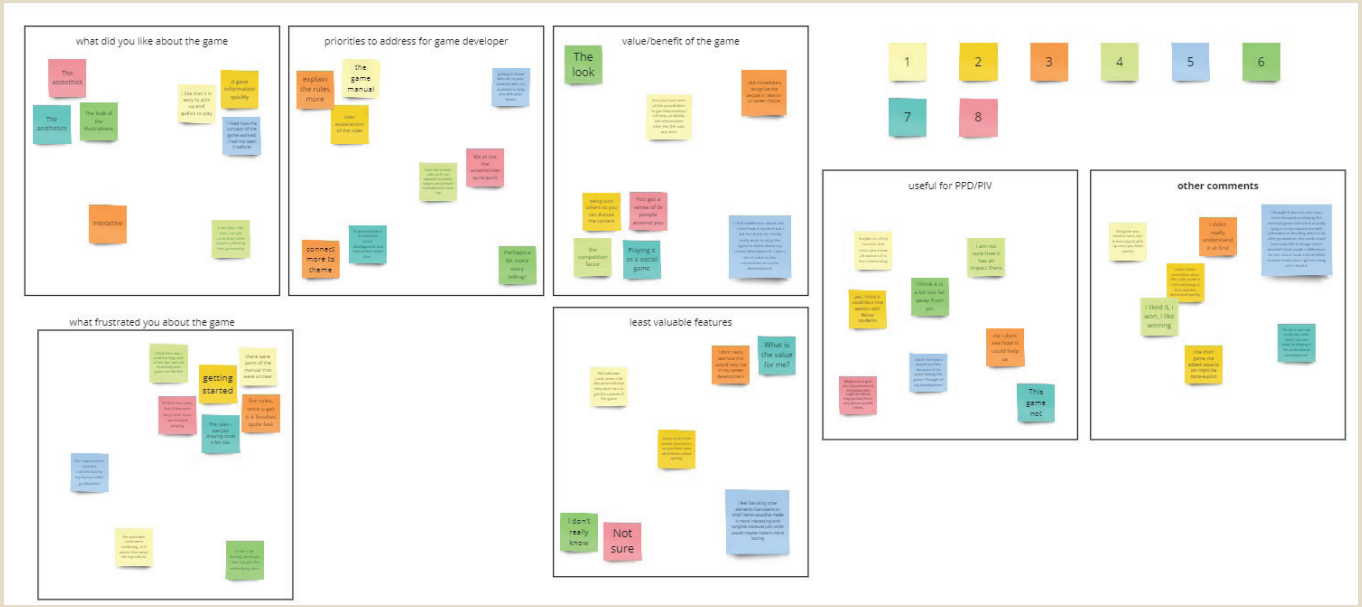


figure 3 - qualitative results 2

Final Testing #4

Campfires

Overall Scores (average value of its items)	out of 1-5	
Competence	3,52	
Sensory & Imaginative Immersion	2,92	
Flow	3,33	
Tension/Annoyance	1,64	*this is good*
Challenge	2,83	
Negative affect	1,75	*this is good*
Positive affect	4,35	
1.0 - 2.5	bad	
2.6 - 3.5	neutral	
3.6 - 5.0	good	

figure 1 - results GEQ core module

Overall Scores (average value of its items)	out of 1-5
Physchological involvement - empathy	3,9
Physchological involvement - negative feelings	2,3
Behavioral involvement	4,0
1.0 - 2.5	bad
2.6 - 3.5	neutral
3.6 - 5.0	good

figure 2 - results GEQ social module

Overall Scores (average value of its items)	out of 1-5
Impact on Graduation	2,8
Game Experience	4,2
1.0 - 2.5	bad
2.6 - 3.5	neutral
3.6 - 5.0	good

figure 3 - results own questions

Campfires did receive quite some good ratings and comments from the players. Especially in the social module, lots of high scores can be found. This was to be expected of a collaborative game and only further highlights how such games can be used to create community and socialness amongst students. I am happy to see that that worked.

The impact of the game is still a bit low, looking towards the qualitative data, we can see why. The questions are very basic, as I had intended it to start a conversation, but participants mentioned that something of a higher level is needed to improve the impact of the game. On top of that, some question formatting might not be suitable to the cause. Therefore exploration is needed to see what type of questions are suitable for the needs of students and how these should be formulated.

No other big issues or gaps were identified. Overall experience scores can be improved but some commented that they are just not that good at memory games, so it might be due to that as well.

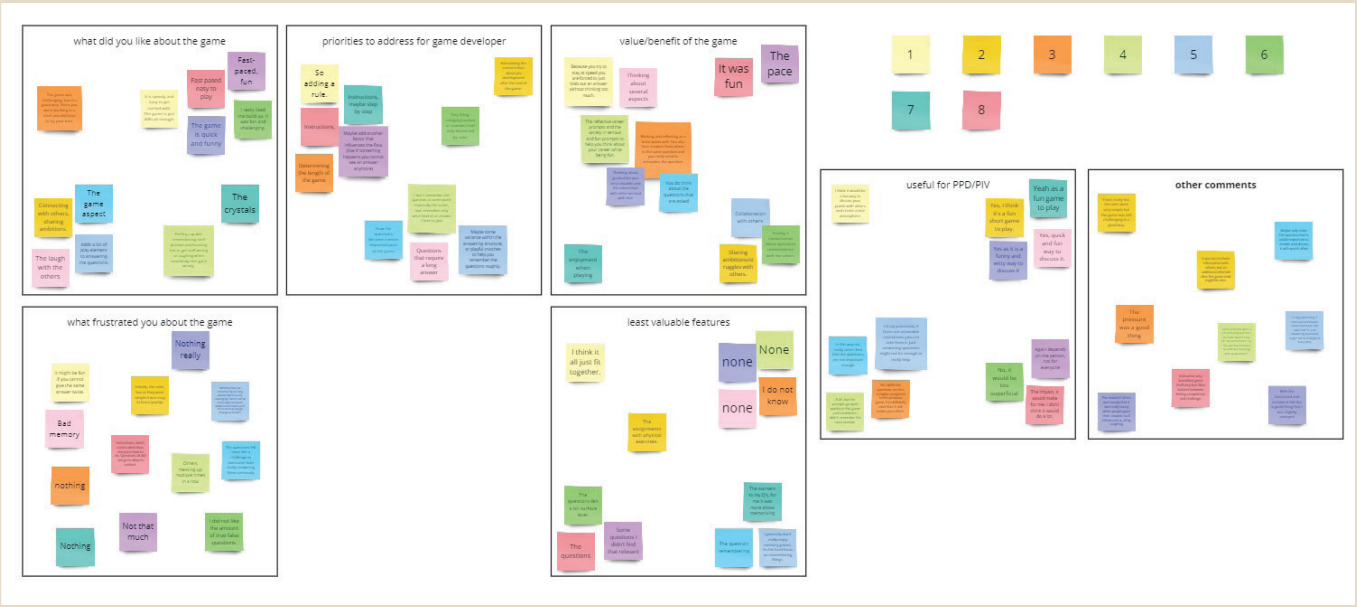


figure 3 - qualitative results 2

Final Testing #5

Cognitive Walkthrough

Set-Up
Participants from the faculty were recruited. Before the report deadline, one person participated, more followed after the deadline. All follow the same set-up.

Each game was first explained, and an opportunity was created to ask explanatory questions in order to understand the game.

After explaining, the opinion and perspective of the participants was asked using the following questions.

1. What are your initial thoughts about this game?
2. Do you feel this game is suited for students?
3. How do you feel this game would be best used?
4. Do you feel the impact of the game is good enough?
5. Are there any gaps or missed opportunities you can identify for game experience and/or impact?
6. Do you have any other comments?

This list of questions was used for every game. Some additional questions to better understand answers were formed on the spot.

Results
The transcript of the cognitive walkthrough was analysed with inductive thematic analysis. Below are the quotes extracted during this analysis grouped per category.

Access to the full transcript is not possible at this time due to several answers being identifiable of who said it. Because the anonimity of the participant cannot be fully safeguarded due to certain answers, only quotes are shared here.

“the questions are really nice” (campfires)

“I get the counting, but how do they get from counting to answering questions?” (campfires)

“I think this is a fun game, it’s concrete and the questions seem good so not a lot of comments to be fair” (campfires)

“I can say, CSA is not part of it, but such things need to be refined and can be added later on” (unknowns)

“I think for a first version of the game that this is great” (unknowns)

“I find it interesting that you seperated fellow ID-students and fellow non-ID, I think that is good” (unknowns)

“I think it is logical, for how quickly I am seeing this now, how people help and how much” (unknowns)

“I think if you would use this as a real learning method, then we would have to take a better look which parties to include” (unknowns)

“the timing of deploying this to graduate students is really interesting, do they maybe need a refresher. I am thinking where it needs to be placed” (general comment)

“I would like to use this almost for, we are now getting new ID fundamentals for the Masters, this is ideal to generally introduce things for what is out there.” (unknowns)

“so they háve to take a tile?” (treasures)

“it looks really nice” (treasures)

“so you háve to move or you can move with the wind? (you háve to) Okay fun” (treasures)

“who determines if the answer is good enough?” (treasures)

“how were the questions made?” (treasures)

“I think the easy questions are really do-able so that looks good” (treasures)

Appendix I - ERB's

This chapter includes all of the signed ERB forms created for this project including the confirmation letters.

All ERB Forms

Laure Smits

includes all signed ERB's and confirmation letters

IMPORTANT!

for some reason the dates got changed next to the researcher's signature, the supervisors date holds the true date the form was signed

the correct date can be found in the independent files but when combined this changed

Ethical Review Form

(Version 2.1)

This Ethical Review Form should be completed for every research study that involves human participants or personally identifiable personal data and should be submitted to ethics@tue.nl. For more information about how this process works please click here. Please check if you are using the correct form: PDF Ethical Review Form (version 2.1). Please click here to obtain this latest version.

Part 1: General Study Information

1	Project title / Study name	Graduation Process and Support
2	Name of the researcher / student	Laure Smits
3	Email of the researcher / student	l.y.smits@student.tue.nl
4	Supervisor(s) name(s) *Additional explanation: Please write down the name of your direct supervisor. You can mention several supervisors if appropriate, but at least one supervisor should be mentioned.*	Tilde Bekker
5	Supervisor(s) email address(es) *Additional explanation: Please give the email address of the supervisor(s) mentioned in question 4.*	m.m.bekker@tue.nl
6	Department / Group *Additional explanation: Please specify group if relevant e.g. JADS or HTI*	Industrial Design - Systemic Change
7	What is the purpose of this application?	☐ Scientific study ☐ Bachelor education. Course: ■ Master education. Course: ☐ Other (e.g. external, following external regulations):
8	Research location *Additional explanation: Where will the data collection take place? On campus, in a company, in public space, online, etc.*	■ Eindhoven University of Technology campus ☐ Other, name organization(s): ☐ Public space ■ Online
9	Start date data collection *Additional explanation: Please state when your data collection will start. Please note that you do not have to provide information about your complete (PhD) project, but only on this particular sub-study that you are submitting for approval in this form.*	13/09/2023
10	End date data collection	10/07/2024
11	Does your project receive external funding (e.g., NWO, relevant for special regulations from funders)?	☐ Yes. Name Funder: ■ No
12	Which internal and external parties are involved in the study? Think about sharing data or information between TU/e and other universities, commercial companies, hospitals, etc. *Additional explanation: Describe all internal and external parties that are involved in the study or project, including:* • *researchers or research groups at the TU/e who participate in the study;* • *(Researchers at) other universities/institutions that provide data/services, help analyzing the data, etc.;*	Internal parties • Researcher(s): Laure Smits • Supervisor: Tilde Bekker

Ethical Review Form

	• *(commercial) partners, companies, government bodies, municipalities, consultancy firms, hospitals or care institutions that provide data (e.g., contact details of participants, data for further analysis).* *Indicate which role each party plays: who defines the means and purposes in the study, who will supply the data (external parties?), who will process/handle the data, who will be able to access the data during and after research (only researchers at TU/e or also others)?*	External parties • Other universities/institutions: • Others: Mitchell Jacobs, supporting coach & supervisor
13	Have any special agreements already been made with an external party, such as a Non-Disclosure Agreement (NDA) or a data sharing agreement?	☐ Yes, namely: ☒ No
14	Has your proposal already been approved by an external Ethical Review Board or Medical Ethical Review Board? *Additional explanation: For example, when you are collaborating with another university and the project has been approved by their Ethical Review Board, or when you received a WMO-waiver from a Medical Ethical Review Board.*	☐ Yes ▪ No
15	If yes: Please provide the name, date of approval and contact details of the ERB. Please also include the registered number for your project approval. Additionally, please send in the Ethical Review Form upon which ethical approval was granted together with this form.	
16	If you process personal data that are likely to result in high privacy risks for participants, you need to perform a Data Protection Impact Assessment (DPIA). Have you done this for this or a very similar project? ***Please read the information below: a DPIA is not the same as a regular privacy impact assessment. More detailed questions on privacy will follow in the section below.*** *Additional explanation: A Data Protection Impact Assessment (DPIA) is a formal document that must be drafted under the guidelines of the General Data Protection Regulation (GDPR). Think of research with vulnerable people, high-risk medical research,* *The Dutch DPA (Autoriteit Persoonsgegevens) and our website provides more information about a DPIA.*	☒ Not applicable (no high privacy risks) ☐ Yes (the form is attached to the application) ☐ No
Part 2: Medical study		
1	Does the study have a medical scientific research question or claim? *Additional explanation: Medical/scientific research is research which is carried out with the aim of finding answers to a question in the field of illness and health (etiology, pathogenesis, signs/symptoms, diagnosis, prevention, outcome or treatment of illness), by systematically collecting and analyzing data. The research is carried out with the intention of contributing to medical knowledge which can also be applied to populations outside of the direct research population. If your research contains questions about health and health related parameters (such as well-being, vitality, feelings of anxiety or stress) but your research question is not primarily medical, then you can answer 'no' to this question.*	☐ Yes* ☒ No *If yes or in doubt, please contact Susan Hommerson via s.m.hommerson@tue.nl

Ethical Review Form

Part 3: Use of (medical) devices in the study		
1	Does your research include a device? *Additional explanation: A device is a complete piece of physical hardware that is used to compute or support computer functions within a larger system. Devices can be divided into input-, output-, storage-, internet of things-, or mobile device.*	☐ Yes, not self-made ☐ Yes, self-made ☒ No
2	Please describe your device or link to an online description of the device	
3a	Will you use a device that is 'CE' certified for **unintended use** (meaning you will use existing CE certified devices for other things than they were originally intended for) or use a device that is not 'CE' certified? *Additional explanation: You can find more information about CE certification here*	☐ Yes ☒ No
3b	If no: Please explain to what extent the device was assembled according to relevant standards and provide a risk assessment *Additional explanation: You can find more information about a risk assessment here*	I will not use any device.
3c	If yes: Do you use a device or software that has a medical purpose such as diagnosis, prevention, monitoring, prediction, prognosis, treatment or alleviation of disease or injury?	☐ Yes, my device or software currently has a medical purpose ☐ Yes, my device or software could have a medical purpose in the near future ☐ No ☐ I'm not sure
Part 4: Information about the study		
1	What are your main research questions? *Additional explanation: You need to provide at least one clear research question.*	What are the current perspectives of Industrial Design students on graduation, its processes and support systems?
2a	Please check the box that indicates the relevant study population *Additional explanation: Please select which persons are eligible for your study.*	■ Students ☐ General healthy population ☐ General population with specific feature, e.g., pregnancy, specifically ..... ☐ Patients, specifically ……..... ☐ Other, specifically ……
2b	Age category of participants	☐ Younger than 12 years of age ☐ Older than 11 and younger than 16 years of age ■ 16 years or older
3	Description of the research method (select all that applies)	☐ (Semi-structured) interviews ■ Surveys

Ethical Review Form

	Additional explanation: Please specify your research method. Note that you need to provide information about the research method in an additional file that you attach to the ERB form. E.g., for interviews you provide the interview questions, for surveys you provide the survey questions, etc.	☐ Group workshops/roundtable discussios ☐ Diary studies ☐ Behavioral observations ☐ Building sensor data ☐ Wearable device (e.g. Fitbit watch, on-skin sensors) ☐ User testing ☐ Pilot study ☐ GPS tracking/location data ☐ Living Lab ☐ Other, namely .....
4	Description of the measurements and/or stimuli/treatments *Additional explanation: Think about your outcome measures and the variables you will be collecting and describe them in a way such that another person understands what the participant will experience. For example: Participants will perform task A and see pictures from database B, and we measure validated Scale 1.*	Participants will be asked to complete a survey that asks both quantitative and qualitative questions on their perspective on graduation, its process and available support during this process.
5	Describe and justify the number of participants you need for this study. Also justify the number of observations you need, taking into account the risks and benefits. *Additional explanation: Think about if you need 3 or 30 participants for example, and why? Do they need to provide their input once, or several times, and why? If relevant, specify the duration of the study per participant and the compensation that is needed for the study.*	Number of participants: 10-100 The results from this survey will be used to make an accurate description of current thoughts and perspectives on graduation, therefore an accurate representation of the population of ID students needs to be taken into account which is why the number is 10-100.
6	Explain why your research is societally important. What benefits and harm to society may result from the study? *Additional explanation: What benefit will the results of your study have to society in general?*	Graduation and its process is crucial to each students personal and professional development. However there is a lack of support available to students going through this which might make them make the wrong decisions on what to do next. This survey aims to gain a better understanding of what the current thoughts, ideas and perspectives on graduation are and how we might offer support. These insights will then be used to create an overview of needs and requirements which in turn will be used to create a design to tackle this problem.
7	Describe the way participants will be recruited *Additional explanation: How will you recruit participants for your study? For example, by using flyers, personal network, panels, etc.*	■ Survey link posted online, e.g., social media platforms ☐ On campus flyers ■ Personal network ☐ Via a company, namely …….. ☐ Via a hospital, namely …….. ☐ Via an organization …… ☐ By a Consortium Partner, namely ……. ☐ Other, namely ……..
8	Provide a brief statement of the risks you expect for the participants or others involved in the study and explain. Also take into consideration any personal data you may gather and associated privacy issues. *Additional explanation: Risks for the participants can be anything from risk of data breach to risk of safety or well-being (think about stress, extreme emotions, visual or auditory discomfort). Describe these possible risks and describe the way these risks are mitigated.*	The risks are deemed negligible as the purpose of the study is educational and designed with this in mind. They will not be asked to engage and interact with anything that is not safe. Data collection and storage All the participants will be informed about the research activities before the study, including the data collection, storage, and usage protocols. The gathered (raw) data is only accessible to the researcher when the participants give consent. All the data will be stored in a TU/e approved online storage application until 1 year after the end of the project and deleted after that period. Access is password protected.

Ethical Review Form

Part 5: Self-assessment checklist

	Note: answers in the blue boxes indicate that your research is eligible for fast-track approval	Yes	No
1a	Does the study involve human material? (e.g., surgery waste material derived from non-commercial organizations such as hospitals)		✔
1b	Will blood or other (bio)samples be obtained from participants? (e.g., hair, sweat, urine or other bodily fluids or secretions, also external imaging of the body)		✔
2	Will the participants give their consent – on a voluntary basis – either digitally or on paper? Or have they given consent in the past for the purpose of education or for re-use in line with the current research question?	✔	
3	Are the participants, outside the context of the research, in a dependent or subordinate position to the investigator? Additional explanation: Think about doing research on your own students or on your own employees. When there is a dependency or power imbalance between you and the research participants, you need to answer 'yes' to this question.		✔
4	Does the study involve participants who are particularly vulnerable or unable to give informed consent? (e.g., children (<16 years of age), people with learning difficulties, patients, people receiving counselling, people living in care or nursing homes, people recruited through self-help groups)		✔
5	Will participating in the research be burdensome? (e.g., requiring participants to wear a device 24/7 for several weeks, to fill in questionnaires for hours, to travel long distances to a research location, to be interviewed multiple times)?		✔
6	May the research procedure cause harm or discomfort to the participant in any way? (e.g., causing pain or more than mild discomfort, stress, anxiety or by administering drinks, foods, drugs, or showing explicit visual material)		✔
7	Will financial inducement (other than reasonable expenses and compensation for time) be offered to participants? Additional explanation: For an explanation of what is considered a reasonable compensation, see the topic participant fees from the HTI group		✔
8a	Will it be necessary for participants to take part in the study without their knowledge and consent at the time? (e.g., covert observation of people)		✔
8b	If yes: Will you be observing people without their knowledge in public space? (e.g. on the street, at a bus-stop)		
9	Will the study involve actively deceiving the participants? (e.g., will participants be deliberately falsely informed, will information be withheld from them, or will they be misled in such a way that they are likely to object or show unease when debriefed about the study)		✔
10	Will participants be asked to discuss or report sexual experiences, religion, alcohol or drug use, suicidal thoughts, or other topics that are highly personal or intimate? Additional explanation: Think about your research population. For some participants, particular topics can be considered sensitive or intimate, whereas the same topics will not be perceived as such by other participants.		✔
11	Elaborate on all boxes answered outside of the blue boxes in part 5. Describe how you safeguard any potential risk for the research participant.		

Ethical Review Form

Part 6: Self-assessment on privacy

The following questions (1-11) concern privacy issues, as laid down in the General Data Protection Regulation (GDPR). The Data Stewards and – if necessary – privacy team of TU/e will assess these questions. In some cases, more information is required to assess the privacy risks. If this is the case, you will be notified that the Data Stewards team will contact you.

The GDPR defines 'personal data' as any information relating to an identified or identifiable natural person ('data subject'). Personal data also includes data that indirectly reveals something about a natural person. Personal data can lead to the physical, physiological, genetic, mental, economic, cultural or social identity of a natural person. There are two main categories of personal data: regular personal data and special category personal data.

If you are not sure whether some of these questions below should be answered with a Yes or No, please contact a Data Steward first through rdmsupport@tue.nl.

	Note: answers in the blue boxes indicate that your research is eligible for fast-track approval	Yes	No
1	Will the study involve discussion/collection/processing of **regular** personal data, or will you collect and (temporarily) store video or voice recordings for the purpose of conducting interviews? *Additional explanation: For example, name, address, phone number, email address, IP address, gender, age, video or interview recordings? If you are not sure whether your data contains personal data, please contact the Data Stewards Team (rdmsupport@tue.nl).*	✔	
1A	If yes: Please describe which regular personal data you will collect in this study?	their current stage of study	
2	Will the study involve discussion/collection/processing of **special category** personal data or other **sensitive data**? *Additional explanation: Examples of special category personal data are race, religion, health information, political views, genetic or biometric data for the unique identification of a person, sexual preference, etc. Health information concerns personal data of the physical or mental health of persons, including the provision of health care. Examples of other sensitive data is information such as communication data, financial records or credit scores, camera surveillance data, location/GPS data, internet-of-things data, employee monitoring, observing or influencing behaviour, criminal records, data of vulnerable persons (children, people with disabilities, refugees), BSN number etc. Please be aware that the use of special category personal data in research requires extra security measurements in order to safeguard the privacy of data subjects and to comply with the GDPR. Processing of this special category data is prohibited, except for specific purposes and under certain circumstances. If you need to process special category data, please consult the data stewards at rdmsupport@tue.nl.*		✔
2A	If yes: Please describe which special-category personal data and/or sensitive data you will collect in this study?		

If you answered yes to either question 1 or 2, please answer the questions below. If you answered no to both questions, you can skip this part and continue onto part 7. Also, if an answer to any of the following questions is 'yes', please contact a Data Steward at rdmsupport@tue.nl

		Yes	No
3	Will your project involve the processing of personal data on a **large scale**? *Additional explanation: In general, any processing that involves more than 10.000 data subjects should be considered "large scale". However, if the data of approximately 1000 persons (or more) are involved, the data processing may still be considered large scale. In that case, besides the number of persons involved in the study, one should also assess (i) the amount of data collected from these persons taking into account the type/risk level of the personal data, (ii) the duration of the data processing, (iii) the geographic scope or extent of the processing. For example, if you would collect and process data across several European countries with 10+ socio-economic data items of 1200 individual persons for several years in a row, that is likely "large-scale processing". Other examples of a large-scale processing activity are:* • *Monitoring driving behavior of road users on Dutch highways* • *Collecting data of Covid patients* • *A hospital that processes patient data as part of its usual operations*		✔

Ethical Review Form

	• *A transport company that processes travel information of people who travel by public transport in a certain city. For example, by tracking them through travel maps.*		
4	Does this processing activity involve the use of new or innovative technologies? *Examples of a new technology: combining fingerprints and facial recognition for physical access control, the use of bodycams in public spaces, the use of new technical methods in conducting research such as AI. This question also refers to new technologies that have not been deployed by TU/e so far.*		✔
5	Does your study involve systematic (c.q. automated) monitoring of persons? *Additional explanation: Consider data processing activities that have the purpose of observing, monitoring or controlling individuals, for example in circumstances where the individuals are not aware by whom their personal data is collected and how it is used. Examples of such activities are using camera systems to monitor driving behavior on highways, monitoring email inactivity or employee phone use, certain applications of machine learning and artificial intelligence.*		✔
6	Does the study involve collaborations (with third parties) in which data are shared or exchanged in order to link or combine data? *Additional explanation: This may often apply in a collaboration between the university and a commercial party, contract research, etc. It is important to assess this for all data in the entire project, not just your own data.* *An important consideration in this situation is whether the person whose data is involved could have expected that data from these different databases or sources of information were to be combined. For example, it is less likely for data subjects to expect that databases from different parties will be combined and the results are used for different purposes than one could reasonably expect; this may apply for example in a collaboration between the university and a commercial party.*		✔
7	Will the study include data processing activities that prevent data subjects from exercising their rights or using a service or contract? *Additional explanation: Examples include processing operations carried out in public places that people cannot avoid (train station, airport, shopping mall, public university premises, etc.) or processing operations whose purpose is to allow or not allow data subjects to use a service or enter into a contract (examples: by refusing to pay a benefit, not being able to apply for a loan, etc.).*		✔
8	Will the study process personal data to score, rank or profile persons? *Additional explanation: Examples: monitoring (highway) roads to give road users a "score" based on their detected driving behavior, a bank assessing its customers based on their creditworthiness, or an organization building behavioral and marketing profiles based on use of their website or navigating their website.*		✔
9	Does your data processing include activities that involves composing "**blacklists**" – and, in particular, in relation to sensitive or special category data, such as communication data, financial records or credit scores, genetic data, biometric data, health data, camera surveillance data, location/GPS data, internet-of-things data, employee monitoring, observing or influencing behaviour, etc. *Additional explanation: This situation will not be a common occurrence in research, but you may indirectly be involved in this. In general, this typically concerns processing operations involving personal data relating to criminal convictions and offences, data relating to unlawful acts, data concerning unlawful or annoying behaviour or data concerning bad payment behaviour by companies or individuals are processed and shared with third parties (blacklists or warning lists, as used, for example, by insurers, hospitality companies shopping companies, telecom providers as well as blacklists relating to unlawful behavior of employees, for example in the healthcare sector or by employment agencies, etc.).*		✔
10	Will personal data be transferred or shared outside the EU/EEA? EU data protection rules apply to the European Economic Area (EEA), which includes all EU countries and non-EU countries Iceland, Liechtenstein and Norway. *Additional explanation: The GDPR has drafted additional requirements for transfers data outside of the EU/EEA. Typically, additional safeguards must be implemented to protect the personal data of residents in the European Union. For example, if you collaborate with an American, Indian or Chinese university or other third party outside the EU/EEA, you must first check whether this is allowed and under which conditions this is allowed. Another typical example is storage of data on American providers of cloud (storage) services. Please contact the data stewards first to discuss this.*		✔
11	Will any raw or anonymized personal data or any other sensitive data or research results from the project possibly be transferred to a high-risk country*? ***High risk countries**: China, Russia, Iran, Turkey, and North Korea.* *If personal data or other potentially sensitive data is exchanged with one of these countries, or if part of the data processing takes place in one of these countries: **an advice from the Data Protection Officer, the kennisveiligheidsteam (Knowledge Security team), and the CISO (Chief Information Security Officer) is ALWAYS required.***		✔

Ethical Review Form

Part 7a: Processing of research data		
1	Is consent your legal basis for processing the personal data in your study? *Additional explanation: What is a legal basis? One of main principles in the GDPR is to ensure that personal data is processed lawfully, fairly, and transparently. To comply with this principle, the processing of personal data also requires that you have a valid legal basis for the personal data processing activity.* *In research projects, the legal basis is often but not always consent. However, it is possible that it is not clear or not possible to establish whether to use consent as a legal basis.* *Some examples where consent may not be applicable as legal basis are covert research, data collection in public spaces, secondary data analysis of existing data, data that are transferred to you by a third party, consent is not possible or would require disproportionate effort, etc. In that case, please indicate which legal basis you think that applies or (preferably) contact a data steward first.*	☒ Yes and it will be obtained via the first question of the survey An informed consent template* is attached to this application. ☐ No, I will use another legal basis to process the data. Namely, …….. * You can download a suitable template **here**.
2	Where will the data come from?	☐ Data obtained from another party (secondary data use) ■ New data collected only by my research team ☐ New data collected together with collaborators
3	Which of the following tools will you use to process personal data?	**Surveys** ☐ Qualtrics ☐ Limesurvey ■ MS Forms ☐ Other, namely …….. **Interview/workshop recordings** ☐ Voice/video recorder ☐ Phone in a flight mode ☐ MS Teams ☐ Other, namely …… **Transcription** ☐ Manual transcription ☐ Microsoft Office software (e.g. Word, Teams) ☐ Other, namely …… **Statistical analysis** ☐ SPSS ☐ R ☐ Other, namely …… **Other tools**, specifically……
4	Where will the data and in particular the personal data be stored during and after completion of the study? If you have already uploaded your Data Management Plan, you can refer to your Data Management Plan.	☐ SURF drive ■ Onedrive ☐ Research Drive ☐ Network Drive

Ethical Review Form

	Additional explanation: University supported-storage facilities are SURFdrive, SURF Research Drive, Ceph, departmental drives (this includes BE Project Drive), and the TU/e instance of Microsoft OneDrive. For most personal data, the use of SURF Research Drive, departmental drives (including BE Project Drive) and SURFdrive is required.	☐ Research Manager ☐ Other, namely ……
Part 7b: Safety and security measures		
1	Will you pseudonymize/anonymize the data? *Additional explanation:* *Anonymization: remove all direct identifiers (name, address, telephone number etc.) but also indirect identifiers (age, place of birth, occupation, salary) that, linked with other information, can lead to a person's identification. Anonymization to the point that a data subject is no longer identifiable means that the anonymized data is not considered to be personal data anymore.* *Pseudonymization: replacing the unique identifier of a data subject with an artificial pseudonym. This means that identification is still possible with the identification key. The identification key needs to be stored securely and separately from the pseudonymized data. If the data subject can be identified by combining data with additional information, the data is also called pseudonymous.*	☐ Yes ☒ No If yes, describe how:
2	Is access to (personal) data restricted? (Select all that apply)	☐ No ☐ Yes, via access control ☐ Yes, via password protection ☐ Yes, access only given to TU/e research team ■ Yes, access only given to research team, including non-TU/e collaborators ☐ Other, specify…….
3	Who will have access to the data during and after completion of the project? (Select all that apply)	■ Main researcher ■ TU/e supervisor(s) ■ External supervisors ☐ TU/e research team ☐ Other, specify…….
4	Will you store data for future research?	☐ No ☐ Yes, in a public data repository ☐ Yes, in a public data repository under restricted access ■ Yes, in a TU/e-recommended storage (SURF Research Drive, Network Drive)
5	Will you share data outside the TU/e?	☐ No ■ Yes, in a fully anonymized form ☐ Yes, raw or pseudonymized data* *If you selected this box, make sure that a suitable data agreement is put in place. You can contact the Data Stewards for support in preparing such an agreement
6	How long will data be stored after the end of the project?	till 1 year after the project

Ethical Review Form

Part 8: Closures and Signatures

1	Enclosures (tick if applicable and attach to this form):	☒ Informed consent form ☐ Informed consent form for other agencies when the research is conducted at a location (such as a school) ☐ Text used for ads (to find participants) ☐ Text used for debriefings ☐ Approval other research ethics committee ☐ The survey the participants need to complete, or a description of other measurements ☐ Data Protection Impact Assessment checked by the privacy officer ☐ Data Management Plan checked by a data steward
2	Signature(s)	Signature(s) of applicant(s) Laure Smits Date: 13/09/2023 Signature research supervisor Date: 13/09/2023

This informed consent form before you entail the details of voluntary participation in a survey where you will be asked about your perspective on graduation from your studies. You will be asked to share your ideas and thoughts about support during this part of your personal and professional development journey.

- I have read and understood the information of the corresponding information form for participants.

- I have been given the opportunity to ask questions. My questions are sufficiently answered, and I had sufficient time to decide whether I participate. (please email l.y.smits@student.tue.nl for questions)

- I know that only the researcher (Laure Smits) has access to the data and that the data will be stored locally for 12 months after the study.

- I know that my participation is completely voluntary. I know that I can refuse participation and that I can stop participation at any time during the study, without giving any reasons. I know that I can withdraw permission to use the data at any given moment during the study.

- I agree with the voluntary participation of me in this study.

- I agree with the fact that this session is audio-recorded which is to be used for analysis afterwards.

- I know that no information that can be used to personally identify or my responses in this study will be shared with anyone outside of the research team.

Survey questions

1. What stage of your study are you currently in?
2. Do you know what you will be doing after graduation?
    a. Can you elaborate on your answer?
3. How much do/did the following things influence this decision?
    a. Likert scales on:
        i. Societal expectations
        ii. Family expectations
        iii. Friends expectations
        iv. Financial reasons (e.g. study loans or salary)
        v. Emotional satisfaction (e.g. choosing what makes you happy)
        vi. Intellectual satisfaction (e.g. wanting to keep learning)
4. Do or did you know about the support that is available to you?
5. Do or did you use any of these support systems?
    a. Why or why not?
6. How do you feel about possible support given by the following stakeholders in this decision?
    a. Employers (e.g. companies)
    b. Faculty staff (e.g. trained staff from your department)
    c. Student mentors (e.g. trained students from your study)
    d. TU/e-wide organizations (e.g. organizations like TU/e Skillslab, Wervingsdagen and more)
    e. Study associations (e.g. (career) events or workshops organized by your study association)
    f. NL-wide organizations (e.g. (career) events or workshops organized across the country)
    g. Communities (e.g. communities in different industry sectors or within the TU/e)
7. Do you have any of your own ideas on how and by whom you would like to receive support in the graduation process?
8. Do you have any other ideas or feedback?
9. Would you be interested in supporting this project further by participating in other user research? (especially if you are graduating now/soon)

From: Wieringa - van Stratum, Marijke on behalf of Ethics
To: Smits, Laure
Subject: Approval ERB
Date: Monday, 18 September 2023 10:26:16
Attachments: image001.png

Dear Laure,

Your application titled “Graduation Process and Support (ERB2023ID436) has been approved by the ERB.

We assume that you have answered all questions correctly. We will perform regular spot-checks so you need to keep your documentation (ERB form, informed consent forms, surveys/interview questions, description of experiment/prototype etc.) available for at least 6 months.

Good luck!

Kind regards,

TU/e EINDHOVEN UNIVERSITY OF TECHNOLOGY

Marijke Wieringa-van Stratum / Secretary GA and Integrity and Ethics Office / Working hours: Monday, Tuesday, Thursday
Building Atlas / P.O. Box 513, 5600 MB Eindhoven / T + 31 (0)40 247 8383

Directions campus: https://www.tue.nl/en/our-university/tue-campus/

Ethical Review Form

(Version 2.1)

This Ethical Review Form should be completed for every research study that involves human participants or personally identifiable personal data and should be submitted to ethics@tue.nl. For more information about how this process works please click here. Please check if you are using the correct form: PDF Ethical Review Form (version 2.1). Please click here to obtain this latest version.

Part 1: General Study Information

1	Project title / Study name	Graduation Process and Support
2	Name of the researcher / student	Laure Smits
3	Email of the researcher / student	l.y.smits@student.tue.nl
4	Supervisor(s) name(s) *Additional explanation: Please write down the name of your direct supervisor. You can mention several supervisors if appropriate, but at least one supervisor should be mentioned.*	Tilde Bekker
5	Supervisor(s) email address(es) *Additional explanation: Please give the email address of the supervisor(s) mentioned in question 4.*	m.m.bekker@tue.nl
6	Department / Group *Additional explanation: Please specify group if relevant e.g. JADS or HTI*	Industrial Design - Systemic Change
7	What is the purpose of this application?	☐ Scientific study ☐ Bachelor education. Course: ☒ Master education. Course: ☐ Other (e.g. external, following external regulations):
8	Research location *Additional explanation: Where will the data collection take place? On campus, in a company, in public space, online, etc.*	☒ Eindhoven University of Technology campus ☐ Other, name organization(s): ☐ Public space ☒ Online
9	Start date data collection *Additional explanation: Please state when your data collection will start. Please note that you do not have to provide information about your complete (PhD) project, but only on this particular sub-study that you are submitting for approval in this form.*	13/09/2023
10	End date data collection	10/07/2024
11	Does your project receive external funding (e.g., NWO, relevant for special regulations from funders)?	☐ Yes. Name Funder: ☒ No
12	Which internal and external parties are involved in the study? Think about sharing data or information between TU/e and other universities, commercial companies, hospitals, etc. *Additional explanation: Describe all internal and external parties that are involved in the study or project, including:* • *researchers or research groups at the TU/e who participate in the study;* • *(Researchers at) other universities/institutions that provide data/services, help analyzing the data, etc.;*	Internal parties • Researcher(s): Laure Smits • Supervisor: Tilde Bekker

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	• *(commercial) partners, companies, government bodies, municipalities, consultancy firms, hospitals or care institutions that provide data (e.g., contact details of participants, data for further analysis).* *Indicate which role each party plays: who defines the means and purposes in the study, who will supply the data (external parties?), who will process/handle the data, who will be able to access the data during and after research (only researchers at TU/e or also others)?*	External parties • Other universities/institutions: • Others: Mitchell Jacobs, supporting coach & supervisor
13	Have any special agreements already been made with an external party, such as a Non-Disclosure Agreement (NDA) or a data sharing agreement?	☐ Yes, namely: ☒ No
14	Has your proposal already been approved by an external Ethical Review Board or Medical Ethical Review Board? *Additional explanation: For example, when you are collaborating with another university and the project has been approved by their Ethical Review Board, or when you received a WMO-waiver from a Medical Ethical Review Board.*	☐ Yes ▪ No
15	If yes: Please provide the name, date of approval and contact details of the ERB. Please also include the registered number for your project approval. Additionally, please send in the Ethical Review Form upon which ethical approval was granted together with this form.	
16	If you process personal data that are likely to result in high privacy risks for participants, you need to perform a Data Protection Impact Assessment (DPIA). Have you done this for this or a very similar project? ***Please read the information below: a DPIA is not the same as a regular privacy impact assessment. More detailed questions on privacy will follow in the section below.*** *Additional explanation: A Data Protection Impact Assessment (DPIA) is a formal document that must be drafted under the guidelines of the General Data Protection Regulation (GDPR). Think of research with vulnerable people, high-risk medical research,* *The Dutch DPA (Autoriteit Persoonsgegevens) and our website provides more information about a DPIA.*	☒ Not applicable (no high privacy risks) ☐ Yes (the form is attached to the application) ☐ No
Part 2: Medical study		
1	Does the study have a medical scientific research question or claim? *Additional explanation: Medical/scientific research is research which is carried out with the aim of finding answers to a question in the field of illness and health (etiology, pathogenesis, signs/symptoms, diagnosis, prevention, outcome or treatment of illness), by systematically collecting and analyzing data. The research is carried out with the intention of contributing to medical knowledge which can also be applied to populations outside of the direct research population. If your research contains questions about health and health related parameters (such as well-being, vitality, feelings of anxiety or stress) but your research question is not primarily medical, then you can answer 'no' to this question.*	☐ Yes* ☒ No *If yes or in doubt, please contact Susan Hommerson via s.m.hommerson@tue.nl

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Part 3: Use of (medical) devices in the study		
1	Does your research include a device? *Additional explanation: A device is a complete piece of physical hardware that is used to compute or support computer functions within a larger system. Devices can be divided into input-, output-, storage-, internet of things-, or mobile device.*	☐ Yes, not self-made ☐ Yes, self-made ☒ No
2	Please describe your device or link to an online description of the device	
3a	Will you use a device that is 'CE' certified for **unintended use** (meaning you will use existing CE certified devices for other things than they were originally intended for) or use a device that is not 'CE' certified? *Additional explanation: You can find more information about CE certification here*	☐ Yes ☒ No
3b	If no: Please explain to what extent the device was assembled according to relevant standards and provide a risk assessment *Additional explanation: You can find more information about a risk assessment here*	I will not use any device.
3c	If yes: Do you use a device or software that has a medical purpose such as diagnosis, prevention, monitoring, prediction, prognosis, treatment or alleviation of disease or injury?	☐ Yes, my device or software currently has a medical purpose ☐ Yes, my device or software could have a medical purpose in the near future ☐ No ☐ I'm not sure
Part 4: Information about the study		
1	What are your main research questions? *Additional explanation: You need to provide at least one clear research question.*	What are the current perspectives of Industrial Design students on graduation, its processes and support systems?
2a	Please check the box that indicates the relevant study population *Additional explanation: Please select which persons are eligible for your study.*	☒ Students ☐ General healthy population ☐ General population with specific feature, e.g., pregnancy, specifically ..... ☐ Patients, specifically ……..... ☐ Other, specifically ……
2b	Age category of participants	☐ Younger than 12 years of age ☐ Older than 11 and younger than 16 years of age ☒ 16 years or older
3	Description of the research method (select all that applies)	☐ (Semi-structured) interviews ☒ Surveys

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	Additional explanation: Please specify your research method. Note that you need to provide information about the research method in an additional file that you attach to the ERB form. E.g., for interviews you provide the interview questions, for surveys you provide the survey questions, etc.	☐ Group workshops/roundtable discussios ☐ Diary studies ☐ Behavioral observations ☐ Building sensor data ☐ Wearable device (e.g. Fitbit watch, on-skin sensors) ☐ User testing ☐ Pilot study ☐ GPS tracking/location data ☐ Living Lab ☐ Other, namely .....
4	Description of the measurements and/or stimuli/treatments *Additional explanation: Think about your outcome measures and the variables you will be collecting and describe them in a way such that another person understands what the participant will experience. For example: Participants will perform task A and see pictures from database B, and we measure validated Scale 1.*	Participants will be asked to complete a survey that asks both quantitative and qualitative questions on their perspective on graduation, its process and available support during this process.
5	Describe and justify the number of participants you need for this study. Also justify the number of observations you need, taking into account the risks and benefits. *Additional explanation: Think about if you need 3 or 30 participants for example, and why? Do they need to provide their input once, or several times, and why? If relevant, specify the duration of the study per participant and the compensation that is needed for the study.*	Number of participants: 10-100 The results from this survey will be used to make an accurate description of current thoughts and perspectives on graduation, therefore an accurate representation of the population of ID students needs to be taken into account which is why the number is 10-100.
6	Explain why your research is societally important. What benefits and harm to society may result from the study? *Additional explanation: What benefit will the results of your study have to society in general?*	Graduation and its process is crucial to each students personal and professional development. However there is a lack of support available to students going through this which might make them make the wrong decisions on what to do next. This survey aims to gain a better understanding of what the current thoughts, ideas and perspectives on graduation are and how we might offer support. These insights will then be used to create an overview of needs and requirements which in turn will be used to create a design to tackle this problem.
7	Describe the way participants will be recruited *Additional explanation: How will you recruit participants for your study? For example, by using flyers, personal network, panels, etc.*	☑ Survey link posted online, e.g., social media platforms ☐ On campus flyers ☑ Personal network ☐ Via a company, namely …….. ☐ Via a hospital, namely …….. ☐ Via an organization …… ☐ By a Consortium Partner, namely ……. ☐ Other, namely ……..
8	Provide a brief statement of the risks you expect for the participants or others involved in the study and explain. Also take into consideration any personal data you may gather and associated privacy issues. *Additional explanation: Risks for the participants can be anything from risk of data breach to risk of safety or well-being (think about stress, extreme emotions, visual or auditory discomfort). Describe these possible risks and describe the way these risks are mitigated.*	The risks are deemed negligible as the purpose of the study is educational and designed with this in mind. They will not be asked to engage and interact with anything that is not safe. Data collection and storage All the participants will be informed about the research activities before the study, including the data collection, storage, and usage protocols. The gathered (raw) data is only accessible to the researcher when the participants give consent. All the data will be stored in a TU/e approved online storage application until 1 year after the end of the project and deleted after that period. Access is password protected.

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Part 5: Self-assessment checklist

	Note: answers in the blue boxes indicate that your research is eligible for fast-track approval	Yes	No
1a	Does the study involve human material? (e.g., surgery waste material derived from non-commercial organizations such as hospitals)		✔
1b	Will blood or other (bio)samples be obtained from participants? (e.g., hair, sweat, urine or other bodily fluids or secretions, also external imaging of the body)		✔
2	Will the participants give their consent – on a voluntary basis – either digitally or on paper? Or have they given consent in the past for the purpose of education or for re-use in line with the current research question?	✔	
3	Are the participants, outside the context of the research, in a dependent or subordinate position to the investigator? Additional explanation: Think about doing research on your own students or on your own employees. When there is a dependency or power imbalance between you and the research participants, you need to answer 'yes' to this question.		✔
4	Does the study involve participants who are particularly vulnerable or unable to give informed consent? (e.g., children (<16 years of age), people with learning difficulties, patients, people receiving counselling, people living in care or nursing homes, people recruited through self-help groups)		✔
5	Will participating in the research be burdensome? (e.g., requiring participants to wear a device 24/7 for several weeks, to fill in questionnaires for hours, to travel long distances to a research location, to be interviewed multiple times)?		✔
6	May the research procedure cause harm or discomfort to the participant in any way? (e.g., causing pain or more than mild discomfort, stress, anxiety or by administering drinks, foods, drugs, or showing explicit visual material)		✔
7	Will financial inducement (other than reasonable expenses and compensation for time) be offered to participants? Additional explanation: For an explanation of what is considered a reasonable compensation, see the topic participant fees from the HTI group		✔
8a	Will it be necessary for participants to take part in the study without their knowledge and consent at the time? (e.g., covert observation of people)		✔
8b	If yes: Will you be observing people without their knowledge in public space? (e.g. on the street, at a bus-stop)		
9	Will the study involve actively deceiving the participants? (e.g., will participants be deliberately falsely informed, will information be withheld from them, or will they be misled in such a way that they are likely to object or show unease when debriefed about the study)		✔
10	Will participants be asked to discuss or report sexual experiences, religion, alcohol or drug use, suicidal thoughts, or other topics that are highly personal or intimate? Additional explanation: Think about your research population. For some participants, particular topics can be considered sensitive or intimate, whereas the same topics will not be perceived as such by other participants.		✔
11	Elaborate on all boxes answered outside of the blue boxes in part 5. Describe how you safeguard any potential risk for the research participant.		

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Part 6: Self-assessment on privacy

The following questions (1-11) concern privacy issues, as laid down in the General Data Protection Regulation (GDPR). The Data Stewards and – if necessary – privacy team of TU/e will assess these questions. In some cases, more information is required to assess the privacy risks. If this is the case, you will be notified that the Data Stewards team will contact you.

The GDPR defines 'personal data' as any information relating to an identified or identifiable natural person ('data subject'). Personal data also includes data that indirectly reveals something about a natural person. Personal data can lead to the physical, physiological, genetic, mental, economic, cultural or social identity of a natural person. There are two main categories of personal data: regular personal data and special category personal data.

If you are not sure whether some of these questions below should be answered with a Yes or No, please contact a Data Steward first through rdmsupport@tue.nl.

	Note: answers in the blue boxes indicate that your research is eligible for fast-track approval	Yes	No
1	Will the study involve discussion/collection/processing of **regular** personal data, or will you collect and (temporarily) store video or voice recordings for the purpose of conducting interviews? *Additional explanation: For example, name, address, phone number, email address, IP address, gender, age, video or interview recordings? If you are not sure whether your data contains personal data, please contact the Data Stewards Team (rdmsupport@tue.nl).*	✔	
1A	If yes: Please describe which regular personal data you will collect in this study?	their current stage of study	
2	Will the study involve discussion/collection/processing of **special category** personal data or other **sensitive data**? *Additional explanation: Examples of special category personal data are race, religion, health information, political views, genetic or biometric data for the unique identification of a person, sexual preference, etc. Health information concerns personal data of the physical or mental health of persons, including the provision of health care. Examples of other sensitive data is information such as communication data, financial records or credit scores, camera surveillance data, location/GPS data, internet-of-things data, employee monitoring, observing or influencing behaviour, criminal records, data of vulnerable persons (children, people with disabilities, refugees), BSN number etc. Please be aware that the use of special category personal data in research requires extra security measurements in order to safeguard the privacy of data subjects and to comply with the GDPR. Processing of this special category data is prohibited, except for specific purposes and under certain circumstances. If you need to process special category data, please consult the data stewards at rdmsupport@tue.nl.*		✔
2A	If yes: Please describe which special-category personal data and/or sensitive data you will collect in this study?		

If you answered yes to either question 1 or 2, please answer the questions below. If you answered no to both questions, you can skip this part and continue onto part 7. Also, if an answer to any of the following questions is 'yes', please contact a Data Steward at rdmsupport@tue.nl

		Yes	No
3	Will your project involve the processing of personal data on a **large scale**? *Additional explanation: In general, any processing that involves more than 10.000 data subjects should be considered "large scale". However, if the data of approximately 1000 persons (or more) are involved, the data processing may still be considered large scale. In that case, besides the number of persons involved in the study, one should also assess (i) the amount of data collected from these persons taking into account the type/risk level of the personal data, (ii) the duration of the data processing, (iii) the geographic scope or extent of the processing. For example, if you would collect and process data across several European countries with 10+ socio-economic data items of 1200 individual persons for several years in a row, that is likely "large-scale processing". Other examples of a large-scale processing activity are:* • *Monitoring driving behavior of road users on Dutch highways* • *Collecting data of Covid patients* • *A hospital that processes patient data as part of its usual operations*		✔

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	• *A transport company that processes travel information of people who travel by public transport in a certain city. For example, by tracking them through travel maps.*		
4	Does this processing activity involve the use of new or innovative technologies? *Examples of a new technology: combining fingerprints and facial recognition for physical access control, the use of bodycams in public spaces, the use of new technical methods in conducting research such as AI. This question also refers to new technologies that have not been deployed by TU/e so far.*		✔
5	Does your study involve systematic (c.q. automated) monitoring of persons? *Additional explanation: Consider data processing activities that have the purpose of observing, monitoring or controlling individuals, for example in circumstances where the individuals are not aware by whom their personal data is collected and how it is used. Examples of such activities are using camera systems to monitor driving behavior on highways, monitoring email inactivity or employee phone use, certain applications of machine learning and artificial intelligence.*		✔
6	Does the study involve collaborations (with third parties) in which data are shared or exchanged in order to link or combine data? *Additional explanation: This may often apply in a collaboration between the university and a commercial party, contract research, etc. It is important to assess this for all data in the entire project, not just your own data.* *An important consideration in this situation is whether the person whose data is involved could have expected that data from these different databases or sources of information were to be combined. For example, it is less likely for data subjects to expect that databases from different parties will be combined and the results are used for different purposes than one could reasonably expect; this may apply for example in a collaboration between the university and a commercial party.*		✔
7	Will the study include data processing activities that prevent data subjects from exercising their rights or using a service or contract? *Additional explanation: Examples include processing operations carried out in public places that people cannot avoid (train station, airport, shopping mall, public university premises, etc.) or processing operations whose purpose is to allow or not allow data subjects to use a service or enter into a contract (examples: by refusing to pay a benefit, not being able to apply for a loan, etc.).*		✔
8	Will the study process personal data to score, rank or profile persons? *Additional explanation: Examples: monitoring (highway) roads to give road users a "score" based on their detected driving behavior, a bank assessing its customers based on their creditworthiness, or an organization building behavioral and marketing profiles based on use of their website or navigating their website.*		✔
9	Does your data processing include activities that involves composing "**blacklists**" – and, in particular, in relation to sensitive or special category data, such as communication data, financial records or credit scores, genetic data, biometric data, health data, camera surveillance data, location/GPS data, internet-of-things data, employee monitoring, observing or influencing behaviour, etc. *Additional explanation: This situation will not be a common occurrence in research, but you may indirectly be involved in this. In general, this typically concerns processing operations involving personal data relating to criminal convictions and offences, data relating to unlawful acts, data concerning unlawful or annoying behaviour or data concerning bad payment behaviour by companies or individuals are processed and shared with third parties (blacklists or warning lists, as used, for example, by insurers, hospitality companies shopping companies, telecom providers as well as blacklists relating to unlawful behavior of employees, for example in the healthcare sector or by employment agencies, etc.).*		✔
10	Will personal data be transferred or shared outside the EU/EEA? EU data protection rules apply to the European Economic Area (EEA), which includes all EU countries and non-EU countries Iceland, Liechtenstein and Norway. *Additional explanation: The GDPR has drafted additional requirements for transfers data outside of the EU/EEA. Typically, additional safeguards must be implemented to protect the personal data of residents in the European Union. For example, if you collaborate with an American, Indian or Chinese university or other third party outside the EU/EEA, you must first check whether this is allowed and under which conditions this is allowed. Another typical example is storage of data on American providers of cloud (storage) services. Please contact the data stewards first to discuss this.*		✔
11	Will any raw or anonymized personal data or any other sensitive data or research results from the project possibly be transferred to a high-risk country*? ***High risk countries**: China, Russia, Iran, Turkey, and North Korea.* *If personal data or other potentially sensitive data is exchanged with one of these countries, or if part of the data processing takes place in one of these countries: **an advice from the Data Protection Officer, the kennisveiligheidsteam (Knowledge Security team), and the CISO (Chief Information Security Officer) is ALWAYS required.***		✔

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Part 7a: Processing of research data

1	Is consent your legal basis for processing the personal data in your study? *Additional explanation: What is a legal basis? One of main principles in the GDPR is to ensure that personal data is processed lawfully, fairly, and transparently. To comply with this principle, the processing of personal data also requires that you have a valid legal basis for the personal data processing activity.* *In research projects, the legal basis is often but not always consent. However, it is possible that it is not clear or not possible to establish whether to use consent as a legal basis.* *Some examples where consent may not be applicable as legal basis are covert research, data collection in public spaces, secondary data analysis of existing data, data that are transferred to you by a third party, consent is not possible or would require disproportionate effort, etc. In that case, please indicate which legal basis you think that applies or (preferably) contact a data steward first.*	☒ Yes and it will be obtained via the first question of the survey An informed consent template* is attached to this application. ☐ No, I will use another legal basis to process the data. Namely, …….. * You can download a suitable template **here**.
2	Where will the data come from?	☐ Data obtained from another party (secondary data use) ☒ New data collected only by my research team ☐ New data collected together with collaborators
3	Which of the following tools will you use to process personal data?	**Surveys** ☐ Qualtrics ☐ Limesurvey ☒ MS Forms ☐ Other, namely …….. **Interview/workshop recordings** ☐ Voice/video recorder ☐ Phone in a flight mode ☐ MS Teams ☐ Other, namely …… **Transcription** ☐ Manual transcription ☐ Microsoft Office software (e.g. Word, Teams) ☐ Other, namely …… **Statistical analysis** ☐ SPSS ☐ R ☐ Other, namely …… **Other tools**, specifically……
4	Where will the data and in particular the personal data be stored during and after completion of the study? If you have already uploaded your Data Management Plan, you can refer to your Data Management Plan.	☐ SURF drive ☒ Onedrive ☐ Research Drive ☐ Network Drive

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	Additional explanation: University supported-storage facilities are SURFdrive, SURF Research Drive, Ceph, departmental drives (this includes BE Project Drive), and the TU/e instance of Microsoft OneDrive. For most personal data, the use of SURF Research Drive, departmental drives (including BE Project Drive) and SURFdrive is required.	☐ Research Manager ☐ Other, namely ……
Part 7b: Safety and security measures		
1	Will you pseudonymize/anonymize the data? *Additional explanation:* *Anonymization: remove all direct identifiers (name, address, telephone number etc.) but also indirect identifiers (age, place of birth, occupation, salary) that, linked with other information, can lead to a person's identification. Anonymization to the point that a data subject is no longer identifiable means that the anonymized data is not considered to be personal data anymore.* *Pseudonymization: replacing the unique identifier of a data subject with an artificial pseudonym. This means that identification is still possible with the identification key. The identification key needs to be stored securely and separately from the pseudonymized data. If the data subject can be identified by combining data with additional information, the data is also called pseudonymous.*	☐ Yes ☒ No If yes, describe how:
2	Is access to (personal) data restricted? (Select all that apply)	☐ No ☐ Yes, via access control ☐ Yes, via password protection ☐ Yes, access only given to TU/e research team ☒ Yes, access only given to research team, including non-TU/e collaborators ☐ Other, specify…….
3	Who will have access to the data during and after completion of the project? (Select all that apply)	☒ Main researcher ☒ TU/e supervisor(s) ☒ External supervisors ☐ TU/e research team ☐ Other, specify…….
4	Will you store data for future research?	☐ No ☐ Yes, in a public data repository ☐ Yes, in a public data repository under restricted access ☒ Yes, in a TU/e-recommended storage (SURF Research Drive, Network Drive)
5	Will you share data outside the TU/e?	☐ No ☒ Yes, in a fully anonymized form ☐ Yes, raw or pseudonymized data* *If you selected this box, make sure that a suitable data agreement is put in place. You can contact the Data Stewards for support in preparing such an agreement
6	How long will data be stored after the end of the project?	till 1 year after the project

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Part 8: Closures and Signatures		
1	Enclosures (tick if applicable and attach to this form):	☒ Informed consent form ☐ Informed consent form for other agencies when the research is conducted at a location (such as a school) ☐ Text used for ads (to find participants) ☐ Text used for debriefings ☐ Approval other research ethics committee ☐ The survey the participants need to complete, or a description of other measurements ☐ Data Protection Impact Assessment checked by the privacy officer ☐ Data Management Plan checked by a data steward
2	Signature(s)	Signature(s) of applicant(s)  Date: 13/09/2023 Signature research supervisor  Date: 22/09/2023

Informed consent form

This informed consent form before you entail the details of voluntary participation in a study that includes semi-structured interviews. The goal of this study is to gather information on current perspectives, thoughts and ideas on graduation processes within Industrial Design and how support might be integrated into this process. This data will be used to create a better understanding of current practices to be able to design an intervention that offers students support whilst graduating.

- I have read and understood the information of the corresponding information form for participants.

- I have been given the opportunity to ask questions. My questions are sufficiently answered, and I had sufficient time to decide whether I participate.

- I know that only the researcher (Laure Smits) has access to the data and that the data will be stored locally for 12 months after the study.

- I know that my participation is completely voluntary. I know that I can refuse participation and that I can stop participation at any time during the study, without giving any reasons. I know that I can withdraw permission to use the data at any given moment during the study.

- I agree with the voluntary participation of me in this study.

- I agree with the fact that this session is audio-recorded which is to be used for analysis afterwards.

- I know that no information that can be used to personally identify or my responses in this study will be shared with anyone outside of the research team.

Certificate of consent

I, (NAME)
……
want and provide consent to participate in this study.

Signature here

Interview Questions Graduation Students

- What is your current project and how is it going?
- How would you describe your current experience of your graduation process up till this point?
- Do you feel well-enough prepared for graduation or not?
    - Could you elaborate on why?
- Have you already made a choice to what you will be doing after graduation?
    - And if so, what and why that?

- Have you used any support in this process already?
    - And if so which ones and why?
- Are you aware of the available options that are being offered now by the TU/e, ID, etc.?
- Would you like to receive support during your graduation process?
    - And if so, why and for what?
- How do you envision support is best given to graduating students?
- What kind of aspects would you be looking in a support system?
- How do you feel about employers and companies being connected to this support system?
- Do you have any other ideas or thoughts on graduation processes and support for that?

Interview Questions Faculty Staff

- Could you describe your current role within the department?
- Could you describe what type of support the department offers for students personal and professional development processes?
    - What types are there and for which stages/levels of study?
- Are there any types of support specifically designed for graduating students?
    - And if so, could you describe them?
    - Any support to help students make a decision for what to do after graduation?
- Do you believe the department currently offers enough support to students in general?
    - Could you elaborate on why?
- And for graduating students, do you believe the department currently offers enough support?
- How do you feel the department could improve or add onto our current support systems in terms of personal and professional development?
    - And specifically for graduation students?
- Are you aware of the options available to students for support with personal and professional development during graduation outside of the department?
    - And if so, could you describe the ones which you know of?
    - Have you referred students to them and why or why not?

- Which things do you think graduating students might need support for?
- What do you think are the best ways to offer support for graduating students?
- Who do you think should offer this type of support, the department, associations, TU/e, etc.?
- Do you have any other ideas or thoughts about support for graduating students and how and in which way to offer that?

From: Severens, Marjolein on behalf of Ethics
To: Smits, Laure
Subject: RE: minimal risk ERB for approval
Date: Friday, 22 September 2023 12:28:12

Dear Laura,

Your application titled “Graduation Process and Support” (ERB2023ID444) has been approved by the ERB.

We assume that you have answered all questions correctly. We will perform regular spot-checks so you need to keep your documentation (ERB form, informed consent forms, surveys/interview questions, description of experiment/prototype etc.) available for at least 6 months.

Good luck!

Dear regards,

Marjolein Severens
ERB student assistent

From: Smits, Laure <l.y.smits@student.tue.nl>
Sent: Friday, September 22, 2023 10:31 AM
To: Ethics <Ethics@tue.nl>
Subject: minimal risk ERB for approval

Dear Ethics,

Hereby I am submitting my minimal risk study ERB for approval. Please let me know if any changes are required and thanks in advance!

Kind regards,
Laure Smits
MSc. Student Industrial Design

Ethical Review Form

(Version 2.1)

This Ethical Review Form should be completed for every research study that involves human participants or personally identifiable personal data and should be submitted to ethics@tue.nl. For more information about how this process works please click here. Please check if you are using the correct form: PDF Ethical Review Form (version 2.1). Please click here to obtain this latest version.

Part 1: General Study Information

1	Project title / Study name	Graduation Process and Support
2	Name of the researcher / student	Laure Smits
3	Email of the researcher / student	l.y.smits@student.tue.nl
4	Supervisor(s) name(s) *Additional explanation: Please write down the name of your direct supervisor. You can mention several supervisors if appropriate, but at least one supervisor should be mentioned.*	Tilde Bekker
5	Supervisor(s) email address(es) *Additional explanation: Please give the email address of the supervisor(s) mentioned in question 4.*	m.m.bekker@tue.nl
6	Department / Group *Additional explanation: Please specify group if relevant e.g. JADS or HTI*	Industrial Design - Systemic Change
7	What is the purpose of this application?	☐ Scientific study ☐ Bachelor education. Course: ☒ Master education. Course: ☐ Other (e.g. external, following external regulations):
8	Research location *Additional explanation: Where will the data collection take place? On campus, in a company, in public space, online, etc.*	☒ Eindhoven University of Technology campus ☐ Other, name organization(s): ☐ Public space ☒ Online
9	Start date data collection *Additional explanation: Please state when your data collection will start. Please note that you do not have to provide information about your complete (PhD) project, but only on this particular sub-study that you are submitting for approval in this form.*	13/09/2023
10	End date data collection	10/07/2024
11	Does your project receive external funding (e.g., NWO, relevant for special regulations from funders)?	☐ Yes. Name Funder: ☒ No
12	Which internal and external parties are involved in the study? Think about sharing data or information between TU/e and other universities, commercial companies, hospitals, etc. *Additional explanation: Describe all internal and external parties that are involved in the study or project, including:* • *researchers or research groups at the TU/e who participate in the study;* • *(Researchers at) other universities/institutions that provide data/services, help analyzing the data, etc.;*	Internal parties • Researcher(s): Laure Smits • Supervisor: Tilde Bekker

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	• *(commercial) partners, companies, government bodies, municipalities, consultancy firms, hospitals or care institutions that provide data (e.g., contact details of participants, data for further analysis).* *Indicate which role each party plays: who defines the means and purposes in the study, who will supply the data (external parties?), who will process/handle the data, who will be able to access the data during and after research (only researchers at TU/e or also others)?*	External parties • Other universities/institutions: • Others: Mitchell Jacobs, supporting coach & supervisor
13	Have any special agreements already been made with an external party, such as a Non-Disclosure Agreement (NDA) or a data sharing agreement?	☐ Yes, namely: ☒ No
14	Has your proposal already been approved by an external Ethical Review Board or Medical Ethical Review Board? *Additional explanation: For example, when you are collaborating with another university and the project has been approved by their Ethical Review Board, or when you received a WMO-waiver from a Medical Ethical Review Board.*	☐ Yes ▪ No
15	If yes: Please provide the name, date of approval and contact details of the ERB. Please also include the registered number for your project approval. Additionally, please send in the Ethical Review Form upon which ethical approval was granted together with this form.	
16	If you process personal data that are likely to result in high privacy risks for participants, you need to perform a Data Protection Impact Assessment (DPIA). Have you done this for this or a very similar project? ***Please read the information below: a DPIA is not the same as a regular privacy impact assessment. More detailed questions on privacy will follow in the section below.*** *Additional explanation: A Data Protection Impact Assessment (DPIA) is a formal document that must be drafted under the guidelines of the General Data Protection Regulation (GDPR). Think of research with vulnerable people, high-risk medical research,* *The Dutch DPA (Autoriteit Persoonsgegevens) and our website provides more information about a DPIA.*	☒ Not applicable (no high privacy risks) ☐ Yes (the form is attached to the application) ☐ No
Part 2: Medical study		
1	Does the study have a medical scientific research question or claim? *Additional explanation: Medical/scientific research is research which is carried out with the aim of finding answers to a question in the field of illness and health (etiology, pathogenesis, signs/symptoms, diagnosis, prevention, outcome or treatment of illness), by systematically collecting and analyzing data. The research is carried out with the intention of contributing to medical knowledge which can also be applied to populations outside of the direct research population. If your research contains questions about health and health related parameters (such as well-being, vitality, feelings of anxiety or stress) but your research question is not primarily medical, then you can answer 'no' to this question.*	☐ Yes* ☒ No *If yes or in doubt, please contact Susan Hommerson via s.m.hommerson@tue.nl

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Part 3: Use of (medical) devices in the study		
1	Does your research include a device? *Additional explanation: A device is a complete piece of physical hardware that is used to compute or support computer functions within a larger system. Devices can be divided into input-, output-, storage-, internet of things-, or mobile device.*	☐ Yes, not self-made ☐ Yes, self-made ☒ No
2	Please describe your device or link to an online description of the device	
3a	Will you use a device that is 'CE' certified for **unintended use** (meaning you will use existing CE certified devices for other things than they were originally intended for) or use a device that is not 'CE' certified? *Additional explanation: You can find more information about CE certification here*	☐ Yes ☒ No
3b	If no: Please explain to what extent the device was assembled according to relevant standards and provide a risk assessment *Additional explanation: You can find more information about a risk assessment here*	I will not use any device.
3c	If yes: Do you use a device or software that has a medical purpose such as diagnosis, prevention, monitoring, prediction, prognosis, treatment or alleviation of disease or injury?	☐ Yes, my device or software currently has a medical purpose ☐ Yes, my device or software could have a medical purpose in the near future ☐ No ☐ I'm not sure
Part 4: Information about the study		
1	What are your main research questions? *Additional explanation: You need to provide at least one clear research question.*	What are the current perspectives of Industrial Design students on graduation, its processes and support systems?
2a	Please check the box that indicates the relevant study population *Additional explanation: Please select which persons are eligible for your study.*	☒ Students ☐ General healthy population ☐ General population with specific feature, e.g., pregnancy, specifically ..... ☐ Patients, specifically ……..... ☐ Other, specifically ……
2b	Age category of participants	☐ Younger than 12 years of age ☐ Older than 11 and younger than 16 years of age ☒ 16 years or older
3	Description of the research method (select all that applies)	☐ (Semi-structured) interviews ☒ Surveys

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	Additional explanation: Please specify your research method. Note that you need to provide information about the research method in an additional file that you attach to the ERB form. E.g., for interviews you provide the interview questions, for surveys you provide the survey questions, etc.	☐ Group workshops/roundtable discussios ☐ Diary studies ☐ Behavioral observations ☐ Building sensor data ☐ Wearable device (e.g. Fitbit watch, on-skin sensors) ☐ User testing ☐ Pilot study ☐ GPS tracking/location data ☐ Living Lab ☐ Other, namely .....
4	Description of the measurements and/or stimuli/treatments *Additional explanation: Think about your outcome measures and the variables you will be collecting and describe them in a way such that another person understands what the participant will experience. For example: Participants will perform task A and see pictures from database B, and we measure validated Scale 1.*	Participants will be asked to complete a survey that asks both quantitative and qualitative questions on their perspective on graduation, its process and available support during this process.
5	Describe and justify the number of participants you need for this study. Also justify the number of observations you need, taking into account the risks and benefits. *Additional explanation: Think about if you need 3 or 30 participants for example, and why? Do they need to provide their input once, or several times, and why? If relevant, specify the duration of the study per participant and the compensation that is needed for the study.*	Number of participants: 10-100 The results from this survey will be used to make an accurate description of current thoughts and perspectives on graduation, therefore an accurate representation of the population of ID students needs to be taken into account which is why the number is 10-100.
6	Explain why your research is societally important. What benefits and harm to society may result from the study? *Additional explanation: What benefit will the results of your study have to society in general?*	Graduation and its process is crucial to each students personal and professional development. However there is a lack of support available to students going through this which might make them make the wrong decisions on what to do next. This survey aims to gain a better understanding of what the current thoughts, ideas and perspectives on graduation are and how we might offer support. These insights will then be used to create an overview of needs and requirements which in turn will be used to create a design to tackle this problem.
7	Describe the way participants will be recruited *Additional explanation: How will you recruit participants for your study? For example, by using flyers, personal network, panels, etc.*	☑ Survey link posted online, e.g., social media platforms ☐ On campus flyers ☑ Personal network ☐ Via a company, namely …….. ☐ Via a hospital, namely …….. ☐ Via an organization …… ☐ By a Consortium Partner, namely ……. ☐ Other, namely ……..
8	Provide a brief statement of the risks you expect for the participants or others involved in the study and explain. Also take into consideration any personal data you may gather and associated privacy issues. *Additional explanation: Risks for the participants can be anything from risk of data breach to risk of safety or well-being (think about stress, extreme emotions, visual or auditory discomfort). Describe these possible risks and describe the way these risks are mitigated.*	The risks are deemed negligible as the purpose of the study is educational and designed with this in mind. They will not be asked to engage and interact with anything that is not safe. Data collection and storage All the participants will be informed about the research activities before the study, including the data collection, storage, and usage protocols. The gathered (raw) data is only accessible to the researcher when the participants give consent. All the data will be stored in a TU/e approved online storage application until 1 year after the end of the project and deleted after that period. Access is password protected.

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Part 5: Self-assessment checklist

	Note: answers in the blue boxes indicate that your research is eligible for fast-track approval	Yes	No
1a	Does the study involve human material? (e.g., surgery waste material derived from non-commercial organizations such as hospitals)		✔
1b	Will blood or other (bio)samples be obtained from participants? (e.g., hair, sweat, urine or other bodily fluids or secretions, also external imaging of the body)		✔
2	Will the participants give their consent – on a voluntary basis – either digitally or on paper? Or have they given consent in the past for the purpose of education or for re-use in line with the current research question?	✔	
3	Are the participants, outside the context of the research, in a dependent or subordinate position to the investigator? Additional explanation: Think about doing research on your own students or on your own employees. When there is a dependency or power imbalance between you and the research participants, you need to answer 'yes' to this question.		✔
4	Does the study involve participants who are particularly vulnerable or unable to give informed consent? (e.g., children (<16 years of age), people with learning difficulties, patients, people receiving counselling, people living in care or nursing homes, people recruited through self-help groups)		✔
5	Will participating in the research be burdensome? (e.g., requiring participants to wear a device 24/7 for several weeks, to fill in questionnaires for hours, to travel long distances to a research location, to be interviewed multiple times)?		✔
6	May the research procedure cause harm or discomfort to the participant in any way? (e.g., causing pain or more than mild discomfort, stress, anxiety or by administering drinks, foods, drugs, or showing explicit visual material)		✔
7	Will financial inducement (other than reasonable expenses and compensation for time) be offered to participants? Additional explanation: For an explanation of what is considered a reasonable compensation, see the topic participant fees from the HTI group		✔
8a	Will it be necessary for participants to take part in the study without their knowledge and consent at the time? (e.g., covert observation of people)		✔
8b	If yes: Will you be observing people without their knowledge in public space? (e.g. on the street, at a bus-stop)		
9	Will the study involve actively deceiving the participants? (e.g., will participants be deliberately falsely informed, will information be withheld from them, or will they be misled in such a way that they are likely to object or show unease when debriefed about the study)		✔
10	Will participants be asked to discuss or report sexual experiences, religion, alcohol or drug use, suicidal thoughts, or other topics that are highly personal or intimate? Additional explanation: Think about your research population. For some participants, particular topics can be considered sensitive or intimate, whereas the same topics will not be perceived as such by other participants.		✔
11	Elaborate on all boxes answered outside of the blue boxes in part 5. Describe how you safeguard any potential risk for the research participant.		

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Part 6: Self-assessment on privacy

The following questions (1-11) concern privacy issues, as laid down in the General Data Protection Regulation (GDPR). The Data Stewards and – if necessary – privacy team of TU/e will assess these questions. In some cases, more information is required to assess the privacy risks. If this is the case, you will be notified that the Data Stewards team will contact you.

The GDPR defines 'personal data' as any information relating to an identified or identifiable natural person ('data subject'). Personal data also includes data that indirectly reveals something about a natural person. Personal data can lead to the physical, physiological, genetic, mental, economic, cultural or social identity of a natural person. There are two main categories of personal data: regular personal data and special category personal data.

If you are not sure whether some of these questions below should be answered with a Yes or No, please contact a Data Steward first through rdmsupport@tue.nl.

	Note: answers in the blue boxes indicate that your research is eligible for fast-track approval	Yes	No
1	Will the study involve discussion/collection/processing of **regular** personal data, or will you collect and (temporarily) store video or voice recordings for the purpose of conducting interviews? *Additional explanation: For example, name, address, phone number, email address, IP address, gender, age, video or interview recordings? If you are not sure whether your data contains personal data, please contact the Data Stewards Team (rdmsupport@tue.nl).*	✔	
1A	If yes: Please describe which regular personal data you will collect in this study?	their current stage of study	
2	Will the study involve discussion/collection/processing of **special category** personal data or other **sensitive data**? *Additional explanation: Examples of special category personal data are race, religion, health information, political views, genetic or biometric data for the unique identification of a person, sexual preference, etc. Health information concerns personal data of the physical or mental health of persons, including the provision of health care. Examples of other sensitive data is information such as communication data, financial records or credit scores, camera surveillance data, location/GPS data, internet-of-things data, employee monitoring, observing or influencing behaviour, criminal records, data of vulnerable persons (children, people with disabilities, refugees), BSN number etc. Please be aware that the use of special category personal data in research requires extra security measurements in order to safeguard the privacy of data subjects and to comply with the GDPR. Processing of this special category data is prohibited, except for specific purposes and under certain circumstances. If you need to process special category data, please consult the data stewards at rdmsupport@tue.nl.*		✔
2A	If yes: Please describe which special-category personal data and/or sensitive data you will collect in this study?		

If you answered yes to either question 1 or 2, please answer the questions below. If you answered no to both questions, you can skip this part and continue onto part 7. Also, if an answer to any of the following questions is 'yes', please contact a Data Steward at rdmsupport@tue.nl

		Yes	No
3	Will your project involve the processing of personal data on a **large scale**? *Additional explanation: In general, any processing that involves more than 10.000 data subjects should be considered "large scale". However, if the data of approximately 1000 persons (or more) are involved, the data processing may still be considered large scale. In that case, besides the number of persons involved in the study, one should also assess (i) the amount of data collected from these persons taking into account the type/risk level of the personal data, (ii) the duration of the data processing, (iii) the geographic scope or extent of the processing. For example, if you would collect and process data across several European countries with 10+ socio-economic data items of 1200 individual persons for several years in a row, that is likely "large-scale processing". Other examples of a large-scale processing activity are:* • *Monitoring driving behavior of road users on Dutch highways* • *Collecting data of Covid patients* • *A hospital that processes patient data as part of its usual operations*		✔

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	• *A transport company that processes travel information of people who travel by public transport in a certain city. For example, by tracking them through travel maps.*		
4	Does this processing activity involve the use of new or innovative technologies? *Examples of a new technology: combining fingerprints and facial recognition for physical access control, the use of bodycams in public spaces, the use of new technical methods in conducting research such as AI. This question also refers to new technologies that have not been deployed by TU/e so far.*		✔
5	Does your study involve systematic (c.q. automated) monitoring of persons? *Additional explanation: Consider data processing activities that have the purpose of observing, monitoring or controlling individuals, for example in circumstances where the individuals are not aware by whom their personal data is collected and how it is used. Examples of such activities are using camera systems to monitor driving behavior on highways, monitoring email inactivity or employee phone use, certain applications of machine learning and artificial intelligence.*		✔
6	Does the study involve collaborations (with third parties) in which data are shared or exchanged in order to link or combine data? *Additional explanation: This may often apply in a collaboration between the university and a commercial party, contract research, etc. It is important to assess this for all data in the entire project, not just your own data.* *An important consideration in this situation is whether the person whose data is involved could have expected that data from these different databases or sources of information were to be combined. For example, it is less likely for data subjects to expect that databases from different parties will be combined and the results are used for different purposes than one could reasonably expect; this may apply for example in a collaboration between the university and a commercial party.*		✔
7	Will the study include data processing activities that prevent data subjects from exercising their rights or using a service or contract? *Additional explanation: Examples include processing operations carried out in public places that people cannot avoid (train station, airport, shopping mall, public university premises, etc.) or processing operations whose purpose is to allow or not allow data subjects to use a service or enter into a contract (examples: by refusing to pay a benefit, not being able to apply for a loan, etc.).*		✔
8	Will the study process personal data to score, rank or profile persons? *Additional explanation: Examples: monitoring (highway) roads to give road users a "score" based on their detected driving behavior, a bank assessing its customers based on their creditworthiness, or an organization building behavioral and marketing profiles based on use of their website or navigating their website.*		✔
9	Does your data processing include activities that involves composing "**blacklists**" – and, in particular, in relation to sensitive or special category data, such as communication data, financial records or credit scores, genetic data, biometric data, health data, camera surveillance data, location/GPS data, internet-of-things data, employee monitoring, observing or influencing behaviour, etc. *Additional explanation: This situation will not be a common occurrence in research, but you may indirectly be involved in this. In general, this typically concerns processing operations involving personal data relating to criminal convictions and offences, data relating to unlawful acts, data concerning unlawful or annoying behaviour or data concerning bad payment behaviour by companies or individuals are processed and shared with third parties (blacklists or warning lists, as used, for example, by insurers, hospitality companies shopping companies, telecom providers as well as blacklists relating to unlawful behavior of employees, for example in the healthcare sector or by employment agencies, etc.).*		✔
10	Will personal data be transferred or shared outside the EU/EEA? EU data protection rules apply to the European Economic Area (EEA), which includes all EU countries and non-EU countries Iceland, Liechtenstein and Norway. *Additional explanation: The GDPR has drafted additional requirements for transfers data outside of the EU/EEA. Typically, additional safeguards must be implemented to protect the personal data of residents in the European Union. For example, if you collaborate with an American, Indian or Chinese university or other third party outside the EU/EEA, you must first check whether this is allowed and under which conditions this is allowed. Another typical example is storage of data on American providers of cloud (storage) services. Please contact the data stewards first to discuss this.*		✔
11	Will any raw or anonymized personal data or any other sensitive data or research results from the project possibly be transferred to a high-risk country*? ***High risk countries**: China, Russia, Iran, Turkey, and North Korea.* *If personal data or other potentially sensitive data is exchanged with one of these countries, or if part of the data processing takes place in one of these countries: **an advice from the Data Protection Officer, the kennisveiligheidsteam (Knowledge Security team), and the CISO (Chief Information Security Officer) is ALWAYS required.***		✔

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Part 7a: Processing of research data

1	Is consent your legal basis for processing the personal data in your study? *Additional explanation: What is a legal basis? One of main principles in the GDPR is to ensure that personal data is processed lawfully, fairly, and transparently. To comply with this principle, the processing of personal data also requires that you have a valid legal basis for the personal data processing activity.* *In research projects, the legal basis is often but not always consent. However, it is possible that it is not clear or not possible to establish whether to use consent as a legal basis.* *Some examples where consent may not be applicable as legal basis are covert research, data collection in public spaces, secondary data analysis of existing data, data that are transferred to you by a third party, consent is not possible or would require disproportionate effort, etc. In that case, please indicate which legal basis you think that applies or (preferably) contact a data steward first.*	☒ Yes and it will be obtained via the first question of the survey An informed consent template* is attached to this application. ☐ No, I will use another legal basis to process the data. Namely, …….. * You can download a suitable template **here**.
2	Where will the data come from?	☐ Data obtained from another party (secondary data use) ☒ New data collected only by my research team ☐ New data collected together with collaborators
3	Which of the following tools will you use to process personal data?	**Surveys** ☐ Qualtrics ☐ Limesurvey ☒ MS Forms ☐ Other, namely …….. **Interview/workshop recordings** ☐ Voice/video recorder ☐ Phone in a flight mode ☐ MS Teams ☐ Other, namely …… **Transcription** ☐ Manual transcription ☐ Microsoft Office software (e.g. Word, Teams) ☐ Other, namely …… **Statistical analysis** ☐ SPSS ☐ R ☐ Other, namely …… **Other tools**, specifically……
4	Where will the data and in particular the personal data be stored during and after completion of the study? If you have already uploaded your Data Management Plan, you can refer to your Data Management Plan.	☐ SURF drive ☒ Onedrive ☐ Research Drive ☐ Network Drive

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	Additional explanation: University supported-storage facilities are SURFdrive, SURF Research Drive, Ceph, departmental drives (this includes BE Project Drive), and the TU/e instance of Microsoft OneDrive. For most personal data, the use of SURF Research Drive, departmental drives (including BE Project Drive) and SURFdrive is required.	☐ Research Manager ☐ Other, namely ……
Part 7b: Safety and security measures		
1	Will you pseudonymize/anonymize the data? *Additional explanation:* *Anonymization: remove all direct identifiers (name, address, telephone number etc.) but also indirect identifiers (age, place of birth, occupation, salary) that, linked with other information, can lead to a person's identification. Anonymization to the point that a data subject is no longer identifiable means that the anonymized data is not considered to be personal data anymore.* *Pseudonymization: replacing the unique identifier of a data subject with an artificial pseudonym. This means that identification is still possible with the identification key. The identification key needs to be stored securely and separately from the pseudonymized data. If the data subject can be identified by combining data with additional information, the data is also called pseudonymous.*	☐ Yes ☒ No If yes, describe how:
2	Is access to (personal) data restricted? (Select all that apply)	☐ No ☐ Yes, via access control ☐ Yes, via password protection ☐ Yes, access only given to TU/e research team ☒ Yes, access only given to research team, including non-TU/e collaborators ☐ Other, specify…….
3	Who will have access to the data during and after completion of the project? (Select all that apply)	☒ Main researcher ☒ TU/e supervisor(s) ☒ External supervisors ☐ TU/e research team ☐ Other, specify…….
4	Will you store data for future research?	☐ No ☐ Yes, in a public data repository ☐ Yes, in a public data repository under restricted access ☒ Yes, in a TU/e-recommended storage (SURF Research Drive, Network Drive)
5	Will you share data outside the TU/e?	☐ No ☒ Yes, in a fully anonymized form ☐ Yes, raw or pseudonymized data* *If you selected this box, make sure that a suitable data agreement is put in place. You can contact the Data Stewards for support in preparing such an agreement
6	How long will data be stored after the end of the project?	till 1 year after the project

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Part 8: Closures and Signatures		
1	Enclosures (tick if applicable and attach to this form):	☑ Informed consent form ☐ Informed consent form for other agencies when the research is conducted at a location (such as a school) ☐ Text used for ads (to find participants) ☐ Text used for debriefings ☐ Approval other research ethics committee ☐ The survey the participants need to complete, or a description of other measurements ☐ Data Protection Impact Assessment checked by the privacy officer ☐ Data Management Plan checked by a data steward
2	Signature(s)	Signature(s) of applicant(s)  Date: 13/09/2023 Signature research supervisor  Date: 6/12/2023

This informed consent form before you entail the details of voluntary participation in a survey where you will be asked about your perspective on graduation from your studies. You will be asked to play a game and then assess it as well as describe the influence of the game upon your own perspective.

- I have read and understood the information of the corresponding information form for participants.

- I have been given the opportunity to ask questions. My questions are sufficiently answered, and I had sufficient time to decide whether I participate. (please email l.y.smits@student.tue.nl for questions)

- I know that only the researcher (Laure Smits) has access to the data and that the data will be stored locally for 12 months after the study.

- I know that my participation is completely voluntary. I know that I can refuse participation and that I can stop participation at any time during the study, without giving any reasons. I know that I can withdraw permission to use the data at any given moment during the study.

- I agree with the voluntary participation of me in this study.

- I know that no information that can be used to personally identify or my responses in this study will be shared with anyone outside of the research team.

Play Testing *(includes a draft version of questions that will be asked)*

Step 1: gather insights into current perspectives on graduation

- Which stage of your study are you currently in?
- How would you describe how it is going?
- Do you know what you will be doing after graduation? (could you elaborate on your answer as to why you have decided)
- Do or did you know about the support that is available to you to help you make a decision on what to do after graduation?
- Do or did you use any of these support systems? (please elaborate on why or why not)

Step 2: play testing

See next part for the game.

Step 3: after-play questionnaires

1. User Experience Questionnaire (validated and standard method, see list on next pages)
2. Evaluation based on Tast Model (see next pages)
3. Extra questions on graduation (see below)

- I am more aware of the options available to me (likert-scale 1-7)
- The game helped me gain insight into how I could go about taking action (likert-scale 1-7)

Expedition Career

Expedition Career is a game created to help graduation students gain insight into what resources and actions they can take to help themselves with figuring out what is next.

Route cards are drawn and placed on the expedition logs for each player. Their goal is to complete these routes in the game and get rewarded for it. The game ends when one or more players complete their routes. These route cards contain a problem statement of what a person in real life could be facing, like ‘I do not know how to create a motivation letter’. The route they then need to complete will show them how they could go about solving this. Which for instance, visit career academy and skillslab and then go to industry events to test out your skills.

Similar to the game Ticket to Ride, the players collect cards to be able to move around the board. Upon collecting the right amount of cards to move to a new place, they will place down their flags to mark their journey. Special cards need to be collected in order to pass through a river or go over the mountain.

Please make your evaluation now.

For the assessment of the product, please fill out the following questionnaire. The questionnaire consists of pairs of contrasting attributes that may apply to the product. The circles between the attributes represent gradations between the opposites. You can express your agreement with the attributes by ticking the circle that most closely reflects your impression.

Example:

attractive	○	⊗	○	○	○	○	○	unattractive

This response would mean that you rate the application as more attractive than unattractive.

Please decide spontaneously. Don’t think too long about your decision to make sure that you convey your original impression.

Sometimes you may not be completely sure about your agreement with a particular attribute or you may find that the attribute does not apply completely to the particular product. Nevertheless, please tick a circle in every line.

It is your personal opinion that counts. Please remember: there is no wrong or right answer!

Please assess the product now by ticking one circle per line.

	1	2	3	4	5	6	7		
annoying	○	○	○	○	○	○	○	enjoyable	1
not understandable	○	○	○	○	○	○	○	understandable	2
creative	○	○	○	○	○	○	○	dull	3
easy to learn	○	○	○	○	○	○	○	difficult to learn	4
valuable	○	○	○	○	○	○	○	inferior	5
boring	○	○	○	○	○	○	○	exciting	6
not interesting	○	○	○	○	○	○	○	interesting	7
unpredictable	○	○	○	○	○	○	○	predictable	8
fast	○	○	○	○	○	○	○	slow	9
inventive	○	○	○	○	○	○	○	conventional	10
obstructive	○	○	○	○	○	○	○	supportive	11
good	○	○	○	○	○	○	○	bad	12
complicated	○	○	○	○	○	○	○	easy	13
unlikable	○	○	○	○	○	○	○	pleasing	14
usual	○	○	○	○	○	○	○	leading edge	15
unpleasant	○	○	○	○	○	○	○	pleasant	16
secure	○	○	○	○	○	○	○	not secure	17
motivating	○	○	○	○	○	○	○	demotivating	18
meets expectations	○	○	○	○	○	○	○	does not meet expectations	19
inefficient	○	○	○	○	○	○	○	efficient	20
clear	○	○	○	○	○	○	○	confusing	21
impractical	○	○	○	○	○	○	○	practical	22
organized	○	○	○	○	○	○	○	cluttered	23
attractive	○	○	○	○	○	○	○	unattractive	24
friendly	○	○	○	○	○	○	○	unfriendly	25
conservative	○	○	○	○	○	○	○	innovative	26

Evaluation Tool

fully disagree | 1 | 2 | 3 | 4 | 5 | 6 | 7 | fully agree

Imagine the design would be a full-fledged game and rate it on the following values

the product is inviting | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

the product is attractive | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

the product is accessible and approachable | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

the player would want to use the product | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

the product is intuitive | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

the product does not need a complex manual | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

the player is triggered to act | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

the player feels safe and guaranteed | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

the product is reflective | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

the user is aware of what is being learned | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

the product stimulates the reflective capabilities | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

the user makes new learning goals | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

the product is personal | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

the product is flexible in use | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

the player feels motivated and stimulated | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

the player receives personally assigned resources | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

the product is interactive | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

the product responds to the players interactions | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

the player has freedom in actions and interactions | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

the player choses the steps (instruction, action and reflection) | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

the product is flexible | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

the content grows with the user (zone of proximal development) | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

the product follows the thinking steps of the user | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

the product guards development | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

the product is social | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

the player learns with and from others | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

the content is presented from context | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

the player experiences the values of learned knowledge | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

When you are done, please take another look at the statements in bold. These include the 7 values for evaluation. Take one post-it note per value and try to write some feedback or input.

You can add ways to improve this aspect of the design or just your general opinion on why you gave a certain answer.

From: Wieringa - van Stratum, Marijke on behalf of Ethics
To: Smits, Laure
Subject: ERB approval
Date: Monday, 11 December 2023 13:52:19
Attachments: image001.png

Dear Laure,

Your application titled “Graduation Processes and Support Systems” (ERB2023ID643) has been approved by the ERB.

We assume that you have answered all questions correctly. We will perform regular spot-checks so you need to keep your documentation (ERB form, informed consent forms, surveys/interview questions, description of experiment/prototype etc.) available for at least 6 months.

Good luck!

Kind regards,

TU/e EINDHOVEN UNIVERSITY OF TECHNOLOGY

Marijke Wieringa-van Stratum / Secretary GA and Integrity and Ethics Office / Working hours: Monday, Tuesday, Thursday
Building Atlas / P.O. Box 513, 5600 MB Eindhoven / T + 31 (0)40 247 8383

Directions campus: https://www.tue.nl/en/our-university/tue-campus/

Ethical Review Form

(Version 2.1)

This Ethical Review Form should be completed for every research study that involves human participants or personally identifiable personal data and should be submitted to ethics@tue.nl. For more information about how this process works please click here. Please check if you are using the correct form: PDF Ethical Review Form (version 2.1). Please click here to obtain this latest version.

Part 1: General Study Information

1	Project title / Study name	Graduation Process and Support
2	Name of the researcher / student	Laure Smits
3	Email of the researcher / student	l.y.smits@student.tue.nl
4	Supervisor(s) name(s) *Additional explanation: Please write down the name of your direct supervisor. You can mention several supervisors if appropriate, but at least one supervisor should be mentioned.*	Tilde Bekker
5	Supervisor(s) email address(es) *Additional explanation: Please give the email address of the supervisor(s) mentioned in question 4.*	m.m.bekker@tue.nl
6	Department / Group *Additional explanation: Please specify group if relevant e.g. JADS or HTI*	Industrial Design - Systemic Change
7	What is the purpose of this application?	☐ Scientific study ☐ Bachelor education. Course: ☒ Master education. Course: ☐ Other (e.g. external, following external regulations):
8	Research location *Additional explanation: Where will the data collection take place? On campus, in a company, in public space, online, etc.*	☒ Eindhoven University of Technology campus ☐ Other, name organization(s): ☐ Public space ☒ Online
9	Start date data collection *Additional explanation: Please state when your data collection will start. Please note that you do not have to provide information about your complete (PhD) project, but only on this particular sub-study that you are submitting for approval in this form.*	13/09/2023
10	End date data collection	10/07/2024
11	Does your project receive external funding (e.g., NWO, relevant for special regulations from funders)?	☐ Yes. Name Funder: ☒ No
12	Which internal and external parties are involved in the study? Think about sharing data or information between TU/e and other universities, commercial companies, hospitals, etc. *Additional explanation: Describe all internal and external parties that are involved in the study or project, including:* • *researchers or research groups at the TU/e who participate in the study;* • *(Researchers at) other universities/institutions that provide data/services, help analyzing the data, etc.;*	Internal parties • Researcher(s): Laure Smits • Supervisor: Tilde Bekker

Ethical Review Form

	• *(commercial) partners, companies, government bodies, municipalities, consultancy firms, hospitals or care institutions that provide data (e.g., contact details of participants, data for further analysis).* *Indicate which role each party plays: who defines the means and purposes in the study, who will supply the data (external parties?), who will process/handle the data, who will be able to access the data during and after research (only researchers at TU/e or also others)?*	External parties • Other universities/institutions: • Others: Mitchell Jacobs, supporting coach & supervisor
13	Have any special agreements already been made with an external party, such as a Non-Disclosure Agreement (NDA) or a data sharing agreement?	☐ Yes, namely: ☒ No
14	Has your proposal already been approved by an external Ethical Review Board or Medical Ethical Review Board? *Additional explanation: For example, when you are collaborating with another university and the project has been approved by their Ethical Review Board, or when you received a WMO-waiver from a Medical Ethical Review Board.*	☐ Yes ▪ No
15	If yes: Please provide the name, date of approval and contact details of the ERB. Please also include the registered number for your project approval. Additionally, please send in the Ethical Review Form upon which ethical approval was granted together with this form.	
16	If you process personal data that are likely to result in high privacy risks for participants, you need to perform a Data Protection Impact Assessment (DPIA). Have you done this for this or a very similar project? ***Please read the information below: a DPIA is not the same as a regular privacy impact assessment. More detailed questions on privacy will follow in the section below.*** *Additional explanation: A Data Protection Impact Assessment (DPIA) is a formal document that must be drafted under the guidelines of the General Data Protection Regulation (GDPR). Think of research with vulnerable people, high-risk medical research,* *The Dutch DPA (Autoriteit Persoonsgegevens) and our website provides more information about a DPIA.*	☒ Not applicable (no high privacy risks) ☐ Yes (the form is attached to the application) ☐ No
Part 2: Medical study		
1	Does the study have a medical scientific research question or claim? *Additional explanation: Medical/scientific research is research which is carried out with the aim of finding answers to a question in the field of illness and health (etiology, pathogenesis, signs/symptoms, diagnosis, prevention, outcome or treatment of illness), by systematically collecting and analyzing data. The research is carried out with the intention of contributing to medical knowledge which can also be applied to populations outside of the direct research population. If your research contains questions about health and health related parameters (such as well-being, vitality, feelings of anxiety or stress) but your research question is not primarily medical, then you can answer 'no' to this question.*	☐ Yes* ☒ No *If yes or in doubt, please contact Susan Hommerson via s.m.hommerson@tue.nl

Ethical Review Form

Part 3: Use of (medical) devices in the study		
1	Does your research include a device? *Additional explanation: A device is a complete piece of physical hardware that is used to compute or support computer functions within a larger system. Devices can be divided into input-, output-, storage-, internet of things-, or mobile device.*	☐ Yes, not self-made ☐ Yes, self-made ☒ No
2	Please describe your device or link to an online description of the device	
3a	Will you use a device that is 'CE' certified for **unintended use** (meaning you will use existing CE certified devices for other things than they were originally intended for) or use a device that is not 'CE' certified? *Additional explanation: You can find more information about CE certification here*	☐ Yes ☒ No
3b	If no: Please explain to what extent the device was assembled according to relevant standards and provide a risk assessment *Additional explanation: You can find more information about a risk assessment here*	I will not use any device.
3c	If yes: Do you use a device or software that has a medical purpose such as diagnosis, prevention, monitoring, prediction, prognosis, treatment or alleviation of disease or injury?	☐ Yes, my device or software currently has a medical purpose ☐ Yes, my device or software could have a medical purpose in the near future ☐ No ☐ I'm not sure
Part 4: Information about the study		
1	What are your main research questions? *Additional explanation: You need to provide at least one clear research question.*	What are the current perspectives of Industrial Design students on graduation, its processes and support systems?
2a	Please check the box that indicates the relevant study population *Additional explanation: Please select which persons are eligible for your study.*	☒ Students ☐ General healthy population ☐ General population with specific feature, e.g., pregnancy, specifically ..... ☐ Patients, specifically ……..... ☐ Other, specifically ……
2b	Age category of participants	☐ Younger than 12 years of age ☐ Older than 11 and younger than 16 years of age ☒ 16 years or older
3	Description of the research method (select all that applies)	☐ (Semi-structured) interviews ☒ Surveys

Ethical Review Form

	Additional explanation: Please specify your research method. Note that you need to provide information about the research method in an additional file that you attach to the ERB form. E.g., for interviews you provide the interview questions, for surveys you provide the survey questions, etc.	☐ Group workshops/roundtable discussios ☐ Diary studies ☐ Behavioral observations ☐ Building sensor data ☐ Wearable device (e.g. Fitbit watch, on-skin sensors) ☐ User testing ☐ Pilot study ☐ GPS tracking/location data ☐ Living Lab ☐ Other, namely .....
4	Description of the measurements and/or stimuli/treatments *Additional explanation: Think about your outcome measures and the variables you will be collecting and describe them in a way such that another person understands what the participant will experience. For example: Participants will perform task A and see pictures from database B, and we measure validated Scale 1.*	Participants will be asked to complete a survey that asks both quantitative and qualitative questions on their perspective on graduation, its process and available support during this process.
5	Describe and justify the number of participants you need for this study. Also justify the number of observations you need, taking into account the risks and benefits. *Additional explanation: Think about if you need 3 or 30 participants for example, and why? Do they need to provide their input once, or several times, and why? If relevant, specify the duration of the study per participant and the compensation that is needed for the study.*	Number of participants: 10-100 The results from this survey will be used to make an accurate description of current thoughts and perspectives on graduation, therefore an accurate representation of the population of ID students needs to be taken into account which is why the number is 10-100.
6	Explain why your research is societally important. What benefits and harm to society may result from the study? *Additional explanation: What benefit will the results of your study have to society in general?*	Graduation and its process is crucial to each students personal and professional development. However there is a lack of support available to students going through this which might make them make the wrong decisions on what to do next. This survey aims to gain a better understanding of what the current thoughts, ideas and perspectives on graduation are and how we might offer support. These insights will then be used to create an overview of needs and requirements which in turn will be used to create a design to tackle this problem.
7	Describe the way participants will be recruited *Additional explanation: How will you recruit participants for your study? For example, by using flyers, personal network, panels, etc.*	☑ Survey link posted online, e.g., social media platforms ☐ On campus flyers ☑ Personal network ☐ Via a company, namely …….. ☐ Via a hospital, namely …….. ☐ Via an organization …… ☐ By a Consortium Partner, namely ……. ☐ Other, namely ……..
8	Provide a brief statement of the risks you expect for the participants or others involved in the study and explain. Also take into consideration any personal data you may gather and associated privacy issues. *Additional explanation: Risks for the participants can be anything from risk of data breach to risk of safety or well-being (think about stress, extreme emotions, visual or auditory discomfort). Describe these possible risks and describe the way these risks are mitigated.*	The risks are deemed negligible as the purpose of the study is educational and designed with this in mind. They will not be asked to engage and interact with anything that is not safe. Data collection and storage All the participants will be informed about the research activities before the study, including the data collection, storage, and usage protocols. The gathered (raw) data is only accessible to the researcher when the participants give consent. All the data will be stored in a TU/e approved online storage application until 1 year after the end of the project and deleted after that period. Access is password protected.

Ethical Review Form

Part 5: Self-assessment checklist

	Note: answers in the blue boxes indicate that your research is eligible for fast-track approval	Yes	No
1a	Does the study involve human material? (e.g., surgery waste material derived from non-commercial organizations such as hospitals)		✔
1b	Will blood or other (bio)samples be obtained from participants? (e.g., hair, sweat, urine or other bodily fluids or secretions, also external imaging of the body)		✔
2	Will the participants give their consent – on a voluntary basis – either digitally or on paper? Or have they given consent in the past for the purpose of education or for re-use in line with the current research question?	✔	
3	Are the participants, outside the context of the research, in a dependent or subordinate position to the investigator? Additional explanation: Think about doing research on your own students or on your own employees. When there is a dependency or power imbalance between you and the research participants, you need to answer 'yes' to this question.		✔
4	Does the study involve participants who are particularly vulnerable or unable to give informed consent? (e.g., children (<16 years of age), people with learning difficulties, patients, people receiving counselling, people living in care or nursing homes, people recruited through self-help groups)		✔
5	Will participating in the research be burdensome? (e.g., requiring participants to wear a device 24/7 for several weeks, to fill in questionnaires for hours, to travel long distances to a research location, to be interviewed multiple times)?		✔
6	May the research procedure cause harm or discomfort to the participant in any way? (e.g., causing pain or more than mild discomfort, stress, anxiety or by administering drinks, foods, drugs, or showing explicit visual material)		✔
7	Will financial inducement (other than reasonable expenses and compensation for time) be offered to participants? Additional explanation: For an explanation of what is considered a reasonable compensation, see the topic participant fees from the HTI group		✔
8a	Will it be necessary for participants to take part in the study without their knowledge and consent at the time? (e.g., covert observation of people)		✔
8b	If yes: Will you be observing people without their knowledge in public space? (e.g. on the street, at a bus-stop)		
9	Will the study involve actively deceiving the participants? (e.g., will participants be deliberately falsely informed, will information be withheld from them, or will they be misled in such a way that they are likely to object or show unease when debriefed about the study)		✔
10	Will participants be asked to discuss or report sexual experiences, religion, alcohol or drug use, suicidal thoughts, or other topics that are highly personal or intimate? Additional explanation: Think about your research population. For some participants, particular topics can be considered sensitive or intimate, whereas the same topics will not be perceived as such by other participants.		✔
11	Elaborate on all boxes answered outside of the blue boxes in part 5. Describe how you safeguard any potential risk for the research participant.		

Ethical Review Form

Part 6: Self-assessment on privacy

The following questions (1-11) concern privacy issues, as laid down in the General Data Protection Regulation (GDPR). The Data Stewards and – if necessary – privacy team of TU/e will assess these questions. In some cases, more information is required to assess the privacy risks. If this is the case, you will be notified that the Data Stewards team will contact you.

The GDPR defines 'personal data' as any information relating to an identified or identifiable natural person ('data subject'). Personal data also includes data that indirectly reveals something about a natural person. Personal data can lead to the physical, physiological, genetic, mental, economic, cultural or social identity of a natural person. There are two main categories of personal data: regular personal data and special category personal data.

If you are not sure whether some of these questions below should be answered with a Yes or No, please contact a Data Steward first through rdmsupport@tue.nl.

	Note: answers in the blue boxes indicate that your research is eligible for fast-track approval	Yes	No
1	Will the study involve discussion/collection/processing of **regular** personal data, or will you collect and (temporarily) store video or voice recordings for the purpose of conducting interviews? *Additional explanation: For example, name, address, phone number, email address, IP address, gender, age, video or interview recordings? If you are not sure whether your data contains personal data, please contact the Data Stewards Team (rdmsupport@tue.nl).*	✔	
1A	If yes: Please describe which regular personal data you will collect in this study?	their current stage of study	
2	Will the study involve discussion/collection/processing of **special category** personal data or other **sensitive data**? *Additional explanation: Examples of special category personal data are race, religion, health information, political views, genetic or biometric data for the unique identification of a person, sexual preference, etc. Health information concerns personal data of the physical or mental health of persons, including the provision of health care. Examples of other sensitive data is information such as communication data, financial records or credit scores, camera surveillance data, location/GPS data, internet-of-things data, employee monitoring, observing or influencing behaviour, criminal records, data of vulnerable persons (children, people with disabilities, refugees), BSN number etc. Please be aware that the use of special category personal data in research requires extra security measurements in order to safeguard the privacy of data subjects and to comply with the GDPR. Processing of this special category data is prohibited, except for specific purposes and under certain circumstances. If you need to process special category data, please consult the data stewards at rdmsupport@tue.nl.*		✔
2A	If yes: Please describe which special-category personal data and/or sensitive data you will collect in this study?		

If you answered yes to either question 1 or 2, please answer the questions below. If you answered no to both questions, you can skip this part and continue onto part 7. Also, if an answer to any of the following questions is 'yes', please contact a Data Steward at rdmsupport@tue.nl

		Yes	No
3	Will your project involve the processing of personal data on a **large scale**? *Additional explanation: In general, any processing that involves more than 10.000 data subjects should be considered "large scale". However, if the data of approximately 1000 persons (or more) are involved, the data processing may still be considered large scale. In that case, besides the number of persons involved in the study, one should also assess (i) the amount of data collected from these persons taking into account the type/risk level of the personal data, (ii) the duration of the data processing, (iii) the geographic scope or extent of the processing. For example, if you would collect and process data across several European countries with 10+ socio-economic data items of 1200 individual persons for several years in a row, that is likely "large-scale processing". Other examples of a large-scale processing activity are:* • *Monitoring driving behavior of road users on Dutch highways* • *Collecting data of Covid patients* • *A hospital that processes patient data as part of its usual operations*		✔

Ethical Review Form

	• *A transport company that processes travel information of people who travel by public transport in a certain city. For example, by tracking them through travel maps.*		
4	Does this processing activity involve the use of new or innovative technologies? *Examples of a new technology: combining fingerprints and facial recognition for physical access control, the use of bodycams in public spaces, the use of new technical methods in conducting research such as AI. This question also refers to new technologies that have not been deployed by TU/e so far.*		✔
5	Does your study involve systematic (c.q. automated) monitoring of persons? *Additional explanation: Consider data processing activities that have the purpose of observing, monitoring or controlling individuals, for example in circumstances where the individuals are not aware by whom their personal data is collected and how it is used. Examples of such activities are using camera systems to monitor driving behavior on highways, monitoring email inactivity or employee phone use, certain applications of machine learning and artificial intelligence.*		✔
6	Does the study involve collaborations (with third parties) in which data are shared or exchanged in order to link or combine data? *Additional explanation: This may often apply in a collaboration between the university and a commercial party, contract research, etc. It is important to assess this for all data in the entire project, not just your own data.* *An important consideration in this situation is whether the person whose data is involved could have expected that data from these different databases or sources of information were to be combined. For example, it is less likely for data subjects to expect that databases from different parties will be combined and the results are used for different purposes than one could reasonably expect; this may apply for example in a collaboration between the university and a commercial party.*		✔
7	Will the study include data processing activities that prevent data subjects from exercising their rights or using a service or contract? *Additional explanation: Examples include processing operations carried out in public places that people cannot avoid (train station, airport, shopping mall, public university premises, etc.) or processing operations whose purpose is to allow or not allow data subjects to use a service or enter into a contract (examples: by refusing to pay a benefit, not being able to apply for a loan, etc.).*		✔
8	Will the study process personal data to score, rank or profile persons? *Additional explanation: Examples: monitoring (highway) roads to give road users a "score" based on their detected driving behavior, a bank assessing its customers based on their creditworthiness, or an organization building behavioral and marketing profiles based on use of their website or navigating their website.*		✔
9	Does your data processing include activities that involves composing "**blacklists**" – and, in particular, in relation to sensitive or special category data, such as communication data, financial records or credit scores, genetic data, biometric data, health data, camera surveillance data, location/GPS data, internet-of-things data, employee monitoring, observing or influencing behaviour, etc. *Additional explanation: This situation will not be a common occurrence in research, but you may indirectly be involved in this. In general, this typically concerns processing operations involving personal data relating to criminal convictions and offences, data relating to unlawful acts, data concerning unlawful or annoying behaviour or data concerning bad payment behaviour by companies or individuals are processed and shared with third parties (blacklists or warning lists, as used, for example, by insurers, hospitality companies shopping companies, telecom providers as well as blacklists relating to unlawful behavior of employees, for example in the healthcare sector or by employment agencies, etc.).*		✔
10	Will personal data be transferred or shared outside the EU/EEA? EU data protection rules apply to the European Economic Area (EEA), which includes all EU countries and non-EU countries Iceland, Liechtenstein and Norway. *Additional explanation: The GDPR has drafted additional requirements for transfers data outside of the EU/EEA. Typically, additional safeguards must be implemented to protect the personal data of residents in the European Union. For example, if you collaborate with an American, Indian or Chinese university or other third party outside the EU/EEA, you must first check whether this is allowed and under which conditions this is allowed. Another typical example is storage of data on American providers of cloud (storage) services. Please contact the data stewards first to discuss this.*		✔
11	Will any raw or anonymized personal data or any other sensitive data or research results from the project possibly be transferred to a high-risk country*? ***High risk countries**: China, Russia, Iran, Turkey, and North Korea.* *If personal data or other potentially sensitive data is exchanged with one of these countries, or if part of the data processing takes place in one of these countries: **an advice from the Data Protection Officer, the kennisveiligheidsteam (Knowledge Security team), and the CISO (Chief Information Security Officer) is ALWAYS required.***		✔

Ethical Review Form

Part 7a: Processing of research data

1	Is consent your legal basis for processing the personal data in your study? *Additional explanation: What is a legal basis? One of main principles in the GDPR is to ensure that personal data is processed lawfully, fairly, and transparently. To comply with this principle, the processing of personal data also requires that you have a valid legal basis for the personal data processing activity.* *In research projects, the legal basis is often but not always consent. However, it is possible that it is not clear or not possible to establish whether to use consent as a legal basis.* *Some examples where consent may not be applicable as legal basis are covert research, data collection in public spaces, secondary data analysis of existing data, data that are transferred to you by a third party, consent is not possible or would require disproportionate effort, etc. In that case, please indicate which legal basis you think that applies or (preferably) contact a data steward first.*	☒ Yes and it will be obtained via the first question of the survey An informed consent template* is attached to this application. ☐ No, I will use another legal basis to process the data. Namely, …….. * You can download a suitable template **here**.
2	Where will the data come from?	☐ Data obtained from another party (secondary data use) ☒ New data collected only by my research team ☐ New data collected together with collaborators
3	Which of the following tools will you use to process personal data?	**Surveys** ☐ Qualtrics ☐ Limesurvey ☒ MS Forms ☐ Other, namely …….. **Interview/workshop recordings** ☐ Voice/video recorder ☐ Phone in a flight mode ☐ MS Teams ☐ Other, namely …… **Transcription** ☐ Manual transcription ☐ Microsoft Office software (e.g. Word, Teams) ☐ Other, namely …… **Statistical analysis** ☐ SPSS ☐ R ☐ Other, namely …… **Other tools**, specifically……
4	Where will the data and in particular the personal data be stored during and after completion of the study? If you have already uploaded your Data Management Plan, you can refer to your Data Management Plan.	☐ SURF drive ☒ Onedrive ☐ Research Drive ☐ Network Drive

Ethical Review Form

	Additional explanation: University supported-storage facilities are SURFdrive, SURF Research Drive, Ceph, departmental drives (this includes BE Project Drive), and the TU/e instance of Microsoft OneDrive. For most personal data, the use of SURF Research Drive, departmental drives (including BE Project Drive) and SURFdrive is required.	☐ Research Manager ☐ Other, namely ……
Part 7b: Safety and security measures		
1	Will you pseudonymize/anonymize the data? *Additional explanation:* *Anonymization: remove all direct identifiers (name, address, telephone number etc.) but also indirect identifiers (age, place of birth, occupation, salary) that, linked with other information, can lead to a person's identification. Anonymization to the point that a data subject is no longer identifiable means that the anonymized data is not considered to be personal data anymore.* *Pseudonymization: replacing the unique identifier of a data subject with an artificial pseudonym. This means that identification is still possible with the identification key. The identification key needs to be stored securely and separately from the pseudonymized data. If the data subject can be identified by combining data with additional information, the data is also called pseudonymous.*	☐ Yes ☒ No If yes, describe how:
2	Is access to (personal) data restricted? (Select all that apply)	☐ No ☐ Yes, via access control ☐ Yes, via password protection ☐ Yes, access only given to TU/e research team ☒ Yes, access only given to research team, including non-TU/e collaborators ☐ Other, specify…….
3	Who will have access to the data during and after completion of the project? (Select all that apply)	☒ Main researcher ☒ TU/e supervisor(s) ☒ External supervisors ☐ TU/e research team ☐ Other, specify…….
4	Will you store data for future research?	☐ No ☐ Yes, in a public data repository ☐ Yes, in a public data repository under restricted access ☒ Yes, in a TU/e-recommended storage (SURF Research Drive, Network Drive)
5	Will you share data outside the TU/e?	☐ No ☒ Yes, in a fully anonymized form ☐ Yes, raw or pseudonymized data* *If you selected this box, make sure that a suitable data agreement is put in place. You can contact the Data Stewards for support in preparing such an agreement
6	How long will data be stored after the end of the project?	till 1 year after the project

Ethical Review Form

Part 8: Closures and Signatures

1	Enclosures (tick if applicable and attach to this form):	☑ Informed consent form ☐ Informed consent form for other agencies when the research is conducted at a location (such as a school) ☐ Text used for ads (to find participants) ☐ Text used for debriefings ☐ Approval other research ethics committee ☐ The survey the participants need to complete, or a description of other measurements ☐ Data Protection Impact Assessment checked by the privacy officer ☐ Data Management Plan checked by a data steward
2	Signature(s)	Signature(s) of applicant(s)  Date: 13/09/2023 Signature research supervisor  Date: 22/3/2024

Informed consent form

This informed consent form before you entail the details of voluntary participation in a playtesting session where you will be asked to play one or more mini games with the goal to assess the game-flow, experience and impact of the game.

- I have read and understood the information of the corresponding information form for participants.
- I have been given the opportunity to ask questions. My questions are sufficiently answered, and I had sufficient time to decide whether I participate. (please email l.y.smits@student.tue.nl for questions)
- I know that only the researcher (Laure Smits) has access to the data and that the data will be stored locally for 12 months after the study.
- I know that my participation is completely voluntary. I know that I can refuse participation and that I can stop participation at any time during the study, without giving any reasons. I know that I can withdraw permission to use the data at any given moment during the study.
- I agree with the voluntary participation of me in this study.
- I know that no information that can be used to personally identify or my responses in this study will be shared with anyone outside of the research team.

Certificate of consent

I, (NAME)
……
want and provide consent to participate in this study.

Signature here

From: Severens, Marjolein on behalf of Ethics
To: Smits, Laure
Cc: Bekker, Tilde
Subject: RE: minimal risk ERB for approval - ID
Date: Friday, 22 March 2024 16:46:57

Dear Laura,

Your application (ERB2024ID67) has been approved by the ERB.

We assume that you have answered all questions correctly. We will perform regular spot-checks so you need to keep your documentation (ERB form, informed consent forms, surveys/interview questions, description of experiment/prototype etc.) available for at least 6 months.

Good luck!

Dear regards,

Marjolein Severens
ERB student assistent

From: Smits, Laure <l.y.smits@student.tue.nl>
Sent: Friday, March 22, 2024 3:48 PM
To: Ethics <Ethics@tue.nl>
Subject: minimal risk ERB for approval - ID

Dear Ethics,

Hereby I am submitting my minimal risk study ERB for approval. Please let me know if any changes are required and thanks in advance!

Kind regards,
Laure Smits
MSc. Student Industrial Design

Ethical Review Form

(Version 2.1)

This Ethical Review Form should be completed for every research study that involves human participants or personally identifiable personal data and should be submitted to ethics@tue.nl. For more information about how this process works please click here. Please check if you are using the correct form: PDF Ethical Review Form (version 2.1). Please click here to obtain this latest version.

Part 1: General Study Information

1	Project title / Study name	Graduation Process and Support
2	Name of the researcher / student	Laure Smits
3	Email of the researcher / student	l.y.smits@student.tue.nl
4	Supervisor(s) name(s) *Additional explanation: Please write down the name of your direct supervisor. You can mention several supervisors if appropriate, but at least one supervisor should be mentioned.*	Tilde Bekker
5	Supervisor(s) email address(es) *Additional explanation: Please give the email address of the supervisor(s) mentioned in question 4.*	m.m.bekker@tue.nl
6	Department / Group *Additional explanation: Please specify group if relevant e.g. JADS or HTI*	Industrial Design - Systemic Change
7	What is the purpose of this application?	☐ Scientific study ☐ Bachelor education. Course: ☒ Master education. Course: ☐ Other (e.g. external, following external regulations):
8	Research location *Additional explanation: Where will the data collection take place? On campus, in a company, in public space, online, etc.*	☒ Eindhoven University of Technology campus ☐ Other, name organization(s): ☐ Public space ☒ Online
9	Start date data collection *Additional explanation: Please state when your data collection will start. Please note that you do not have to provide information about your complete (PhD) project, but only on this particular sub-study that you are submitting for approval in this form.*	13/09/2023
10	End date data collection	10/07/2024
11	Does your project receive external funding (e.g., NWO, relevant for special regulations from funders)?	☐ Yes. Name Funder: ☒ No
12	Which internal and external parties are involved in the study? Think about sharing data or information between TU/e and other universities, commercial companies, hospitals, etc. *Additional explanation: Describe all internal and external parties that are involved in the study or project, including:* • *researchers or research groups at the TU/e who participate in the study;* • *(Researchers at) other universities/institutions that provide data/services, help analyzing the data, etc.;*	Internal parties • Researcher(s): Laure Smits • Supervisor: Tilde Bekker

Ethical Review Form

	• *(commercial) partners, companies, government bodies, municipalities, consultancy firms, hospitals or care institutions that provide data (e.g., contact details of participants, data for further analysis).* *Indicate which role each party plays: who defines the means and purposes in the study, who will supply the data (external parties?), who will process/handle the data, who will be able to access the data during and after research (only researchers at TU/e or also others)?*	External parties • Other universities/institutions: • Others: Mitchell Jacobs, supporting coach & supervisor
13	Have any special agreements already been made with an external party, such as a Non-Disclosure Agreement (NDA) or a data sharing agreement?	☐ Yes, namely: ☒ No
14	Has your proposal already been approved by an external Ethical Review Board or Medical Ethical Review Board? *Additional explanation: For example, when you are collaborating with another university and the project has been approved by their Ethical Review Board, or when you received a WMO-waiver from a Medical Ethical Review Board.*	☐ Yes ▪ No
15	If yes: Please provide the name, date of approval and contact details of the ERB. Please also include the registered number for your project approval. Additionally, please send in the Ethical Review Form upon which ethical approval was granted together with this form.	
16	If you process personal data that are likely to result in high privacy risks for participants, you need to perform a Data Protection Impact Assessment (DPIA). Have you done this for this or a very similar project? ***Please read the information below: a DPIA is not the same as a regular privacy impact assessment. More detailed questions on privacy will follow in the section below.*** *Additional explanation: A Data Protection Impact Assessment (DPIA) is a formal document that must be drafted under the guidelines of the General Data Protection Regulation (GDPR). Think of research with vulnerable people, high-risk medical research,* *The Dutch DPA (Autoriteit Persoonsgegevens) and our website provides more information about a DPIA.*	☒ Not applicable (no high privacy risks) ☐ Yes (the form is attached to the application) ☐ No
Part 2: Medical study		
1	Does the study have a medical scientific research question or claim? *Additional explanation: Medical/scientific research is research which is carried out with the aim of finding answers to a question in the field of illness and health (etiology, pathogenesis, signs/symptoms, diagnosis, prevention, outcome or treatment of illness), by systematically collecting and analyzing data. The research is carried out with the intention of contributing to medical knowledge which can also be applied to populations outside of the direct research population. If your research contains questions about health and health related parameters (such as well-being, vitality, feelings of anxiety or stress) but your research question is not primarily medical, then you can answer 'no' to this question.*	☐ Yes* ☒ No *If yes or in doubt, please contact Susan Hommerson via s.m.hommerson@tue.nl

Ethical Review Form

Part 3: Use of (medical) devices in the study		
1	Does your research include a device? *Additional explanation: A device is a complete piece of physical hardware that is used to compute or support computer functions within a larger system. Devices can be divided into input-, output-, storage-, internet of things-, or mobile device.*	☐ Yes, not self-made ☐ Yes, self-made ☒ No
2	Please describe your device or link to an online description of the device	
3a	Will you use a device that is 'CE' certified for **unintended use** (meaning you will use existing CE certified devices for other things than they were originally intended for) or use a device that is not 'CE' certified? *Additional explanation: You can find more information about CE certification here*	☐ Yes ☒ No
3b	If no: Please explain to what extent the device was assembled according to relevant standards and provide a risk assessment *Additional explanation: You can find more information about a risk assessment here*	I will not use any device.
3c	If yes: Do you use a device or software that has a medical purpose such as diagnosis, prevention, monitoring, prediction, prognosis, treatment or alleviation of disease or injury?	☐ Yes, my device or software currently has a medical purpose ☐ Yes, my device or software could have a medical purpose in the near future ☐ No ☐ I'm not sure
Part 4: Information about the study		
1	What are your main research questions? *Additional explanation: You need to provide at least one clear research question.*	What are the current perspectives of Industrial Design students on graduation, its processes and support systems?
2a	Please check the box that indicates the relevant study population *Additional explanation: Please select which persons are eligible for your study.*	☒ Students ☐ General healthy population ☐ General population with specific feature, e.g., pregnancy, specifically ..... ☐ Patients, specifically ……..... ☐ Other, specifically ……
2b	Age category of participants	☐ Younger than 12 years of age ☐ Older than 11 and younger than 16 years of age ☒ 16 years or older
3	Description of the research method (select all that applies)	☐ (Semi-structured) interviews ☒ Surveys

Ethical Review Form

	Additional explanation: Please specify your research method. Note that you need to provide information about the research method in an additional file that you attach to the ERB form. E.g., for interviews you provide the interview questions, for surveys you provide the survey questions, etc.	☐ Group workshops/roundtable discussios ☐ Diary studies ☐ Behavioral observations ☐ Building sensor data ☐ Wearable device (e.g. Fitbit watch, on-skin sensors) ☐ User testing ☐ Pilot study ☐ GPS tracking/location data ☐ Living Lab ☐ Other, namely .....
4	Description of the measurements and/or stimuli/treatments *Additional explanation: Think about your outcome measures and the variables you will be collecting and describe them in a way such that another person understands what the participant will experience. For example: Participants will perform task A and see pictures from database B, and we measure validated Scale 1.*	Participants will be asked to complete a survey that asks both quantitative and qualitative questions on their perspective on graduation, its process and available support during this process.
5	Describe and justify the number of participants you need for this study. Also justify the number of observations you need, taking into account the risks and benefits. *Additional explanation: Think about if you need 3 or 30 participants for example, and why? Do they need to provide their input once, or several times, and why? If relevant, specify the duration of the study per participant and the compensation that is needed for the study.*	Number of participants: 10-100 The results from this survey will be used to make an accurate description of current thoughts and perspectives on graduation, therefore an accurate representation of the population of ID students needs to be taken into account which is why the number is 10-100.
6	Explain why your research is societally important. What benefits and harm to society may result from the study? *Additional explanation: What benefit will the results of your study have to society in general?*	Graduation and its process is crucial to each students personal and professional development. However there is a lack of support available to students going through this which might make them make the wrong decisions on what to do next. This survey aims to gain a better understanding of what the current thoughts, ideas and perspectives on graduation are and how we might offer support. These insights will then be used to create an overview of needs and requirements which in turn will be used to create a design to tackle this problem.
7	Describe the way participants will be recruited *Additional explanation: How will you recruit participants for your study? For example, by using flyers, personal network, panels, etc.*	☑ Survey link posted online, e.g., social media platforms ☐ On campus flyers ☑ Personal network ☐ Via a company, namely …….. ☐ Via a hospital, namely …….. ☐ Via an organization …… ☐ By a Consortium Partner, namely ……. ☐ Other, namely ……..
8	Provide a brief statement of the risks you expect for the participants or others involved in the study and explain. Also take into consideration any personal data you may gather and associated privacy issues. *Additional explanation: Risks for the participants can be anything from risk of data breach to risk of safety or well-being (think about stress, extreme emotions, visual or auditory discomfort). Describe these possible risks and describe the way these risks are mitigated.*	The risks are deemed negligible as the purpose of the study is educational and designed with this in mind. They will not be asked to engage and interact with anything that is not safe. Data collection and storage All the participants will be informed about the research activities before the study, including the data collection, storage, and usage protocols. The gathered (raw) data is only accessible to the researcher when the participants give consent. All the data will be stored in a TU/e approved online storage application until 1 year after the end of the project and deleted after that period. Access is password protected.

Ethical Review Form

Part 5: Self-assessment checklist

	Note: answers in the blue boxes indicate that your research is eligible for fast-track approval	Yes	No
1a	Does the study involve human material? (e.g., surgery waste material derived from non-commercial organizations such as hospitals)		✔
1b	Will blood or other (bio)samples be obtained from participants? (e.g., hair, sweat, urine or other bodily fluids or secretions, also external imaging of the body)		✔
2	Will the participants give their consent – on a voluntary basis – either digitally or on paper? Or have they given consent in the past for the purpose of education or for re-use in line with the current research question?	✔	
3	Are the participants, outside the context of the research, in a dependent or subordinate position to the investigator? Additional explanation: Think about doing research on your own students or on your own employees. When there is a dependency or power imbalance between you and the research participants, you need to answer 'yes' to this question.		✔
4	Does the study involve participants who are particularly vulnerable or unable to give informed consent? (e.g., children (<16 years of age), people with learning difficulties, patients, people receiving counselling, people living in care or nursing homes, people recruited through self-help groups)		✔
5	Will participating in the research be burdensome? (e.g., requiring participants to wear a device 24/7 for several weeks, to fill in questionnaires for hours, to travel long distances to a research location, to be interviewed multiple times)?		✔
6	May the research procedure cause harm or discomfort to the participant in any way? (e.g., causing pain or more than mild discomfort, stress, anxiety or by administering drinks, foods, drugs, or showing explicit visual material)		✔
7	Will financial inducement (other than reasonable expenses and compensation for time) be offered to participants? Additional explanation: For an explanation of what is considered a reasonable compensation, see the topic participant fees from the HTI group		✔
8a	Will it be necessary for participants to take part in the study without their knowledge and consent at the time? (e.g., covert observation of people)		✔
8b	If yes: Will you be observing people without their knowledge in public space? (e.g. on the street, at a bus-stop)		
9	Will the study involve actively deceiving the participants? (e.g., will participants be deliberately falsely informed, will information be withheld from them, or will they be misled in such a way that they are likely to object or show unease when debriefed about the study)		✔
10	Will participants be asked to discuss or report sexual experiences, religion, alcohol or drug use, suicidal thoughts, or other topics that are highly personal or intimate? Additional explanation: Think about your research population. For some participants, particular topics can be considered sensitive or intimate, whereas the same topics will not be perceived as such by other participants.		✔
11	Elaborate on all boxes answered outside of the blue boxes in part 5. Describe how you safeguard any potential risk for the research participant.		

Ethical Review Form

Part 6: Self-assessment on privacy

The following questions (1-11) concern privacy issues, as laid down in the General Data Protection Regulation (GDPR). The Data Stewards and – if necessary – privacy team of TU/e will assess these questions. In some cases, more information is required to assess the privacy risks. If this is the case, you will be notified that the Data Stewards team will contact you.

The GDPR defines 'personal data' as any information relating to an identified or identifiable natural person ('data subject'). Personal data also includes data that indirectly reveals something about a natural person. Personal data can lead to the physical, physiological, genetic, mental, economic, cultural or social identity of a natural person. There are two main categories of personal data: regular personal data and special category personal data.

If you are not sure whether some of these questions below should be answered with a Yes or No, please contact a Data Steward first through rdmsupport@tue.nl.

	Note: answers in the blue boxes indicate that your research is eligible for fast-track approval	Yes	No
1	Will the study involve discussion/collection/processing of **regular** personal data, or will you collect and (temporarily) store video or voice recordings for the purpose of conducting interviews? *Additional explanation: For example, name, address, phone number, email address, IP address, gender, age, video or interview recordings? If you are not sure whether your data contains personal data, please contact the Data Stewards Team (rdmsupport@tue.nl).*	✔	
1A	If yes: Please describe which regular personal data you will collect in this study?	their current stage of study	
2	Will the study involve discussion/collection/processing of **special category** personal data or other **sensitive data**? *Additional explanation: Examples of special category personal data are race, religion, health information, political views, genetic or biometric data for the unique identification of a person, sexual preference, etc. Health information concerns personal data of the physical or mental health of persons, including the provision of health care. Examples of other sensitive data is information such as communication data, financial records or credit scores, camera surveillance data, location/GPS data, internet-of-things data, employee monitoring, observing or influencing behaviour, criminal records, data of vulnerable persons (children, people with disabilities, refugees), BSN number etc. Please be aware that the use of special category personal data in research requires extra security measurements in order to safeguard the privacy of data subjects and to comply with the GDPR. Processing of this special category data is prohibited, except for specific purposes and under certain circumstances. If you need to process special category data, please consult the data stewards at rdmsupport@tue.nl.*		✔
2A	If yes: Please describe which special-category personal data and/or sensitive data you will collect in this study?		

If you answered yes to either question 1 or 2, please answer the questions below. If you answered no to both questions, you can skip this part and continue onto part 7. Also, if an answer to any of the following questions is 'yes', please contact a Data Steward at rdmsupport@tue.nl

		Yes	No
3	Will your project involve the processing of personal data on a **large scale**? *Additional explanation: In general, any processing that involves more than 10.000 data subjects should be considered "large scale". However, if the data of approximately 1000 persons (or more) are involved, the data processing may still be considered large scale. In that case, besides the number of persons involved in the study, one should also assess (i) the amount of data collected from these persons taking into account the type/risk level of the personal data, (ii) the duration of the data processing, (iii) the geographic scope or extent of the processing. For example, if you would collect and process data across several European countries with 10+ socio-economic data items of 1200 individual persons for several years in a row, that is likely "large-scale processing". Other examples of a large-scale processing activity are:* • *Monitoring driving behavior of road users on Dutch highways* • *Collecting data of Covid patients* • *A hospital that processes patient data as part of its usual operations*		✔

Ethical Review Form

	• *A transport company that processes travel information of people who travel by public transport in a certain city. For example, by tracking them through travel maps.*		
4	Does this processing activity involve the use of new or innovative technologies? *Examples of a new technology: combining fingerprints and facial recognition for physical access control, the use of bodycams in public spaces, the use of new technical methods in conducting research such as AI. This question also refers to new technologies that have not been deployed by TU/e so far.*		✔
5	Does your study involve systematic (c.q. automated) monitoring of persons? *Additional explanation: Consider data processing activities that have the purpose of observing, monitoring or controlling individuals, for example in circumstances where the individuals are not aware by whom their personal data is collected and how it is used. Examples of such activities are using camera systems to monitor driving behavior on highways, monitoring email inactivity or employee phone use, certain applications of machine learning and artificial intelligence.*		✔
6	Does the study involve collaborations (with third parties) in which data are shared or exchanged in order to link or combine data? *Additional explanation: This may often apply in a collaboration between the university and a commercial party, contract research, etc. It is important to assess this for all data in the entire project, not just your own data.* *An important consideration in this situation is whether the person whose data is involved could have expected that data from these different databases or sources of information were to be combined. For example, it is less likely for data subjects to expect that databases from different parties will be combined and the results are used for different purposes than one could reasonably expect; this may apply for example in a collaboration between the university and a commercial party.*		✔
7	Will the study include data processing activities that prevent data subjects from exercising their rights or using a service or contract? *Additional explanation: Examples include processing operations carried out in public places that people cannot avoid (train station, airport, shopping mall, public university premises, etc.) or processing operations whose purpose is to allow or not allow data subjects to use a service or enter into a contract (examples: by refusing to pay a benefit, not being able to apply for a loan, etc.).*		✔
8	Will the study process personal data to score, rank or profile persons? *Additional explanation: Examples: monitoring (highway) roads to give road users a "score" based on their detected driving behavior, a bank assessing its customers based on their creditworthiness, or an organization building behavioral and marketing profiles based on use of their website or navigating their website.*		✔
9	Does your data processing include activities that involves composing "**blacklists**" – and, in particular, in relation to sensitive or special category data, such as communication data, financial records or credit scores, genetic data, biometric data, health data, camera surveillance data, location/GPS data, internet-of-things data, employee monitoring, observing or influencing behaviour, etc. *Additional explanation: This situation will not be a common occurrence in research, but you may indirectly be involved in this. In general, this typically concerns processing operations involving personal data relating to criminal convictions and offences, data relating to unlawful acts, data concerning unlawful or annoying behaviour or data concerning bad payment behaviour by companies or individuals are processed and shared with third parties (blacklists or warning lists, as used, for example, by insurers, hospitality companies shopping companies, telecom providers as well as blacklists relating to unlawful behavior of employees, for example in the healthcare sector or by employment agencies, etc.).*		✔
10	Will personal data be transferred or shared outside the EU/EEA? EU data protection rules apply to the European Economic Area (EEA), which includes all EU countries and non-EU countries Iceland, Liechtenstein and Norway. *Additional explanation: The GDPR has drafted additional requirements for transfers data outside of the EU/EEA. Typically, additional safeguards must be implemented to protect the personal data of residents in the European Union. For example, if you collaborate with an American, Indian or Chinese university or other third party outside the EU/EEA, you must first check whether this is allowed and under which conditions this is allowed. Another typical example is storage of data on American providers of cloud (storage) services. Please contact the data stewards first to discuss this.*		✔
11	Will any raw or anonymized personal data or any other sensitive data or research results from the project possibly be transferred to a high-risk country*? ***High risk countries**: China, Russia, Iran, Turkey, and North Korea.* *If personal data or other potentially sensitive data is exchanged with one of these countries, or if part of the data processing takes place in one of these countries: **an advice from the Data Protection Officer, the kennisveiligheidsteam (Knowledge Security team), and the CISO (Chief Information Security Officer) is ALWAYS required.***		✔

Ethical Review Form

Part 7a: Processing of research data

1	Is consent your legal basis for processing the personal data in your study? *Additional explanation: What is a legal basis? One of main principles in the GDPR is to ensure that personal data is processed lawfully, fairly, and transparently. To comply with this principle, the processing of personal data also requires that you have a valid legal basis for the personal data processing activity.* *In research projects, the legal basis is often but not always consent. However, it is possible that it is not clear or not possible to establish whether to use consent as a legal basis.* *Some examples where consent may not be applicable as legal basis are covert research, data collection in public spaces, secondary data analysis of existing data, data that are transferred to you by a third party, consent is not possible or would require disproportionate effort, etc. In that case, please indicate which legal basis you think that applies or (preferably) contact a data steward first.*	☒ Yes and it will be obtained via the first question of the survey An informed consent template* is attached to this application. ☐ No, I will use another legal basis to process the data. Namely, …….. * You can download a suitable template **here**.
2	Where will the data come from?	☐ Data obtained from another party (secondary data use) ☒ New data collected only by my research team ☐ New data collected together with collaborators
3	Which of the following tools will you use to process personal data?	**Surveys** ☐ Qualtrics ☐ Limesurvey ☒ MS Forms ☐ Other, namely …….. **Interview/workshop recordings** ☐ Voice/video recorder ☐ Phone in a flight mode ☐ MS Teams ☐ Other, namely …… **Transcription** ☐ Manual transcription ☐ Microsoft Office software (e.g. Word, Teams) ☐ Other, namely …… **Statistical analysis** ☐ SPSS ☐ R ☐ Other, namely …… **Other tools**, specifically……
4	Where will the data and in particular the personal data be stored during and after completion of the study? If you have already uploaded your Data Management Plan, you can refer to your Data Management Plan.	☐ SURF drive ☒ Onedrive ☐ Research Drive ☐ Network Drive

Ethical Review Form

	Additional explanation: University supported-storage facilities are SURFdrive, SURF Research Drive, Ceph, departmental drives (this includes BE Project Drive), and the TU/e instance of Microsoft OneDrive. For most personal data, the use of SURF Research Drive, departmental drives (including BE Project Drive) and SURFdrive is required.	☐ Research Manager ☐ Other, namely ……
Part 7b: Safety and security measures		
1	Will you pseudonymize/anonymize the data? *Additional explanation:* *Anonymization: remove all direct identifiers (name, address, telephone number etc.) but also indirect identifiers (age, place of birth, occupation, salary) that, linked with other information, can lead to a person's identification. Anonymization to the point that a data subject is no longer identifiable means that the anonymized data is not considered to be personal data anymore.* *Pseudonymization: replacing the unique identifier of a data subject with an artificial pseudonym. This means that identification is still possible with the identification key. The identification key needs to be stored securely and separately from the pseudonymized data. If the data subject can be identified by combining data with additional information, the data is also called pseudonymous.*	☐ Yes ☒ No If yes, describe how:
2	Is access to (personal) data restricted? (Select all that apply)	☐ No ☐ Yes, via access control ☐ Yes, via password protection ☐ Yes, access only given to TU/e research team ☒ Yes, access only given to research team, including non-TU/e collaborators ☐ Other, specify…….
3	Who will have access to the data during and after completion of the project? (Select all that apply)	☒ Main researcher ☒ TU/e supervisor(s) ☒ External supervisors ☐ TU/e research team ☐ Other, specify…….
4	Will you store data for future research?	☐ No ☐ Yes, in a public data repository ☐ Yes, in a public data repository under restricted access ☒ Yes, in a TU/e-recommended storage (SURF Research Drive, Network Drive)
5	Will you share data outside the TU/e?	☐ No ☒ Yes, in a fully anonymized form ☐ Yes, raw or pseudonymized data* *If you selected this box, make sure that a suitable data agreement is put in place. You can contact the Data Stewards for support in preparing such an agreement
6	How long will data be stored after the end of the project?	till 1 year after the project

Ethical Review Form

Part 8: Closures and Signatures

1	Enclosures (tick if applicable and attach to this form):	☑ Informed consent form ☐ Informed consent form for other agencies when the research is conducted at a location (such as a school) ☐ Text used for ads (to find participants) ☐ Text used for debriefings ☐ Approval other research ethics committee ☐ The survey the participants need to complete, or a description of other measurements ☐ Data Protection Impact Assessment checked by the privacy officer ☐ Data Management Plan checked by a data steward
2	Signature(s)	Signature(s) of applicant(s)  Date: 13/09/2023 Signature research supervisor  Date: 9/5/2024

Informed consent form

This informed consent form before you entail the details of voluntary participation in a playtesting session where you will be asked to play one or more games and/or review the digital platform with the goal to assess the game-flow, experience and impact of the game.

- I have read and understood the information of the corresponding information form for participants.
- I have been given the opportunity to ask questions. My questions are sufficiently answered, and I had sufficient time to decide whether I participate. (please email l.y.smits@student.tue.nl for questions)
- I know that only the researcher (Laure Smits) has access to the data and that the data will be stored locally for 12 months after the study.
- I know that my participation is completely voluntary. I know that I can refuse participation and that I can stop participation at any time during the study, without giving any reasons. I know that I can withdraw permission to use the data at any given moment during the study.
- I agree with the voluntary participation of me in this study.
- I know that no information that can be used to personally identify or my responses in this study will be shared with anyone outside of the research team.

Certificate of consent

I, (NAME)
……
want and provide consent to participate in this study.

Signature here

Questions before playing mini-games

(might change in wording, not in content)

- What phase of your study are you currently in?
- Do you know what you will be doing after you graduate? And if so, what?
- How did you came to this decision?
- How supported do you currently feel when figuring out what to do after graduation? (scale 1-5)
- Could you explain why you do or do not feel supported?
- Are you currently aware of the available opportunities/resources to help you in this process? (scale 1-5)
- If so, which people/activities/other things have you used to help you? And how did they support you?

From: Mulder, Maartje on behalf of Ethics
To: Smits, Laure
Cc: Bekker, Tilde
Subject: RE: ERB2024ID180 minimal risk ERB for approval - ID
Date: Monday, 13 May 2024 13:38:06
Attachments: image001.png

Dear Laure,
Your application (ERB2024ID180) has been approved by the ERB.

We assume that you have answered all questions correctly. We will perform regular spot-checks so you need to keep your documentation (ERB form, informed consent forms, surveys/interview questions, description of experiment/prototype etc.) available for at least 6 months.

Good luck!

With kind regards,
Maartje Mulder

TU/e

Office of Doctoral Presentations
Secretary Integrity and Ethics Office
Secretary BoE EngD

From: Smits, Laure <l.y.smits@student.tue.nl>
Sent: Monday, May 13, 2024 12:06 PM
To: Ethics <Ethics@tue.nl>
Subject: RE: ERB2024ID180 minimal risk ERB for approval - ID - vragen missend

Dear Maartje,

I have added a page in the appendix with a list of questions. Hopefully this completes the application.

Please let me know if any changes are required?

Kind regards,
Laure Smits

From: Mulder, Maartje <m.j.w.mulder@tue.nl> **On Behalf Of** Ethics
Sent: Monday, 13 May 2024 09:44
To: Smits, Laure <l.y.smits@student.tue.nl>
Subject: RE: ERB2024ID180 minimal risk ERB for approval - ID - vragen missend

Dear Laure,