Shaping Successful graduation journeys

Project review:
'SHAPING SUCCESSFUL GRADUATION JOURNEYS'
2020-2022

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Project motivation

In the Spring of 2020, IDE academic staff Dr. Ir. Mieke van der Bijl-Brouwer and Dr. Rebecca Price began looking into how COVID-19 was impacting the wellbeing of IDE's students. From this initial investigation, they discovered that graduate students, in particular, face various challenges now that they must work from home on an intensive individual project.

Even without a pandemic at play, they found that most graduate students are under intense pressure to complete and excel in their final project. They also are faced with hurdles such as a lack of routine and motivation, an unhealthy focus on performance, difficulties in making decisions in the design process, and so on.

Now throw in a pandemic and these challenges become even more intense. Additionally, they found that new hurdles have popped up because of COVID-19. For example, it can be difficult to separate the different parts of one's life (e.g. studying, relaxation) as everything usually happens in the same location.

This report summarizes the initiatives that have taken place as a response to the initial research of Mieke and Rebecca under the project named "Shaping successful Graduation Journeys'.

Abbreviations

TU Delft = Delft University of Technology
IDE = Faculty of Industrial Design Engineering, TU Delft
3mE = Faculty of Material, Maritime and Mechanical engineering, TU Delft
EWI = Facuty of Electrical engineering, Mathematics and Informatics, TU Delft
GCP = Graduation Community Program
MSc. = referring to Masters Program
GCP = Graduation community program
CBL= Community Based learning

Contents

1.

Project background

We wondered "How are our MSc. graduating students doing when working alone from their bedroom-turned-study?"

Project background

Over the years graduate students **have pushed the bar very high of what they expect from their own graduation project**, often resulting in **demotivated, discouraged students and high drop-out rates.** This high expectation arises from the common yet pervasive belief amongst students that **a graduation project is a 'masterpiece'.** It is observed that graduating students **lack a community or support system** that helps them in this 'once in a lifetime project, as students often describe it. The individualistic nature of the project gives rise to the fear of getting stuck, not being able to move forward, where students miss co-working with peers (in a structured or spontaneous manner) which provides (informal) confirmation that one is going in the right direction. Given that often students have not taken up such an individualistic challenge/project, further compounds the fear of failure.

These are several challenges that point to the need for improving the way the graduation project is structurally and practically organised.

While some of these challenges have been exacerbated by the outbreak of COVID19-crisis (since March 2020), **the pandemic has also added new challenges**. For example, the difficulty to distinguish study and relaxation as everything happens in one room. **Being concerned about the wellbeing of IDE MSc. graduating students, two researchers (van der Bijl-Brouwer et al., 2019) further investigated student well-being and motivation. This investigation highlights that common challenges include a lack of routine and motivation, an (unhealthy) focus on performance, feeling pressured, difficulties in making decisions alone in the design process amongst others.** These challenges are pertinent even when COVID-19 is not in the picture.

The identified challenges and the importance of focusing on student flourishing and student resilience were key when we were executing the project 'shaping successful graduation journeys'.

The project goes beyond student wellbeing. Rather it is **about shaping student success.** Student success for us entails creating **a learning environment** where master students **graduate within a reasonable time,** have **room for personal development,** where there is **attention for student wellbeing,** where **students self-regulate their personal learning objectives**, where there is **room for (skill) development outside the study program** and where **students can work on self-actualization** (Veluwen, M., 2020). For example, students should be able to have a realistic view of their graduation project instead of setting impossible expectations to deliver a masterpiece.

Figure 1: Most common challenges when it comes to the motivation of graduating students from the investigation from Rebecca and Mieke

*Wellbeing does not mean an absence of physical or mental illness. Rather it is a state of physical, mental and emotional health where a student is able to engage meaningfully in learning and contribute to their community. It is personal and multi-factorial, which typically includes that every student can realize their own potential, have a sense of direction and belonging, can cope with stresses of life, work productively and fruitfully and are satisfied with their personal achievements (working definition of Study Climate Program)

The goal *is to develop initiatives and guidelines for TU Delft MSc. graduation journeys that promote student success, engagement and inclusivity by integrating wellbeing, learning and human connection.*

The approach: *We use systemic design and co-creation. Meaning we look at the whole system and involve all stakeholders when creating solutions. There is not one expert when it comes to shaping successful graduation journeys, so we have to work together and involve all the different stakeholders. The approach of Research through Design (RtD) was applied.*

1. Goal

The goal of this project is to have an impact beyond the immediate 'COVID19-response', and to develop initiatives that promote student success, engagement, and inclusivity in the TU Delft MSc. graduation journeys. The intent is to deliver guidelines and recommendations for practical solutions and where needed for structural changes to better integrate wellbeing, learning and human connection. The aim is to look at the whole support system of the MSc. graduation project and propose solutions where every person involved in this journey learns and thrives.

2. Research method and project approach

We see the project of 'shaping successful graduation journeys' as a complex challenge. It is complex because a lot of different stakeholders are involved with different perspectives, the context consists of a lot of different interactions and unknown situations. That is why we involve all different stakeholders that are connected to this project including students, graduation supervisors, education and policy advisors, etc.

We know that quick brainstorms are not going to help us forward. Instead, when designing for complex challenges a process of iteration and a step-by-step approach with experimentation is key. We move away from only creating solutions to adopting a process of creation and learning. In practice, this means that we use interventions, prototypes to steer change and try to move the complex system from the current state into the desired direction. As figure 2 shows, the system only moves when different and multiple interventions or actions are created. In design, and particularly systemic design this design principle is called; the evolutionary approach (van der Bijl-Brouwer, M., Key, T., Kligyte, G., Malcolm, B., & Thurgood, C. 2019). Which means we design different interventions and test them out. We evaluate the impact and go on developing new interventions or adjusting previous interventions.
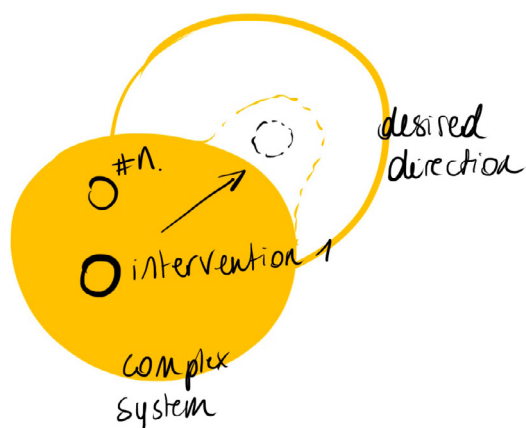

Figure 2: Evolutionary approach: Interventions to move a complex system from a current state to a desired state
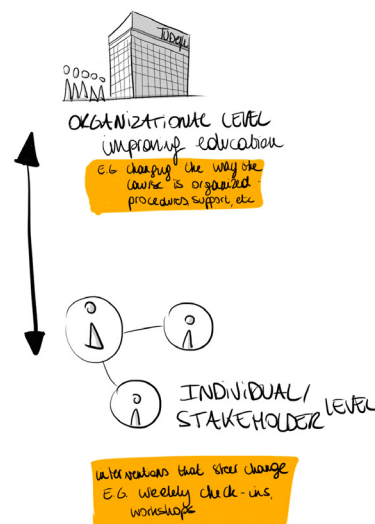

Figure 3:Two-track thinking, at the level of organisation/ system and individual

This systemic design approach results in what we call two-track thinking. This means that we transcend between thinking on the level of the organisation/system and on the level of individuals.

To design, implement and evaluate the project, we applied a Research through Design (RtD) approach. As stated by Stappers and Giaccardi (2017), RtD represents the execution of design activities (part of one of the design professions), often articulated in prototypes, that contribute to the generation of knowledge and are evaluated (Stappers & Giaccardi, 2017).

Throughout the whole project, we put emphasis on co-creation. This means that all stakeholders who are connected to the students' graduation journey, including graduation supervisors, education and policy advisors, alumni students, academic counselors and support staff are involved in every phase. From research to design, collaboration is central. The interventions are prototyped and evaluated with regards to the impact on the study climate and support system of our students and academic staff.

3. Time-line project

The time-line (Figure 4) shows the detailed actions the project consisted of at IDE. This report gives a brief explanation of the different interventions (the design of the interventions, prototyping and evaluation) carried out at IDE.
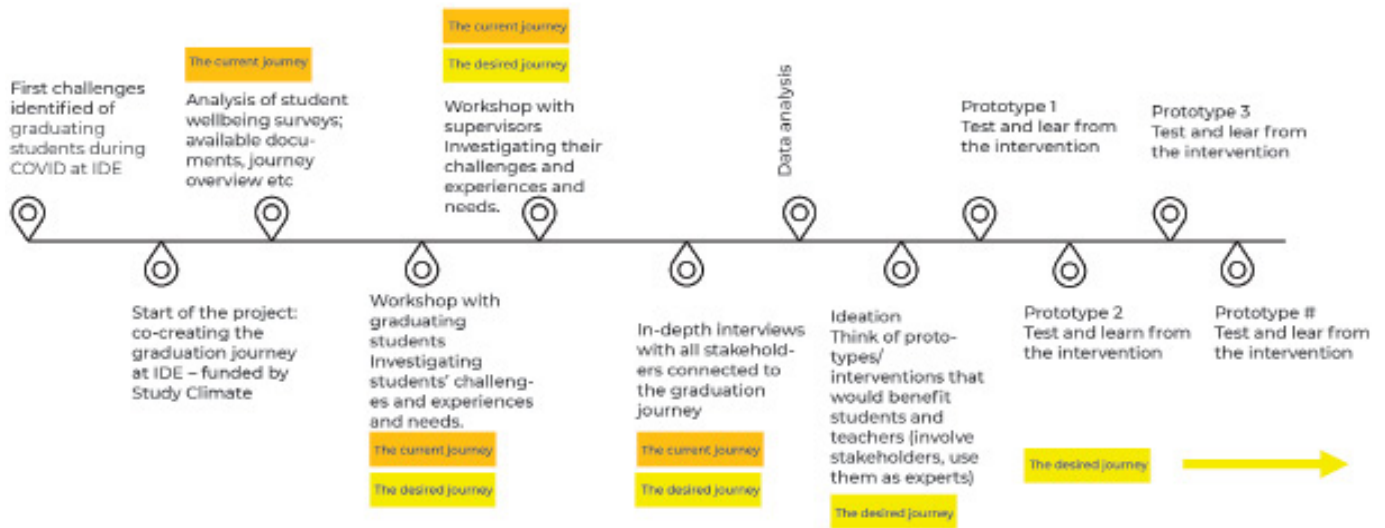
First challenges identified of graduating students during COVID at IDE

Analysis of student wellbeing surveys; available documents, journey overview etc

The current journey

The current journey
The desired journey

Workshop with supervisors Investigating their challenges and experiences and needs.

Data analysis

Prototype 1
Test and lear from the intervention

Prototype 3
Test and lear from the intervention

Start of the project: co-creating the graduation journey at IDE – funded by Study Climate

Workshop with graduating students Investigating students' challenges and experiences and needs.

The current journey

The desired journey

In-depth interviews with all stakeholders connected to the graduation journey

The current journey

The desired journey

Ideation Think of prototypes/ interventions that would benefit students and teachers (involve stakeholders, use them as experts)

The desired journey

Prototype 2
Test and learn from the intervention

Prototype #
Test and lear from the intervention

The desired journey

Figure 4: Timeline of the project 'Shaping successful graduation journeys' at IDE

IDEATION

RESEARCH

PROTOTYPING

EVALUATION
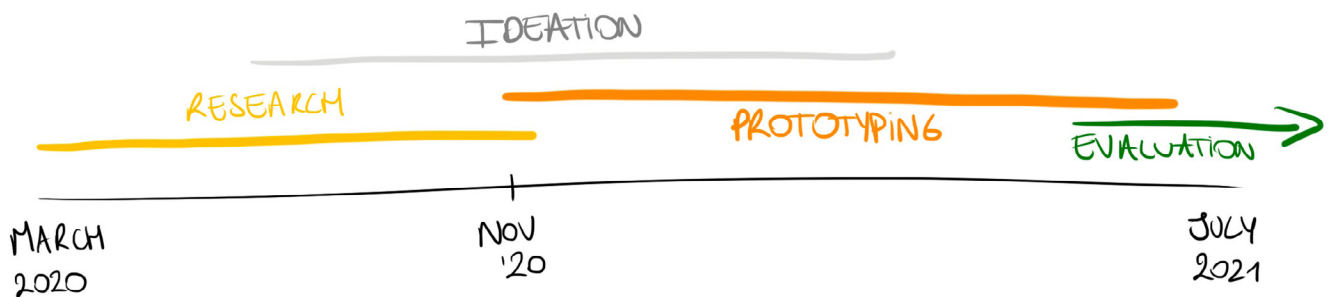
MARCH 2020

NOV '20

JULY 2021

Figure 5: Research, ideation, prototyping and evaluation phase timeline of the project.

2.

Graduation at IDE - the current situation

In this chapter, we first explain what steps were taken to explore the current journey of IDE master graduation students. Then we give you an idea of what the graduation journey looks like at the faculty of IDE. Lastly, we will describe the identified challenges.

The Graduation journey at The Faculty of Industrial Design engineering is a 100 day and so 20 week project. It consists of four main milestones; the kick-off, midterm, greenlight and graduation. To understand the challenges present in the current graduation journey several surveys, workshops and interviews were done.

1. Actions of this phase

The current graduation journey of IDE master students was analysed using different qualitative and quantitative approaches. The first survey in March '20 was used to investigate the wellbeing of the IDE students using two questions:

1. What is keeping you motivated during your graduation?
2. What is challenging in staying motivated?

Following the survey, several workshops were held with students, supervisors and one workshop where both students and supervisors were present. In this workshop, the challenges of graduation were mapped and participants came up with ideas on how to overcome the challenges. Participants came up with the strategies, methods, tools, activities, etc.

In November, when the project received funding from the Study Climate Programme an additional survey was carried out amongst recent alumni who graduated before COVID-19 to know more about their graduation experience. This was to ensure that the proposed solutions are relevant and helpful beyond education during the pandemic.

In parallel, semi-structured interviews were held with multiple stakeholders at IDE who are connected to the graduation project (See table 1). All this information was analysed in the period between October and December. It gave insight into the challenges of the students and supervisors but also provided the project team with ideas for the next phase of this project.
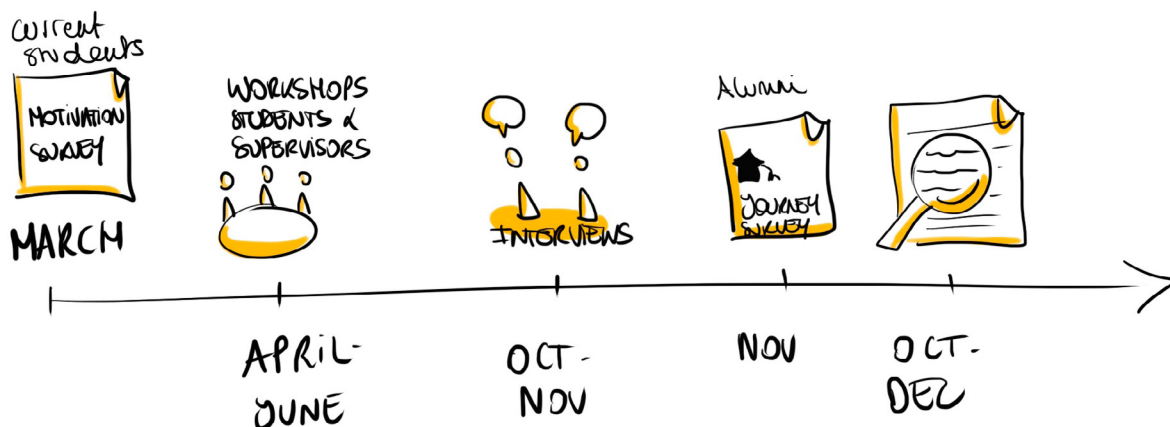

Figure 6: Actions undertaken to understand the current situation of graduation at IDE

Table 1: interviewed stakeholders at the faculty of IDE

	Interviewees
1.	Master program coordinator DFI
2.	Master program coordinator IPD
3.	Master program coordinator SPD
4.	Director of education
5.	Education and student affairs
6.	Head of department E&SA
7.	Graduation support
8. & 9.	Academic counsellors IDE (2)
10.	Bachelor coordinator and graduation supervisor
11.	Course coordinator ITG and graduation supervisor
12.	Education advisory

2. The graduation journey at the faculty of IDE

Figure 7 shows the graduation journey of a student at the faculty of IDE. The graduation journey has a fixed duration of 20 weeks, equal to 100 days. It consists of four formal meeting moments, the kick-off, the midterm meeting, the greenlight meeting, and the graduation ceremony. Before students take on the graduation project they have one mandatory course where their possible graduation project is discussed in the first year. And there is one elective course held twice a year for students who want support with initiating their project.

Visual summaries of what is expected from the supervisor and students through the graduation journey are part of the graduation manual which is accessible here.
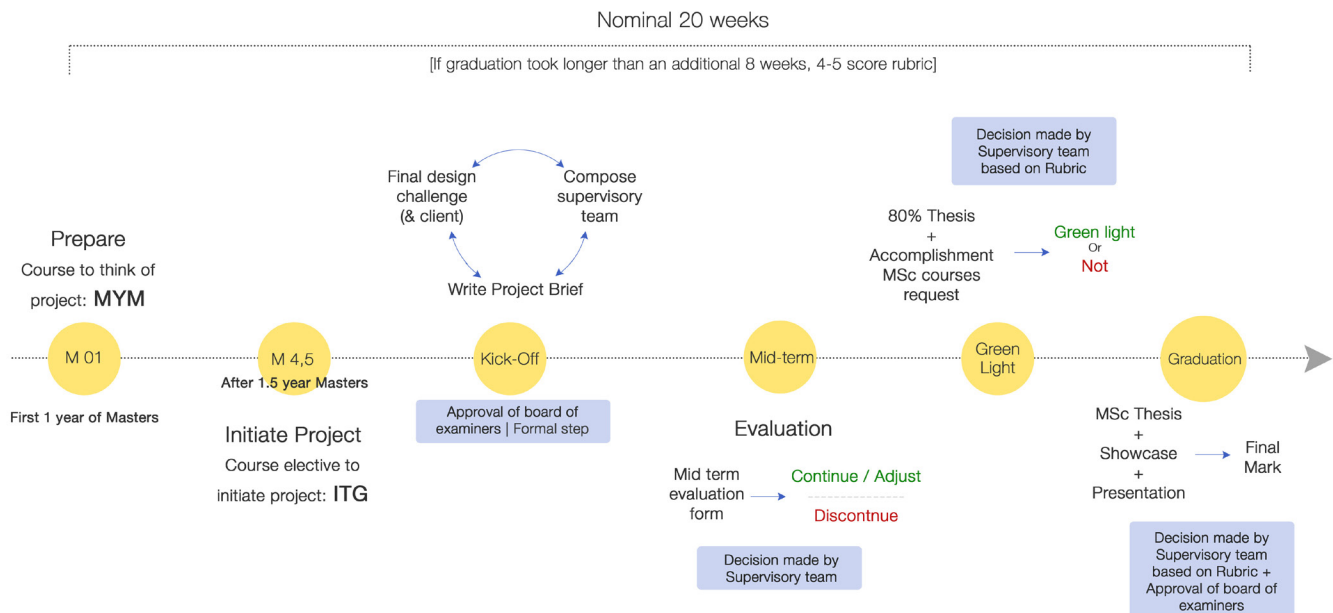

Figure 7: Graduation journey of a student at the faculty of IDE

3. Overview of the conclusion of the initial research (March till June 2020)

After the initial research done by researchers Mieke van der Bijl-Brouwer and Rebecca Price there was a list of recommendations and ideas shared with the Education Board at IDE (see figure 8). These ideas and recommendations were used as input for the project and the intervention prototypes that were tested.

- **Strengthen the community**
  - Prototype and test various ways to promote peer learning and a sense of community for staff and students
- **Finalizing graduation**
  - Prioritize graduation ceremonies for face to face education if possible, even with a small audience, and when face to face graduation is not possible, organise some kind of celebratory pick up of the diploma.
- **Post-graduation**
  - Find a connection with TU Delft career centre to explore whether this theme can be tackled through their services and/or study association ID. Career and counselling organised one specific IDE job-search group in fall '21 and wants to see how this can be embedded in the program (contact person: A.K.M.Besel@tudelft.nl)
- **Motivation and mental health**
  - Develop support for graduation supervisors, for example by connecting supervisors and students in a peer learning setting as we did in the workshops.
  - Consider developing an onboarding for new graduation supervisors and provide clear information to graduation supervisors

Figure 8: Recommendations and ideas from the initial research (March to June 2020)

The identified nine challenges for students and supervisors are: a good match between student and supervisor, the time available for supervision, the lack of community, the search for a balance between learning and performing, the challenge of self asking for help, the challenge of self reliance and confidence, a lack of motivation, lack of project management skills, the fragmented ownership on this topic and student wellbeing.
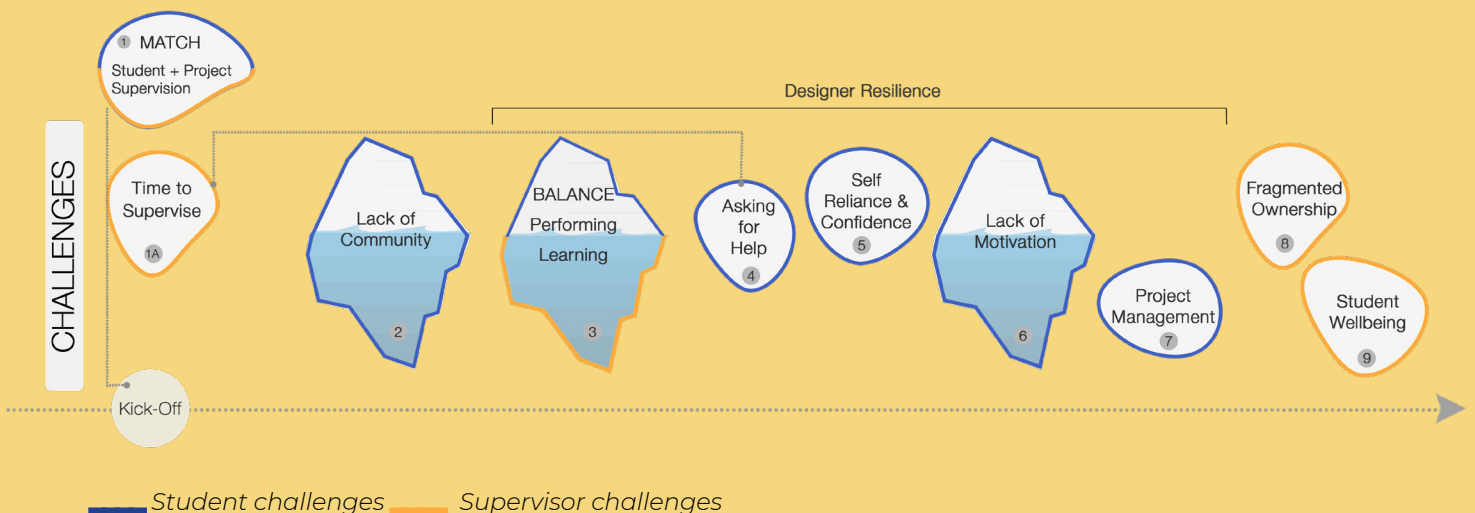

Figure 9: Identified student and supervisor challenges at IDE

4. Identified challenges

1. Organizing supervision

■ Both current graduating students and Alumni expressed that finding a supervisory team (on time) is a challenge. Reasons that were named were that some supervisors are very popular whereas some are not known at all since they do not teach mandatory courses. Most students are happy with the support they receive from their graduation supervisors, however, 15 out of 55 alumni indicate not being satisfied with the support they received from their supervisory team (results Nov 20) and 27 out of 45 students that were graduating during fall 2020.

What students said who were graduating in fall '21:

"People don't email back. I don't have a project or supervision. I would like to get better support when starting my project."

"Finding a project and supervisor is pretty difficult. Many supervisors seem to not feel like supervising you. That is scandalous according to me."

"It would be nice if there is a channel to give feedback about your supervisors. it is tricky to give it openly throughout the graduation project when you know they are in a higher position having a final word. this could help them to improve their coaching style if they see there is a recurrent theme appearing in their feedback, the fact that they are (post) phd-erds does not automatically turn them into prepared coaches."

What students said who graduated before COVID (March 2020):

"My supervisors were very supportive, critical and enthusiastic. They motivated me to follow my own planning and not let myself be guided by the company."

"Their schedule were busy and they had many students. I couldn't fixed meetings. I had to text them a day or 2 in advance to ask about the meeting on Whatsapp. Sometimes I didn't get the response for a day or two or came to the meeting, and they were not there. They were late to my Greenlight meeting and left before the end of it although it was scheduled in advanced. It put me in a awkward position towards client's who were present at the meeting."

Another challenge that was outlined during the workshops that both students and supervisors face, is finding a good personal match with each other.
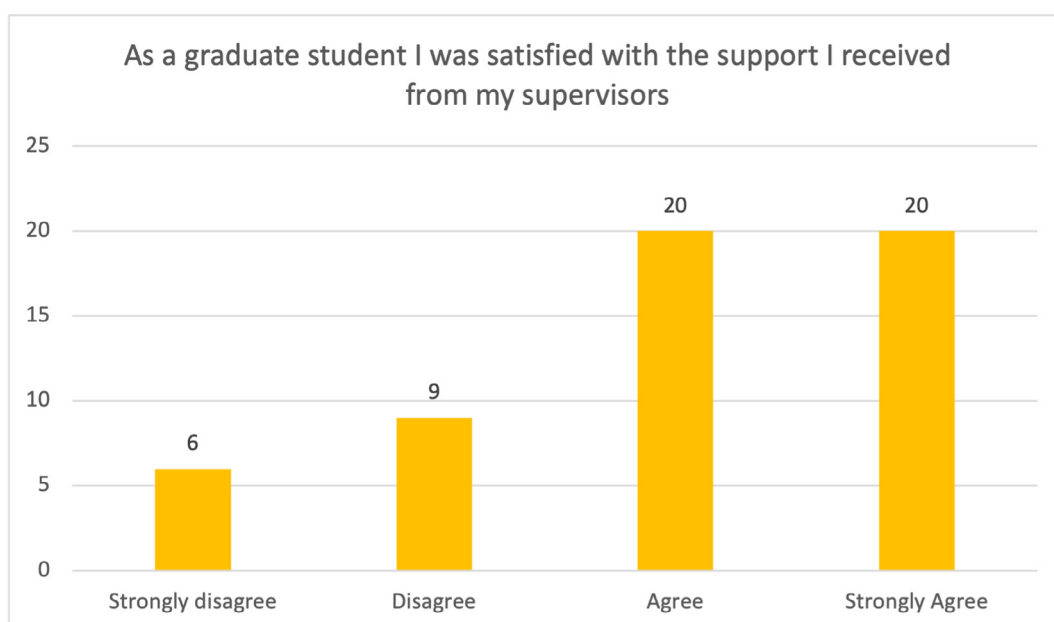

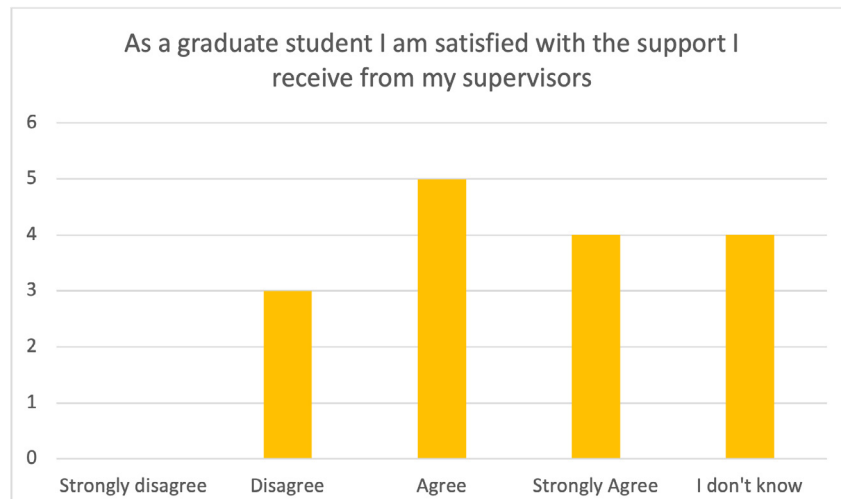*Figure 10: Alumni (graduated before march 2020) response on supervision.*

Figure 11: Graduating (fall '21) students' response on supervision.

Next to finding a good match with a student, supervisors also experience challenges with finding a project that connects to their field of interest. Often supervisors see the graduation project as an opportunity for their own research, however, there are mixed opinions about this perspective. Another challenge supervisors face is the lack of time they have for supervising students besides their other work. (1a)

2. Lack of a community

On average more than half of the students feel they are not part of a community of graduating students or a community in general of the TU Delft (Table 2). This lack of community is connected to certain events and mental models that our students have. The breakdown of the underlying 'factors' or variables is shown in figure 12.

Table 2: community feeling amongst graduate students

	I don't/did not feel part of the community of graduating students at IDE	I don't feel part of a community at TU Delft
55 IDE alumni pre-covid (Survey fall '20)	67%	
49 fall '20 graduating students (TU Delft Wellbeing survey)		65%
14 Nov '21 graduating students (participants of the weekly check-ins)	87,5%	

What students said:

"Not having many study friends around to chat and get feedback from."

"Grad students tend to share hustles and tips in an informal way, when walking by the IDE central hall. Together with some friends from the same master, we organized weekly "stand-ups" (even in a cafe, outside campus) to share updates and help each other (not only on the process side, but also on the mental health side). It would be nice to have these kinds of events organised by the faculty!"

"I would like to see something like monthly student feedback sessions (some teams at aerospace have it). Students share at what stage of the project they are, insights about the process and next steps. Others can comment and provide extra feedback. Also I think of a buddy program (connecting students with similar topics, approaches toward design)."

Also, supervisors are not connected to their colleagues who are in the same position. There is no community in place for supervisors and so no exchange of experiences and good practices. It seems to particularly affect young/recent employees who are not equipped with the skills to supervise students with past coaching experiences.
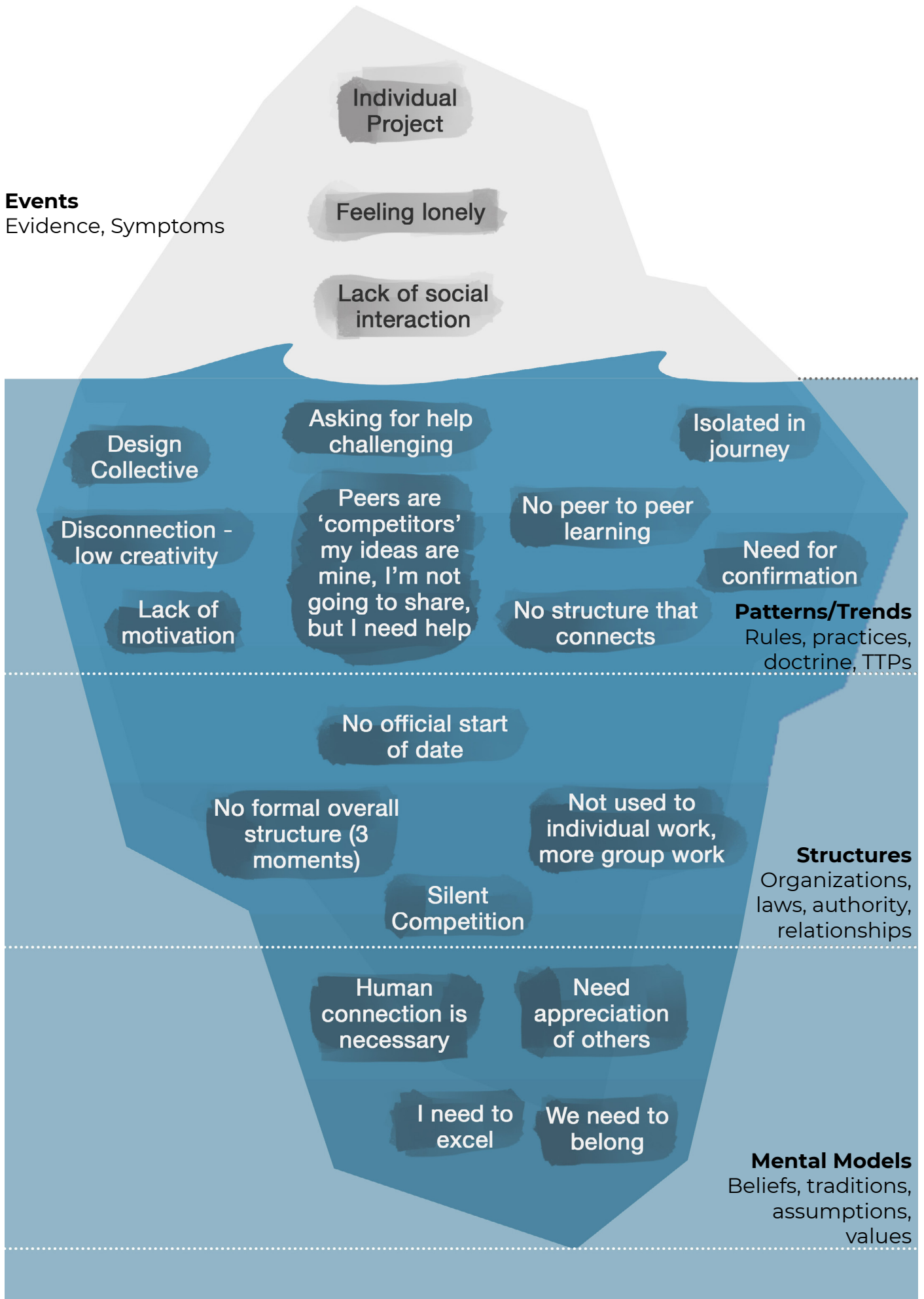
Events
Evidence, Symptoms

Individual Project

Feeling lonely

Lack of social interaction

Design Collective

Asking for help challenging

Isolated in journey

Disconnection - low creativity

Peers are 'competitors' my ideas are mine, I'm not going to share, but I need help

No peer to peer learning

Need for confirmation

Lack of motivation

No structure that connects

Patterns/Trends
Rules, practices, doctrine, TTPs

No official start of date

No formal overall structure (3 moments)

Not used to individual work, more group work

Silent Competition

Structures
Organizations, laws, authority, relationships

Human connection is necessary

Need appreciation of others

I need to excel

We need to belong

Mental Models
Beliefs, traditions, assumptions, values

Figure 12: Challenge lack of community

Designer resilience
The challenges below are connected to designer resilience, which means having the competencies and mindset to deal with setbacks or challenging situations. To grow overtime as a tolerance or 'thicker skin' to negative events and to build peer networks for collective support (Soutchwick & Charney, 2018). The themes connected to designer resilience are: the balance between learning and performing, asking for help, self-relieance and confidence, lack of motivation and project management.

3. The balance between learning and performing

During this project it was found that graduating students experience a high pressure to perform while working on their final Master project, however at least 80% of the respondents sees graduation as a learning opportunity (See table 3). It was found that there is this tension between the focus on learning and the focus on performing. Figure 13 shows the reasoning and underlying aspects of the tension present in the final MSc. graduation project.

"I would like to make the project all about learning. So milestones like mid-term and green light, look more like milestones about finishing something, but if there were reflection moments about what I'm learning and if they were given more importance, it'd have been truly a learning experience."

" My goal is to prove that I'm worthy of holding the title of MSc."

"For me personally, it's about learning about systemic design, seeing if I like working with societal, complex challenges, thinking about who I am as a designer."

"My biggest challenge of graduation was a burn-out, extreme time pressure, and unclear rules and regulations."

Also for staff this theme is present. They acknowledged that there is no clear perspective in general on what a good graduation project is and that students often don't know what the project is for. Most interviewed stakeholders focused on the aspect of learning and see the obsession of students about the end results as a challenge.

"The goal of graduation is that students learn to navigate a design journey on their own"

"The goal of graduation is that the students create something that they are proud of and get the best out of themselves."

Table 3: pressure to perform amongst graduate students

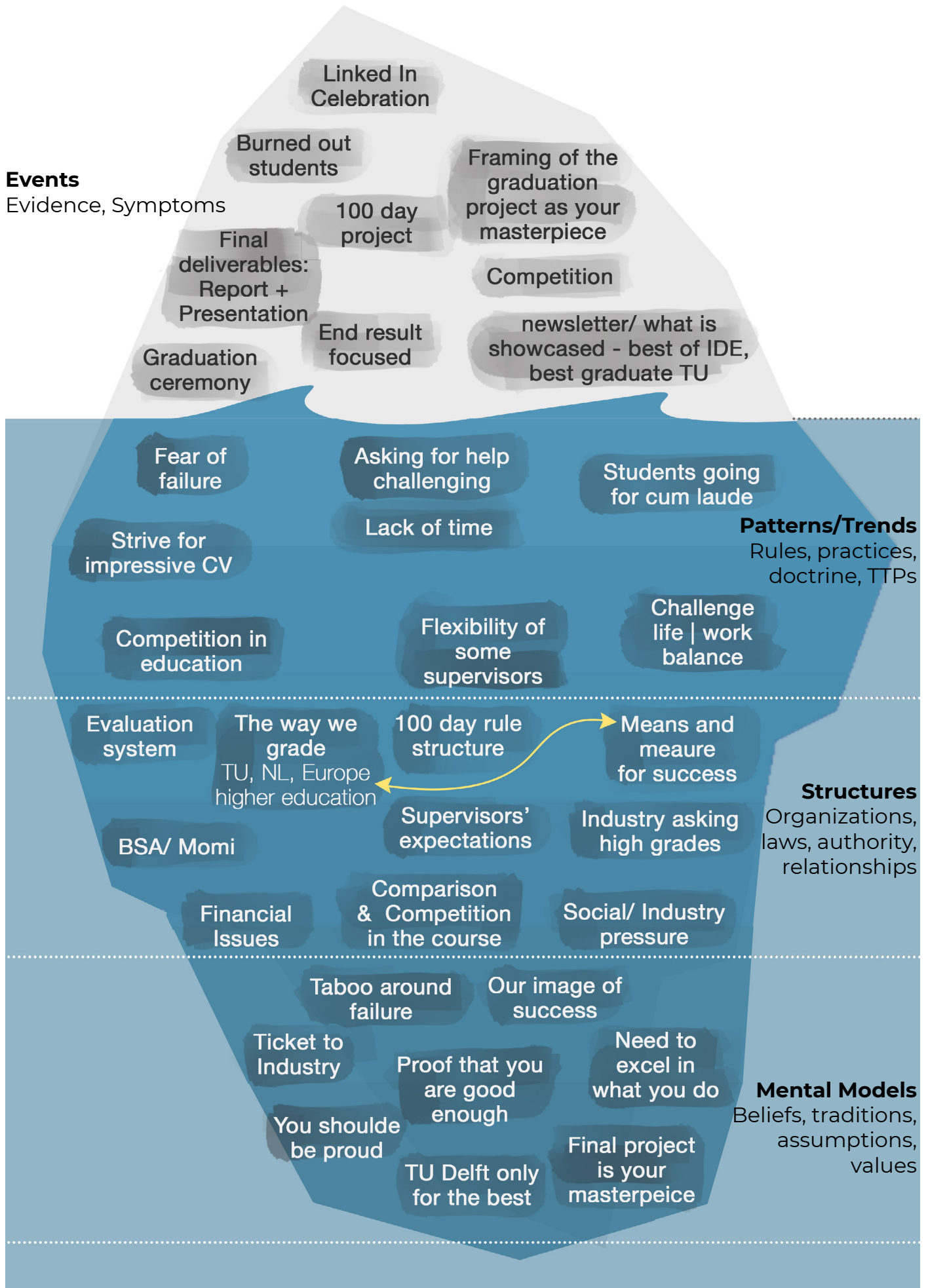|	I experience(d) a high pressure to perform during my graduation	I see graduation as an opportunity to learn more about the topics I'm interested in
55 IDE alumni pre-covid (Survey fall '20)	89%	85,5%
35 fall '20 graduating students (TU Delft Wellbeing survey)	89,7%	92%
39 Feb '21 graduating students (participants of the community program)	63%	/

Events
Evidence, Symptoms

Linked In Celebration

Burned out students

Framing of the graduation project as your masterpiece

100 day project

Final deliverables: Report + Presentation

Competition

End result focused

Graduation ceremony

newsletter/ what is showcased - best of IDE, best graduate TU

Fear of failure

Asking for help challenging

Students going for cum laude

Patterns/Trends
Rules, practices, doctrine, TTPs

Strive for impressive CV

Lack of time

Competition in education

Flexibility of some supervisors

Challenge life | work balance

Evaluation system

The way we grade
TU, NL, Europe higher education

100 day rule structure

Means and meaure for success

Structures
Organizations, laws, authority, relationships

BSA/ Momi

Supervisors' expectations

Industry asking high grades

Financial Issues

Comparison & Competition in the course

Social/ Industry pressure

Taboo around failure

Our image of success

Ticket to Industry

Proof that you are good enough

Need to excel in what you do

Mental Models
Beliefs, traditions, assumptions, values

You shoulde be proud

Final project is your masterpeice

TU Delft only for the best

Figure 13: Challenge: balance between learning and performing.

4. Asking for help

A challenge that students face is that they sometimes lack the confidence to run such a final project on their own and lack the confidence in their own competencies. Students expressed that they often find themselves challenged when they want to come across professionally but also want to be honest about where they are at and how they are doing. It is a recurring theme that students don't always ask for help (on time).

5. Self-reliance and self-confidence

This challenge is connected to the previous one. Not all the students have the confidence to be sure about what they're doing and how they should do such a big project. Some students said they were not prepared for a long individual project or are too uncertain about themselves.

"I think that the amount of freedom and self-dependency could be prepared in the earlier curriculum, which I missed a bit. I think this would have prevented me from wanting to excel and push myself as much as during graduation and would have helped me to develop the self-knowledge in what I can do in a certain given time."

6. Lack of motivation

It was found that students often lack the motivation to work or continue on their final master project. In figure 14, you can find a breakdown of this challenge. This challenge is connected to other challenges students face in their journey and leads to beliefs and values students and society have shaped/created long ago.

As some students said: "The biggest challenge of graduation was for my self-discipline and finding motivation."

"Keeping myself structured, focused and delivering results. Doing this all by myself I struggled with finding the motivation to keep on working till the end, although I got a lot of support and feedback from my committee.

Events
Evidence, Symptoms

Graduation is lonely

Lack of concentration

Individual project

Covid 19

Procrastination

Patterns/Trends
Rules, practices, doctrine, TTPs

More students with breakdown & burn out

Asking for help challenging

Dealing with endless possibilities

Disconnection - low creativity

Pressure to perform

Feel insecure, doubt themselves, think they are not competent enough

Uncertainty

Lack of confirmation

No peer to peer interaction

Not being in control due to Covid

Lack of Routine

Design is a collective field/ practice

Barrier to consult supervisors

Fixation Not moving forward

100 days individual project

Isolated in journey

Hierarchy

No official course structure

Insecurity

Structures
Organizations, laws, authority, relationships

Make the best choice you can

In-dependency I have to do it alone

Wanting to have meaningful impact

Drive for excellence

Idea that you should manage your project alone

Need to prove I'm worthy of the degree

Mental Models
Beliefs, traditions, assumptions, values

Figure 14:Challenge: lack of motivation

7. Project and expectation management

During the workshops students also shared that project management is a challenge. Students find it often hard to manage expectations with all the involved stakeholders, since most students also work for a client. Besides that, many students procrastinate which has an impact on the timeline of their graduation and can pressure them. Overall project planning was also mentioned as a challenge for students. For some of them it is the first time they work on an individual project of this size.

8. Fragmented course ownership

A challenge for re-organizing or improving the graduation journey at IDE is the large number of people involved and the different levels of their involvement (see table 4). The fragmented responsibility of the course 'the graduation project' is discussed by several stakeholders as a challenge. In comparison to other courses, the graduation project doesn't follow the usual set-up. It for example doesn't have a course coordinator. A central role is an important factor when it comes to advocating for change. This challenge is organisational and is mainly experienced from the side of the staff however, students also experience a rather diverse and fragmented organisation of the course.

Table 4: Different people and different responsibilities

what	When	Goal
Manage your master course - one course coordinator	first-year MSc. mandatory course	Let students think about what they would like to work on in their final project
Initiate to graduate course - one course coordinator	Elective course in the 3rd semester	They support students in setting up their projects. The final deliverable is the project brief and a supervisory team.
Graduation supervisory team	Throughout the whole graduation	Supervise students during their graduation
Portfolio holder - MSc. coordinator	Permanent task	Not clear
Evaluation of the graduation project by the students, executed by ESA	every 3 years?	To evaluate how students experience the project, to improve and to ensure quality
Practical and administrative organisation of the course - ESA and department secretariats	Throughout the whole graduation	Formal process support for the students and supervisors
Graduation support office	Throughout the whole journey of graduation	Besides their supervisory team they can consult the graduation office, they support students with all questions related to graduation.
Sparring partners	At the start of the graduation project	The sparring partners are teachers connected to a specific master who students can consult when framing their graduation project.

9. Student wellbeing

▉ Overall it was found that the wellbeing of our graduating students is worrying. More than half of the students lean towards being close to a personal breakdown. The causes students talk about are uncertainty, time pressure, loneliness, lack of motivation, stress, being stuck in the process. It became clear that this challenge was exacerbated during the pandemic when students have to work from home most of the time.

" I would like to see the emotional support improved. E.g., Psychologists available on campus, regular checkouts, or subscriptions in apps for guidance in this area."

How are our students doing?

▉ Another challenge that was named by the supervisors was the fact that most of them don't have a clear idea about how graduating students are doing in this course and how they experience the graduation project. Some interviewees expressed that this might be since there is no systematic evaluation of the course.
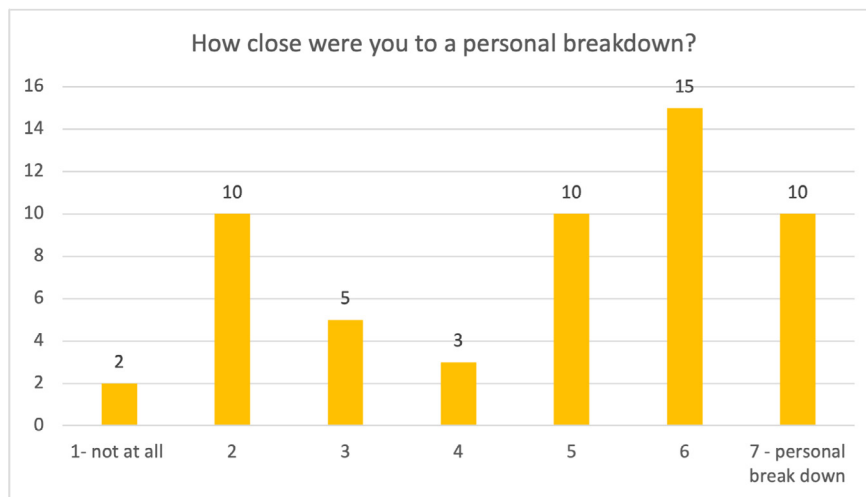
Figure 15: Alumni (graduated before march 2020) response towards personal break-down
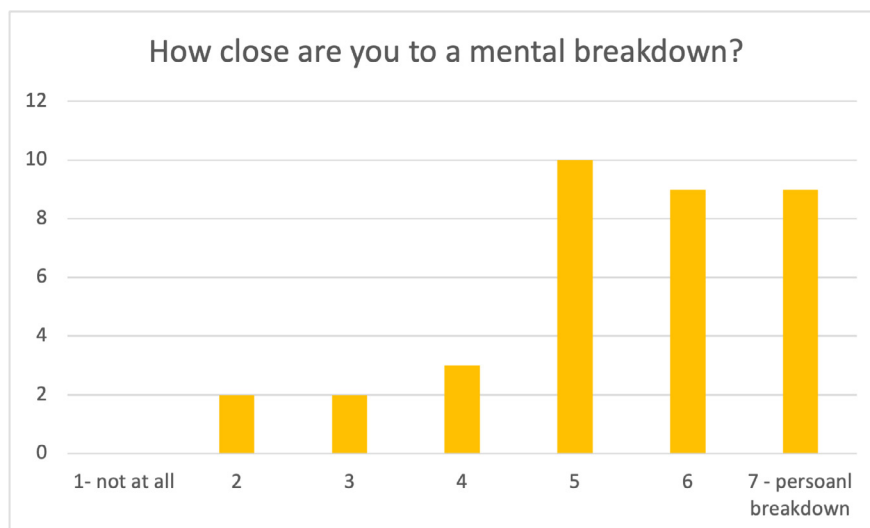
Figure 16: Graduating (fall '21) students' response towards personal breakdown

3.

Graduation at IDE - the desired graduation journey

In this chapter different wishes and needs from both students and staff are discussed.

The identified wishes from the students are: a need for reflection, the need for peer organized moments and a digital monitoring system. Supervisors want kick-off guidance and mentor groups for students. Shared wishes by students and supervisors are the need for a healthy perspective on graduation and support for mental wellbeing.
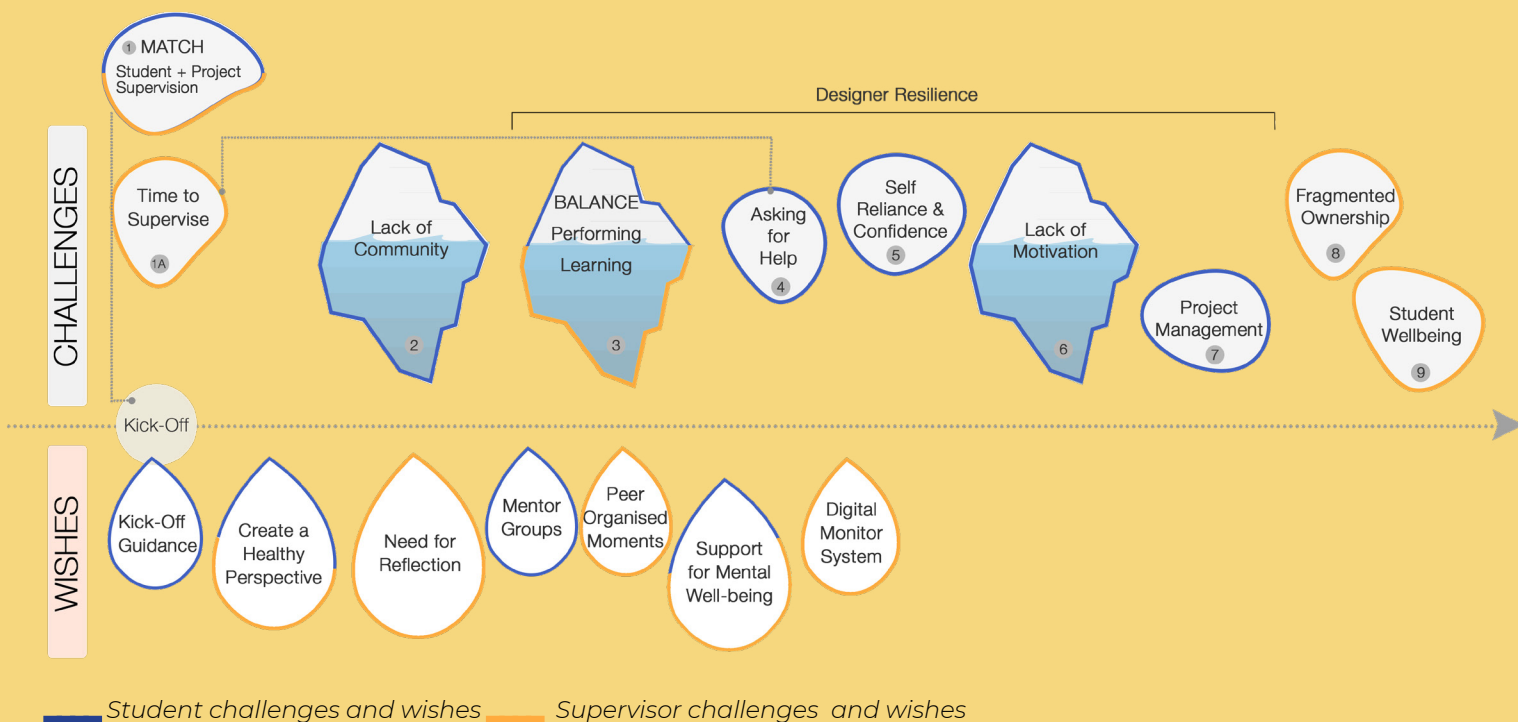

Figure 17: Identified student and supervisor wishes.

1. Wish: Kick-off guidance
Different groups of students (alumni, currently graduating) expressed the need for more guidance before the kick-off of the graduation. Especially when it comes to finding a project and supervisors. Some students also expressed that they were not prepared and competent to manage such a project on their own. They suggested that more support can be given in the pre-phase or that there are more projects like this in their curriculum before graduating.
[connected to challenge of supervision, project management]

"What could improved about the graduation journey for me is more guidance in finding a suitable project and direction in combination with a client. I could have started in February 2019 but eventually started in April because I had no project."

2. Wish: A healthy perspective on graduation
Both students and staff shared the need for a healthy and realistic perspective on the graduation project. It was shared among staff that there is a need to break down the idealized/idolised graduation. The students especially expressed a need for realistic grading and example projects of what is possible within the graduation time.
[connected to:The balance between learning and performing]

"Graduation is a solo project. Design is not a solo project. The fact that a master student should prove to be able to work by himself is extremely wrong. As far as I know the master project is a PBL (Project based learning) and in PBL the aim of education is to provide a context as closed as possible to reality. This does not work. The graduation project as it is now is proving that "you can do it", rather than learning."

"I did not expect the mental pressure, which I put on myself. Graduates need peer support. Also, being the first and only large project in the programme that you do by yourselves, I don't think most people perform at their best without working in a team."

"What can be changed is that not everyone gets a 9. It's absurd how high all the grades are..."

3. Wish: The need for reflection
Several staff mentioned the need for active reflection in the graduation project. They would wish it to be part of present formal meetings and ideally see it connected to a tool. Some also expressed the wish for reflection to be part of the rubric. This would also help to manage and set expectations between the supervisory team and the student.
[Connected to challenges of designer resilience and the balance between learning and performing]

4. Wish: Peer to peer learning
A lot of students shared the challenge of lacking a community during their graduation. When they were asked what they would like to see improved in the graduation journey, peer groups were mentioned multiple times. Students would like to have organised or fixed moments when they could interact with their peers. They proposed sessions with students with similar projects, similar time frame, or even social monthly meet-ups. These wishes were not only expressed by students currently graduating but also by Alumni who graduated before the pandemic.

Supervisors also expressed the wish to be more connected to their colleagues and share their experiences. The wish to have mentor groups where students as well as teachers participate was also shared with us.
[connected to the lack of a community]

5. Wish: Support for mental wellbeing
Students shared the need for more support when it comes to their wellbeing. Also supervisors shared the need for more support when it comes to supporting students in the right way and knowing where to direct them to.
[Connected to challenges of designer resilience; balance between learning and performing and student wellbeing]

6. Wish: Digital monitoring system
Most of the staff addressed the wish for a digital monitoring system about the progress of the graduation projects of students. This is currently tackled by the TU Delft wide project where the goal is to develop one official monitoring system.
[Connected to how are our student doing]

The scope for shaping successful graduation journeys at IDE

With the challenges and wishes of all the stakeholders in mind, the project team decided to focus on connecting students to each other. The final project is individually assessed and an individual piece of work, resulting in students who find themselves often isolated in their project and overwhelmed with the pressure to create a project to be proud of. However, working together actually benefits our learning experience and our design process (source X). That is why we thought it a good idea to connect graduate students to each other and create a group of peers.

This idea was first determined after workshops with students and interviews with academic staff about graduation challenges and more general teaching/learning strategies during the pandemic (Van der Bijl-Brouwer & Price, 2021). Connecting students can take place through peer learning, a concept widely researched. Boud and Cohen (2014) state that peer learning results into students working collaboratively with others, taking responsibility for their own learning, and deepening their understanding of specific course content (Boud & Cohen, 2014). In design education peer learning encourages a deep learning approach driving motivated students, fostering collaboration with peers and active learning (Heavey, 2006). We saw an opportunity to extend this peer learning concept and investigate learning communities. Research by Pike et al. (2011) indicates that learning community participation has a positive and significant effect on student engagement (Pike et al., 2011, p316-2317). They state that:

"Learning communities appear to be a "high-impact practice" for improving student achievement, learning, and success (Kuh 2008; Kuh et al. 2005). [...], membership in a learning community appears to boost student engagement which, in turn, leads to a host of positive educational outcomes."

Lenning and Ebbers (1999) argue learning communities are beneficial for the students and the faculty, as they result in "higher academic achievement, better retention rates, diminished faculty isolation and increased curricular integration" (Lenning & Ebbers, 1999, p64). For a community to work, the members need to 'feel' a sense of community. This sense of community is defined by Chavis and McMillan, (1986, p9) as: "A feeling that members have a sense of belonging, a feeling that members matter to one another and to the group, and a shared faith that members' needs will be met through their commitment to be together" (Chavis & McMillan, 1986, p9). The following five aspects are a synthesis of what can be found in literature on how to shape learning communities (see also Figure 18):

1. Members should have shared emotional connections because if we share, we feel we belong resulting in feeling motivated (Mahar et al., 2014). Mahar (2014) states students' sense of belonging can be promoted by sharing their battles and successes;
2. There should be place attachment, as it promotes the feeling of being part of a community (Chow, 2008);
3. Membership, meaning the values and aspects a group has in common also contribute to the feeling of belonging (Chavis & McMillan, 1986). This feeling of 'relatedness' to a group would positively affect students' motivation (Goodenow & Grady, 1993; Ryan & Deci, 2000);
4. Mutual interdependence represents the idea that active participation in a group is needed, members should contribute to and benefit from the group (Huygen & De Meere, 2008). Huyen and De Meere (2008) also state that frequent and intense contact is key to this, and;
5. For a community to affect the learning outcomes of students, active and collaborative learning should be present to maximize learning (Lenning & Ebbers, 1999). As Tinto (2015) states: "In those communities that also employ active learning strategies that require students to learn together, students are not only likely to learn more but also more likely to want to persist and in fact do so" (Tinto, 2015).

We have used these conditions to design, implement and evaluate the last two interventions part of this project.
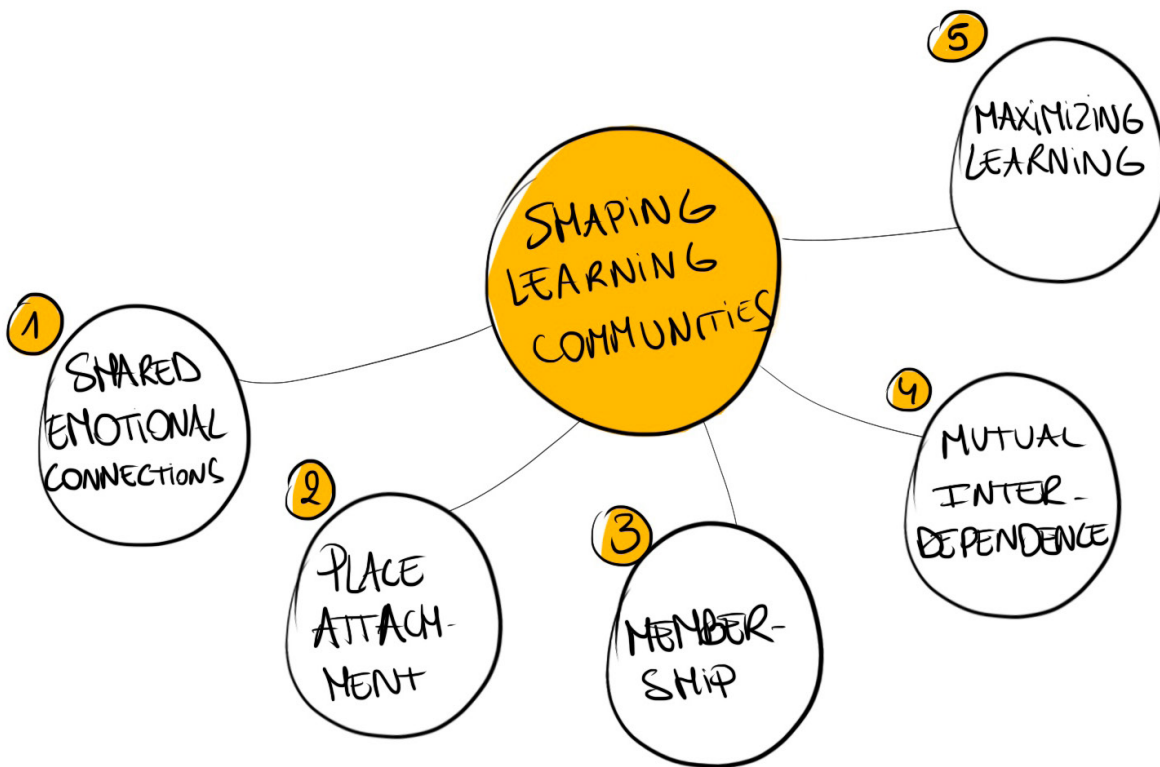
Figure 18: Five aspects of how to shape learning communities.

4.
Intervention prototypes

This chapter discusses the different intervention prototypes executed at IDE part of this project. The first intervention consists of peer learning workshops, the second one is a series of weekly check-ins and the last one is a graduation community program (GCP). Each intervention is presented by a table showing how the intervention was designed.

The first intervention - peer learning workshop

The first intervention consisted of multiple two hours workshops with different stakeholders of the graduation project. In these workshops challenges and experiences of the graduation journey were discussed, followed by an idea and strategy exchange. In table 5, the design rationales behind the idea (source x) is presented. Connected to the activities are the experienced values of the students or other stakeholders.

Testing and learning
These graduation workshops were held several times. A challenge was to reach all the students and supervisors in an effective way. Different communication channels were used like Brightspace and Whatsapp groups of the Master tracks.

Evaluation
This intervention was a success for both students and supervisors. The biggest value it brought them was having a moment to share experiences and discuss challenges and ideas. This kind of workshops were highly desirable, all students reported they would recommend participating in such workshops to their peers.

What could we improve the next time?
The sessions could be recurring and at a certain time in the academic year. It would be good if they would become structurally part of the graduation project. The idea of bringing students together in a session where they can discuss their challenges and experiences was what we took with us to the next interventions. Also, the interaction between the students and teachers was of high value.

Table 5: The design rationale of intervention 1

What	Where	Who	Why	How	Value
A 2 hours peer learning workshop	online session via zoom in miro	Participants: Graduation supervisors Facilitators: 2 researchers and graduation supervisors	To connect supervisors to each other and discuss the challenges of supervision To gain insight into the challenges of supervisors	step 1: write down and discuss the challenges you experiences when it comes to graduation supervision step 2: Write down and discuss possible ideas, good practices and strategies you have to overcome these challenges	Share with and learn from each other
A 2 hours peer learning workshop	online session via zoom in miro	Participants: Students Facilitators: 2 researchers and graduation supervisors	To connect students to each other and discuss the challenges of graduation To gain insight into the challenges of students	step 1: write down and discuss the challenges you experiences when it comes to graduating step 2: Write down and discuss possible ideas, good practices and strategies you have to overcome these challenges	Share with and learn from each other
A 2 hours peer learning workshop	online session via zoom in miro	Participants: Supervisors and students Facilitators: 2 researchers and graduation supervisors	To start a discussion between supervisors and students and exchange perspectives, challenges and ideas.	step 1: write down and discuss the challenges you experiences when it comes to graduation supervision step 2: Write down and discuss possible ideas, good practices and strategies you have to overcome these challenges	Share with and learn from each other

The second intervention - weekly check-in

The second intervention, a series of weekly check-ins, was organised two times, each lasted for four weeks. Students were put into fixed groups and checked-in with each other using discussion material provided by the organisors. The first series of the weekly check-ins was very much guided. Every week a topic was discussed, from motivation to identifying underlying self-sabotaging thoughts. The second series of weekly check-ins was less guided. The facilitators, education and research staff, provided some check-in questions for the students. The detailed set-up can be found in table 6.

Table 6: The design rationale of the second intervention

What	Where	Who	Why	How	Value
4 x 2 series of weekly check-ins:	Announced the intervention: Newsletter, brightspace, e-mail, WhatsApp groups different masters, Facebook group IDE everyone; Sign-up: google form to sign up Place of meeting: zoom as meeting place. MS teams as proposed communication channel for the groups Miro as online whiteboard where students could work with our pre-made templates	Participants: students Facilitators: Recent alumni, research and design staff	To connect students to each other during their graduation and to provide a more structured format to frequently connect them to each other.	Every session consisted of a plenary check-in (10min). A group discussion in break-out rooms. (+/- 40min) A plenary round off (+/- 10min) Consisted of reflective activities and peer coaching. The themes were identified in the surveys, workshops etc. Session 1: Checking in Session 2: Learning and performing Session 3: Motivation Session 4: Iceberg model	- Creating a group with a bond of trust. - When you share you feel you belong and you feel motivated. - You get further by building on each other's ideas. - Coaching others helps you to feel better. - Peer planning simulates structure.

Figure 19: Weekly-Check in template

Testing and learning

Evaluation first series of weekly check-ins:

What we learned from the first series of weekly check-ins was that students appreciate these organised moments. They help to start the week, to let them reflect on the pressure to perform, motivate them and give a feeling of being part of a community (figure 20). However, these check-ins asked quite some preparation time from our project team. It was decided to run another series of weekly check-ins but without providing topics to discuss. So, the second series consisted of just five check-in questions for students.
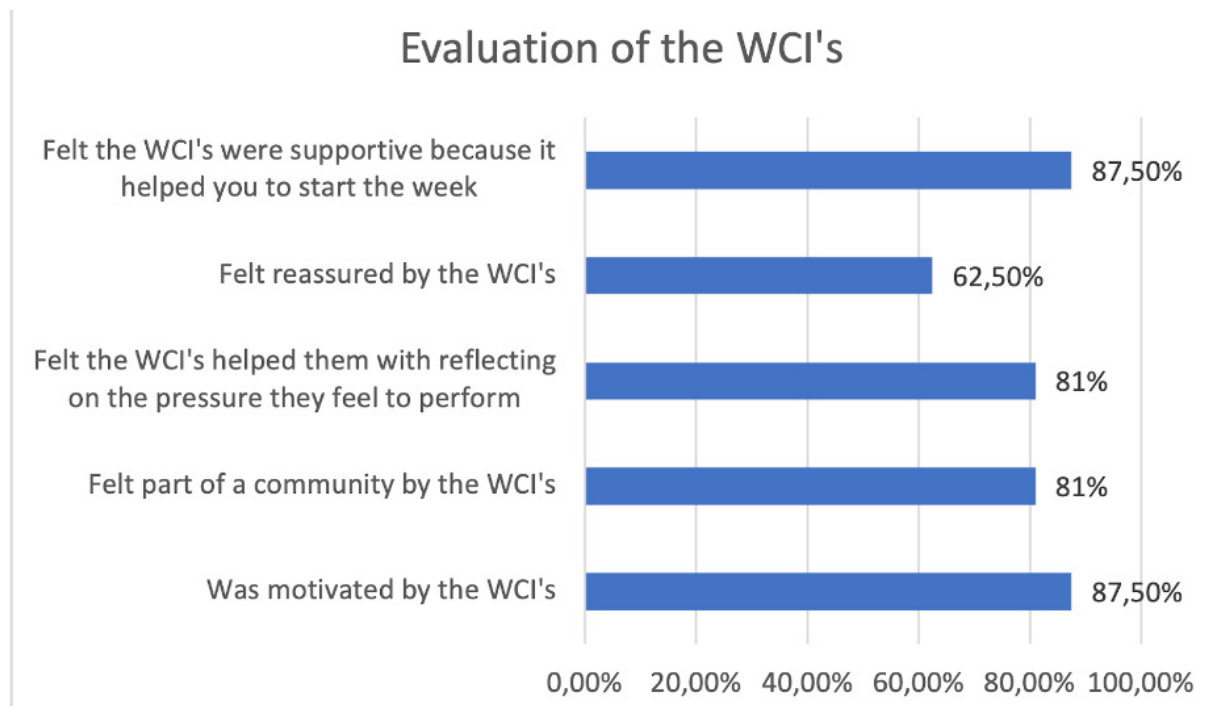
Evaluation of the WCI's

Felt the WCI's were supportive because it helped you to start the week — 87,50%

Felt reassured by the WCI's — 62,50%

Felt the WCI's helped them with reflecting on the pressure they feel to perform — 81%

Felt part of a community by the WCI's — 81%

Was motivated by the WCI's — 87,50%

0,00% 20,00% 40,00% 60,00% 80,00% 100,00%

Figure 20: Evaluation of first series of weekly check-ins

For most students, it was helpful to see that others struggle as well and made them realize that they are not alone in this journey.

It was interesting to see that multiple WhatsApp groups and a Slack channel were created by some students and that this contributed to their sense of community feeling. These different initiatives from students that arose from our first intervention are good examples of what is called 'design for emergence' where designers do not design the end product but design for things to emerge from the design (source, 7).

To hear the experience of a few students you can watch the summarizing video here:https://www.youtube.com/watch?v=4HiDajgmmQY

What could we improve the next time?

The attendance of the students reduced over time . The sign-up number was quite high, however, two-third of the students showed up. This is a challenge because it is often so that those people who need it the most end up not coming. We have to look into how we could involve them as well. Next to this, the number of participants dropped a bit every week. This is no big problem, but we do have the advice to think about how to better manage the attendance since students were quite disappointed when their group members were not there.

The students who were further in their graduation project often found themselves in the situation of giving advice to those who still needed to start or were initiating their project. This was something we took with us to explore within the third intervention.

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When it comes to the use of different media we used zoom for the meetings, Miro to facilitate the break-out room discussions and a team in MS Teams for interaction outside the weekly check-ins. We found that all media were sufficient enough in use, only the team channel in MS teams was not used by students. Students did set up their own groups on other media. What could be tested in the future is to use the Brightspace page from the graduation project.
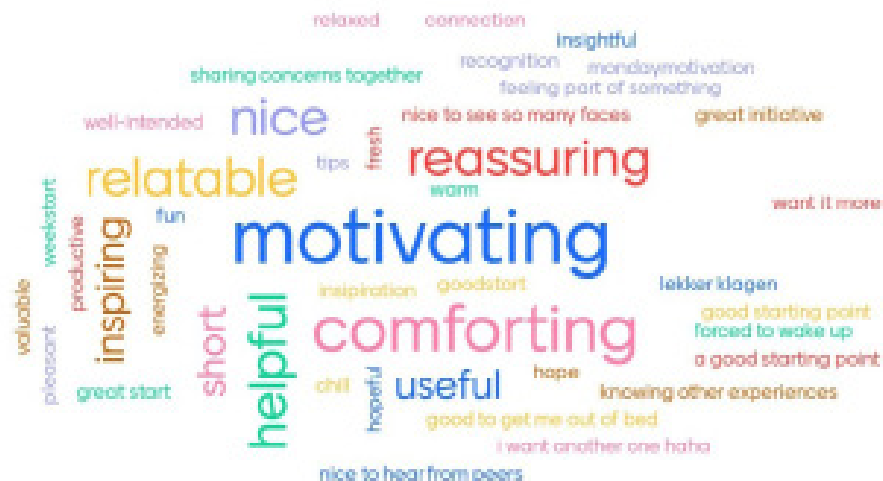

Figure 21: Evaluation of second series of weekly check-ins

Evaluation second series of weekly check-ins:
The second series of weekly check-ins consisted of the same format and five check-ins questions which students could discuss in their break-out room.

The students who participated in both sessions had no particular preference for one series or the other. They shared that first of all their experience with the weekly check-ins was very much dependent on the people who were in their group. Secondly, they said that a preference for one series is also dependent on their mood. They shared that when they feel down or worried, they just need a more informal conversation with peers like in the second series. When they felt good, wanted to reflect on themselves or learn new things they preferred the format and content of the first series.

The third intervention - The Graduation Community Program

The third intervention prototyped at the Faculty of Industrial Design Engineering was The Graduation Community Program (CGP). The goal of the program was to connect students and create graduating cohorts, a community that supports and motivates students while pandemic restrictions were in place. The program ran for twenty weeks, which is the same time as the duration of a nominal graduation project. Students were divided into fixed groups of six to eight students and stayed together throughout the program. This program was designed by 'the project team', a team of two researchers and two junior design researchers of the Faculty of IDE. The design rationale can be found in table 7 and 8.

Table 7: The design rationale of the third intervention

What	Where	Who	Why
The graduation CP is a program for graduating students of IDE that connects them to each other and where graduating groups are shaped who support and motivate each other during the graduation journey	Announced the intervention via Newsletter, brightspace, e-mail; Sign-up: google form Place of meeting: zoom as meeting place. MS team as communication channel for the whole community Miro as online whiteboard where students work with our pre-made templates	Graduating students starting between the beginning of February and half March in fixed groups of 6 to 8 students. Student could tell their preference based on: frequency of meeting Master track project content preferred fellow students	to connect students to each other over a longer period of time and let them experience graduation with a fixed group of graduating students.
Kick-off half day	online session via zoom in miro	Students	To kick-off the graduation groups part of the GCP. The students get to know their graduating group, shape their "rules" and activities.
Journey sessions	online session via zoom in miro	Supervisors and students	To let students reflect on their (work) attitude and mindset during the graduation project and let them reflect/learn about what designer they are and want to become

Table 8: Journey sessions and their topics

Who	Topic Journey sessions	How	Value
Students and project team	Motivation	A facilitated session with exercises based on the book: 'designing your life'	It gave students a moment to reflect about their work. What gives them energy, what activities are they engaged in? When are they in a flow?
Students, supervisors and project team	Balance between learning and performing	A facilitated session with discussions amongst supervisors and students separately and mixed.	It provided students as well as supervisors with a different perspective on graduation.
Students and project team	Theme carrousel	a session with different topics (challenges of graduation) per break-out room for students to join and discuss.	It gave students the chance to talk to others outside their graduating group and provided them with the space and time to discuss these challenges
Students and project team	Career planning	A facilitated session with tips and tricks provided by alumni and a discussion about what's next	Provided students with tips and room to discuss their worries and ideas for after graduation.

Evaluation of the GCP

We identified three main findings, mainly that: (1) facilitating connections between students generated a sense of community, (2) the customizable program supports student agency, (3) this program shifted the design focus from performance to student success as a more holistic framing.
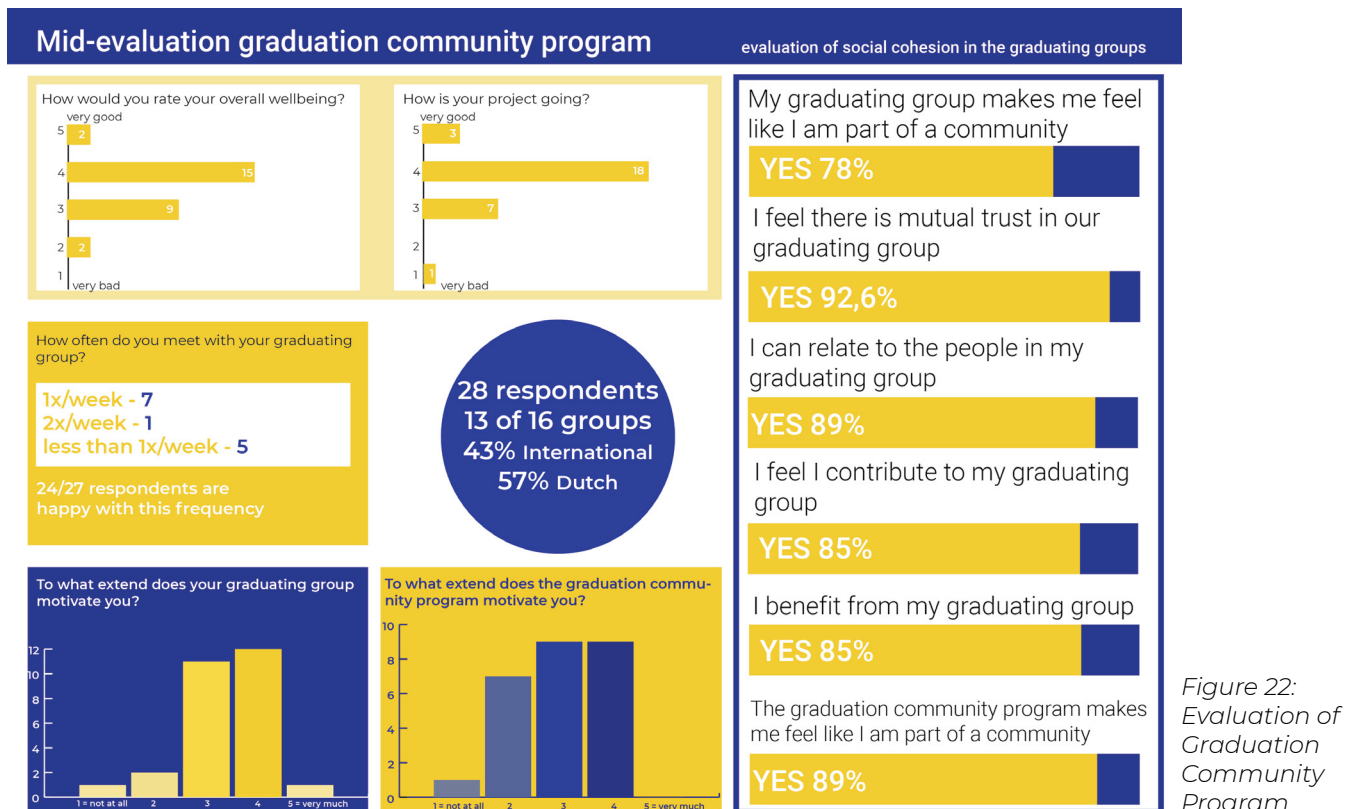

Figure 22: Evaluation of Graduation Community Program

1.1 Facilitating connections between students generates a sense of community
The kick-off day proved to be important to the students, as it created connections for the students for the rest of the graduation project. One student shared: "The kick-off day made me feel part of a community because we 'built' our group and we had a nice talk, and our topics are somewhat related. Also, we have similar issues, doubts, etc."

When it comes to what this program, in general, brought the students, many respond it gave them a community, relationships and made groups by connecting them. For 80% of respondents of the final survey, the GCP made them feel like they were part of a community (see Figure 23). Since this prototype took place during COVID, these human connections were especially valuable to the students. It renewed old relationships and created new ones. As one student shared: "It did the brilliant job of connecting new people during this online version of the graduation project".
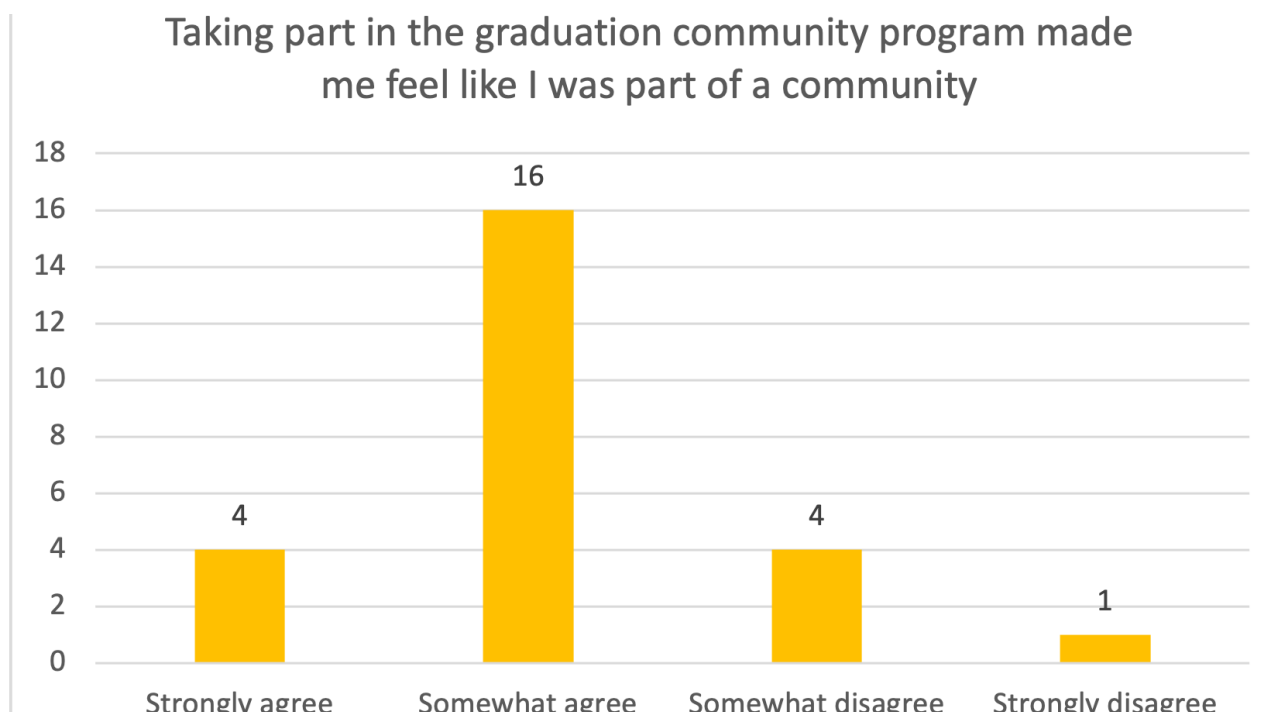

Figure 23: Student evaluation of feeling part of a community created by The GCP

The program not only connected students but also created a sense of belonging to the university. This connection was important to students since they perform an individual project with low interaction with peers, staff or the university. One student said: "The contact with TU Delft is important, I would feel lonely, disconnected if this was not here. I feel more engaged now."

The general level of engagement and number of participants dropped throughout the program. As some students shared, this was because students required more support and structure at the beginning of the graduation journey.

Shared emotional connection and membership are essential elements of a sense of community. 75% of the students shared that they could relate to one another (see Figure 24). Students said that going through the same struggles helps. One student wrote: "I mainly benefit from my graduation group by giving and receiving emotional support. We all have different projects, but we go through similar struggles, like worrying about the quality of our work." Having a group gave the students the feeling that they were not alone. "What this program brought me is a group of graduate students. This made me feel less alone and feel recognized in the situation." Lastly, the group gave them a feeling of comfort and companionship.
Mutual interdependence is crucial to feel part of a group. 75% of the responding students answered they benefited from their group and 85% said they felt they contributed to the group (see Figure 24). Students supported each other by listening and sharing their challenges and worries. Just the fact that they had a group of people they could rely on was of high value, 78% said they felt there was mutual trust in their group (see Figure 24).

One student shared with us: "Graduation is hard and lonely. We are used to working in groups, it is nice to have a group of people who will make time for you and whom you can contact."
In the final evaluation of the program, 72% of the respondents felt motivated by their graduating groups. One of the things that contributed to this was the activities the students performed in their groups. As one student said: "It [the weekly check-ins every week with his graduation group] is motivating, you want to be able to share something that you have been working on every week." Other students shared it was motivating to know that the meetings with their group occur every week and that the group gave an energy boost.

Elements of a sense of community

students felt they benefited from their graduation group — 75%

students felt they contributed to their graduation group — 83%

students could relate to the people in their graduation group — 75%

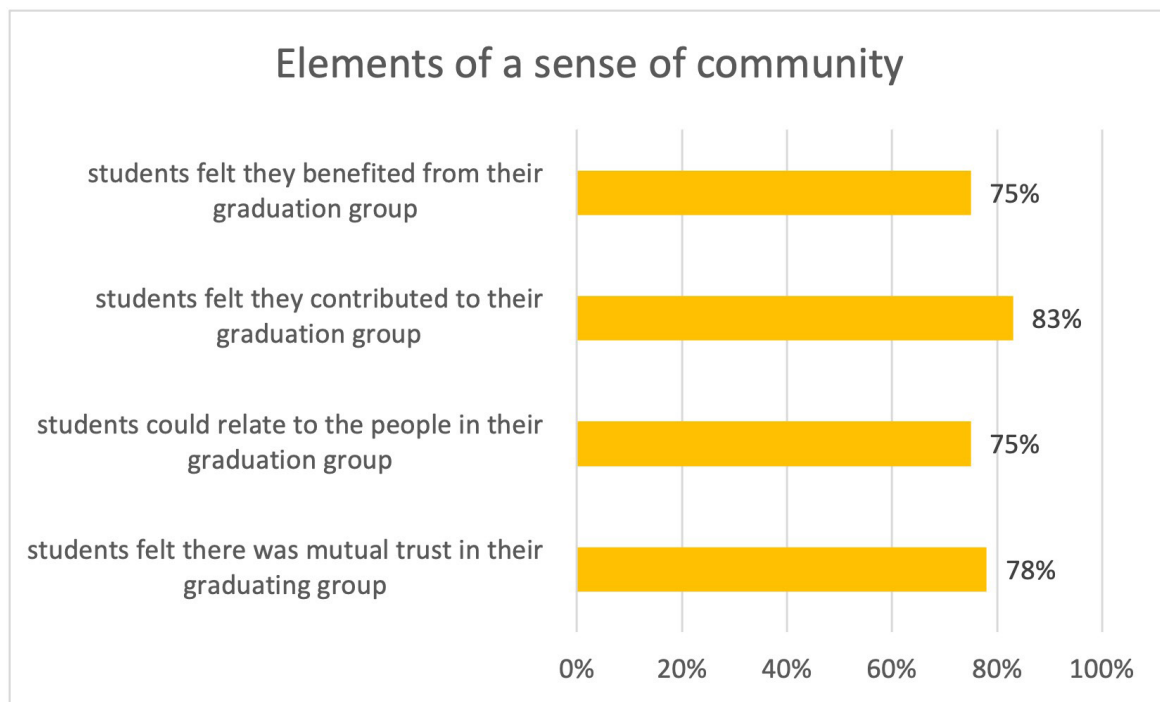students felt there was mutual trust in their graduating group — 78%

Figure 24: Student evaluation of elements of a sense of community

Lastly, the students also shared their group is a place to reflect on the graduation process and to seek advice. One student wrote the following: "It gives me a place to reflect on my progress, my work, share my worries, downs or 'trophies', and the support really helps in the progress." The personal experience of one student can be found in Figure 25.

The GCP and the graduation groups had an impact on the learning experiences of the students. The students supported each other in design activities, for example, helping with performing interviews, facilitating creative sessions, and prototyping. As a student shared: "When I was lacking participants for testing, I know I was welcome to ask my graduation groups to help." Students learn from and with each other. As a student wrote: "We share our visions, tools for the project, compare methods and support each other". Students were able to compare and receive reassurance about their work by sharing with others. It helped them to see where they were in the project and how well they were doing. A student told us: "It helps me to compare with them, to see that I am on the right track."

1.2 A customizable program supports student agency
The graduating group activities were self-organized and initiated by the students. Consequently, students depended on themselves and their teammates to make it work. When we performed an intermediate check-in at the middle of the program, we learnt that most groups (13 of the 16 groups responded) met each other once per week. What students benefited from were the weekly meetings they planned. It helped them to start the week together on Mondays. Some groups also set up a check-out, to end the week together. A student wrote:
"Every Monday at 9 AM we discuss how our weekend was, what we did last week, what we plan to do and the challenges we are facing. I like that it is on Monday, so you are a bit forced to start. And it is nice that you start with social contact."

Another student shared: "The group works the best when everyone is there, and you know that. So, you feel responsible and obliged to come." There was a wide variety amongst the graduation groups of activities and platforms they used for communication. Some groups had a slack channel, others a WhatsApp group. Some students met at the faculty when this was possible or studied together. Part of the suggested weekly check-in format was to pledge together, meaning that students shared what they would work on the coming week.

Several students expressed the provided structure of the GCP helped their groups to start the conversations. This structure consisted of some templates provided by the program. They liked the guided parts of the program and expressed that the activities forced them to plan. One student reported:

"We use the template, then it is easier to talk about the type of problems we face. It makes it easier to first write down what you think […]. I feel like we would not share so much if the questions wouldn't be there."
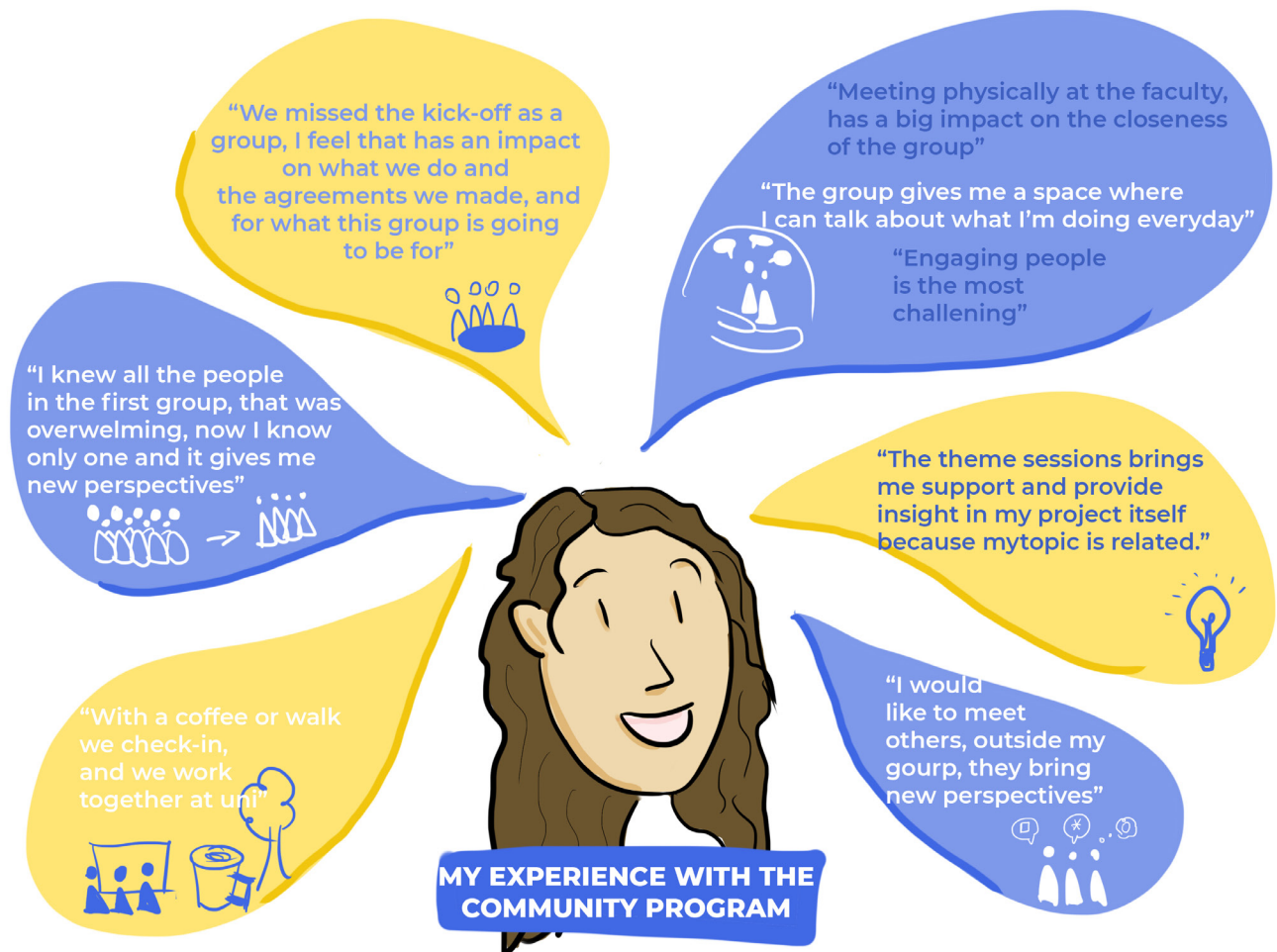

Figure 25: The personal story of a participating student at the midterm evaluation

The program created a sense of belonging however, not all students felt the same way about their groups. 61% of the student said the graduation groups gave them a sense of community. This number is low compared to the feeling of community the program gave them (80%). There were differences between groups: some groups met once or twice every week though others didn't speak or meet each other after the facilitated kick-off day. Students dedicated the challenge of staying connected, engaged, and involved to this inactivity. One student wrote: "Each person has different expectations and organises the day differently. Not everyone sees it the same way. It is not a priority for everyone." A proposed solution by students was to make participation voluntarily, but when people sign up, they are responsible to commit. Lacking students who took responsibility was also a challenge as one student shared: "There is no responsible person, that might be nice in our group, it is very personality depending, I could use a leader."

1.3 A focus on student success instead of performance improves wellbeing
The journey sessions were specific learning moments for students to work together on a topic outside their graduation work. One of these activities was the journey session on the balance between learning and performing. Students interacted with graduation supervisors on the goal of the thesis project. This session specifically was valued by the students as it provided them with a different perspective on graduation and helped them to reflect on their personal goals for graduation. We learned that it is interesting for students to interact with graduation supervisors about the goal of this final project since it created a healthier perspective on what graduation is about. A student wrote: "I liked the session where there was an interaction with the supervisors. This gave me a lot of info about how they think. And their perspective about learning and performance, which helped me!" A student also shared how the session affected her wellbeing: "In the beginning, I had a lot of anxiety, and couldn't sleep. When I heard the idea, you should learn and not focus on performing, I could sleep again (laughs). It helped my mental health."

Another student shared: "The faculty presents an unrealistic picture of the thesis. Having the graduation group helps you to see that there are more outliers than you thought."

2. What could we improve the next time? (Student perspective and project team perspective)

As always there are points of improvement. When the students were asked to share what could have made their experience with the community program and specifically the graduating groups better, the four following aspects were named.

Students said that the same level of engagement was very important to make the graduating groups work and that in some groups this was the main reason why the graduating group didn't work out. They shared that in the future students need to be dedicated to participating in the group. Next to this, they would keep the frequency of meetings high throughout the whole graduation journey and would make a better planning on when to meet and how much time it would take in their planning. Lastly, students shared that they would meet more in person in the future and work together in the same room. Some groups did this, and it benefitted their feeling of belonging to the group.

With regards to the organisation of the GCP, students expressed the need for a more realistic view on graduation to be shared with them at the start of graduation. Now, this was part of a journey session in the third week and during the career session with tips from alumni at the end. Students also pointed out that communication via e-mail was not the best way to inform them. Often, they forgot journey sessions were planned and it felt like participation was not required. Since this community was a prototype, participation was on a voluntary basis. Students suggest making participation more obliged once they signed up for this programme. This could also benefit the engagement of the students with their own graduation groups. To make sure that there is a good match between the students of one graduation group, different ways should be looked at on how to organise the graduating groups.

5.

Implementation and recommendations IDE

This chapter discusses recommendations and ideas for the Faculty of Industrial Design Engineering, however these insights could be interesting for every faculty of TU Delft since the themes we address are probably also present at other faculties.
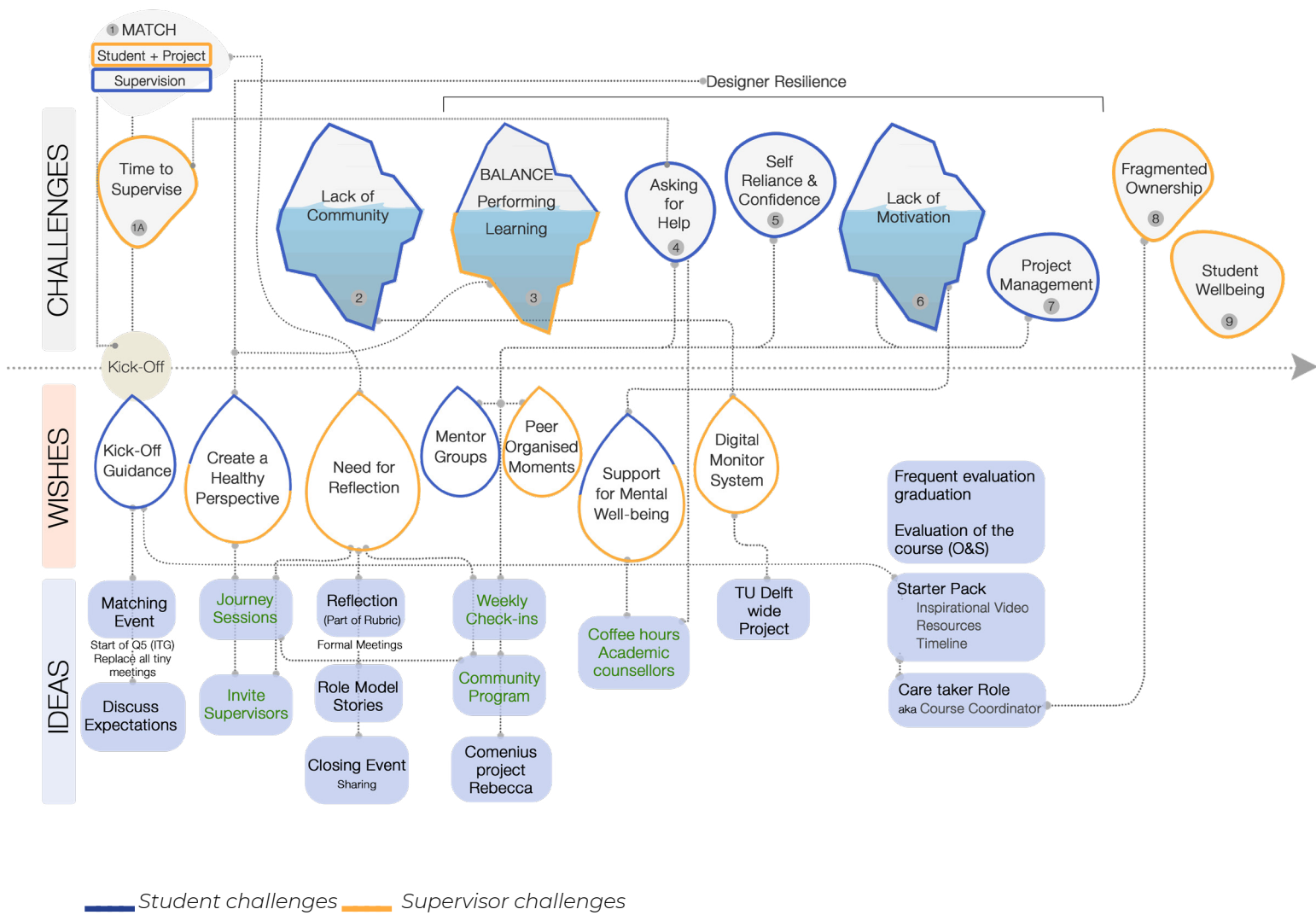
CHALLENGES

① MATCH
Student + Project
Supervision

Designer Resilience

Time to Supervise — 1A

Lack of Community — 2

BALANCE Performing Learning — 3

Asking for Help — 4

Self Reliance & Confidence — 5

Lack of Motivation — 6

Project Management — 7

Fragmented Ownership — 8

Student Wellbeing — 9

Kick-Off

WISHES

Kick-Off Guidance

Create a Healthy Perspective

Need for Reflection

Mentor Groups

Peer Organised Moments

Support for Mental Well-being

Digital Monitor System

Frequent evaluation graduation

Evaluation of the course (O&S)

IDEAS

Matching Event
Start of Q5 (ITG) Replace all tiny meetings

Discuss Expectations

Journey Sessions

Invite Supervisors

Reflection (Part of Rubric)
Formal Meetings

Role Model Stories

Closing Event
Sharing

Weekly Check-ins

Community Program

Comenius project Rebecca

Coffee hours Academic counsellors

TU Delft wide Project

Starter Pack
Inspirational Video
Resources
Timeline

Care taker Role
aka Course Coordinator

Student challenges   **Supervisor challenges**

Figure 26: Ideas for future implementation, based on student and supervisor challenges and wishes.

During this project several ideas were generated through workshops with staff and students and project team brainstorms. Several ideas have been executed, tested and evaluated. Figure 26 shows these different ideas connected to the identified challenges and wishes from students and staff. Per theme of the challenges we give some recommendations for the future.

Theme 1: graduation supervision
We recommend looking into organising a matching event or matchmaking moments: at the beginning of every semester or quarter, It could replace the multiple one on one meetings every supervisor has.

We would suggest to include a clear section about discussing expectations during the kick-off meeting

Theme 2: The balance between learning and performing
We recommend to create role model stories, stories that show the journey of different stories (break down the idealized, idolised graduation project)

We suggest looking into the idea of creating a starter package for graduation students. This package would clearly mark the beginning of their graduation. The idea is that it would consist of an inspirational video that welcomes the students and shares the perspective of several staff and alumni on the graduation project. Next to this, the package also provides resources, media that will be used and a timeline of the graduation project.

A journey session about the balance between learning and performing was organised during the community program. The advice is to keep this topic for coming GCP's and involve the supervisors in this meeting since this was of big value to the students and the supervisors can play an important role when it comes to creating a healthy perspective on realistic graduation projects.
We also recommend to include reflection in the rubric, an idea could be to connect it to the 3 formal meetings.

We recommend using a collective closing event to share the graduation projects (the journeys) with the cohort, and also invite aspiring graduating students (to share a healthy perspective on graduation). In September, the MSc. students associations organized a closing for the students of the past half year. This closing event was not communicated early enough and not embedded in the services of the faculty. We would recommend looking into the opportunity to start building an alumni community at the moment when students leave the faculty. This could be done by collaborating with the Study Association ID in organizing a collective closing event of graduation. This suggestion is also related to the next theme where we discuss the community of students.

Theme 3: A graduation community
We suggest implementing the third prototype that was tested at IDE. The GCP can be part of the formal structure of the last course: graduation. Our suggestion would be to embed it in O&S or graduation support in collaboration with one professor or team of teachers. The connection to teachers is important since they are closer to the students and are often educated as designers themselves.

The past year we have seen how important human connections were for students. All the interventions that were prototyped involved peer support and peer learning. We advise to keep organizing peer learning sessions where challenges and experiences about graduation are shared among students. Also supervisors benefitted from the workshop where they were connected to each other to share their experiences with supervision. We also suggest organising these moments in the future.

The second intervention, the weekly check-in, was especially nice since students had at least one moment per week where they got together with their fellow students. We suggest keeping this idea of a weekly check-ins in the future and look for new possibilities how this could work or be facilitated once we can return to campus. Only advising this activity to students in the beginning of graduation can already be sufficient.

The third intervention, connected students to each other and introduced a Community Based Learning initiative (CBL). This program was well received by students and affected their motivation, wellbeing and their sense of community. A challenge is to embed this program in the structures of the faculty. We hope our future education will pay attention to CBL and the exploration of implementation of the GCP. In appendix X you can find the concrete proposal of the community program for the future. The script can be requested via m.r.vandenbergh@tudelft.nl or via the MSc. Coordinators of IDE. We recommend to keep iterating when it comes to the concrete content of the journey sessions of the program and to involve students in deciding which topics will be discussed.

<u>Theme 4: Designer resilience</u>
There were multiple individual challenges that students shared with each other. For example the challenge to ask for help, the lack of motivation, self-doubt and uncertainty and project management. During the journey sessions of the GCPsome of these topics were discussed.

We recommend to keep iterating the topics of these journey sessions and to look into possible collaboration with the academic counselors. The Comenius grant Dr. Rebecca Price has received for the coming three years will also take these challenges into account and focus on the resilience of our designers.

<u>Theme 5: Student wellbeing</u>
Coffee hours to meet academic counselors were organized as a reaction to the very worrying information the project team received after setting up a survey in june 2021 about the wellbeing of our graduating students.

We recommend to continuously monitor the wellbeing of our graduating students and to act accordingly. PhD researcher Willem van der Maden focuses on the project: 'My wellness check' investigating student wellbeing at TU Delft. The results of this wellbeing check could provide input to review the situation at IDE.

<u>Theme 6: Fragmented ownership</u>
We recommend creating a new caretaker of the Graduation journey. Someone like a course coordinator who is responsible for the graduation project and can curate different activities connected to the graduation journey and feels ownership about improving the journey for our students and staff. We also recommend having a more systematic evaluation of the graduation course. We propose to evaluate the graduation project and process in the middle and at the end.

6.

Guidelines and recommendations shaping successful graduation journeys at TU Delft

Guidelines and recommendations shaping successful graduation journeys at TU Delft

Scaling-up this project on graduation journeys in other faculties comes with its challenges. The biggest challenge is the resource of time. Who will be the responsible person in the other faculties and how much time will it ask from them. When the opportunity was presented for the first time to other faculties (october '20) there was interest but with no further action. A summarizing video about the first intervention at IDE and the evaluation thereof was shared with the other faculties. This proved to be a good way to share what the project could create. Two faculties showed interest and a project plan was created.

Approach:
The systemic design and co-creative approach were beneficial and suitable for this project. In a project that is complex and involves many stakeholders with their perspective talking to all of them is important. It assured that the interventions that were designed were attuned to the challenges and wishes of the different stakeholders. In the ideation phase these stakeholders were again involved to co-design possible solutions to the identified challenges. We have learnt it is important to adjust this process to the faculty at stake and discuss the approach with the people in charge of this project.

Implementation:
To ensure implementation, it is important to involve roles with high mandate within the faculties. Next to this it is important to create ownership among the people involved. We learnt from our project work at IDE that this was a point of improvement. At the two other faculties we put particular focus on this by creating an engaged project team and involving important roles throughout the project.

7.

Next steps for the project

The next steps of this project are discussed based on what is happening at the different faculties.

Faculty of Industrial Design Engineering
At IDE we have seen that lack of resources is the main barrier for implementation. The GCP didn't start in September but at the moment there are plans to kick it off in the 2nd semester. The comenius project of Rebecca Price will focus on resilience among graduation students and will probably make us of the structure of the program.

Faculty of Mechanical, Maritime and Materials Engineering
At 3mE 'The Graduation Community Program' kicked-off on November 8th with 33 students of the 58 who signed up. At the moment of writing, three journey sessions took place with success. We are interested to learn from this second iteration designed for IDE Master students. We will investigate what the different experiences are for 3mE students compared to IDE students when it comes to this program. Do they benefit in the same way? What do they value the most? What are the challenges they face? The project team at 3mE consists of two academic counselors and the director of education.

Figure 27: Graduation Community Program kick-off at the faculty of 3mE

Figure 28: Journey Session, 3mE graduate students.

Faculty of Electrical engineering, Mathematics and Computer Science
At EWI the project started specifically for the Masters Electrical engineering and Computer engineering around March involving some students to give their idea about the goals of this project. The project team at EWI consists of the Program director, Programme Coordinator and Project manager of EE and education and student affairs employee. The research phase ran from spring '21 till fall '21 and is at the moment of writing being finalized with a summary of challenges, wishes and ideas for interventions. The different ideas can be found in Figure 29. The first intervention will take place during February and March.

Figure 29: Ideas for intervention at the faculty of EWI

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