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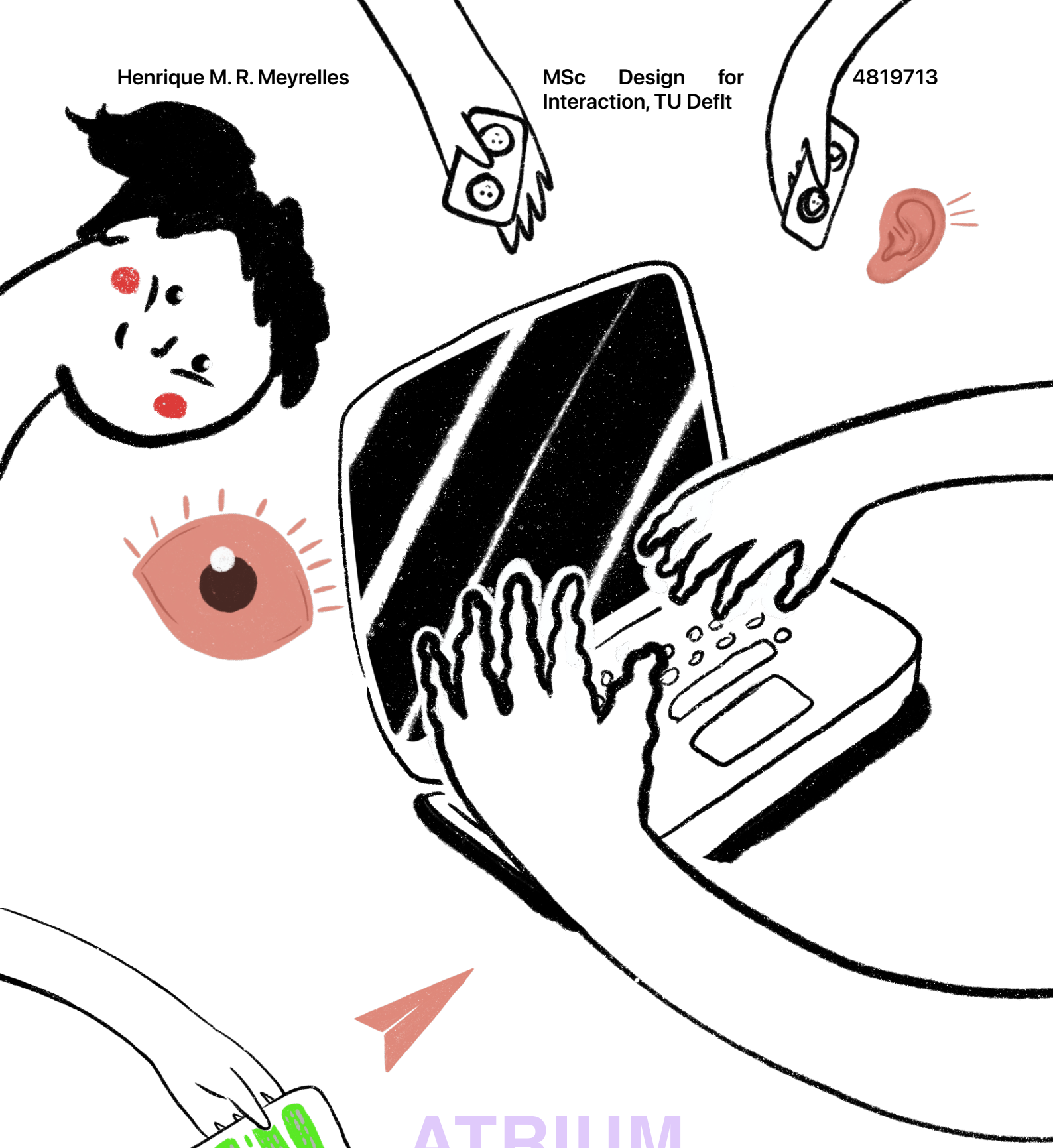

ATRIUM

FACILITATING SOCIAL INTERACTIONS FOR SUSTAINED WELLBEING IN A DIGITAL CAMPUS LIFE

EXECUTIVE SUMMARY

It would be hard to think of someone who isn't benefiting from their social circles and social interactions within them.
The many and varied social interactions we all experience are intrinsic to nurturing and maintaining our social connections, which are arguably one of the core capabilities to which we can attribute our dominance as a species.

In parallel, we have our capacity to develop technologies. Which goes from the first tools and deliberately making of fire to antibiotics and the world wide web. All of which undoubtedly elevated our quality of life in general.

Still, in spite of all these advancements, we seem to struggle with the pursuit of well-being - to achieve a balance between our capacities and the challenges we face. To be in a state of satisfaction while still driven and stimulated. And to flourish.

One can say that today we are more connected to one another than ever before, with hundreds of people one touch away in our powerful smartphones and computers. Yet we seem to feel more isolated than ever (Coombs, 2020).
Even more now with the challenges imposed by the Covid-19 pandemic, literally isolating us even more.

It shows that simply having the means to connect isn't enough. It is necessary to understand what motivates us on a behavioural level, what makes us engage and maintain quality social interactions?
This graduation project sets out to explore the experience of university students, in the Netherlands, during the Covid-19 pandemic. Aiming to be informed by the unique set of circumstances we face today, in the hope to design better digital solutions for our future. The project has the goal of assisting students in a remote study situation to be able to build and nourish their networks and personal relationships.

The project's approach is focused on qualitative data gathered in context mapping activities (Sanders & Stappers, 2012), combined with literature studies and fitting within a double diamond approach(TU Delft, 2019). In order to design for sustained well-being, the project follows the multi-stage framework for sustained wellbeing promoted by technology proposed by Wiese, Pohlmeyer & Hekkert,(2020).

In order to understand the target group's experiences, we have looked into their routines during the lockdown and collected their recollections of their previous university experiences. With the insights from the research, a problem statement was formed, leading to a design direction.

The design direction was focused on stimulating and facilitating the engagement with positive activities related to the nurturing of personal relationships (Wiese, Pohlmeyer & Hekkert, 2020), exploring how to reinstate the drivers of behaviour necessary for the engagement with such activities in a virtual scenario.

The ideation phase explored 10 different ways of virtual social interactions, which were later exposed to the target group for feedback and combined into one final concept: Atrium, a close-knit environment to feel connected and interact with your peers in digital university life.
Atrium is a well-being informed digital platform. Designed to lower the friction in initiating social interactions between university peers. It creates an environment that conveys belonging and keeps you connected to the community, motivating students in their daily work and enabling moments for spontaneous and more natural online social interactions.

Atrium means a communal space to be together and naturally connect, not only for tech-savvy and extroverted personalities but for all students.

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IN-TRO-DUC-TION 01

CONTEXT

Social interactions are undoubtedly at the core of human characteristics, shaping many of our habits, behaviours and emotions. Collaboration, made possible by our communication capabilities, actually played a significant role in our dominance as a species, making us able to avoid harm and even prey on much larger animals in the early days of our existence (Harari, 2014).

Nowadays, the struggle for many is not to survive but to thrive as human beings and live up to our potentials in a healthy and somewhat pleasant manner. The pursuit of a sustained level of well-being is a worldwide effort.
The phenomena known as hedonic adaptation (Frederick & Loewenstein, 1999) show that simply achieving a better objective and material living standard is not enough. Humans quickly adapt to new circumstances, making the pleasure caused by achieving a better living condition not long-lasting. Therefore we need to look deeper into the roles of other aspects and their contribution to our well-being, social interactions and a sense of community and belonging amongst them.

However, socializing and building a network can be challenging. Personal challenges, dealing with different emotions, being introverted or shy all play a role in socially interacting.
Other than our internal challenges, the external conditions of a massively urban and global society, together with technological advancements, are making it even harder to feel part of and engage with a community.

One context where we still find a strong sense of community and has social interactions at its core is the academic and educational environment.
If we look into university campus life, we quickly realize how having a shared physical space and a strong sense of belonging to a community with shared values can play a vital role in the capabilities and opportunities for students to engage socially with each other.

Like many other domains, education is now being moved more and more to an online/remote format (Marr, 2020).

The consequences from the Covid-19 pandemic have forcefully accelerated our digital activities. Although temporary, it also shows signs of lasting acceleration

of trends towards remote study and work.
If anything, the current moment presents us with the opportunity to peek into this likely future scenario of more digitally based and remote activities.

PROBLEM STATEMENT

The lack of university campus

It is estimated that the COVID-19 pandemic has disrupted more students and schools than any other event in history, with nearly 1.6 billion students affected worldwide. The socio-economic skills gap could potentially increase by more than 30% due to COVID-19.
(Online Education Statistics, 2021)

When observing the context of our target group, university students at TU Delft undergoing the Covid-19 restrictions, and how they are experiencing their activities being moved online, it becomes apparent that their capacities for social interactions are severally hindered. Having many direct and indirect results, such as lower motivation to study, difficulties keeping up with lectures and assignments, difficulties building their networks and nurturing their social relationships with peers and professors.

There's less relationship building going on, so I assume coaches will forget who I am.
(Jael)

All together, possibility affects students' well-being at a deeper level when not contributing to meet their fundamental needs for belonging and relatedness (Desmet, P., & Fokkinga, S., 2020).
Although there are many platforms focused on online social interactions, in general, they do not seem to enable the type of relationship building that would typically happen on campus. If trying to reach another student outside of their immediate social circle, assuming they already have built one, the amount of friction in current platforms is very significant. Moreover, the current online platforms will often work against users being truly connected with their communities..

Well-being & Technology

When thinking about the dynamics between digital interactive technology and well-being, one might initially contemplate the negative associations ranging from self-image problems,

technology addiction and loneliness, to political and ideological extremism. Although it is a complex and relatively new set of problems, there is little doubt that much attention is needed to understand the best practices for designing interactive technologies applications.
On the other hand, we have a range of knowledge derived from different domains such as Human-Computer Interaction (HCI), Positive Computing, behavioural science and positive psychology. If put together with the interactive technology that is vastly integrated into our daily activities, it presents an opportunity to leverage these technologies to contribute to our sustained well-being positively.
Therefore this project aims to explore how to design well-being informed interactive technology for a context in which one of the critical factors for student's satisfaction in online learning settings is having a sense of belonging to a learning community (Delmas, 2017).

Figure 01: Illustrations, campus life vs remote education.

DESIGN BRIEF

Simply by being in the university environment, the student is constantly nudged towards social interactions. Such interactions are made more accessible and less demanding of the individual social skills thanks to natural cues on timing, body language and a sense of group identity. When moved to an online format, the student's experience happens at home, and they are constantly engaged in a digital routine to communicate and collaborate with others. Not only the friction to do so is immensely higher, but they also deal with an environment that nudges them towards passive and distractive activities. Activities range from doom scrolling on social media, playing video games or getting lost into YouTube rabbit holes, making it much harder to be involved with other students.

Therefore, the lack of a stimulating environment that creates opportunities for social connections between students contributes to a cycle of self-isolation, affecting the overall university experience, creating difficulties in practical study matters and most importantly, may affect the student's wellbeing.

Students may differ in personality. Some are introverted, while others are outgoing. Some may already have an established social group within university, while others might have just started and become more isolated. This situation commends an environment that accommodates all these different characteristics. This project's assignment is to contribute with the necessary conditions for students to connect during the pandemic and explore how to design a digital environment that allows for a more natural and socially stimulating way of interacting with each other.

The project is an individual research effort with no direct client or company. It takes TU Delft students as the target group and considers the university administrative staff a key stakeholder.
Along the process, a collaboration with the university and faculty's PhD councils was arranged to pilot a format of social interaction between PhD candidates.

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PROJECT OVERVIEW

The project can be divided into two main phases, Research and Design. Each phase comprises several more minor phases, all following a pattern of widening perspectives followed by converting, forming the Delft Design Guide double diamond structure.

Within the research phase, we have a qualitative approach to explore the context and a literature study. Both are aiming to answer the main research questions:
- What is the role of digital experiences in their overall well-being?
- How to evaluate well-being?
- What they love & hate about digital campus.
- What they expect to get out of each platform? What do they get?
- What are the current social structures present in the anatomy of digital campus life?
- How to design positive digital experiences?

Research

Within the literature research, theories on behaviour, emotions, interactive technology and well-being were reviewed, drawing knowledge from positive psychology, positive computing and behavioural sciences. One main article of the study proposes a multi-stage framework for sustained well-being promoted by technology (Wiese, Pohlmeyer & Hekkert, 2020). Converging all these areas into one objective framework helped shape the efforts for the design phase in how to structure and think of the product's functionalities and attributes.
For the context mapping phase, the activities followed the path of expression (Sanders & Stappers, 2012), priming participants with a workbook, exploring their previous and current experiences to then explore their ideas for future experiences.

Design

The design phase starts with an ideation exercise, which afterwards is exposed to participants of the research phase and converged into one concept. After identifying the main activities that would take place within the concept, these activities were prototyped by adapting already available digital tools in what has been named Prototyping Experiences.

With the insights derived from these experience prototypes, we enter the final phase of the design process, delivering the project's outcomes. These were two-fold, a conceptual digital application for a future scenario of digital native education and a series of recommendations for university staff to organize their own events and contribute to students undergoing the Covid-19 restrictions.

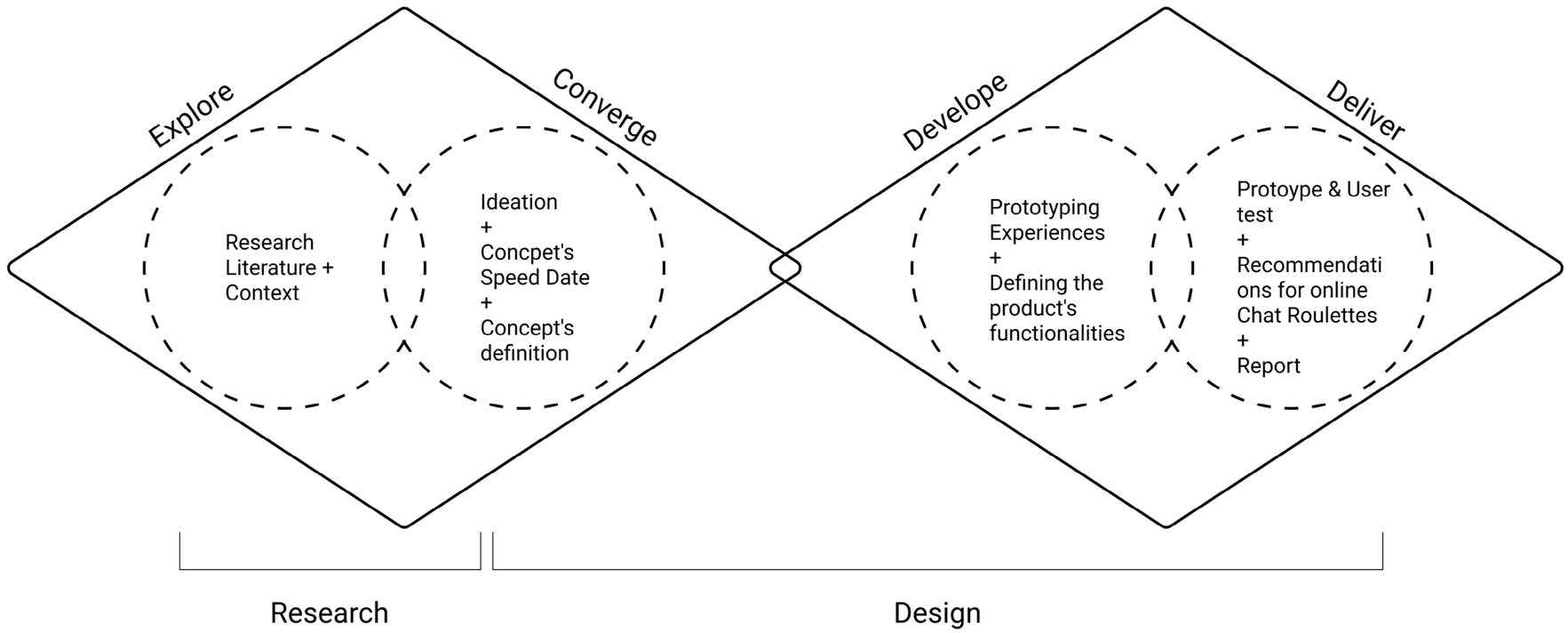

Figure 02: Illustrated process overview

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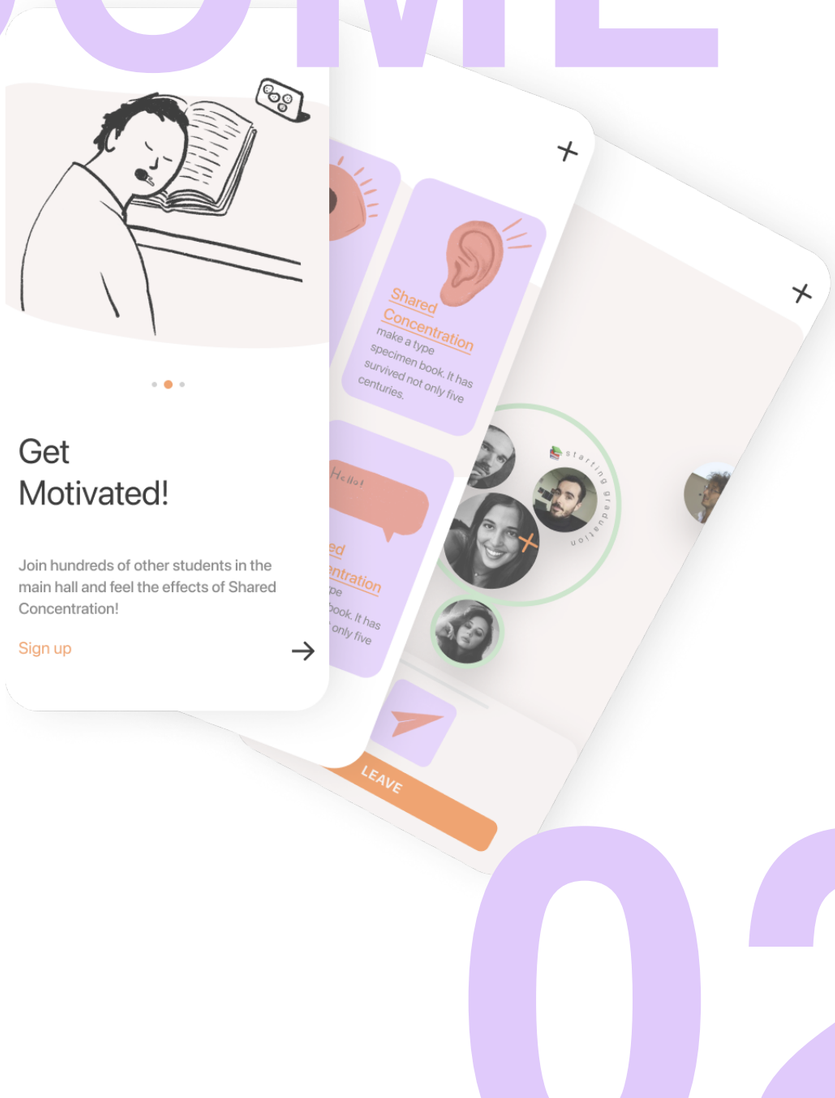
OUT-COME



ATRIUM - THE APP

The project's end result is an online application concept, an exploratory exercise on translating the research insights into a well-being positive digital application—named Atrium, which stands for the open area in the centre of an ancient Roman house. It is designed to create a shared online space where students have a sense of community and have the means to nurture their social relationships within the university.

The concept aims at delivering a more natural experience for students to socially connect by making (1) the community as a whole within reach for each individual, (2) promoting a sense of belonging, (3) creating spaces for non-activities, where students may interact more naturally and spontaneously, all the while (4) stimulating students to expand their networks within the university.

The desired outcome is two-fold, one more objective: to facilitate student networking, which is an essential piece of the university experience. The second is to indirectly contribute to their overall sustained well-being by triggering or facilitating the drivers of behaviour related to activities that can potentially create positive feelings, behaviours and cognition, relating to the Positive Activity of Nurturing Personal Relationships (Wiese, Pohlmeyer & Hekkert, 2020).

Figure 03: Atrium screens.

Attributes & functionalities

The concept's main functionalities all aim to stimulate and facilitate social interactions within students. The product's mechanisms (Product Properties + User Experience Qualities) are designed to activate and stimulate the psychological and contextual Drivers of Behaviour (Wiese, Pohlmeyer & Hekkert, 2020), e.g. motivation related to social interactions. Mechanisms are composed of Feedback, Rewards, Goal Setting, Prompt Cues, Variation and Social Support.

One way to think of it is as if the product's attributes aim to replicate the effects of running into someone on the university campus or going for a coffee break with a friend. It does not mean to emulate the exact interactions, but to act in the same manner of lowering the necessary motivation for students to connect by increasing the opportunities or capabilities, as would be the case by simply sharing the same physical space with other students.

Thus, Atrium is a bigger umbrella to encompass many different ways in which students might socially interact. It is to be implemented and managed by the university, having one of its core characteristics to be a closed network directly related to the preexisting student community.

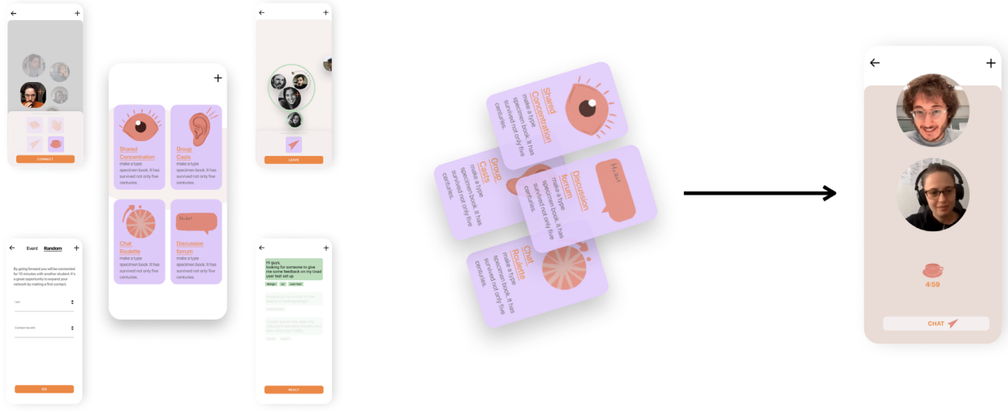


Figure 04: Attributes & functionalities overview.

Onboarding

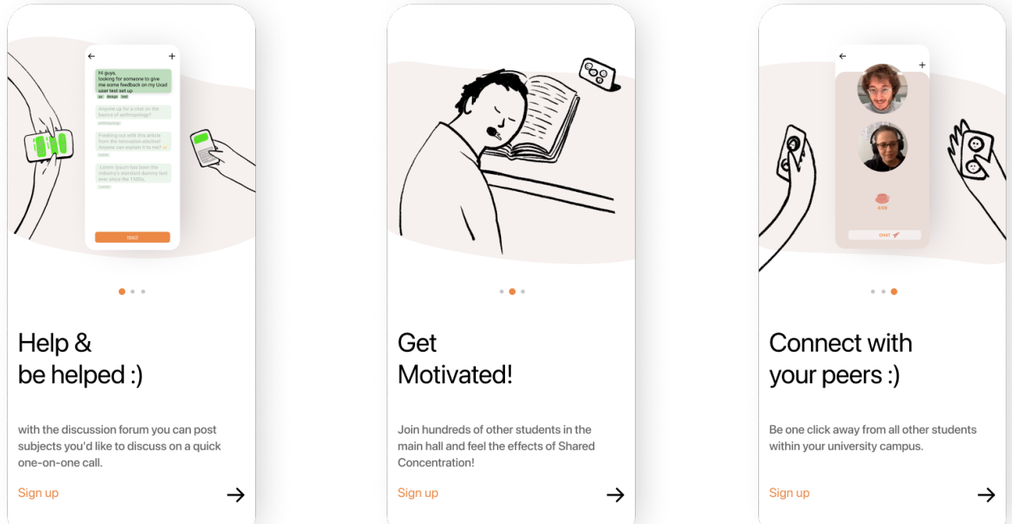


Figure 05: Onboarding screens.

While the student might have seen some information about the platform in the app store or the product's website, this is the first moment of actual exposure to the application. It is an important moment to set the mood and expectations of what can be achieved within the platform.
Therefore, the first stage of the onboarding is the discovery, where a brief overview of the different functionalities is presented.
Following is a profile set up, where the user may choose their avatar's image, set their privacy permissions and write a brief self-description.

Also, here they are presented to the Categories of Interactions concept and can set their default availability accordingly. They can set not to be disturbed or to accept only requests to connect over studies issues and so forth. These categories are further detailed later in this chapter.

Shared Concentration

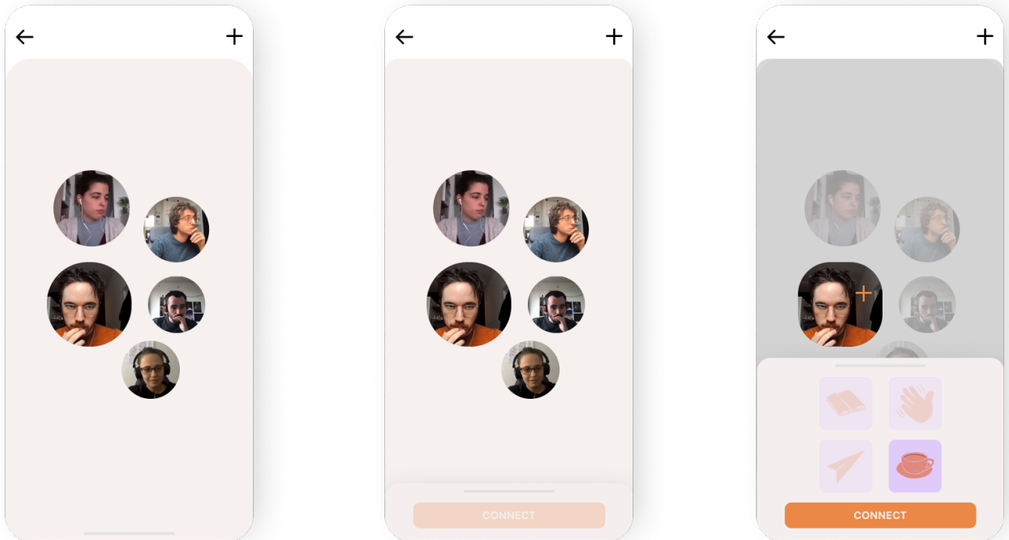


Figure 06: Shared concentration screens.

Shared Concentration is a space where students can share a video feed of their workspace as they engage with their daily studies. There is no audio available, and only the image is shared.
It is inspired by the students who claim to have better concentration when others are working around them, such as in university halls or cafes. Furthermore, it references the YouTube phenomena called “study with me”, where users record themselves studying in real-time, ranging from a few minutes to full 8-hour study sessions.
Both instances share the common aspect of creating or being in an environment that stimulates concentration and helps motivate students to perform their tasks.
In a situation of digital education, it is undoubtedly a desired outcome.

Other than that, it acts by creating a constant environment in which students might be more comfortable reaching out to each other when doubt or a new insight comes to mind, or even when they are tired and need a break, they might ask someone to join in a virtual one.

As all functionalities of the concept will show, this is a first step from where students may engage in many different ways after that.

Group Casts

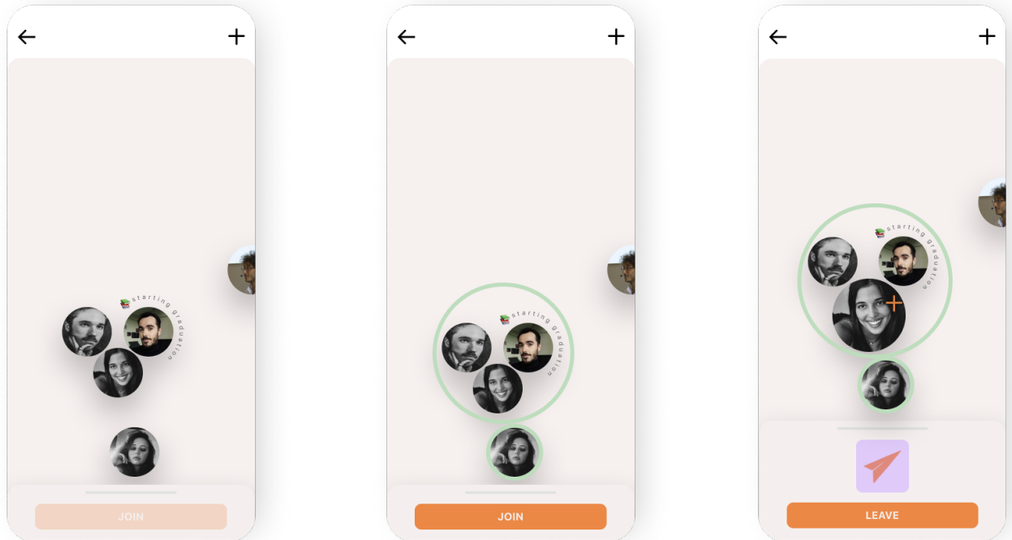


Figure 07: Group casts screens.

Alternatively, they can hear the conversations of groups formed by peers or organised by university staff. At first, they may choose only to navigate the existing groups and listen in, with no need to engage themselves directly, reinforcing the idea of a gradual and slow transition from being isolated into being comfortable to connect with others.
In the same way as the previous functionality, there are no visuals. The user only sees the avatars of their peers and listens to the conversations, decreasing the necessary motivation by creating a lower barrier for initial social engagement.

From the main hall, users can actively join the Group Cast (Figure 07). To join in a group, the user approximates their avatar to the desired group. The closer they are, the more they hear. By touching upon the group, they are then included and may also speak.

Discussion Forum

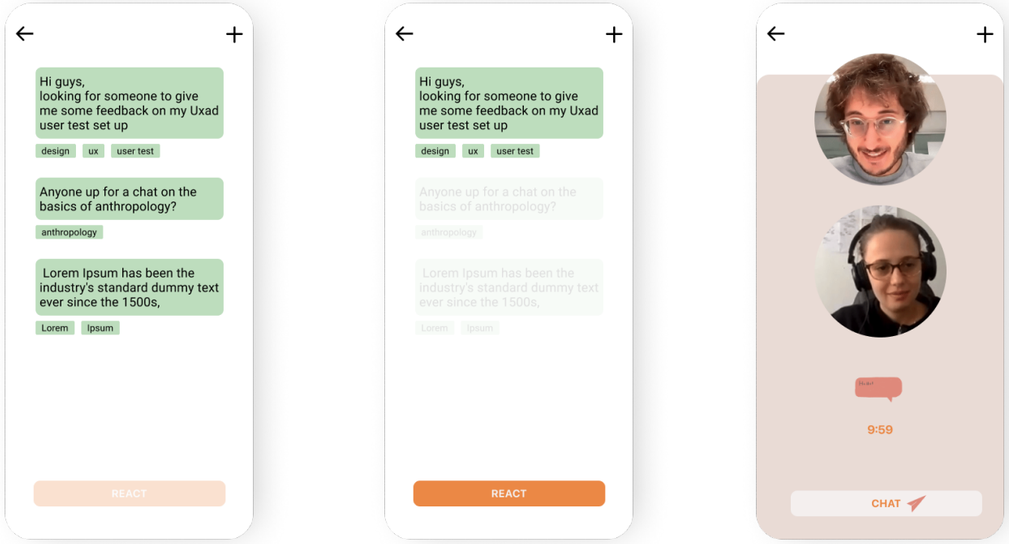


Figure 08: Discussion forum screens.

Here students anonymously post a subject that they would like to discuss with someone. It might be a question concerning specific lectures, asking for feedback on their work or any chosen subject. All subjects are visible in the forum for 24 hours. Anyone interested in talking about the posted subject may click on it, which initiates a process to connect the two parts privately. Each post has tags about the main subjects it involves, allowing for quick scanning from the users reading through.

Chat Roullete

In the Chat Roulette, students can be, Randomly or Semi-Randomly, matched with other students who are open to making new connections. In this way, by engaging with the Chat Roulet, students can choose different tags to define whom they would like to be connected with, such as first-year students or someone taking the same course.

It can also act as a tool for the university's staff and professors to promote events for students starting the year or starting a new course to get to know each other in a simple, fun, and quick way.

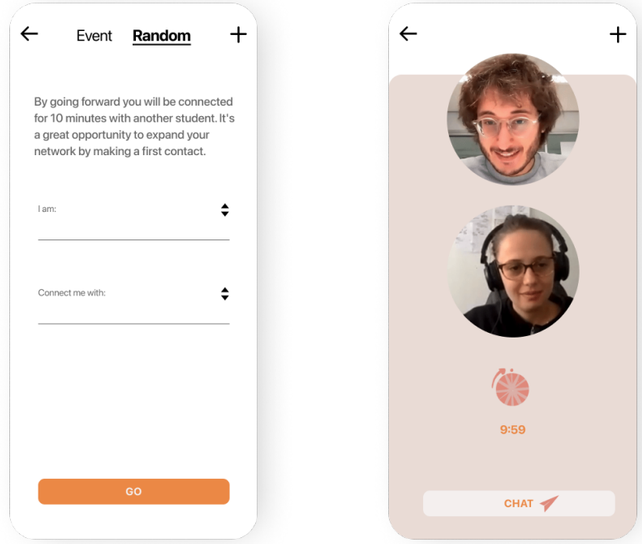


Figure 09: Chat roulette screens.

Two Chat Roulette sessions were organised with TU Delf's PhD community to validate how users would experience such events. With 70 participants in total, creating more than 300 connections, the event was very positively received. It was prototyped with already available platforms such as Zoom, MS teams and Glimpse.

The need for such experiences is so clear that one of the participants, together with the PhD council, will keep on organising them.

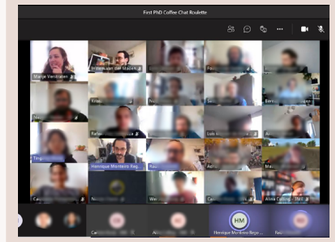


Figure 10: Participants event 01.

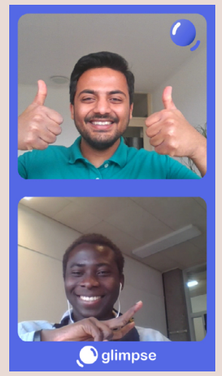


Figure 11: participants during one-on-one chat.

One-on-one Chats

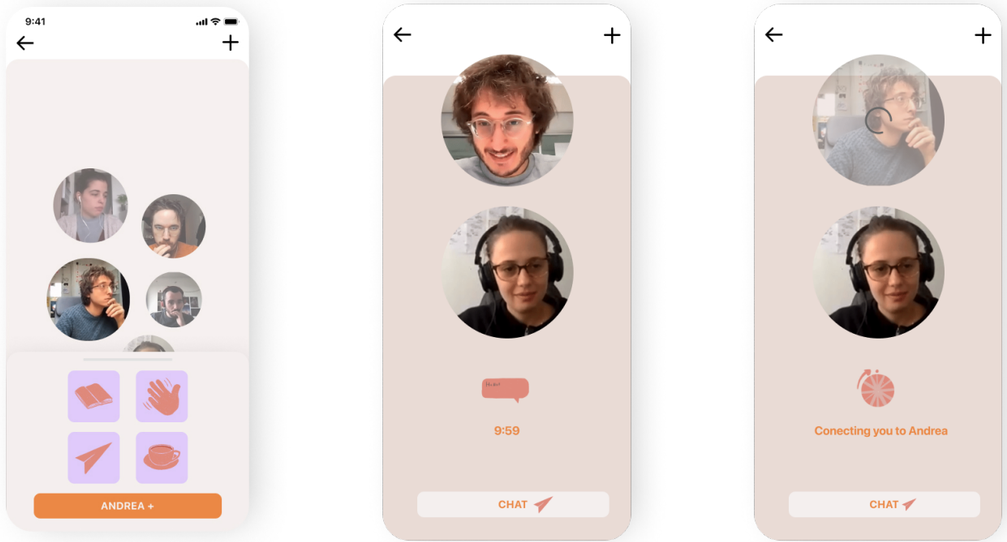


Figure 12: One-on-one screens.

For a personal connection, users may tap on the desired avatar. It can be done both in the Shared Concentration or Group Casts, which will show the quick profile and availability status of that specific person (Figure 12). There are three types of personal connection. The user has the option to enable when they go online. This way, the expectations of the proposed connection are levelled, and the chance for a successful and less anxious connection is created.

The consistent engagement with this functionality can be seen as one of the main objectives of the whole platform. Basically, all paths within the application can lead the user to this instance. However, it is in no way equivalent to real-life human interactions. Still, as much as we can explore ways for face to face connections, in an effort to make them more conformable and relaxed, the better.

The one-on-one interactions can occur in a few different manners, depending on the category of interaction proposed by the student who initiated the connection, as explained in the next section.

Categories of Interaction

The concept of Categories of Interaction comes to level the expectations between users. The intention is to make proponents of a connection more comfortable doing so, while the recipients are more likely to accept.
This dynamic is inspired by the natural mechanism observed in everyday campus life. Students can be more open to talking to someone they are not particularly intimate with when both are in a coffee line and feel less shy when reaching out for help with study-related issues.

The books are for when the user has a reasonably objective question regarding studies, so the user might use this instance when spotting someone from their class and want to check something about that class.

The coffee is meant to act as the symbol for “wanna take a break?”. Inspired by the identified Natural Timers present at the university campus, this category has a 10 minutes timer. Of course, if engaged in pleasant conversations, participants have ways of extending the conversation or later reconnecting.

Waving is the most open manner for reaching out. It simply conveys, “I would like to connect”. The user may use this if they already know someone or if they feel comfortable approaching that specific person in general.

Also, students can allow or restrict text messages.

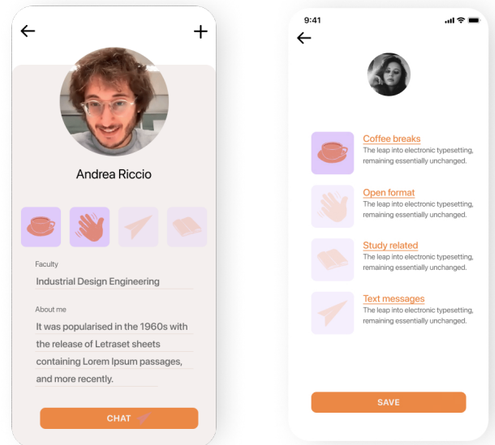
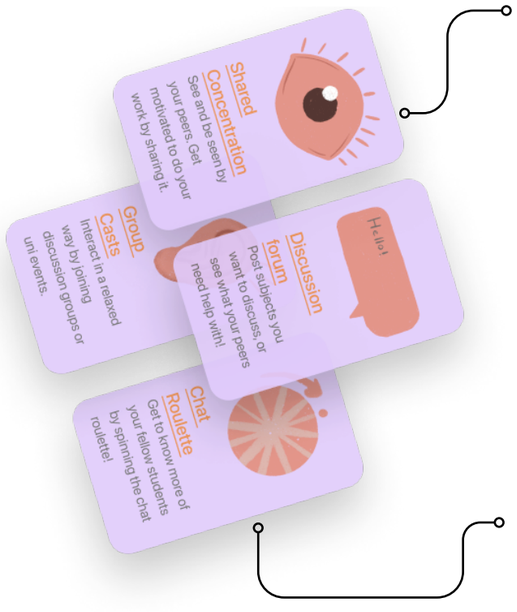


Figure 13: Category of interactions screens.

Levels of interaction

All of the functionalities mentioned above were thought and structured into different levels of interactions.
For many students reaching out to connect online with someone new might cause great anxiety and awkwardness. Therefore the concept proposes a structure where students have more accessible ways to engage. They do not need to be directly engaged with others yet still benefit from a feeling of commonality. All activities can be divided into two main levels.



The first level
Meant to act as a constant is an exploratory and more passive experience. The user can navigate the “main hall” and either observe or listen to others or scroll through the Discussion Forum Topics.
There are three main functionalities within this level: Shared Concentration, Group Casts & the Discussion Topics Forum.

The second level
For a more active interaction, students can directly engage with others in four main ways, Connecting one-on-one, actively participating in the Group Casts, joining the Chat Roulette or reacting to a post on the Discussion Forum.

Figure 14: Levels of interaction.

Notifications & Dashboard

Notifications should be minimal, as not to distract students or disturb their concentration. Mainly notifications will alert about requests to connect, responses to the user’s posts on the forum, a reminder of events and eventually to inform them of the number of students connected on a certain period, as an incentive for them to join in.
The dashboard is then focused on giving an overview of the user’s social activity, stimulating them to connect with others consistently.

Events

Both students and university staff may organise events to connect groups of students willing to connect and get to know more students. Events can mainly happen within the Chat Roulette, or the Group Casts functions. The research suggests that when students have a common theme, a “reason” to be connected, the nervousness of talking to an otherwise stranger (e.g. Chat Roulette) diminishes significantly. One of the intentions behind some of the product’s features is to create void spaced where students happen to be in the same online environment, with easy reach on each other, but without a task or objective at hand. It is in these moments of non-activities that some of the most meaningful social interactions may take place.

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EXPERIENCE QUALITIES

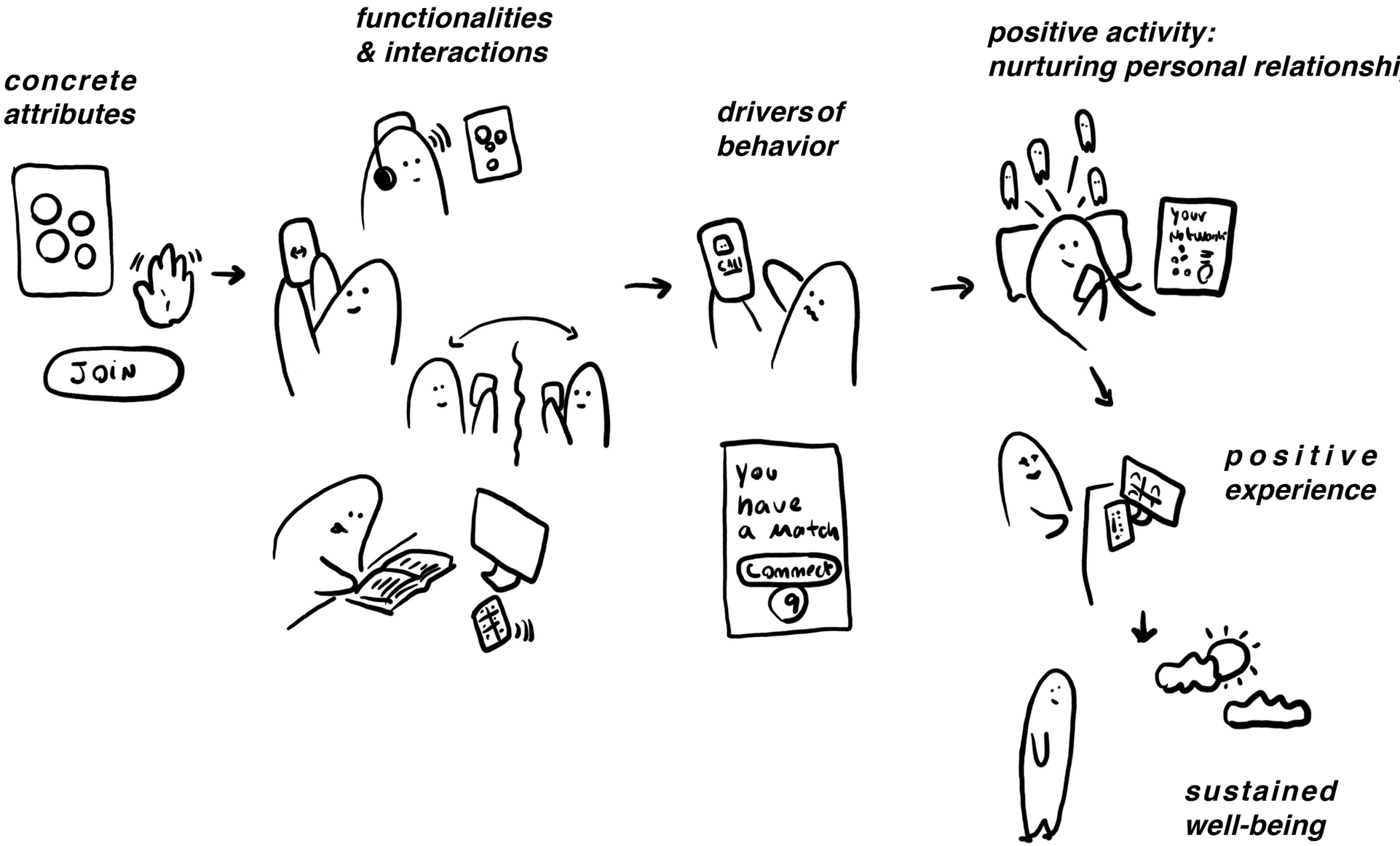


Figure 15: Qualities of interaction.

RE-SEARCH

03

CONTEXT RESEARCH

Designing for wellbeing

This project explores the impact of digital education on student's well-being & how to design digital tools that contribute to enhanced students' sustained well-being. Research from Facebook, published in Nature, show the impact that User Interface design variations have on social participation behaviour (Bond et al., 2012). It shows how small changes can have substantial consequences on how a user thinks and behaves.

What is wellbeing?

Although well-being is a growing area of research, its definition still is challenging. Many studies aim to express the nature of well-being but not precisely define it (Dodge, Daly, Huyton & Sanders, 2012). According to Diener (1984), there are two dimensions to subjective well-being: cognitive and effective. The first relates to how an individual retrospectively evaluates his life in terms of "satisfaction". While the latter refers to happiness and serenity, linked to the emotions experienced in the individual's daily life.

Therefore when it comes to measuring well-being, one can refer to auto assessment on life satisfaction as well as identifying specific positive and negative emotions experienced by the individual. Well-being is not a static state. It is a rather dynamic dance between the individual's capacities and faced challenges (Dodge, Daly, Huyton & Sanders, 2012).

Interactive technology & wellbeing

Technology advancements can, in general, be associated with the betterment of living conditions and quality of life. There is no doubt that our ability, as humans, to develop tools and technologies have made it possible for our success as a dominant species. However, when it comes to interactive digital technology, some fear that it might be downgrading our humanity by promoting shortened attention spans, outraged fuelled dialogues, smartphone addiction, vanity and a polarized electorate (Newton, 2019). It also provides mainly short term gains where

user practically self medicates their stress with distraction.

The opportunity

Albeit a complex and relatively new set of problems, there is little doubt that much attention is needed to understand the best practices for designing interactive technologies applications. Almost all of our daily activities are - or can be - shaped by technology. The emerging challenge is how to (re)design these daily interactions to foster sustained well-being (Wiese, Pohlmeyer & Hekkert, 2020).

According to Wiese, Pohlmeyer & Hekkert (2020), one way to do it is by facilitating, stimulating or inspiring continuous engagement, through interactive technology, with so-called Positive Activities, contributing to higher levels of sustained well-being. Consistent and deliberate engagement with such activities might contribute to up to a substantial amount of our overall sense of well-being (Lyubomirsky, Sheldon, & Schkade, 2005).

Conclusion

With this spirit of a hopeful exploration into designing for well-being in the digital context, there is the possibility for dedicated solutions with the main function to support wellbeing-enhanced activities, such as meditation apps. However, and most interestingly for our context, there is great potential in (re) designing (existing) technology with well-being principles in mind (Wiese, Pohlmeyer & Hekkert, 2020).

So we can leverage the current vast presence of interactive technology in our social interactions to simulate positive online social activities that can contribute to our overall sense of well-being. By either increasing the capabilities of the individual or the opportunities one has to engage with their peers, we can stimulate the drivers of behaviour that will lead users to engage with such positive activities. As Edward Deci said, “Don’t ask how we can motivate people. That’s the wrong question. Ask how we can provide the conditions within which people can motivate themselves.”

In our specific context, we can look to the METUX model (Peters, Calvo & Ryan, 2018), which considers autonomy, competence and relatedness as some of the most basic determinants of well-being. It points to how not having a typical university campus and its consequent social interactions will most probably interfere with all three aspects of the student’s university life experience.

Analogous inspiration & benchmark

On the competitive matrix (Figure 16) the main players found to be relevant to be analysed are distributed along two axes, the y-axis rages from social/private activities to university-related. The x-axis differs between instrumental, meaning objective and functional, and entertainment, with pleasurable experiences. The criterion was to find players within the live social interaction category. The platforms were mapped out to inform the qualities of experiences one would get from a platform associated with the social contexts at university.

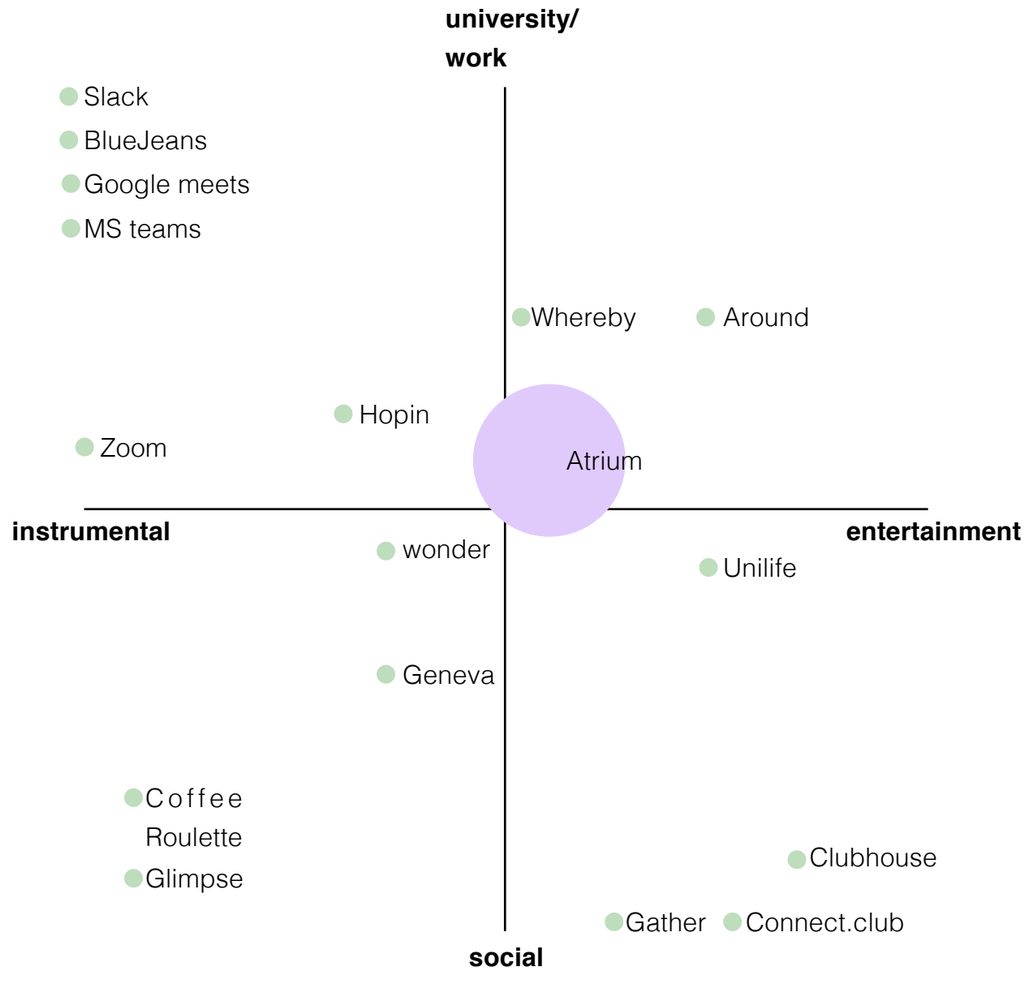


Figure 16: Competitive matrix.

The online social interaction landscape

With the advents of Covid-19, we saw a surge in demand for digital social interaction tools, from video conferencing to teamwork and organisational tools. This lead to the appearance of many new and different platforms. In table 17 we analyse what differentials each platform strives to deliver.

Geneva

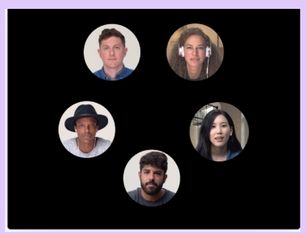
A safe and welcoming city of private groups, each with their own personality and purpose.

Unilife

Manage your student wellbeing, engagement & community.

Around

Kill the fatigue that kills creativity. Gather in ultra small groups, infuse fresh energy into creative sessions, and get things done in real-time with real results.



Glimpse

No need to feel anxious about approaching others or being alone. Chatting 1-on-1 under a time limit from the comfort of your home removes all the anxiety of meeting others for the first time. You focus on being your best self.

Figure 17: Platforms differentials example.

In table 18 we observe how some classes of platforms are more directed to contribute to one's practical goals, potentially increasing contributing to hedonic well-being. Others aim to deliver a pleasurable and frictionless experience, potentially contributing to eudaimonic well-being. Many of the new video conferencing and social networking platforms seem to be aiming at the sweet spot in between, delivering a pleasurable experience while still aligned with the user's long term goals.

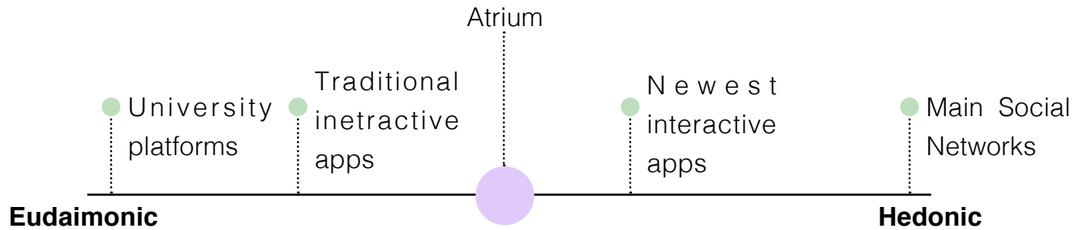


Figure 18: Well-being spectrum.

USER RESEARCH

The research was mainly a qualitative data-focused approach, gathering detailed accounts from small groups of participants.
The book Convivial design toolbox (Sanders & Stappers, 2012) served as a frame of reference for the research effort. The combination and order proposed for the research activities followed the path of expression, A seen in Figure 19. Therefore the research started by sensitizing participants with a workbook, followed by individual interviews where participants could recall and reflect on their past and present experiences, to then, as a link into the ideation phase, have a group generative session where participants could create artefacts for their imagined future experiences.

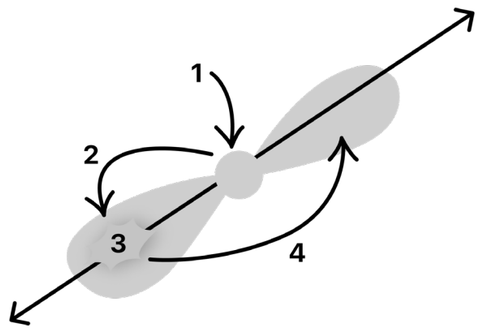


Figure 19. The path of expression (Sanders & Stappers, 2012). 1 observe what people do; 2 recall memories from earlier experiences; 3 reflect,by making, on memories and future possibilities; 4 Make artifacts for future experiences.

Research Goals

The main research goals can be dived into two parts, one about the student's previous experiences in their university routine especially focused on spontaneous and/or unplanned social interactions which they might have experienced. This has lead to the construction of a typology of accidental encounters. And the second goal focused on their current experiences during their digital campus life. Identifying highs and lows in this new context, to have a better understanding of the anatomy of their digital campus life.

The following questions guided the design of the interviews and generative sessions:

- What is the role of digital experiences in their overall well-being?
  - What they love & hate about it?
  - What they expect to get out of each digital platform VS What they get?

- What are the current social structures present in the anatomy of digital campus life? (Organizations, student associations, teachers, classes ...)

Assumptions & hypothesis

By putting my initial assumptions down, as not to be overly influenced by them, two hypotheses were created.

- The loss of easy and natural ways to connect with each other impacts students and teachers, both in a practical matter (loss of communication on deadlines, catching up on missed classes and so on) as on a social level (lack of emotional reading feedback loops and personal conversations in idle time on campus). Thus impacting their overall wellbeing.

- The ease of distraction on the digital universe combined with the poor design of digital studying platforms/ experience (too much friction) affects students performance and motivation. The context mapping activity has

Context Mapping

identified social activities that students are reportedly missing from the normal times pre-Covid-19 restrictions. Such social activities are characterized by the vast amount of benefits one gets from simply sharing a common physical context in which they, collectively and yet individually, conduct the activities related to their primary occupation, in our context studying.

From the many social activities students would engage within the university campus, the ones that seemed to be missing the most in the transition to an online environment are the ones related to spontaneous, unplanned and sometimes even accidental encounters.

During the interviews, an experience map of "a day in their life during remote study" was built together with participants. Where they have indicated their emotional associations with each daily digital activity, indicating their feelings by using PREMO (Desmet, P.M.A. 2019). It was then analysed in terms of mood and positive or negative experiences. Figure 20 shows one participant's example.

Initial insights

When comparing all participants experience maps, as seen in Figure 21, two main aspects appear repeatedly: the dislike for zoom meetings throughout their days and a self-reported overuse of at least one digital application.

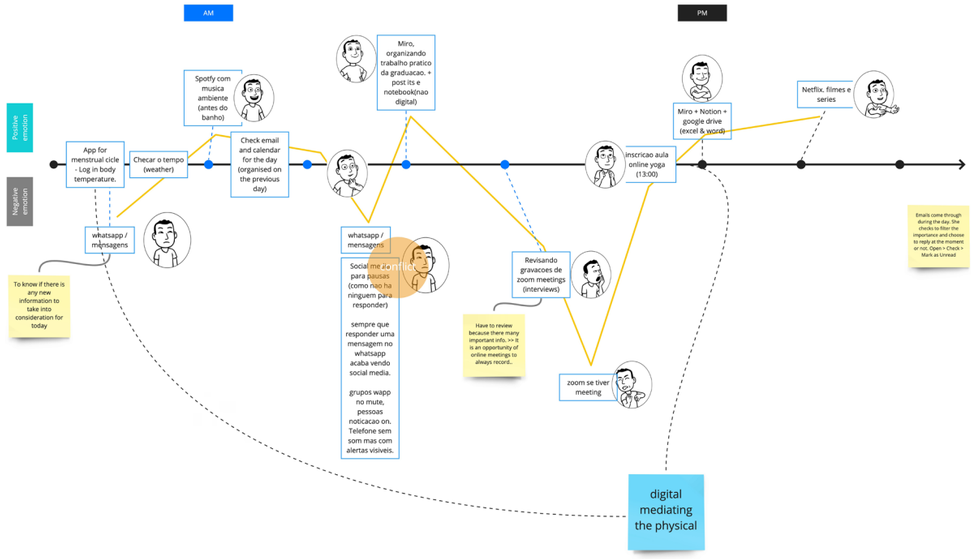


Figure 20: Experience map.

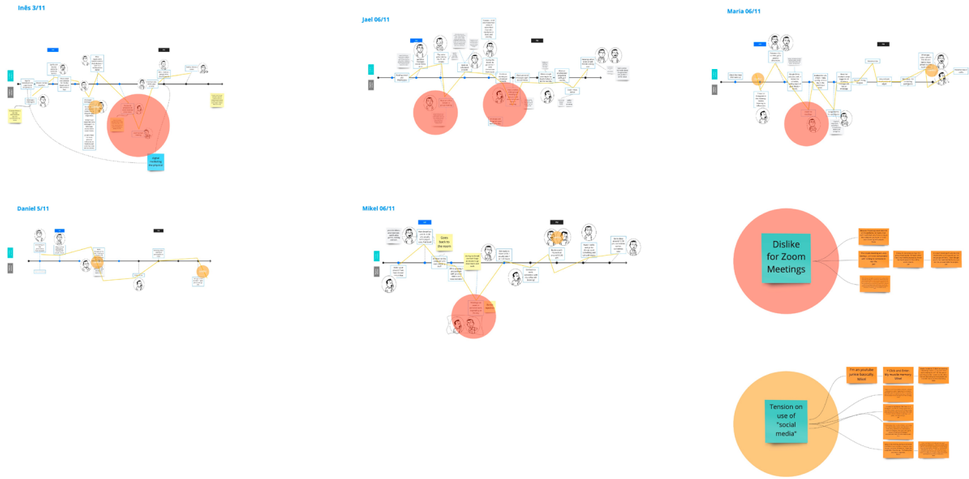


Figure 21: Experience maps.

Clustering quotes

Other than the maps, the second set of data was made out of quotes from participants that were then clustered by affinity. The quotes were first divided into two main groups, the ones related to the participant's previous experiences before Covid-19, here identified as the Typology of Accidental Encounters (Figure 26), and a second named the Anatomy of Digital Campus Life, referring to their current experiences during the pandemic restrictions (Figure 25). Within these two main groups there were smaller clusters formed by similar quotes, which will later be processed in the Qualitative Data Analysis.

I'm a YouTube junkie basically.
Participant 01

I waste too much time probably on Reddit (...) I'm considering deleting the app from my phone.
Participant 02

when I'm on Instagram is not like I'm having a great time, is more like a habit, open it and scroll.
Participant 03

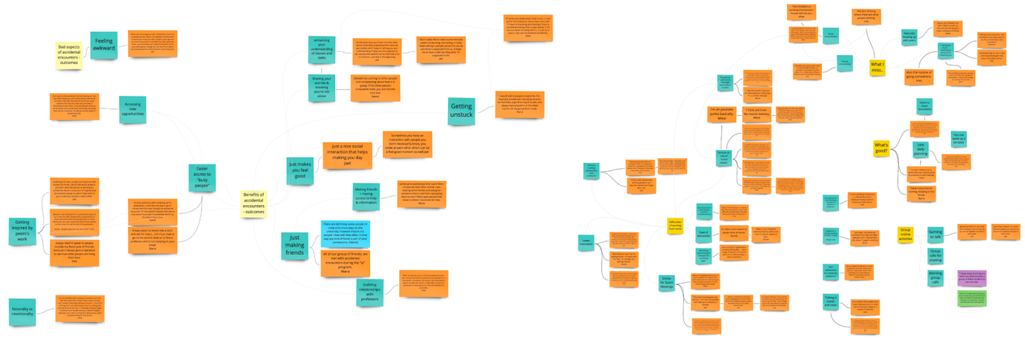


Figure 22: Quotes clusters.

Generative Session

The generative session consisted of several steps, all leading to the point where participants, in duos, could present their ideas of an ideal online social interaction within students. One of the main insights from this activity was the identification of natural timers in our social interactions at the university campus. One of the duos placed a cropped image of a coffee cup in the sections regarding how to finish an interaction (Figure 23), when asked about it they talked of how when you meet someone having a coffee break you naturally finish the interaction by the time your coffee is over, having little to no awkwardness taking this cue and exiting the interaction.

I think that we did because in the same that when you get a coffee at the faculty (...) once you have your coffee you split your ways with the person you got your coffee with.
Participant 04

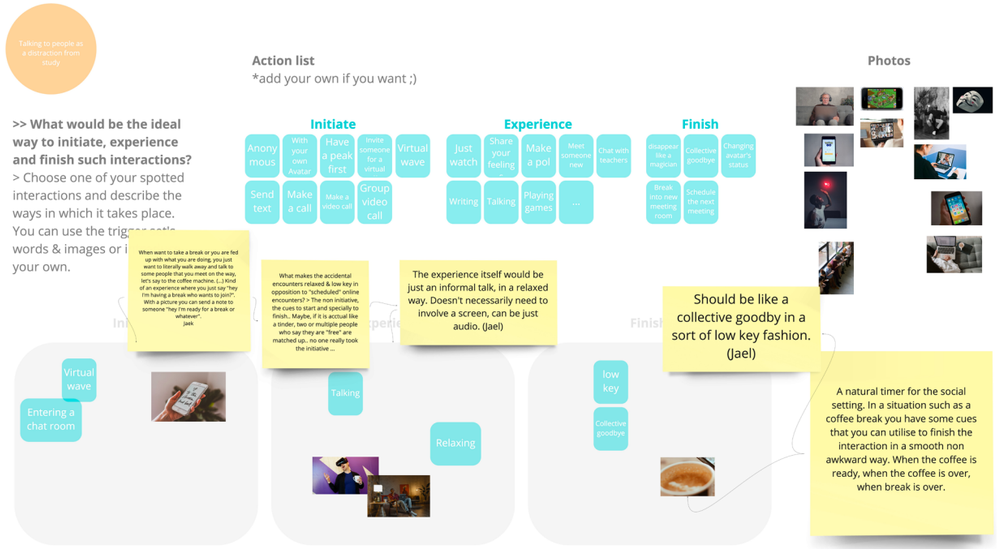


Figure 23: Ideal online social interaction.

Following the same process as in the context mapping interviews, relevant quotes from participants were gathered and clustered together to later be analysed.

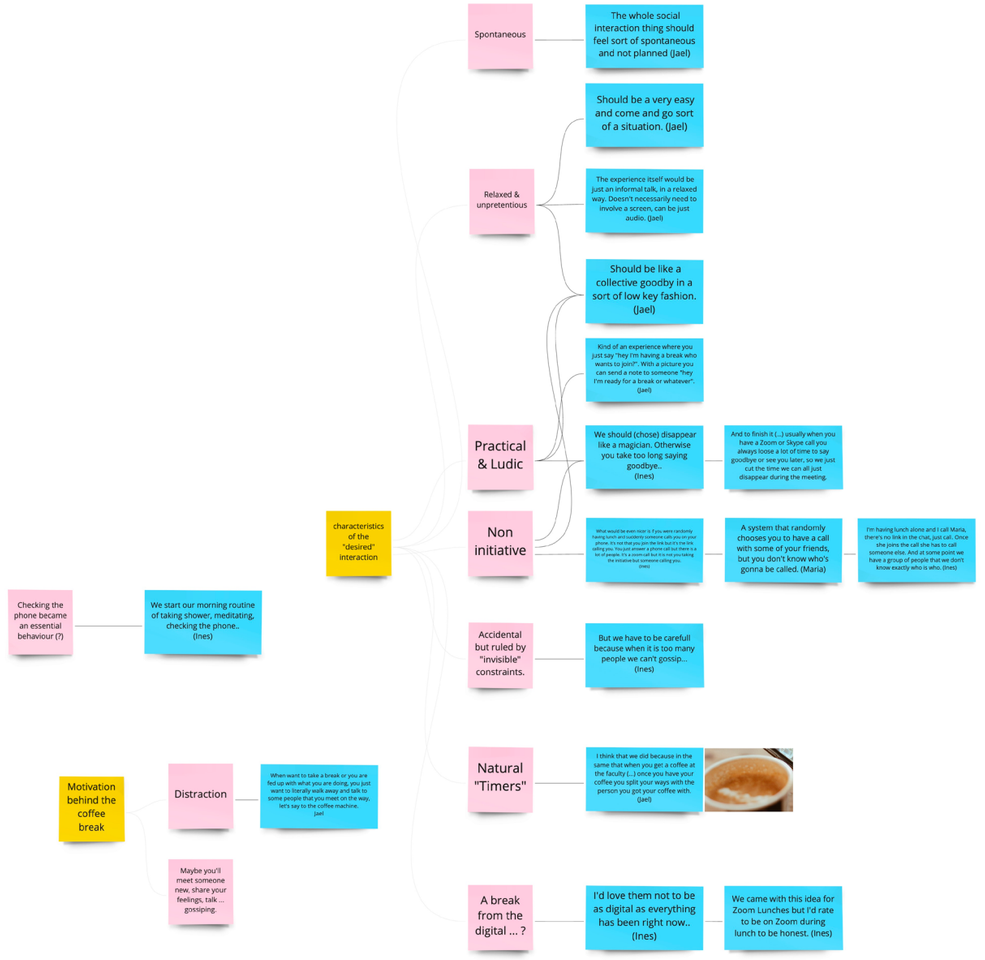


Figure 24: Quotes clusters.

Qualitative Data Analysis

Students are now spending most of their study time remotely. Some are seeing friends or neighbours with some consistency, except for the ones without an established group of friends such as recently arrived international students.
Even students with established groups of friends, therefore not particularly lonely, in general, are not nurturing many new relationships in the university context. They reportedly feel as if they are not building quality and lasting relationships with their current professors and other students they were not already friends with. They generally dislike zoom meetings and especially remote group work. All participants related some struggling with their use of digital media for entertainment, not feeling in control of how much they use certain applications. Although conscious about overuse they still engage with the behaviour which they see as detrimental to themselves.

The analysis process was done by again gathering the clusters, made from combining statements from different participants, into broader groups such as “What they want” or “What they need”. In Figure 25, you will find the analysis of the clusters related to Digital Campus Life, where we can find clusters under “what they miss from before” such as:
- **“social accountability”**, related to the lack of a social structure that would inhibit the student from accessing websites such as YouTube during study hours.
- **“shared concentration”**, which similarly talks about the greater capacity to concentrate when surrounded by peers who also are engaging in focused work.
- **“transitional marks”**, which talks about the extra motivation students get by dressing up and commuting towards university, in a way that they are prepared physically and mentally to engage with their studies.

On the clusters related to the Typology of Accidental Encounters (Figure 26) we see clusters that form the typology itself, such as”:
- Walking by someone you know on the stairways,
- Chatting with someone in the coffee line during a break or walking around the main hall when frustrated with a study-related issue and sharing it with others.

Also, we see the beneficial outcomes reported by participants when recalling such encounters, with examples as:

Accessing New Opportunities, such as a research position one student got from meeting with a professor in the university bar/pub after hours,
or another student who got inspired by a Peer’s work which was very similar to his own recently started research.

Figure 25: Anatomy of digital campus life clusters.

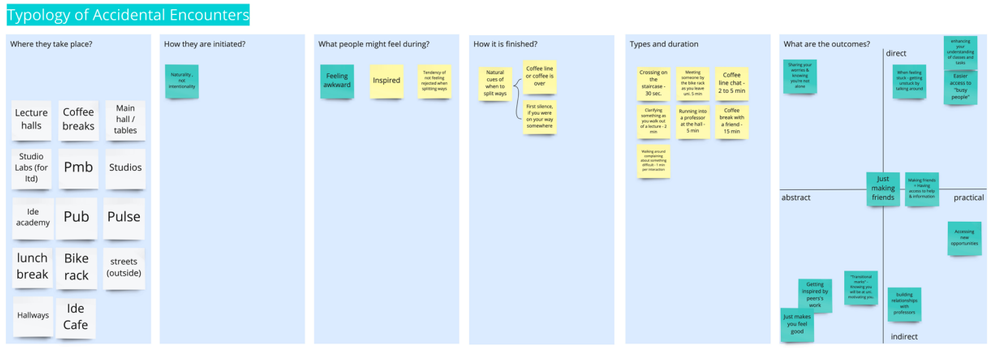


Figure 26: Typology of accidental encounters clusters

Generative Session.
When analyzing the clusters and materials from the Generative Sessions (Figure 27) we see the importance of the environmental aspects on the social interactions.
- First the **“non-intentional”** aspect of running into someone, which may be related to a more relaxed atmosphere than when compared with an online equivalent.
- Second the **“natural timers”**, which again seem to decrease the awkwardness when parting ways, diminishing the chances for feelings of rejection.

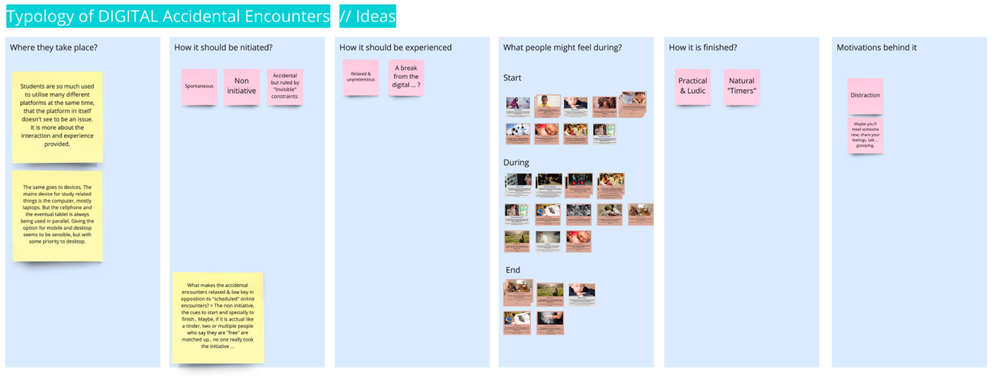


Figure 27: Typology of digital accidental encounters clusters

Insights

From the analysis of the Typology of Accidental Encounters came a list of benefits one gets from engaging with such interactions. Benefits ranged from more objective ones, such as:
- Enhancing your understanding of classes and tasks
- Sharing worries and frustration from specific assignments or classes.
- When feeling stuck - getting unstuck by talking around.
- Getting inspired by peer's work
- Easier access to otherwise "busy people"
- Accessing new opportunities

To some subtler ones like:
- Being stimulated (feeling happy, having fun, feeling nervous(stomach butterflies), excited, etc.
- Strengthening relationships with professors
- Making friends

From the interviews, we have a list of Needs:
- Build your network (making friends&colleges + Strengthening relationships with professors).
- Having stimulus and facilitators for engaging in social interactions.
- Feeling integrated (being naturally informed of specific events)

And Problems identified:

- Feeling lonely.
- Lack of motivation for studying.
- Digital addictions / ease of distraction.

Most of these identified needs and problems can be linked back to the loss of the physical university environment and the surrounding stimulus for social interactions. And if we make a laddering exercise they seem to point to the fundamental human needs of Relatedness & Belonging (Desmet, P., & Fokkinga, S., 2020).

Design direction

In summary students in this online setting seem to have lower motivation, both for studying and for connecting with other students, a lower sense of acknowledgement and are not strengthening personal relationships within the university context.

Positive counterparts for all these negative effects have been reported by participants when recollecting their unplanned social interaction on campus. Therefore comes the insight, and design direction, of designing a digital platform that creates a constant/ continuous environment in which spontaneous and therefore more natural interactions may occur. Figure 28 illustrates the main characteristics of this initial design direction.

Another component of the design direction comes from the insight that different personalities, as well as different subjects, will demand different means of communication. Therefore the design direction should also embrace an exploration of multiple ways of social interaction.

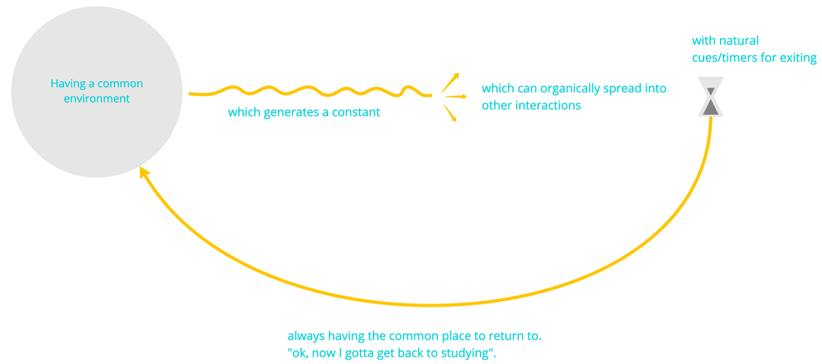


Figure 28: Design direction structure.

FROM RE-SEARCH TO DESIGN

04

DESIGN DIRECTION

The project's design direction comes from combining insights from both the context and user research, processed through the framework (Wiese, Pohlmeyer & Hekkert, 2020)found in the literature study.

From the user research, it was established that one of the main aspects affected, for students, when moving the education online was the lack of unplanned natural social interactions. Many students had their close social circle already, while some were newly arrived international students. In all cases, they were not able to expand and have access to their peers as needed.

The framework proposes that the design focus at the product interaction level, considering that the necessary motivation for students to engage with the positive activities is in the balance between opportunity and capabilities.

Some students will be more sociable and communicative; therefore, different categories of digital social interactions are welcomed.

Due to the loss of physical campus life, the opportunities for social interaction drastically diminished for all students.

So how do we create a platform that provides the necessary opportunities and enhances the necessary capacities when needed?

Design Goal

A design goal was drafted from the project's start. Throughout the process, it has been updated according to the research and design findings. Here are the main versions:

v1

Explore the impact of digital education on student's well-being & how to design digital tools which may contribute to enhanced sustained well-being.

v2

Promote healthier digital experiences that contribute to Tu Delft's student's well-being in the context of digital campus life (due to Covid-19)

Final

(re)introduce natural & unintended social interactions that promote healthier digital experiences for Tu Delft's student's well-being in a context of digital campus life (due to Covid-19)

05 CONCEPTUALIZATION

IDEATION

Initial Concept Ideation

The conceptual ideation process started with an exercise where ideas were generated by ideating on the crossing between digital platforms already used by students and the different types of social interaction they reported having when at university. The resulting 10 concepts were then presented to the same participants from the previous research efforts, who rated the concepts and shared their impressions.

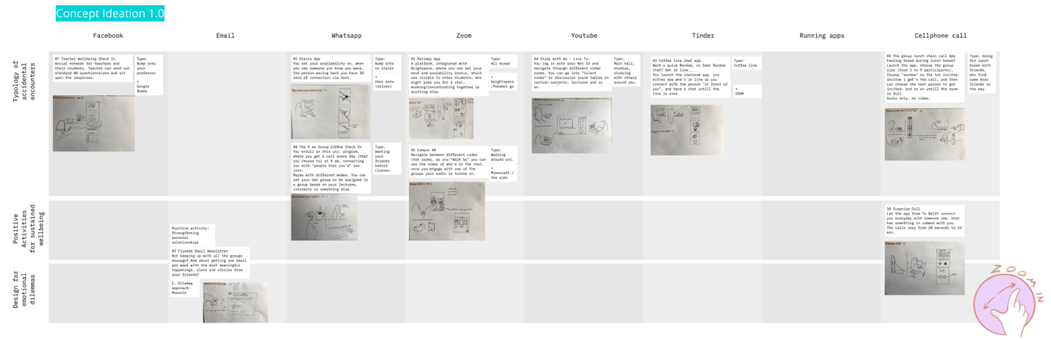


Figure 29: Generating ideas matrix.

Four ideas had the higher combined score between clarity of the concept, utility, and likelihood of use from the ten ideas generated and presented to participants. The functionalities and concrete attributes of the concepts are direct and somewhat literal translations of the necessities and opportunities identified during the research phase. For example, the study with me concept speaks directly with the lower motivation when studying at home and is inspired by the shared concentration students described having in the university campus under normal conditions. Therefore the four selected concepts act as a filter of sorts, converging on which issues to address with the final concept.

This process gave the project a direction on the types of interactions to develop—a final concept of a multi-interaction platform that produces constant and sporadic interaction. In Figure 30 the ten concepts can be seen. The four ones who scored the highest have a green dot upon them. The next chapter describes the process to see these activities through the lenses of a positive design for sustained well-being.

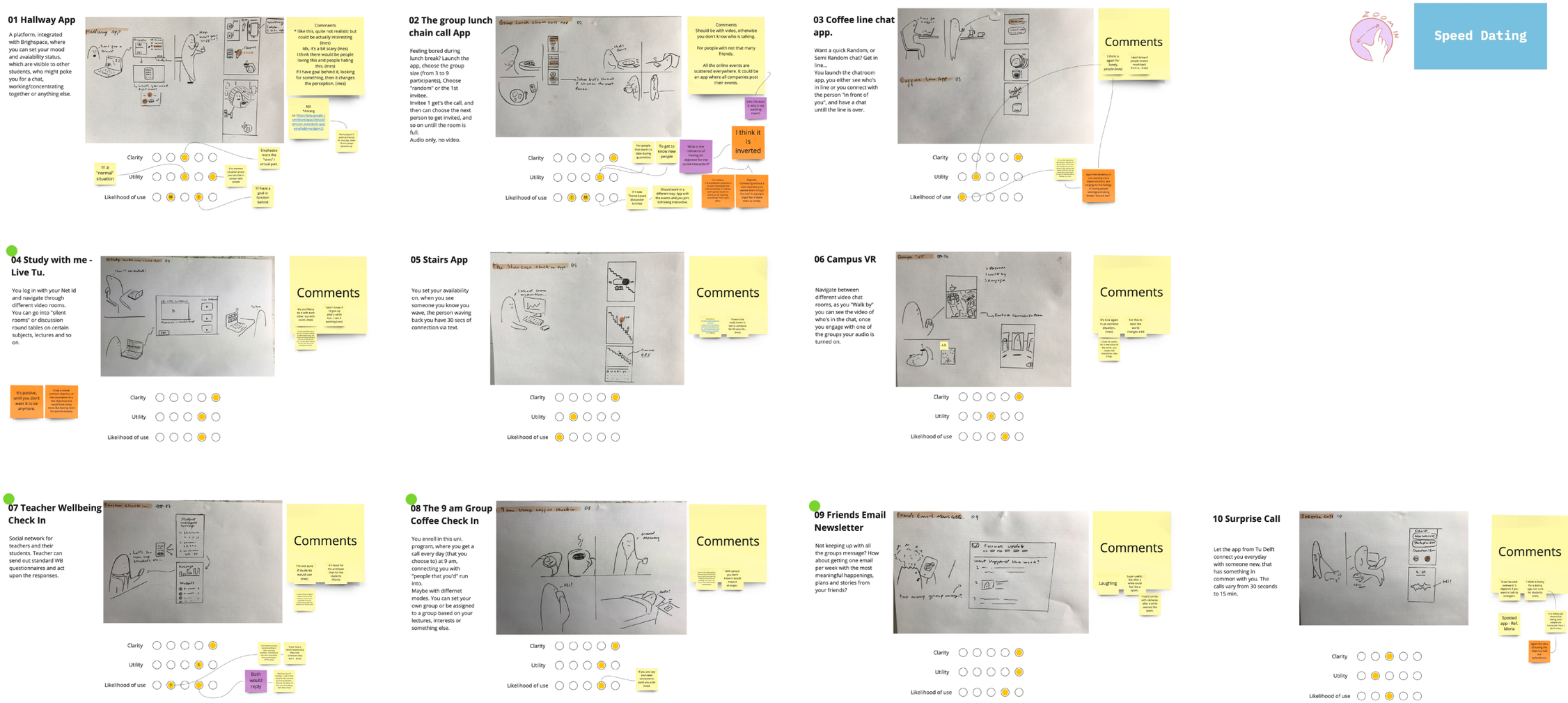


Figure 30: Concepts presented to participants.

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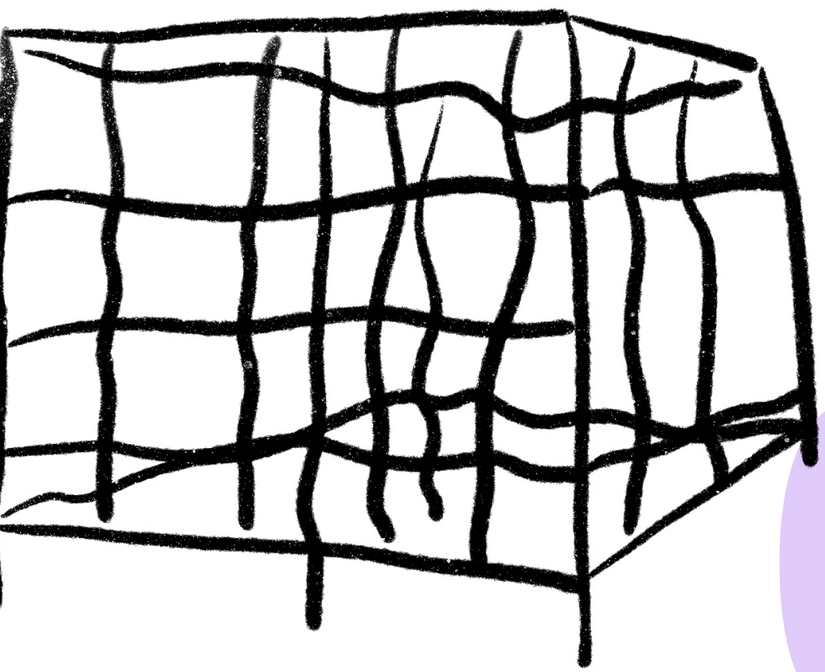
DEFINING THE CONCEPT'S ATTRIBUTES



06

A MULTI-STAGE FRAMEWORK for sustained wellbeing promoted by technology

If you want to leverage interactive technology to increase an individual's sustained well-being, Wiese, Pohlmeyer & Hekkert,(2020) propose that by designing product's interactions (properties and Ux qualities) designers may affect drivers of behaviour that would lead users to engage with what they call Positive Activities. The consistent and conscious engagement with these activities, in turn, generate Positive Experiences which can significantly contribute to one's well-being.

Of course, not all well-being is determined by such activities, but it is one approach to enhance the overall sense of well-being.

Figure 31 shows the proposed multi-stage framework for sustained well-being promoted by technology (Wiese, Pohlmeyer & Hekkert, 2020), and Figure 32 shows an illustrated adaptation to this project's context.

We as designers have the opportunity to contribute to the very medium which mediates and shapes much of these activities.

Thus, this project strives to employ this theoretical framework to guide the design process and aim for positive results towards the user's sustained well-being. Following such a structure helps to focus the efforts where the product has potential for impact.

Therefore, having identified the positive activity that most relates to our context and the needs identified during the context mapping research is Nurturing Social Relationships. The design efforts are focused on products properties and user experience qualities that can potentially affect the necessary capabilities or opportunities related to the chosen positive activity.

The framework draws knowledge from different fields such as User Experience Design (UX), Positive Psychology and Human-Computer Interaction (HCI), proposing a link between anecdotal design knowledge and well established psychological and behavioural theories.

It proposes that designing the attributes of the product, which through interactions, allows the user to be exposed to its experience qualities, which in turn affect the drivers of behaviour connected to the positive activities. Engaging with positive activities leads to positive experiences, which may contribute to sustained well-being.

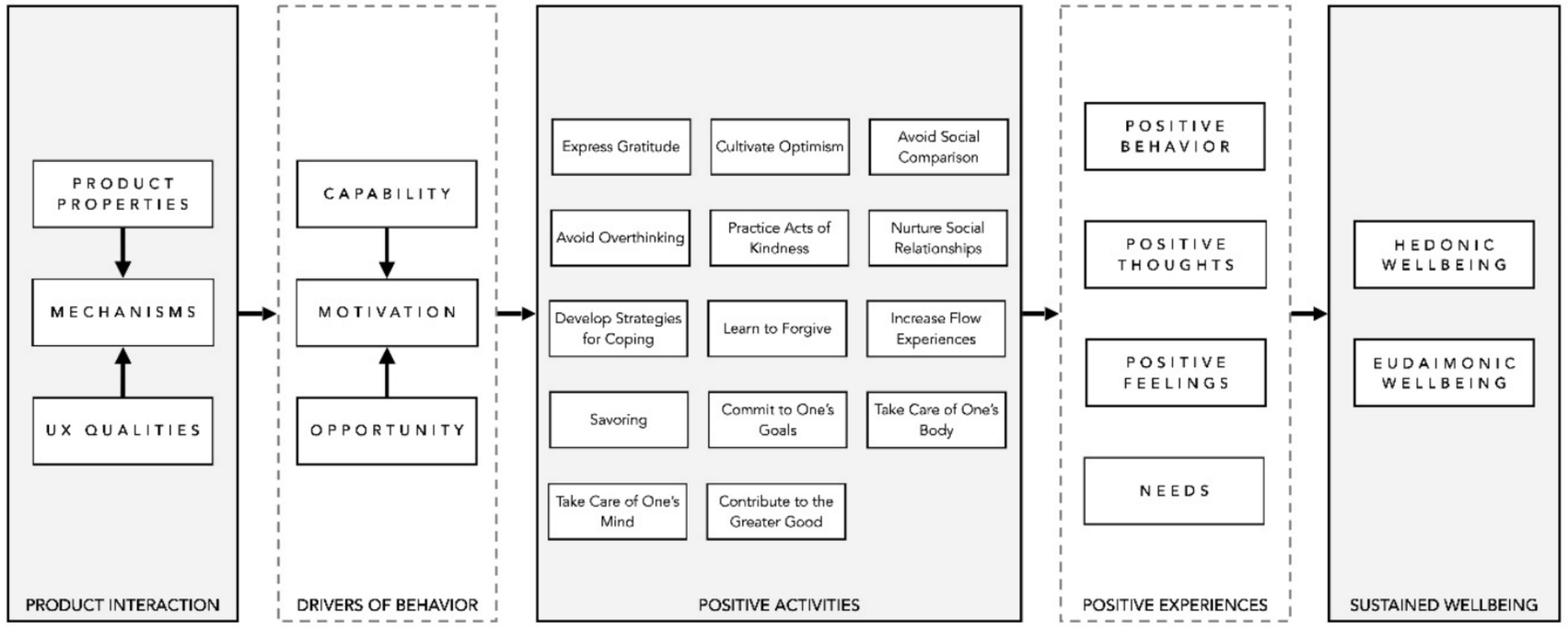


Figure 31: The multi-stage framework for sustained wellbeing promoted by technology.

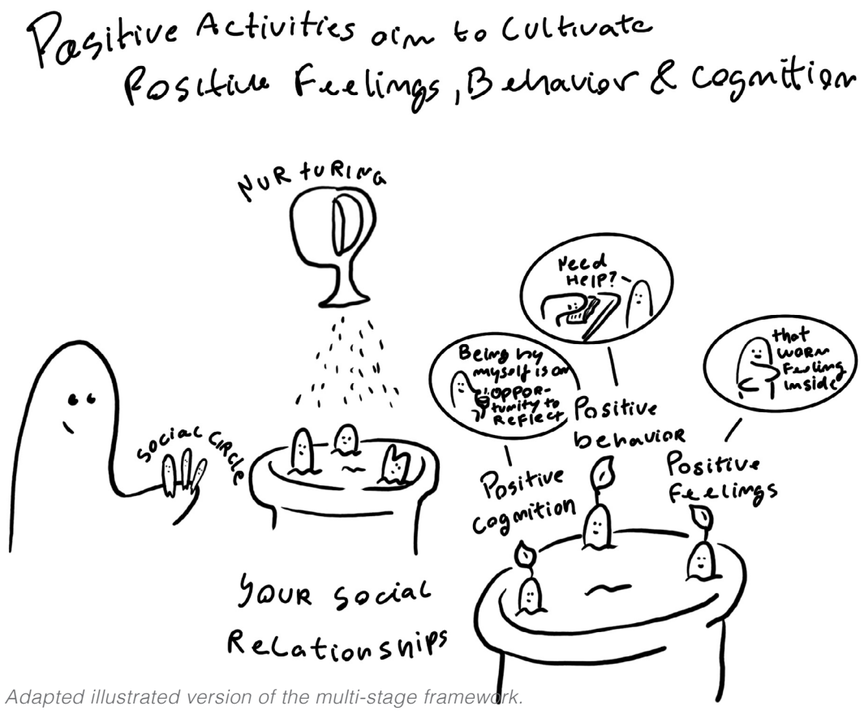


Figure 32: Adapted illustrated version of the multi-stage framework.

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Addressed needs

The product's attributes were defined following the theoretical framework to address the needs identified during the qualitative research effort. Specific Product Attributes aim to generate specific Experience Qualities that contribute to Drivers of Behaviors related to the target Positive Activity, as seen in Figure 33. Drivers of Behavior are related to the necessary Motivation required for one to engage with the Positive Activity. Motivation is defined by the relation between Capability & Opportunity, which is inversely proportional; the higher the opportunity, the lower the necessary capability, and vice versa.

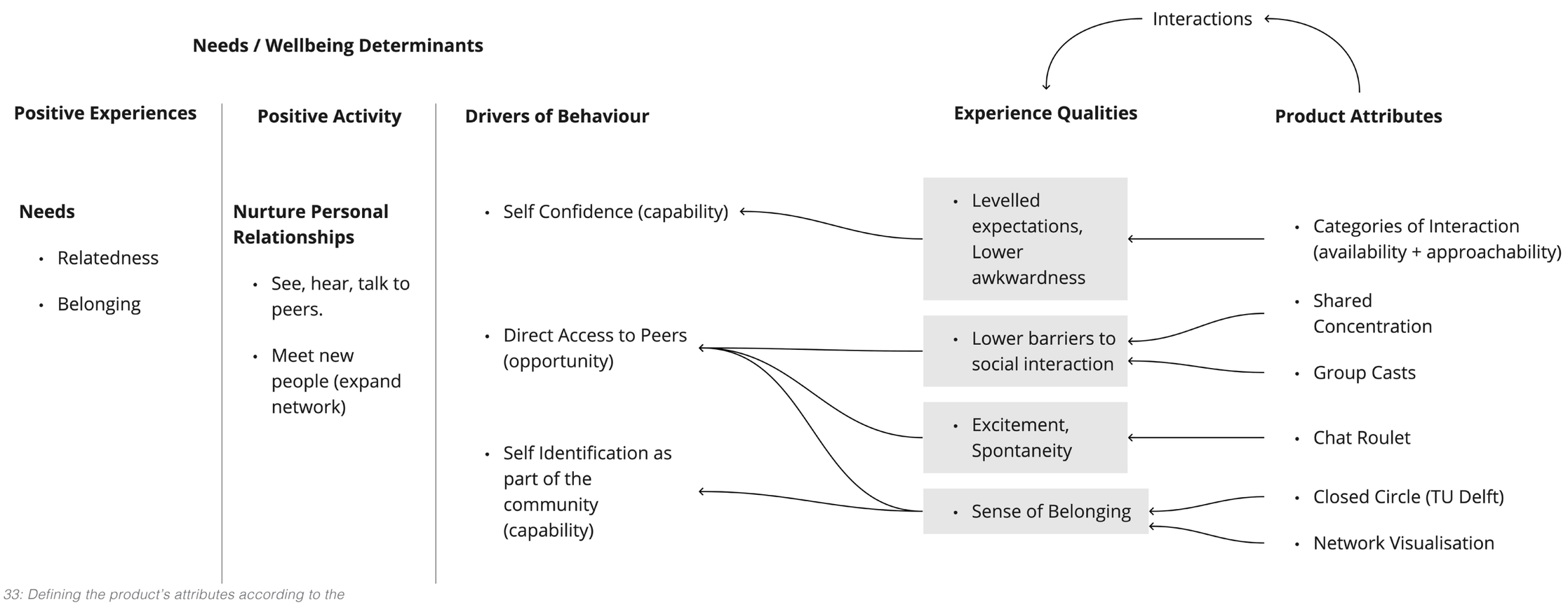

Figure 33: Defining the product's attributes according to the needs to be addressed.

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For example, the concept aims to enhance Self Confidence in users to increase their capabilities to engage in online social interactions by providing experience qualities of a levelled field of expectations between the two parts to be connected. This is achieved by implementing the attribute of Categories of Interactions. This allows participants to state their availability for different types of interactions (study-related, have a quick break or get to know someone new) and at the same time gives a sense of approachability for someone who might propose the interaction. All main attributes and correspondent drivers of behaviour can be found in the table in Figure 33.

Within the many described Positive Activities in the framework (Wiese, Pohlmeyer & Hekkert, 2020), there is one closely related to this context: Nurturing Social Relationships, which is composed of several ways in which we might socially interact and therefore build our personal relationships. In the qualitative research, the impact of the social distance imposed by the Covid-19 pandemic and consequent restrictions has been especially tasking on students capacities to engage with such social activities. Many of which were naturally generated by the social and physical structure surrounding student's campus life and routine, which in turn contribute to the nurture of their social relationships. It could then be benefiting their own sustained well-being over time.

All the concept attributes aim to create conditions for increased motivations (capability + opportunity), facilitating and triggering students to engage with the Positive Activity of Nurturing Personal Relationships. This, in turn, aims at cultivating positive behaviour, feeling and cognition related to nurturing social relationships, with the end goal of, albeit indirectly, contribute to an increase in student's sustained well-being in a condition of social distance.

Means-End Chain

Other than reinforcing the apparent relevance of social interactions in the academic environment, Wiese, Pohlmeyer & Hekkert,(2020) framework provided this project's process with the Means-End Chain (M.E.C) structure. Which guided the design process by giving a clear view of the correlations between the product's concrete attributes, user experience qualities, drivers of behaviour and ultimately enhanced sustained well-being. Figure 34 shows the structure developed for this concept.

Means-End Chain

Values (well-being outcomes)	Well-being outcomes	Relatedness & Belonging
	Interpersonal orientations	Building your social network
Consequences (well-being determinants)	Activities	Meet / Talk to / Hear from their peers
	Motivations	Self identification with group / Self confidence
Attributes (interaction patterns)	Experience qualities	Ease of access to community / low friction
	Concrete attributes	Varied modes for social interaction, common & constant environment.

Figure 34: Means-end chain.

PROTOTYPING EXPERIENCES

07

As a form of validating some of the concept's functionalities, whilst striving for a positive impact on TU Delft students as we go through the Covid-19 pandemic lockdown, three of the main functionalities were prototyped using current technology, some instructions and a host acting as the application backend. The functionalities tested were: Shared Concentration (Figure 35), with the possibility for One-on-One interaction and in a separate session, the Chat Roulette (Figure 37).

This is what I miss the most! Even if I'm talking 30 min more I'll move faster now.. Because of sharing my thoughts and comparing with your experience..
Participant 05

Sharing Concentration

During this prototyping session, students joined a study session with a duration of one and a half hours. It was conducted using Zoom. In the main room, all microphones were off, and students could only observe each other.

Participants were previously instructed on requesting a One on One connection with other participants. They would send a message in the chat with the name of the person they would like to connect with and a correspondent symbol to the nature of the topic of conversation (study-related, just say hi, take a timed break).

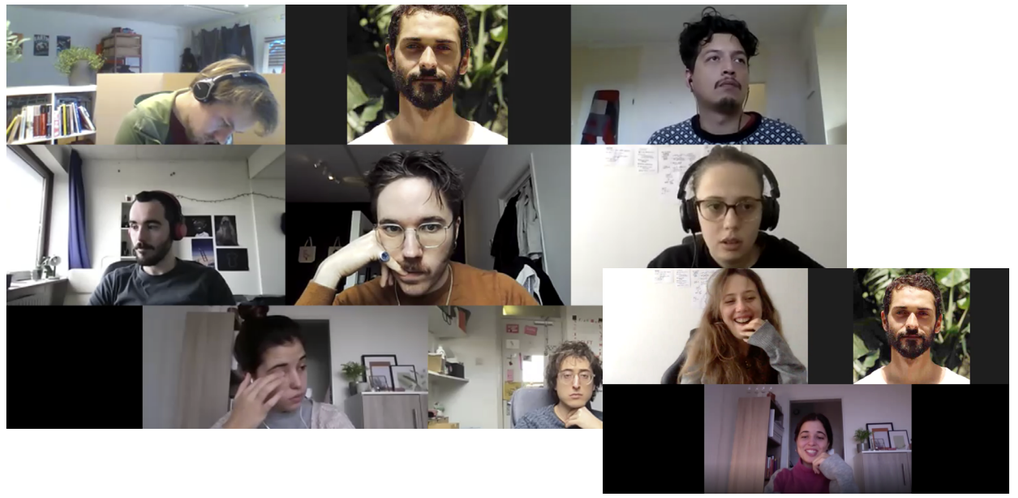

Figure 35: Screenshots from sharing concentration prototyped experience.

Chat Roulette

Together with the University and Faculty PhD councils, two chat roulette sessions were organised, the first with 48 and the second with 30 participants. Before the event, participants had to sign up via a survey. After the events, a debrief survey was sent out. The first session was conducted inside the community Microsoft Teams, with the matched manually assigned by the host. The second event was started in Microsoft Teams for an opening moment, afterwards being moved into Glimpse - a platform for speed date matches.

In both events, each participant was randomly connected to another peer. In the first event, each conversation went on for 10 minutes, in the second for 5 minutes. Participants were keen on longer connections.

The participants very well received the events, mostly demonstrating the will to participate again.

One participant from the first event came to be the co-organiser for the second edition. The PhD council and the community indicated they would keep on organising these events on a monthly basis.

In order to incentivise more university staff members to organise such events, two materials were generated to be distributed within TU Delft. First, a small article shared via the PhD council's newsletter. The second was a pdf with recommendations on how to organise such events. Both can be seen later on in this section.

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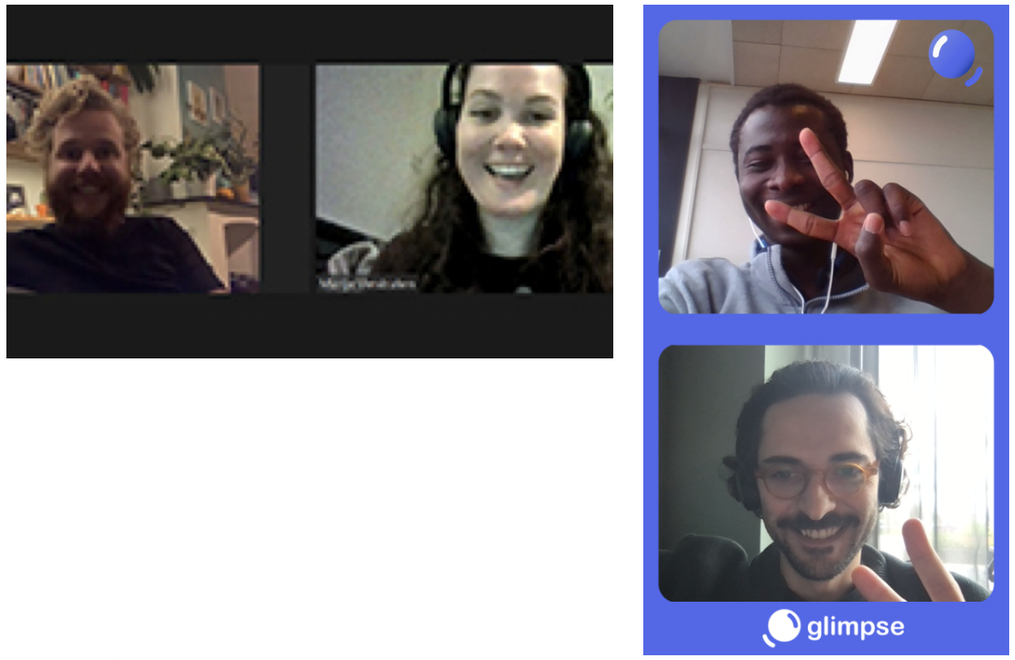


Figure 36: One-on-one chats during chat roulette event

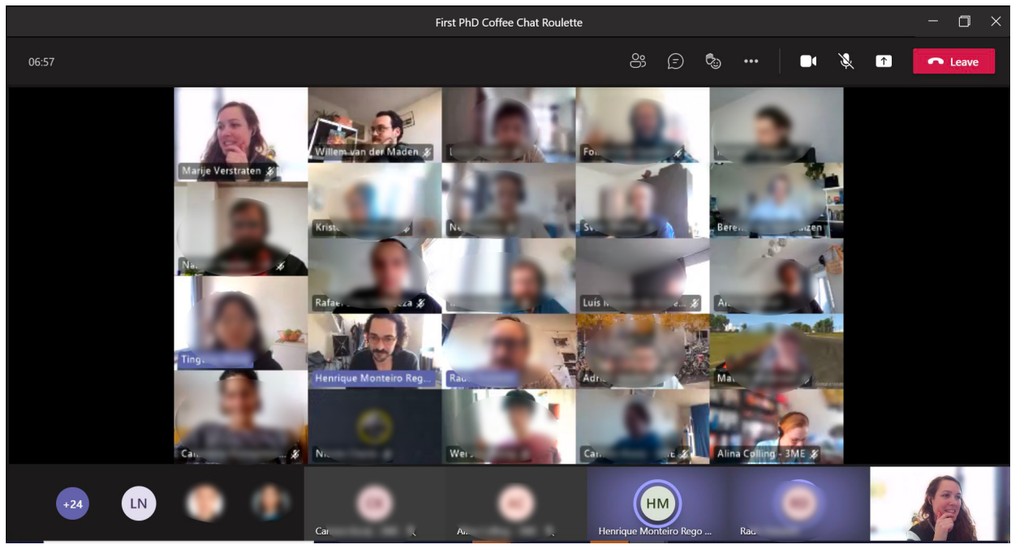


Figure 37: Opening session for Chat Roulette event.

Prototyped experience assessment

The Shared Concentration.

The responses for both activities were very positive. For the Shared Concentration, 83% of participants reported having had a good social interaction.

Couple of breakout rooms with friends that I had not seen for a while, chatting about how are they doing and the situation in their lives, not really about work.

When reporting on the impact on their mood, participants said:

Every now and then I opened Zoom, and looked at the others working. This motivated me and helped me focus more on my own work.

I felt good seeing other people struggling in their work as much as me! ahah

In the main room it was a bit back and forth between "I should work" and "what is he/she doing" and I also periodically looked at the chat because I was afraid to miss something. In the breakout room with Mikel it was pretty pleasurable to sit back and chat for a bit, but it took about half an hour or even more I don't know. It was refreshing and nice to talk to him.

The last quote reinforces the idea of levelling the understandings between the two parts before connecting with each other and introducing timers to help them resume their study without an awkward feeling of interrupting the conversation themselves.

Did you feel any impact on your work/study?

From 6 respondents, 5 said Yes. 1 Said no.

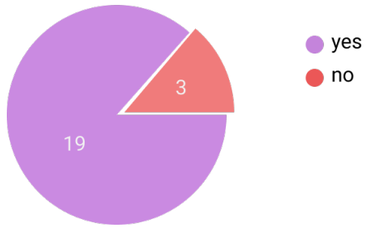
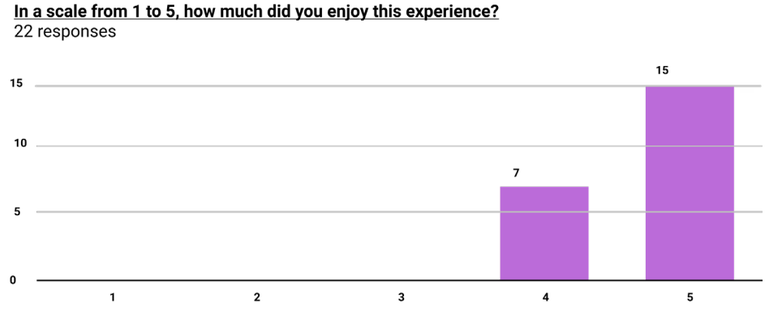
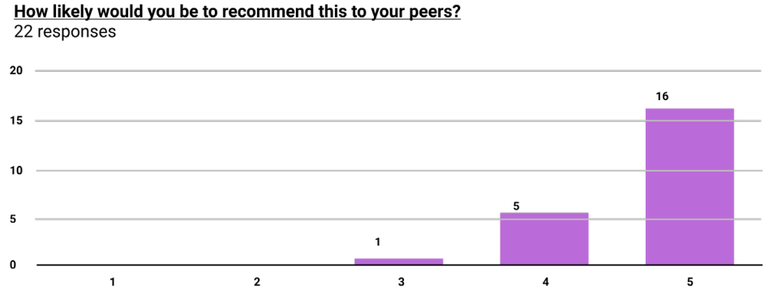


Figure 38: Shared concentration survey result.

The Chat Roulette

For the Chat Roulette, from the 38 participants of the first event, 22 have filled in the debrief survey. When asked how much they have enjoyed the experience on a scale from 1 to 5, 15 answered 5 and the other 7, 4 (Figure 39). Furthermore, 16 gave a 5 when asked if they would recommend this activity to their friends. While other 5 gave it a 4. 19 said they would like to participate again, the other 3 said "maybe".





Would you participate in a second edtion of this event?

From 22 respondents, 19 said Yes. 3 Said Maybe.

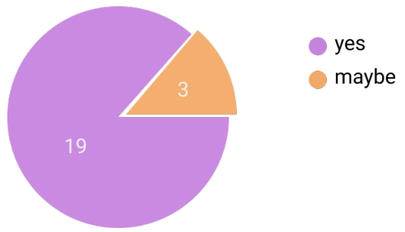


Figure 39: Chat roulette edition 01 survey results.

Article for PhD Council.

In an effort to share the insights gained into promoting online social interactions between peers within the university setting, a brief article was written and shared in the PhD council's newsletter.

Differently from this project, which takes on a future vision to propose a new manner of online social interaction, the observed context and the organisations involved are having to deal with the restrictions brought upon by the Covid-19 in real-time, with much improvisation and using the available resources. Therefore, the following recommendations aim to establish some basic parameters that hopefully will help people in charge of such organisations build successful events and online communities. Following, the article:

Digital social interactions – Chat Roulette Pilot

We mostly talk about how the pandemic changed our daily work routines, but it also changed our social interactions at work and at home.

The current times are not only ideal to understand how to set up human power mediating in our online communities and events, it is an opportunity for more humane digital interactions. This might actually be planting a seed for an overall more natural way of online socially interacting in the near future. Binding, in part, our social online activities to "real life" social communities may help us shape a digital environment with a lower cognitive load, therefore better align with our current capacity for information intake. Finding an appropriate approach may actually reinforce our social relationships instead of secluding us from one another.

With this idea in mind, Henrique Monteiro Rego Meyrelles (Master student Design for Interaction) got together with Alina Colling (UPC) and the Graduate School communication officer to pilot a Chat Roulette session for PhD candidates. In this session participants were randomly paired for brief informal talks with one another, to get to know new people and expand their network. It proved to be quite popular - more than 50 participants took part in the pilot session!

The session received positive reviews "brilliant, a much needed exposure to new faces and new conversations" and enthusiastic comments of people wanting to attend this

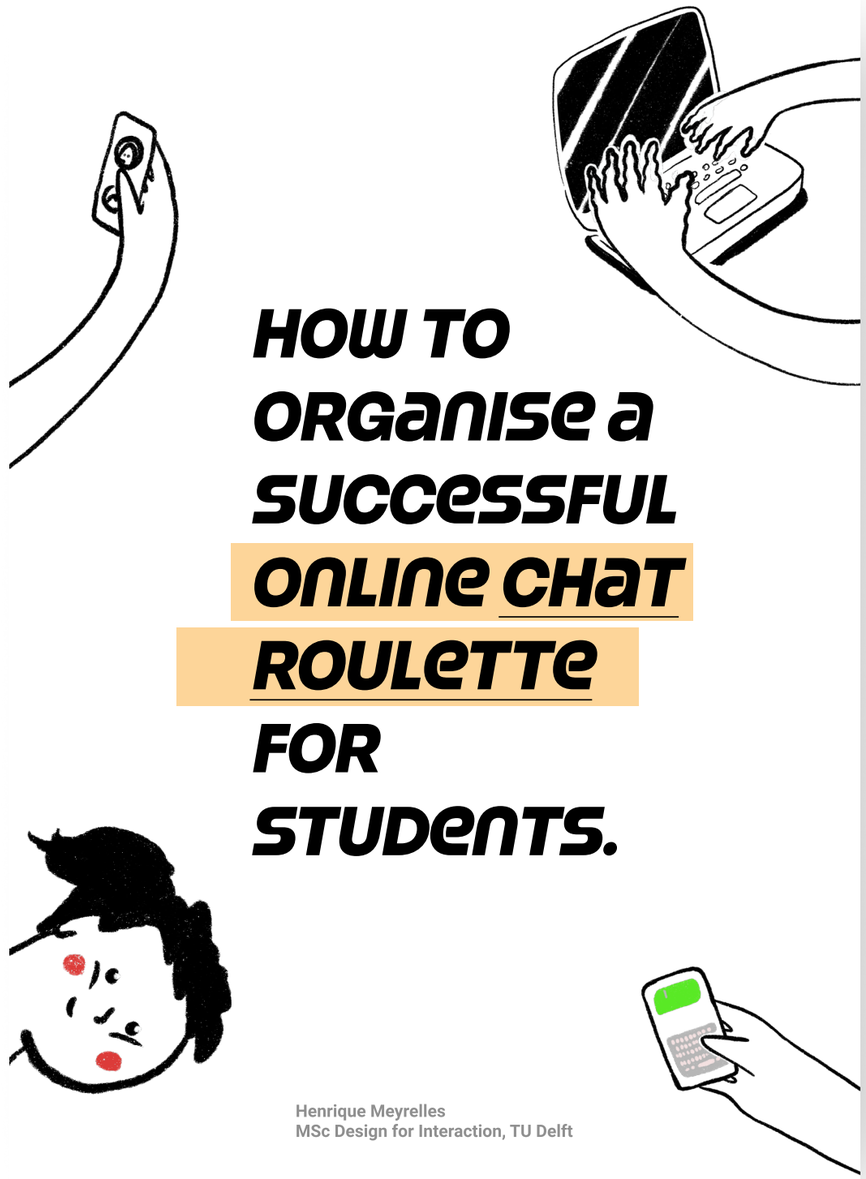
on a regular basis "(..)maybe everyday 1 random chat would be better(…)". It also gave us insights to understand the communication needs of our PhD community. For instance, a 10 minute conversation time, was widely viewed as too short to ensure sufficient valuable connection points that could lead to a more in depth conversation outside of the Chat Roulette settings.

Having organised this Chat Roulette but also other events over the duration of the last year, Henrique and Alina have some take aways for setting up an online community:

1. It takes effort to set up a successful online community. Simply setting up a channel on a platform and hope for users to self organise and feed the channel is not going to cut it.
2. Feed the online environment with different event formats. Some events might be to connect new comers, or to discuss specific subjects, and even less objective ones such as a collective remote movie night for example. Try and see what sticks.
3. Use different platforms for different situations. There are many options for specific types of social interaction out there. Many more are coming up as a consequence of the pandemic. Try them out to identify whats works best.
4. Create "non-activities". Many times the most valuable interactions happen in between events, activities or tasks. This may be when people are randomly waiting on something but still have the capability to communicate with each other. Often the magic happens when people are at their most relaxed and unpretentious states. So, instead of instructing participants to go into breakout rooms for chatting in between the main events of your online gathering, leave some space for them to engage spontaneously. If possible, give them the necessary tools to customize this experience, such as the possibility to navigate break out rooms on their will.

RECOMMENDATIONS ON ORGANIZING CHAT ROULETTE

As a final effort to disseminate the benefits and ease of organisation for Chat Roulette events, this pdf document with recommendations was designed. The document was presented to the two co-organisers of the event, Marije Verstraten and Sehouevi Mawuton David Agoungbome. With their feedback, some final adjustments were made.



Designing for positive online social interaction Henrique M. R. Meyrelles

We mostly talk about how the pandemic changed our daily work routines. Still, it also changed our social interactions at work and home.
The current times are ideal for understanding how to set up human power mediating in our online communities and events; it is an opportunity for more humane digital interactions. This might be planting a seed for an overall more natural way of online socially interacting in the near future.

Organising online Chat Roulette for students and staff might just be the way to start.

What
So, what is an online Chat Roulette?
It is a speed date type of event where participants are randomly or semi-randomly matched in short format one-on-one videos chats.

Why
You may ask yourself: should I organise an event such as this?
The answer is yes! :)
Events like this are an easy and effective way to stimulate students to get to know each other, feel part of the student community and be motivated to keep socially connecting on their own.

How
Organise events, even if the students already have an online environment such as MS teams or WhatsApp groups. It is important to have events where students are consciously engaging in social interaction.
You may improvise with such platforms or choose to use a specialised platform such as Glimpse or Connect.club.

A simple format would consist of an introductory moment with all participants together, reminding everyone of what to expect—followed by the chat roulette and finishing with a wrap-up session, again with everyone together. It might be nice to ask for participants feedbacks at this final stage.

The aim is for a **Quick, Easy & Low-Pressure experience**. So aim at a total duration of around 45 to 60 minutes, with each interaction ranging from 5 to 15 minutes.

You may have a completely random matching of participants, which in some cases works perfectly. But also, you can strive for more impact by matching participants by interests or specific criteria such as first and second-year students, faculty, courses and so on.

Going beyond
Create “non-activities”. Many times the most valuable interactions happen in between events, activities or tasks. This may be when people are randomly waiting on something but still have the capability to communicate with each other. Often the magic happens when people are at their most relaxed and unpretentious states. So, if possible, have a small break in between matches and let participants naturally self organise.

Figure 40: Recommendations document pages 01, 02, of 04.

It's super easy!

Here is a step by step on how to set up a chat roulette event. Use this as a base but do explore the many other possibilities that might fit your specific context!

#1 Have a *Game Plan*
Choose a key goal or theme for the event.
For example: Letting new students get to know each other.

#2 Choose your platform
There are many possibilities to choose from. Keep in mind that if you choose to use platforms not specially designed for these activities, you will demand more human power from the event's host. Here are two examples of specialised platforms you can use:
Glimpse
Connect.Club

#3 Choose the date and time
Try to identify the right time for your participants to be available and with energy for it.

#4 Promote the event
Share the event's details within the appropriate medium for your participants to be aware of. It might be a good idea to share a link for a signup form, where participants demonstrate their interest and share their contact info (email), so you can remind them of the upcoming event a couple of days beforehand.

#5 Prepare for tech problems
Ideally, run a pilot session beforehand. And be aware that participants might encounter technical difficulties. It might be wise to have a second moderator other than the host to assist in such situations.

#6 Facilitate engagement
Provide participants with icebreakers and remind them this is supposed to be relaxing. This is just a way to establish the first contact and that they may exchange information for future talks.

#7 Ask for feedback
If you intend to run this event more than once, provide participants with a simple survey where they may give you feedback on what works and what doesn't.

People want and like it!

TU Deft's PhD councils have organised two pilot sessions of a chat roulette event. They had 48 participants on the first and 30 on the second edition. Overall, participants received it very well. They demonstrated a lot of excitement and willingness to participate more times. Here are some of the data and feedback collected:

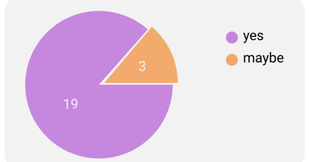
Who participated?
PhD candidates from 9 different faculties got together, generating more than 200 connections.

- 3mE
- TBM
- TNW
- AE
- IO/IDE
- EWI/EEMCS
- BK
- ImPhy-Optics research group
- CiTG

How much did they enjoy it?
From 22 respondents, 15 gave it a 5 out of 5. The other 7 gave it a 4 out of 5.

★★★★★ (**15**/22)
★★★★☆ (**7**/22)

Who wants more?
From 22 respondents, 19 said Yes.
3 Said Maybe.



It's energising!

Kinda scary initially but fun afterwards. I need to work on my icebreakers.

Awesome social activity

A fun way to meet new people!

Very interesting. I was sceptical but it revealed to be a nice experience.

brilliant, a much needed exposure to new faces and new conversations

Figure 41: Recommendations document pages 03, 04, of 04.

FINAL CONCEPT ITERATION

The final concept iteration consisted of two rounds of user interface (ui) design, guided by a user experience map. User flow charts were defined for each section of the product.
The final iteration was designed with user feedback on the first iteration (Figure 42) and aesthetics research.

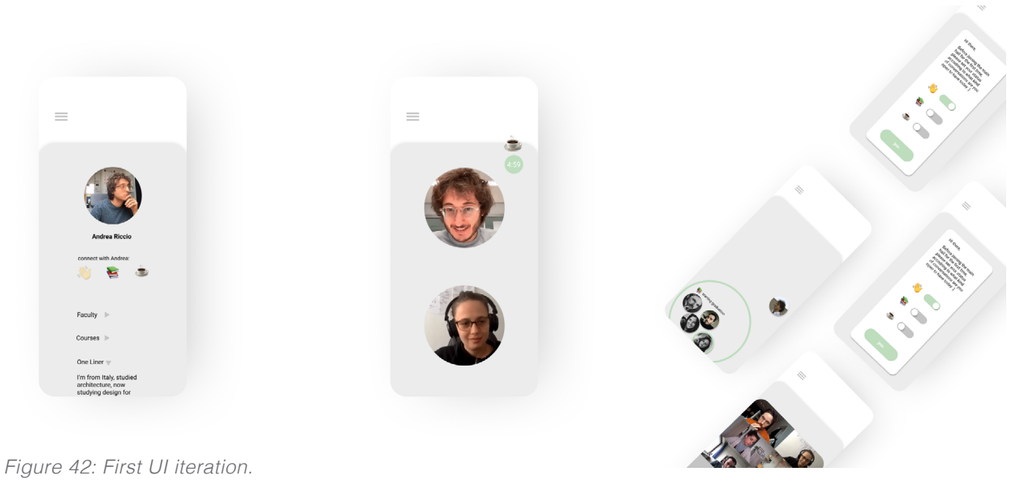


Figure 42: First UI iteration.

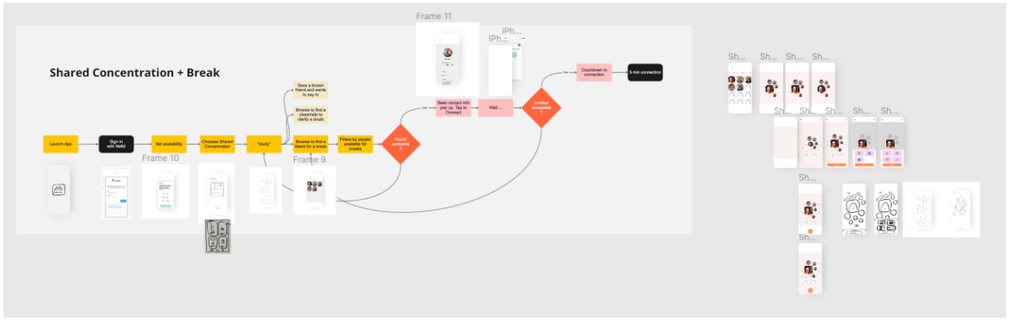


Figure 43: Shared concentration user flow map.

A more friendly and welcoming colour scheme was defined, as well as the illustrations and elements.

The name

Atrium stands for an open-roofed entrance hall or central court in an ancient Roman house. It was chosen for its resemblance with the university halls.

Figure 44: Atrium Logo.

The design system

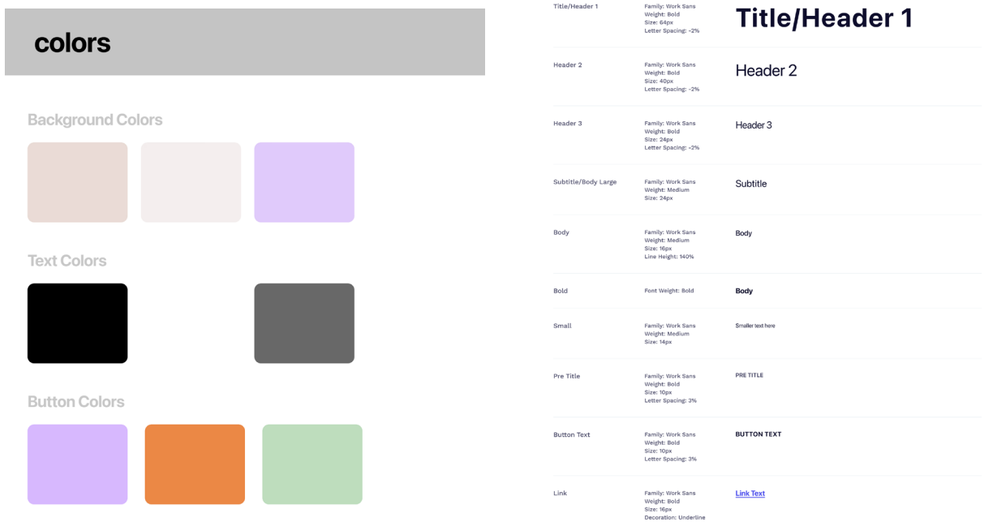


Figure 45: Design system, colors and typography.

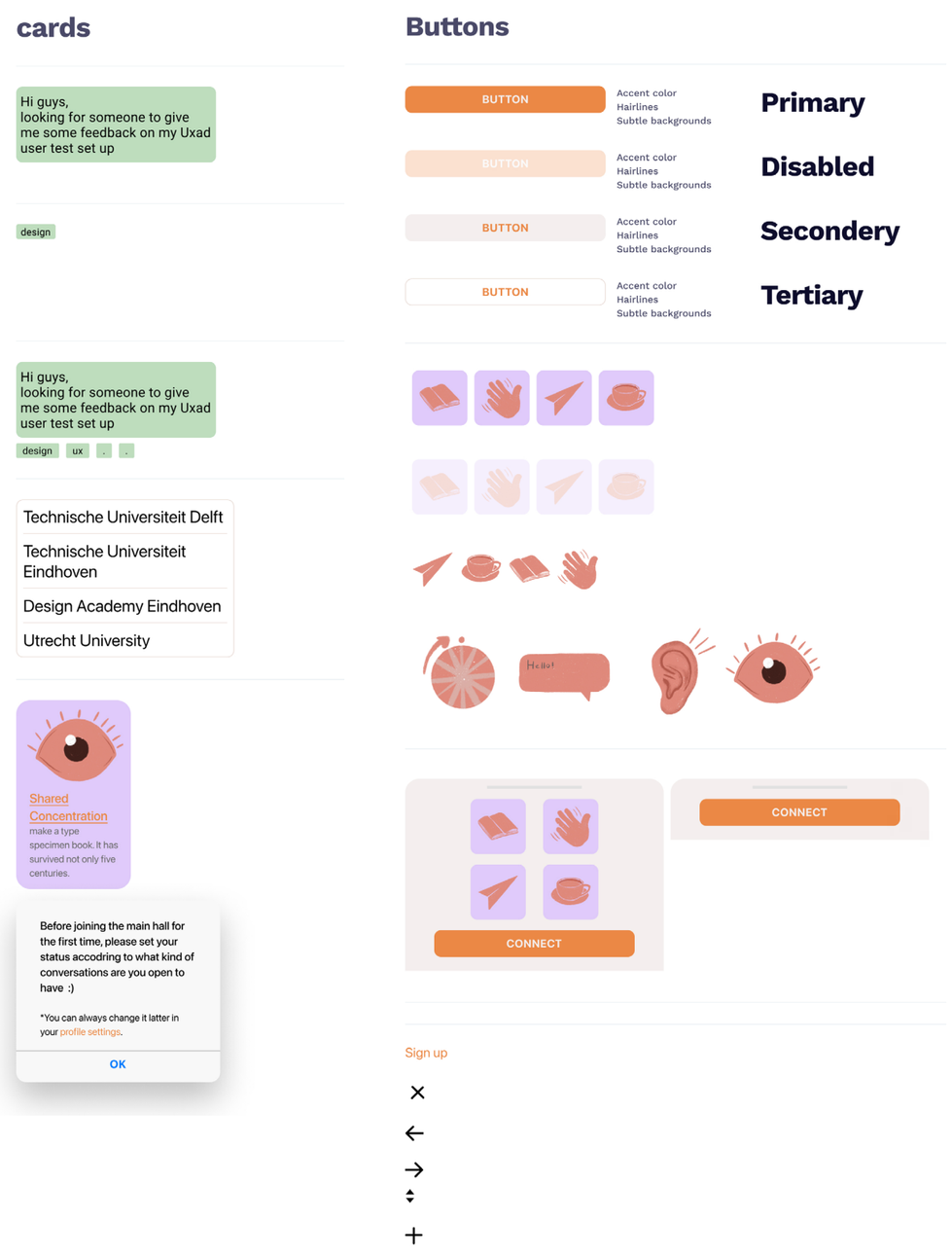


Figure 46: Design system, buttons and cards.

EVAL-UA-TION

USABILITY & EXPERIENCE TEST

With the initial feedback from users interacting with the basic initial concept, a new iteration was designed. However, the concept's new version and its prototype kept the same structure as before, though, with more details in the user interface and interactions. Also, some of the features and functionalities, such as the discussion forum, were new.

Alongside the development of the final prototype, an user test plan and set up was designed. The user test was conducted virtually because of the current Covid-19 restrictions. Participants were introduced to the virtual prototype, instructed to explore the concept as if they were using it for the first time and incentivised to share their thoughts along the way. The test was focused on understanding how users would experience the different ways of interaction and looking for usability issues.
Also, with the benchmark research, it was possible to avoid certain mistakes by preemptively looking at existing solutions.

Process

So to evaluate the prototype, a total of 5 participants were recruited, all meeting the screening criteria of being TU delft students. The number of participants was limited to five since there seems to be a sharp diminishing return after the fifth participant for usability tests. Five participants can be expected to point out 85% of the product's usability issues (Nielsen & Landauer, 1993). The test took one hour, 10 minutes introduction and open-contextual-questions, 30 minutes using the prototype, 10 minutes debrief questions and 10 minutes of final considerations and feedbacks.

Results

In the appendix A, are the results from the test with all relevant remarks users made. The evaluation results were clustered into three main groups: How they felt/experienced, Liked/Disliked, Usability (user experience & interface). The main focus was on how users have experienced each mode of interaction. Further, there were many findings and feedback on the usability as well.

Feelings / Experience.

Participants, in general, experienced a lower barrier accessing their peers with the concept. They reportedly felt less as if they would be disturbing the other person.

All participants had different preferences for the different modes of interaction. Some felt anxious about the Chat Roulette, while others were excited. Some thought they would use more the shared concentration while others did not feel comfortable with it. Most participants stated their prefered and least desired mode.

One participant said to feel exposed when a sudden live connection started due to him reacting to a discussion forum post. It made clear that more steps between reacting and connecting were desirable.

Usability

There were many usability issues to be resolved. If we consider the early stage of the product design itself, it was to be expected. Some more relevant feedback on this area concerned the possibility of utilising the sync with student's NetID (source) to have more points of data for the matching functionalities in the Chat Roulette mode.

Moreover, participants were satisfied with the simplicity and consistency when navigating.

Likes and dislikes

Participants mentioned the ease of getting in touch with others as a high point in the experience. The different functionalities nested into the same domain, enabling different interactions even if with the same people. One participant disliked the fact that the product was a smartphone application.

+

Some additional feedback was that it should be more group focused: Enabling the formation of "clicks", which stands for the group of peers you feel more connected to, generally formed during the first weeks of the course. Allowing for multiple participants in live video chat and when partaking in the Chat Roulette could diminish the anxiety some experience in such activities.

Furthermore, supporting this group identity issue, it was fascinating to see that all participants started their profile description by stating their MSc track.

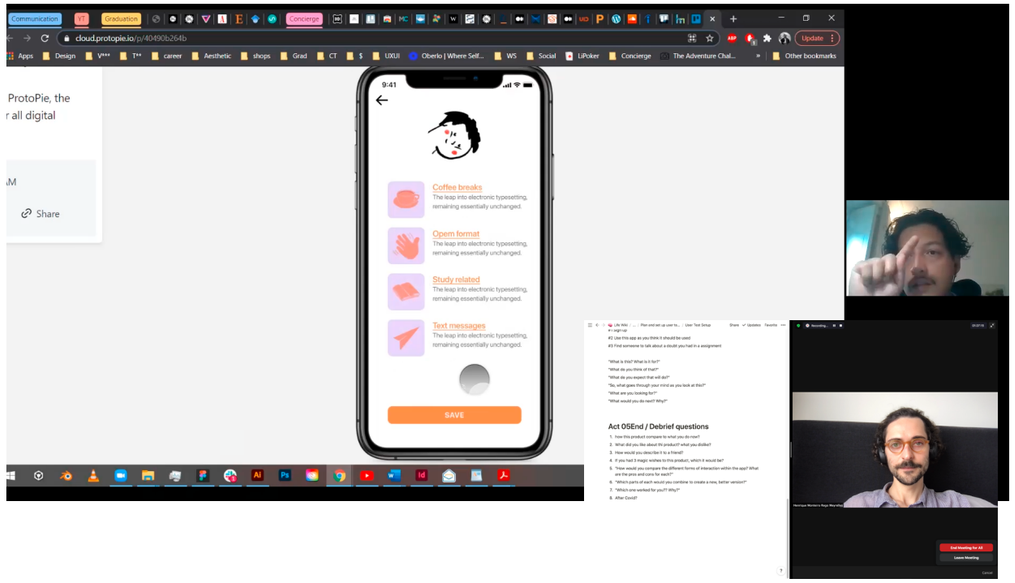


Figure 47: User test online session.

I like the variety of things, the fact there are groups with whom you can speak to. Both also you can talk to individuals. And I don't need to engage with people if I don't want, I can see what people are doing.

I think this product can improve the quality of life of a student, specially if it is remotely.

It would be nice to test with other people.

It lowers a lot the barrier. I would have the barrier of me contacting people. I would think I'd bother them.

Figure 48: Participant's quotes.

CONCLUSION

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In this final chapter, we go through the conclusions derived from the project's process, outcomes and evaluation. This project starts by exploring students experiences while studying from home due to the Covid-19 pandemic restrictions. Being secluded at home meant an intense digital routine for students, pointing towards studying the relation between digital interactive technology and students' wellbeing. At the same time, a fundamental problem with this isolation was the inability of students to carry with their social and networking interaction within the university, which presented the opportunity to design for positive digital activities, aiming at the nurture of personal relationships.

For the students, online (live) social interaction with their peers was said to be boring, energy-consuming and awkward. Also, peers who are not from your close group of friends became very out of reach.

Therefore, students do not have the necessary motivation to expand, develop and nurture their social connections within the university.

The current solutions for online social interaction mainly focus on either retaining as much attention as possible or being very objective and practical.

Although the technology exists, it still lacks ways to experience human connectivity on a more natural level. A platform that enables better nurturing of a community and all the relationships within it. We miss a solution that caters to the differences in personality and types of social interaction.

In this way, an ideal scenario would have students experiencing a sense of community when interacting with the platform—feeling comfortable to reach out to their peers, even if they are not acquainted yet. Having social interactions contribute positively to their study and wellbeing instead of distracting and harming them.

What was found to be a way into solving this problem include a closed community platform, which creates an environment of trust and accessibility, lowering the necessary social capabilities of each student to reach out to their peers. It also requires a gamma of different ways to socially interact, providing a consistent environment where one can be present without making a big effort or any social agreements to interact. As well as codifies the motives for reaching out to someone, making it clear to both parties what to expect when connecting, be it a study-related issue or simply to get to know more people.

A platform for social interaction is presented, not as a solution given the complexity of the problem, but as a positive contribution towards a healthier online presence for students. The product provides a new view of online social interaction and emphasizes the

importance of nurturing our personal relationships by creating an environment for different kinds of interaction. This environment creates possibilities for casual and spontaneous connection, assisting students in objective matters, and promoting a sense of belonging for students.

By utilizing this platform, it is hoped that students will engage in more social interactions, eventually leading to the expansion and nurture of their social network within the university, consequently contributing to higher sustained wellbeing.

RECOMMENDATIONS & LIMITATIONS

This project encompasses the research and design explorations for creating a better social online interaction. However, the project has several limitations of design and research resources and a limited time frame. Furthermore, the restrictions imposed by Covid-19 also contributed to some challenges. Nevertheless, they also were a central point of the project. Therefore, as in any design project, there is room for further development and improvement.

With the feedbacks gathered on the final user test evaluation, a list of future recommendations was made. It ranges from user interface (UI) aspects to general functionalities and the user experience per se.

In this final chapter, you will find a brief account of such recommendations as well as a final reflection.

More testing

This project was heavily focused on user experiences and the user's feelings when socially interacting online. To address the impossibility of developing a functioning platform to test the user experience in real social interactions, the Prototyped Experiences were performed. This has produced quality insight into how people do experience this type of situation, especially it has caused a real positive impact on participants during the harsh times we live. Nevertheless, further exploration of the real use of this

conceptual platform, with multiple users and through a more extended period, is recommended.

Track and assist

From the user tests, it was understood that there is a desire for tracking features to assist students in their study routine and social network maintenance.

AI

Although the project has made visible the importance of human presence in organising and mediating social interaction online, it also shows the opportunities to apply artificial intelligence (AI). It could be applied for better matchmaking algorithms. It could also dictate the distribution of participants within the open areas such as the Group Cast and Shared Concentration. Although the project recognises the value of applied such technologies, they were not deeply researched or explored yet.

Form Factor

The final concept was designed as a smartphone application. Although, from the user test, it was seen that this could present some usability challenges. Therefore, a desktop extension may be explored. Ideally, the product would seamlessly function across both platforms.

Not only for university

The entire project revolved around university life and students experiences, nevertheless it seems as much of it's findings could be applicable to other environments and contexts. Specifically any context of primary occupation which for any reason doesn't share a common physical environment. Further exploration could be done on how such functionalities would be received in a work environment, for example.

REFLECTION

This project showed me the importance of bringing human traits and presence into the interactive technology world. Working on a small scale, truly connecting people, seems to be only possible with greater involvement of human power behind the platforms. The simplicity with which we could connect so many PhD students in the Prototyped Experiences was surprising. Also, how people were open to that experience. As it was put by one of my co-organisers for the event, the fact that she sent the final invite for the event from her email account seemed to have caused an impact on participants retention.

This pandemic has shown us how much more we can do by simply improvising.

Designing for digital well-being might as well be an oxymoron. There is so much indication out there for the negative effects it brings upon humanity. Yet, it is something so entrenched into our daily lives, so what other choice we have other than striving to learn how to design and use it in a healthier way?

I recently read on Morgan Housel's book, the Psychology of Money, about how pessimism is more attractive to people. Yet, optimism is more likely to be true in the long run, statistically. So I finish this project with the same feeling of hopeful curiosity, wishing for us, as a global community, to make good use of the incredible possibilities these technologies brings us.

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