• Redesign •

the Minddistrict platform to increase therapists engagement

Graduation report

Redesign the Minddistrict platform to increase therapists engagement

Master Thesis

Design for Interaction

Faculty of Industrial Design Engineering

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Preface

This graduation report is the final deliverable of my two year's master program, Design for Interaction. It reports the process and findings of a five-month project: Redesign the Minddistrict platform to increase therapists engagement. Minddistrict is an ehealth company in the Netherlands.

Throughout this project, I have received a lot of help from many people. So I would like to thank everyone who had contributed to this project.

I would like to thank Richard and Magda for being the greatest supervisors. Thanks Richard for your enthusiasm the first time we talked about this project, and your patience to share your knowledge and experience along the project. Thanks Magda for always being so kind, and for finding time for me whenever I needed. I really appreciate your constructive feedback from the design brief to the final report.

Special thanks to my company mentors Mark and Bas. Thanks Mark for providing me with this valuable opportunity to do the internship and continue this graduation project at Minddistrict. Also, your unconditional trust and support. Thanks Bas for contributing much effort to this project and answering me all kinds of questions. I always felt encouraged and less stressed after the conversation with you. It was a great experience to work in Minddistrict.

My gratitude also goes to all the lovely colleagues in Minddistrict. Thanks to all the people involved in this project to contacting therapists, doing the user research, and giving feedback for me.

Huge thanks to all my dear friends in Delft. Thanks for your accompany during these five months, I will remember all the struggles we went through together, and all the delightful moments in the past two years.

Last but not least, my deepest gratitude goes to my parents, for your endless love and care, from the other side of the earth.

Executive summary

This project involves a collaboration with an ehealth company - Minddistrict, to integrate the system in therapists' daily work activities in order to increase their engagement of using ehealth platform.

As is shown in Figure 1, at the beginning of this project, the challenge was that the therapists made little use of the MD platform, but the reason behind it was not clear. As such, literature review, user research and expert interview (in Chapter 2) were conducted in the research phase as a starting point to find out the barriers. The result of this research phase shows that the identified barriers can be summarized into five categories.

From these research results, there were many potential solutions that MD can take to improve the usage rate. In Chapter 3, together with the employees in MD, these potential directions were discussed, evaluated and prioritized based on their feasibility and opportunities. Moreover, nine design requirements were set up, and the design vision was formulated as the following:

We want to improve the therapist's engagement of using the Minddistrict platform, by providing a better onboarding experience and creating an online community where they can actively interact with each other.

The design vision and the nine design requirements gave a clear guide to three design directions: improving the onboarding experience for therapists (Chapter 4), creating an online community (Chapter 5), and exploring future technologies (Chapter 6). For the first two directions, user tests were conducted to collect feedback, and several iterations were done to refine the concepts. For the last direction, two promising technologies were discussed about how to apply them to engage more therapists in ehealth.

The project finishes with recommendations for future improvement and limitations of this project.
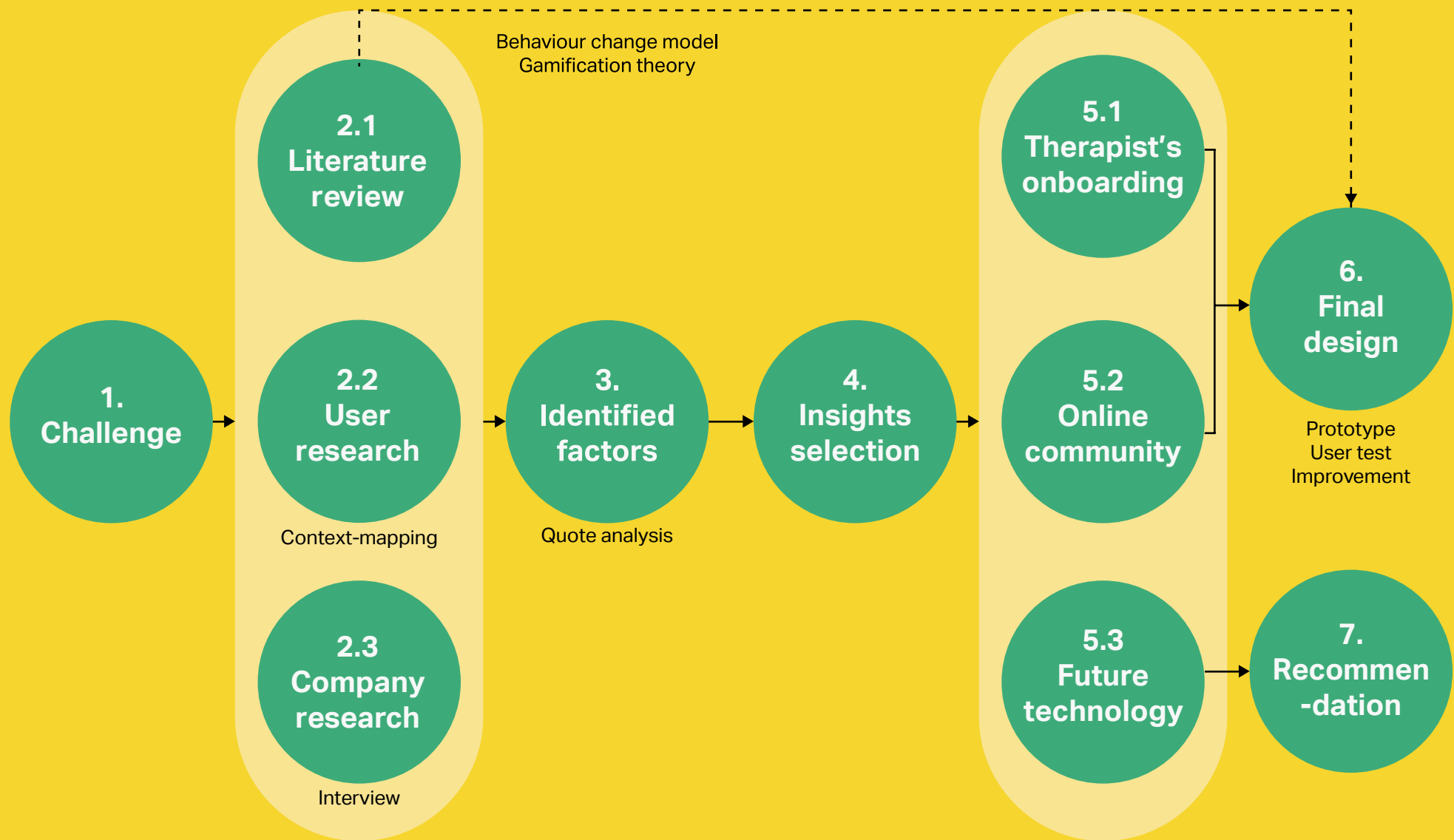
Figure 1: *Process of this project.*

Reading guide

Visual distinction

Content made **green and bold** are highlighted important information.

> Research questions, research goals, design goal.

Content can be found in Appendix.

Quotes from interviewees, participants.

Abbreviations

CTA
Call to action

MD
Minddistrict

KPI
Key Performance Indicator

Table of Contents.

Chapter 1
Project introduction

1.1
About Minddistrict

Minddistrict is a Dutch ehealth company that has been founded in 2008. For ten years, it has grown into its current position as the market leader in ehealth in the Netherlands. Minddistrict also has offices in the UK and Germany, and more than 200,000 users in more than eight countries are using the platform to achieve lasting change in mental health.

What Minddistrict provides is a secure, flexible and user-friendly ehealth platform with an extensive catalogue of online modules, diaries and questionnaires to help clients with mental issues on their way to positive change. Clients are able to contact their therapists through the mobile app and ehealth platform if they have a question and don't have to wait for the next face-to-face meeting. For the therapists, they are able to provide more scientific treatment modules from a huge database to their clients regardless of time and space limits. The benefits of using Minddistrict are mentioned on their website:

- Modules and diaries for every client
- Effective and accessible
- Easy to compose routes yourself
- Easy to use on mobile phone

Company vision:

As stated in the company slogan (see Figure 2): "**Empowering people to master their wellbeing**", Minddistrict wants to support an individual's recovery by means of technology, from prevention to aftercare. For anyone who experiences mental health issues, wants to change lifestyle or wants to learn how to deal with a chronic disease, the ehealth platform and app can help them find the way to positive change.
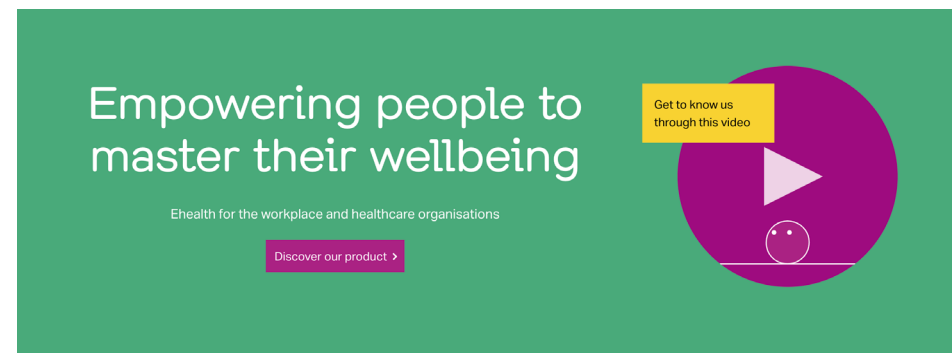
Figure 2: *Company slogan on the official website.*

Minddistrict's vision is to provide a secure, flexible and user-friendly ehealth platform. This section will explain in details what features make the goal possible to reach. The table in the next page shows all the functionalities that are available for users now.

Function that therapists can use

Function that clients can use

Function that both therapists and clients can use
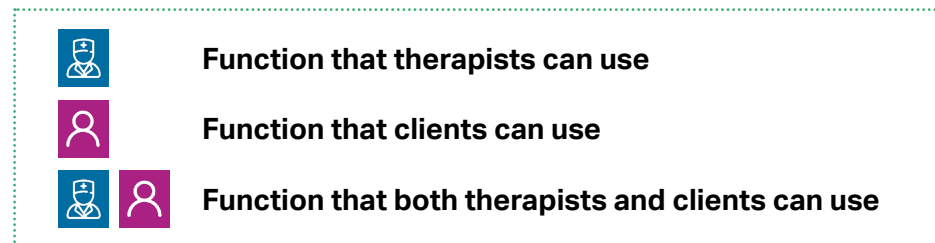
User account

Since Minddistrict is a business-to-business company, the accounts for therapists are assigned by the health care organizations, and therapists can then help their patients to create accounts. Therapists can only see their colleagues in the same organization and their own patients in the address book, and conversation between them is well protected within the platform.

Online interventions

The online intervention includes modules, diaries, and questionnaires. They are developed based on relevant literature and the knowledge of care providers, but especially on the needs of clients. Instead of only using the words and texts during the traditional psychotherapy, this new form of ehealth enriches the form by adding video, illustrations, and real examples. There are more than 200 modules and diaries focusing on the specific complaints and circumstances included in the platform right now. The therapists can choose one from the catalogue and assign it to the clients. After that, the client can complete the tasks within the modules according to his own time schedule, and the results can be tracked by the therapist directly (see Figure 3 for explanation). Since everyone's recovery route is unique, therapists can also add or delete tasks based on the actual situation.

Interactions

Interaction between therapists: Therapists can send messages to their colleagues within the same organization using the platform or the app directly. They can also have group discussion with multiple users.

Interaction between therapist and client: Therapists can assign modules to clients, track their progress, give feedback and provide support for them. A therapist can have several clients linked to his/her account, while a client only has one therapist that he/she can communicate to.

Address Book

The address book enables therapists to search for a colleague or their patients and send messages. They can only see the colleagues of their own health service and their own patients.

CMS & Triggers

This function allows therapists to develop their own modules.

Dashboard

The dashboard allows therapists to see the progress in the modules, view diary graphs, check when the patient was last online and view the conversations.

Plans

Minddistrict enables patients to make plans: an exercise plan, a motivational plan and a relapse prevention plan.

Group messaging

Therapists and clients can send messages safely on the platform and in the app. Having group discussions is also possible.

Notifications & Reminders

Both therapists and clients can receive notifications. Reminders are automatic emails that remind clients to complete the diary, or remind the therapists to give the feedback.

Modules

These modules are the core content in the platform. They contain explanations, videos and illustrations, exercises and examples. Therapists can choose suitable module for their clients.

Diaries

Diaries are an effective tool to gain an insight into patterns and progress. Notifications remind patients to complete their diaries via the app.

Questionnaires

Just like diaries and modules, questionnaires can also be assigned to clients. The results can be viewed by therapists instantly.

Training

Patients with access to Minddistrict can select their own training programmes. These are modules with low-threshold self-help and prevention.
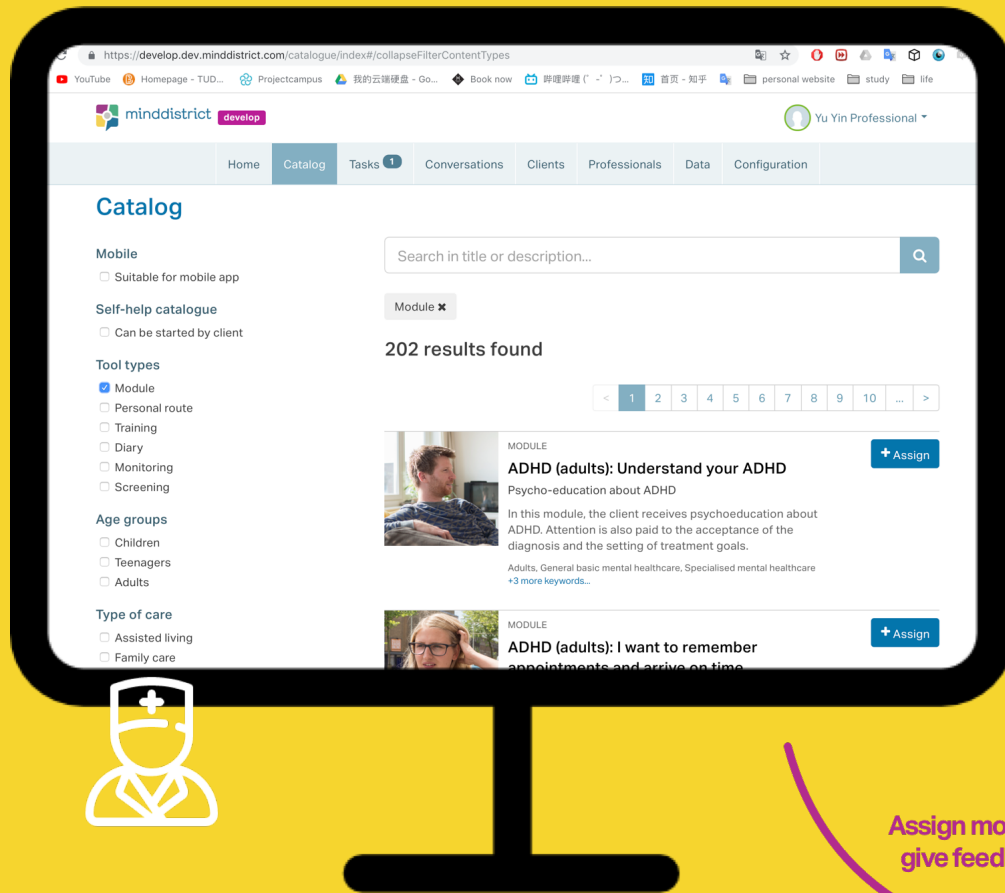
Social Support Network

A patient can involve his or her social network during treatment or counselling. Patients can map out the network, share elements from the personal route or have a (group) discussion.

Video sessions

Video sessions are fully integrated into Minddistrict. Users can start a conversation or make a video appointment in one click.

Client - app

This is what clients can see on their app. They can not only finish the modules that therapists assigned to them, but also choose the low-threshold self-help modules. If they have any problems or want feedback from the therapists, they can send messages in the app directly.

Communicate

Assign modules, give feedback

Therapist - web

This is the catalog page on the platform, and therapists can filter or search for suitable modules and then assign to their clients. Currently there are more than 200 modules on the platform with different topic and target users.
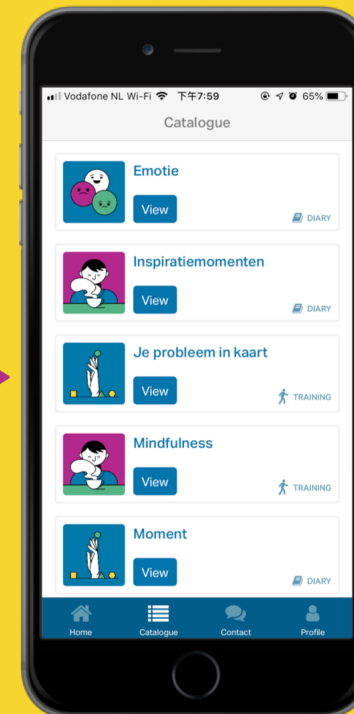
Figure 3: *Catalogue page for therapists and module page for clients.*

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Challenges:

As explained above, Minddistrict hopes to use ehealth technology to create more benefits for both clients and therapists, so that mental healthcare could be more efficient and flexible. To achieve this goal, it depends on the users to play an active role in daily use. Therapists engagement is also very crucial to successful implementation.

However, the real situation is that there is not an organization who uses the product in its full potential. Professionals have very little time to learn, or to even think about ehealth. A small number of therapists are even stubborn, they stick to traditional therapy and cannot see the benefits of ehealth. Also, during a talk with the data researcher in Minddistrict, it became clear that more than 200 modules provided on the platform are used unevenly, and many therapists are not skilled at choosing the suitable modules and operating the platform smoothly.

> A figure shows the professional and clients' access time can be found in Appendix B.

So, the challenge in this project is **to find the barriers that stop therapists from using the platform, and to increase the usage of the product.**

Significance:

The technology will have less impact unless it is implemented very well, and embraced by the users. Therefore, it is especially important to improve the willingness of therapists to use the plaatform and to guide them to adapt their daily work to the new situation. This will benefit all stakeholders.

Minddistrict

The user engagement has a direct link to the company's KPI. If the use of platform can be increased, Minddistrict could accumulate more data and earn good reputation. They could also evaluate whether developed interventions can provide desired effects for their clients. Finding the reasons behind low engagement and making the stakeholders aware of them can be valuable for the company.

Therapists

Since the focus of this project is on therapists, it is important to find therapists' needs and expectations in order to come up with solutions that would increase their trust in products while enhancing their working experience.

1.2
Project purpose and research questions

As discussed above, one of the main challenges that Minddistrict faces is the low usage rate. The reasons behind this phenomenon are, however, unclear. Therefore, the purpose of this project is **to identify the ways to increase therapists' engagement of using the Minddistrict ehealth platform.**

The main challenge can be divided into following sub-research questions:

1. Why is there low therapist engagement in ehealth platform currently? What are the barriers and inconveniences the therapists are experiencing? To what extent these elements can affect the low engagement?

2. What are the key mental health treatment operational processes during which Minddistrict is being used most frequently? Is it possible to redefine/adjust the treatment processes (such as making it simpler)?

3. How to make the MD platform in line with therapists' current workflow, rather than only provide them with the platform (product)?

4. What are the promising and technologies that can be applied in mental healthcare, and what is needed to achieve the benefits and conquer the barriers regarding therapist's engagement?
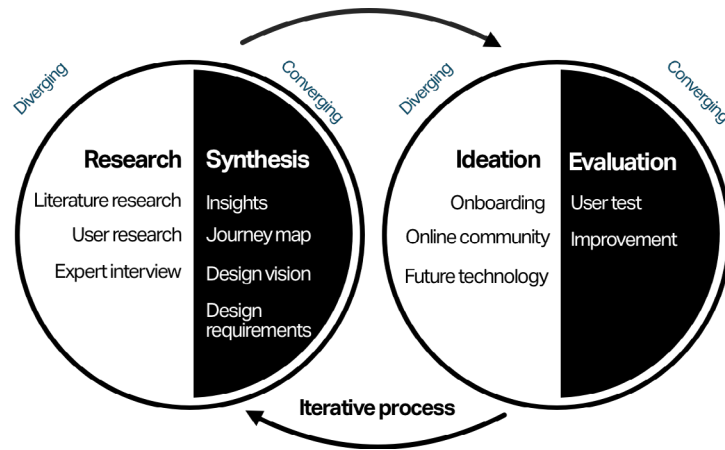
1.3
Project approach

Figure 4: *Project approach*

In order to answer sub-research questions stated above, the following four stages have been followed: Research, Synthesis, Ideation, and Evaluation (see Figure 4). Each stage has different goal and methods. The below were not carried out in strict chronological order, as this project required an agile and iterative process.

Research
The purpose of this stage was to develop a more in depth understanding of the ehealth industry, therapists working environment and current implementation strategies. It consists of several steps,

first, literature review was done to get a more comprehensive understanding of technology acceptance model, ehealth implementation process and the associated design strategies. Next, interviews with internal Minddistrict employees were conducted to investigate the current training and implementation proces, as well as the problems they encountered. Finally, the user's feedback and expected features were collected through interviews with therapists.

Synthesis
This stage was used to summarize the insights obtained from the previous research stage, and organize them into a roadmap. The causes of low usage were classified and prioritized together with MD employees according to the feasibility. This has been done in order to choose relevant problems to solve and phrase the design goal properly.

Ideation
The third phase was used to solve the core issues deduced from the synthesis phase by experimenting in three different design directions. The three core issues were: therapists onboarding, online community and virtual assistant. Prototypes were built to illustrate and test the ideas.

Evaluation
In this phase, the prototypes were tested with end users, and improved according to obtained feedback. Also, the potential solutions were converged into final ideas, and the design recommendations for future improvement were summarized.

Chapter 2
Project introduction

2.1
Introduction

In this chapter, the goal is to understand what are the barriers that caused low therapists engagement and how it should be improved. The methods used in the research phase includes literature review, user research and company expert interview. The relations among these three parts are shown in Figure 5. Findings from the literature review were used as a framework guiding the user research and expert interview. And the findings from the stakeholder research were the validation of the literature review, and also a supplement.

The final research results were presented in the form of a therapist's journey map and a form of all identified factors (see Figure 10).
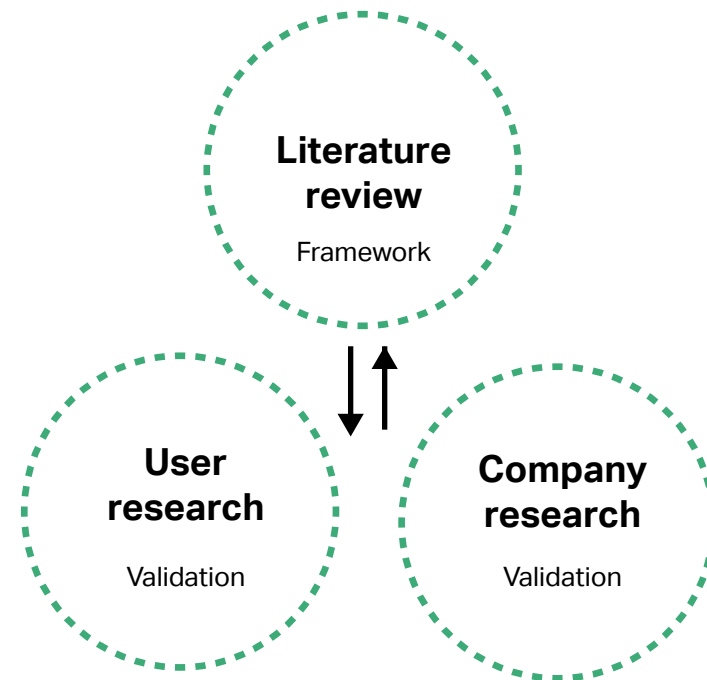
Literature review

Framework

User research

Validation

Company research

Validation

Figure 5: *Structure of the research.*

2.2
Literature review

Since it's clear now what is the challenge and purposes of this project, now it is time do the literature review and identify the barriers and find out solutions. Google scholar was used to filtering the literature, and the keywords are therapists engagement, ehealth adoption, barriers, technology acceptance model, etc. The reference lists of these articles were also tracked in order to supplement this review. In total, 10 most relevant papers were selected, and here are some of the factors that are frequently mentioned.

Barriers:

Workflow disruption

A significant obstacle to the adoption of ehealth is the development of the ehealth system is not align with the current existing workflow, so the benefits are not reflected. Listening to patient's complaints, choosing interventions, assessing medical relevance is as well as important to type notes, entering notes and getting familiar with the user interface of the application (De Grood, C., 2016).

Time

Almost every study has cited that lack of time by therapists is the key barrier to the implementation of ehealth technology. Specifically, therapists are concerned about the time needed to learn and implement the ehealth technology. Since it is a professional tool, so therapists think it will take more time to learn and treat it seriously. There is study reported that therapists don't always have time to use the system in its full potential, to join the further training, or to learn updated new features (Ford, E. W., 2006).

Another common concern is the amount of information generated by ehealth technology (Poissant, L., 2005). Taking MD for example, there are over 200 online interventions on the platform, and therapists are worried that they cannot effectively get familiar with these interventions and synthesize these data. Therefore, their workload will be increased.

Usability issues

Therapists also expressed the importance of simple-to-use ehealth technology, as we often use words such as "user-friendly" and "intuitive". There are a lot of useful features in the system, but it was difficult for them to find when they needed.

Privacy and security concerns

Some results also indicate that the therapists lack trust when they receive notifications when collecting personal information, and are asked to access data from them (Lu, J., 2005). Majority therapists believe that ehealth involves more security and confidentiality risks than paper records. Therefore they are more hesitated when asked to use ehealth technology.

Attitudes of clients and colleagues

The attitudes of the clients and other colleagues can have a big impact on the level of therapist's engagement. If the client is very interested and engaged in the ehealth, then the therapists will have the same passion as well. Communication between users is a very strong factor contributing to the user's acceptance of these systems. This communication includes the exchange of ideas, opinions or information through speech or writing. Social networks can be used to promote this communication, which can, in turn, assists them to adopt innovations.

Training and support

Training and support are also important drivers for ehealth technology. An "On-site experts" tailored training for individual therapist can assist them to acquire technical skills. In addition, follow-up training sessions are also considered important to keep using the technology. Some doctors refer to organizational leaders or team leader to encourage the adoption of ehealth technology, while others prefer one-on-one, on-demand support in real life (Stream, G., 2009).

There are two types of support: technical support and expert support. Technical support could be from the provider of the ehealth technology company or the IT departments of the healthcare organization. Although some therapists point out that support staff are sometimes unavailable, they are considered knowledgeable and helpful. Expert support is the help that the therapist provide to another therapist. This can be divided into two areas (McGinn, C. A., 2011): 1) A therapist with experience in using electronic health records, gives information about how to use the system to another therapist; 2)

Therapist with expert knowledge helps others to complete the medical tasks. This could be provided through personal contact or through documentation.

2.3
User research

This user research aims to understand the actual use of MD platform by therapists including, when and how they use it, how do they feel about using it, are there any inconveniences that they are experiencing and what are the future expectations from the real users. Next to that, observations and interview questions help to get a deeper understanding of the realistic working environment of mental healthcare treatment.

Research questions

- What's the procedure of treating a client with the help of ehealth like?

- What are the barriers that prevent therapists from using MD?

- What is the motivation for them to use MD?

- What is their expected experience in the near future?

Method

As mentioned before, the aim of this user research is to gain insights into therapists' treatment experience with the aid of MD. These insights were collected through qualitative interviews with the help of generation tools such as context-mapping (Sanders & Stappers, 2012). This is combined with observation to get a clear overview.

Participants

During this stage, two therapists were contacted based on their availability. One of them has been working as a therapist for 10 years, and another one for 6 years. Both of them has been using MD for around 3 years. Besides, the first therapist used to be a super user in Indigo Midden-Nederland (BCGZ), and now she works in MD as an intervention developer.

Process

Preparation

Based on the research goal, a plan was carried out. The interview questions were listed, and the generative tools were designed (see Figure 6).

Introduction

A short introduction about the whole project, the aim of this user research and the expected activities need to complete are explained to the participants.

Interview

Participants were first asked to fill in the consent form, and individual interview with open questions was conducted. The questions are mainly about their personal information, their basic experience with MD, and their expertise in digital technologies.

Context-mapping

After the interview, they are asked to fill in the A3 paper about the activities on a working day, and how, when and why they use the MD platform need to be marked. The form of the documentation is not limited, and they can also fill in with the help of stickers and inspirational pictures. Another A4 paper they need to fill in is their future expectations of the MD platform, it can be the expectations of improving current issues, or it can be the features that they think would be more useful and effective.

The generative materials used during creative session can be found in Appendix C.

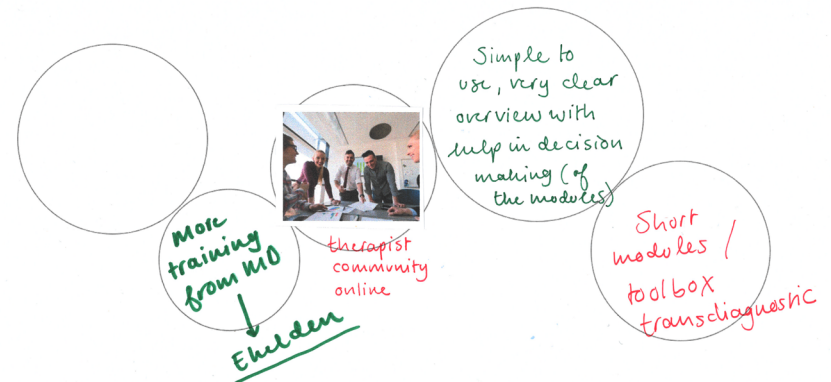**Figure 6:** *Collections of generative tools.*

Figure 7: *Example of context mapping result.*
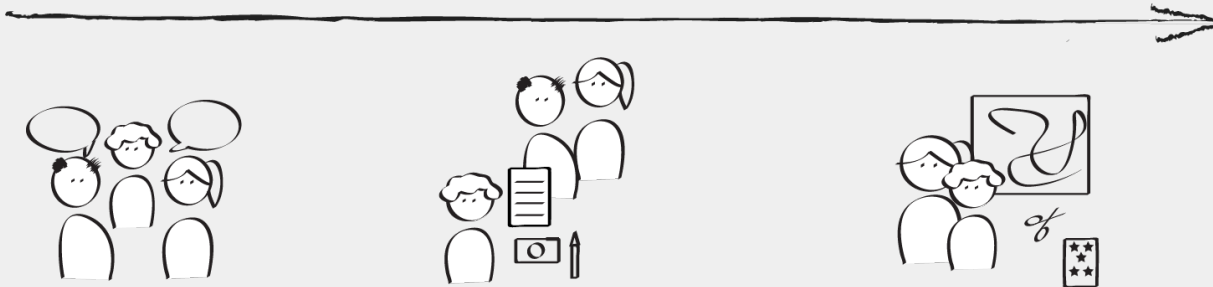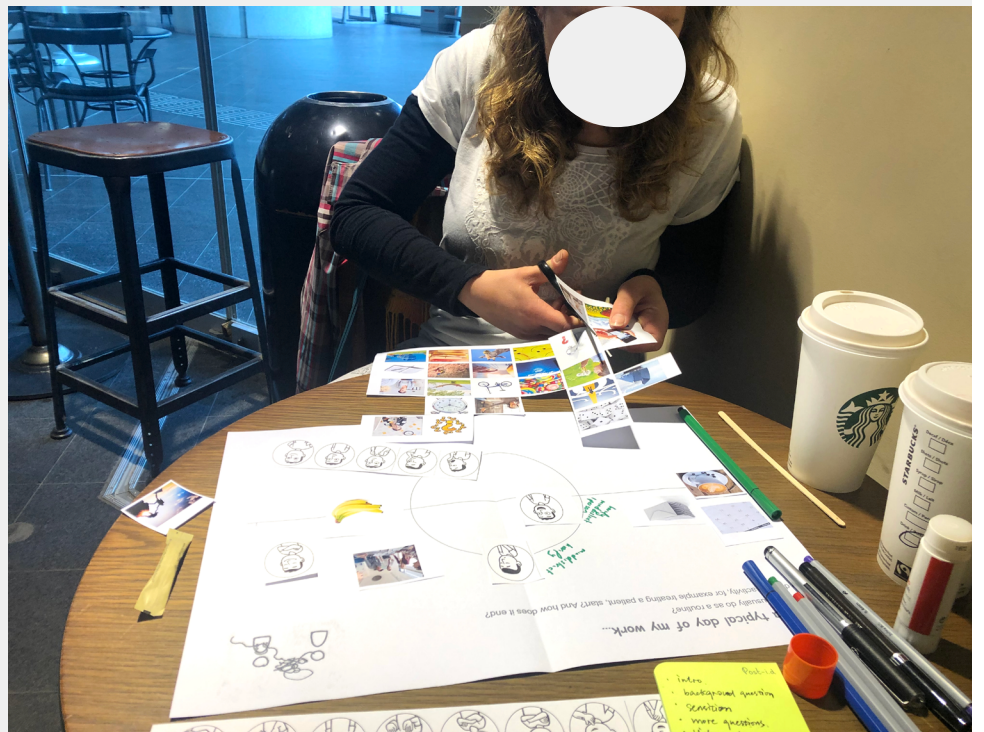
Figure 8: *Two therapists doing the context-mapping.*

Results and insights:

The results from two therapists can be found in Appendix D.

The procedure of treating a patient is summarized in Figure 9, in the form of a user journey map, including the actions and emotions during each stage. The quotes from the interview and creative session were analyzed, and they are sorted to answer the research questions.

- What's the procedure of treating a client with the help of ehealth like?

A typical treatment process includes 12 sessions, each session lasts around 45 minutes, and the client meets the therapist for every 2 weeks. At the early stage of the treatment process, the main goal is to get to know the client, and know their preference, whether they want to do the session completely offline or also online. During the session, the therapist uses professional methods to explore their thoughts, observe their behaviour and ease their feelings. The therapists use the MD to give assignments to their clients so that the clients can do the homework between the two sessions and discuss together next time.

- What are the barriers that prevent therapists from using MD?

The biggest constraint is the limited time. Therapists have a tight schedule arranged every day. Sometimes they need to treat 7 patients in a day, and they also need to reply multiple emails, answer many calls and participate in the regular meetings. Therefore, there's little time left for the therapists to learn and use MD.

With this picture, I want to show that you have to realize that the seven session we have, it's not like, Hey, how are you doing? Blabla. A lot of people cry, or angry or anxious. So it costs a lot of energy to do such a session. Sometimes you feel pretty empty afterwards.

You feel the pressure of the clock.

How their clients treat the MD can have an impact on therapists' attitudes towards using it. And sometimes their clients have problems of operating the app, so they wasted a lot of on explaining this.

Maybe the most time consuming was if a client wasn't able to get on the platform. But sometimes I said, okay, let's sit behind a computer together, that sometimes took a lot of time.

Even though there were a lot of clients who didn't do anything with that, but in the beginning, when I proposed to then, 80% said, oh, okay. I think it's also because the platform looks really nice.

To come into a welcome module, you already have to be logged in. But some clients have problems for logging in. They quitted the platform very quickly, so I stopped using the platform as well.

There are also some therapists who don't believe in ehealth treatment. They think the traditional face-to-face therapy can have a more comprehensive understanding of the client's situation.

Those are therapists who really believe in therapeutic relationship is important. So they think if you do too much online treatment, you won't see the person and you don't see how they feel.

Sometimes there are also therapists who really do psychotherapy, so they think the basic cognitive behavioral therapy is superficial, only they can go into depth with clients.

- What is the motivation for them to use MD?

The numerous forms of the content MD offers provide more possibilities for the treatment, for example, videos, questionnaire, and diaries. This interactive online intervention is more interesting compared to pure oral communication. What's more, the modules provided by MD cover a wide range of mental issues, so almost every client can find the corresponding treatment module.

Because I think, patients only see you once in two weeks, and in between, they are drifting. It's nice to have "homework". And they mostly forget, you always tell them, but when they walk away, they forgot what you told them.

- What is their expected experience in the near future?

The features that two therapists listed are as follows:

• see the same content as the clients on their platform;

• Full access to all modules on the mobile phone;

• Psychoeducation for family or friend without access to the assignment;

• An online therapists community where they can exchange opinions;

• More training from MD;

• Simple to use, very clear overview tool to help in the decision-making process;

• Shorter modules;

• A toolbox where the commonly used modules can be collected together.

Therapists journey map

This journey map divides the process of treating a client using MD platform into five steps. The actions need to take by therapists are listed below. Moreover, the quotes in the green boxes are the goals that the therapists want to achieve. Under the boxes are the emotions during each stage. There are two pain points of the whole journey. One is when choosing a suitable module, and therapists may feel worried

and hesitated and don't know which one to choose. Another pain point is that when they want to get some expert support, they may feel frustrated and passive because there's no channel for them to ask for help.
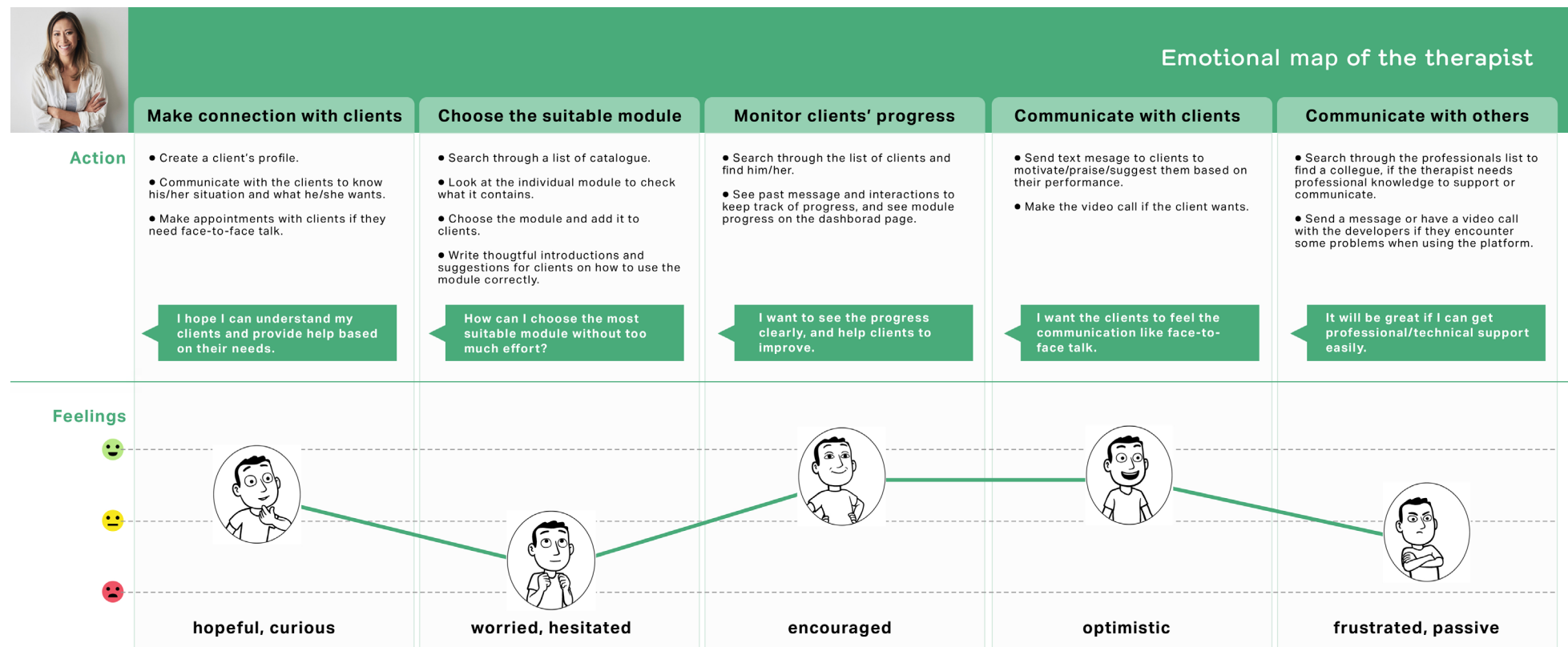

Figure 9: *Therapists' journey map of treating a client using MD.*

2.4
Company research

In this chapter, two experts interview were conducted. One employee is responsible for giving training to therapists, and another employee is in charge of the successful implementation in healthcare organizations. They introduced the current training and implementation strategies and the existing problems that stop therapists from using the platform.

Training

Albertje Breitsma

She has worked in MD for ten and a half years. She did a lot of training and knows a lot about therapists. In general, she has talked to probably at least 1000 therapists over the years. She feels quite passionate about what she did for a therapist actually make it easier for him or her actually to work with MD.

Background

What MD used to have was one face-to-face meeting, then e-learning, then another face-to-face meeting. It's also happened sometimes that there's no face to face meetings, just do the e-learning. A lot they encountered was people barely finished the e-learning. Or if they do finish it, they go through it really quickly, so they couldn't learn from it actually.

She as a trainer often blurted our all the information that the company has, in a very informative way, but not that engaging. So the results often couldn't meet the expectations. So the company developed a new blended training last year.

Blended training

The detailed documention of the training process can be found in Appendix E.

They divided the training into four stage:

- Motivation: to let them really know why they are doing this

- Skills: "I want to learn, and how do I do it."

- Put it in practice: Practice doesn't always follow the skills, how can they deal with different situations in practical use, for example, "My first client just doesn't respond, despite all my good efforts so I'm just really down."

- Expand: how can we increase your knowledge.

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The blended training included both online and offline sessions. The emphasize of the training is that it should be fun, only if it's fun, then the therapists are willing to do more of it. The offline session is done within groups. Five therapists in a group do the card game together, and they can get a set of cards. These cards are all practical applications of ehealth. Under the guidance of the trainer, therapists will discuss the problems together.

Barriers

Discontinuity of platforms: It's already an improvement compared to the old training. However, the fact is that the online elearning in a different platform compared to the production platform where they actually do their work. Therapists often forget their password. So it's still not that ideal.

Insufficient equipment support: The MD company tries to optimize the training by using the app as much as possible. However, they got a lot of feedback like, "I don't have a working phone, and I don't want it on my private phone."

Absence of computer skills: Albertje mentioned that quite often some therapists at the beginning of the training needs to know how to make a screenshot.

Attitudes of the clients: What they quite often saw is that it really depends on the first two clients, if the first two clients they start with don't do it, the therapists are immediately not motivated to start anymore.

Lack of time: The trainer said that, when she presented this blended new training to the GX (A collaboration of 10 insititutions in Netherlands aimed at scaling up ehealth and other innovation within mental health care), their response was: "Yes, that looks really nice, but it takes like 10 hours, so it's way too much for therapists." So now they scaled it down to 8 hours. However, she also expressed that as a trainer, she has to fight with the organizations to get the hours needed for training. 8 hours is still not enough to master the mandatory skills.

Therapists autonomy: Sometimes, there are some therapists think ehealth is very superficial. They think they can really tap into all details from face-to-face sessions, and they can tell from the nonverbal communication from the clients of how they really feel. So this preconceptions from therapists prevent them from using the platform.

Information delay: Another barrier is that also the trainees they don't get the information in time. Quite often is that the information is not sent directly to the end users. The reason could be either the company didn't channel it properly, or it got stuck in their organizations.

Key users: There's a huge difference in how serious the key user is taking his/her job. Some key users do that because the manager told them to do so, but they have no idea of what they supposed to do. Moreover, a couple of times is that if a key user is actually too good, this will also discourage other therapists, they will think the key user is so good that they will never meet those requirements. So key users don't always work very well.

Renew takes time: The new training will take six months or a year before we can see the effect of that. Some of the customers are using it, but a huge number of customers are still using their own training, or the old elearning stuff.

Future expectations

• In the ideal world, when a therapist log in for the first time, the platform will ask what types of a therapist is he/she, and then the platform will personalize the features for him/her.

• Some more serious game elements within the MD platform would be nice.

• It would be nice if the platform can include a bit more inspirational examples, not too far out there, but the real examples from our real life.

• Suitable rewards could also work. In the past, the company used to give certifications to those who completed training, and the therapists really liked it.

Implementation

Jeanette Ploeger

She has worked in MD for ten and a half years. She is the customer success officer in Minddistrict. So she knows a lot about the implementation strategies. "For 10 years of time, I do see a shift from therapists who don't give any ehealth to they have an incentive to do things online now, it's getting better and better. "

Process of implementation

When contact with a new customer, they usually start with a project group, and someone in the organization decided that they're going to do something with ehealth. The project group involves the director of healthcare organizations, financial department and IT department.

And then there's a product leader or a project manager, who runs the project. They make plans and set their goals. That's where the company starts to help them. There is also an application manager, someone from the IT department, who will also provide support later.

The transcript of interview about implementation can be found in Appendix F.

Barriers

Size of the organizations: If the implementation happens in a big organization, they usually have multiple locations, and within those locations, they have several teams and their own implementation process. So MD has to organize the implementation in a very complex structure. The bigger organization is more difficult to implement. Those smaller organizations can make change more easily. However, the impact on healthcare is also smaller.

Multiple stakeholders: We need commitment from different departments in the core. For example, if the therapists have a question, and the question is not answered by the IT department, then they will be discouraged. If we see the complex part of implementation from a higher level, it touches upon all the departments.

Investment and return: The customers afraid that they will invest for example, 2000 accounts, but only 20 accounts will be used. Or if they invest 10 therapists on training, but only 2 therapists will keep using it. So they fear that invest in a project with money and time will bring no results.

Badly managed organizations: Half of the mental healthcare organizations usually cannot control their financial situation. If the financial situation is unstable, they will focus on how they can make more money. Therefore they don't get the chance to think about how to make the therapy cheaper by using ehealth, because they're swamped in the daily reality of other stress and hovering above.

2.5
Conclusion

The research in this chapter has explored the barriers that stop therapists from using the platform from different perspectives. The highlighted quotes from the interview are selected and listed on the paper, and the quotes from one people are marked with the same colour. There is a lot of overlap of the insights got from the literature review and field research. So there were categorized into five parts, including therapists, organizations, Minddistrict, platform and social. The map of these findings in Figure 10 shows the conclusions summarized from the literature and the corresponding quotes from the field research.

The whole quotes lists can be found in Appendix G.

21. "How can you imp... making hours. If you do that well, it will affect every... treatment for clients."

34. "A huge number of customers are still using their own training, or the old elearning stuff. So renew of training takes years for everybody to do that."

5. "There's a huge gap of digital ex... people in MD and people who are ...

...properly, or it gets stuck in their org...

13. "Actually choosing a module and giving the feedback was quite okay, not that time-consuming."

...n actually

30. "I also want to include a bit social comparis... like a therapist learn this and that compared to y...

25. "I would like to include a bit more inspirational examples on the training platform, not too far out there, but just like normal people doing normal stuff."

31. "Our customers are big, bad... organizations, who are reorganiz...

...es we got an email from the man... ...new modules. But som... ...and you forgot about it."

3. "To increase the motivation for therapists, I think it's important that in the management team ther... people who believe in e-hea...

...0. "As a trainer, I always have to fight to get ... ...n therapists. 8 hours are still no...

...I also have experienced now couple of times is if a ...ser is actually too good, this will also discourage ...other therapists."

6. "I think in total I didn't use modules more than 10 within three years."

...t we encountered was people barely finished ...arning. Or if they do finish it, they go through it ...uickly.

9. "Sometimes there are also ... psychotherapy, so they think ... behavioral therapy is superfi...

20. "Quite often some therapists in the beginning of my training need to know how to make a screenshot."

17. "We developed a new blended way of tr... ...last summer, and it really seems to work."

...organizations to start. You have to have the th... commitment in the core."

...d enthusiasts within the

1. "For the practical part: it ... give just psych...

...e company we h... training really emphasiz... ...en the clients will do ...

33. "Our product touches the very heart of the work of the professionals, and changing their core believes takes time."

38. "We can influence the organizations a little bit by sharing successful experiences and inspiring stories, but the real change still need to be done by the ...

...e biggest obstacle is to get clients ... platform, to make sure they start/finish a modu...

...some therapists wh... ...there're a lot of prec... ...erapists as well."

14. "When I show the videos in the... really like it."

40. "In general, a concern that therapists comes up a lot is, are the modules validated? Can you show us in general if it works?"

39. "The organizations fear that after their investment i... money and time, therapists still not embrace it."

18. "We try to optimize the e... as much as possible, but the... want it on my private phone."

11. "When I proposed the MD to my clients, 80% of them are happy to accept it."

35. "For around 10 years, I do see a shift from therapists who don't give any ehealth to they have an incentive to do things online now."

37. "If you see the higher le...

4. "I hope therapists ca... of com...

7. "A lot of people cry, sigh or shout during the treatment, so it costs a lot of energy to do such a session. Sometimes you feel pretty empty aft...

28. "When using ...

10. "I think for that group of therapists you can reach them by showing them some small modules, and they can integrate it."

32. "Professionals have very little time to learn about ehealth, or even think about ehealth, plus, sometimes they are stubborn."

Factors	Specific	Argumentations from literature	Quotes from interviews
1. Therapists	**Different types of therapists**	Constructs influencing one's belief towards a technology vary from their personal characteristics, user trainings, user participation in the design and nature of implementation. (Venkatesh, V., 1996)	● "When using a module, some therapists just go through the flow very quickly, but some sit very stiff reading the text because they couldn't remember it." (Trainer A) ● "If the therapists are involved in inventing some stuff, then they will be more motivated to change than other departments in the organizations." (Business J)
	Professional autonomy	Some physicians desire to form their own clinical decisions without the "bias" that may be introduced by e-health technology. (Davidson E, 2013) Therapists are concerned of losing contact between patient and therapists with the use of ehealth. (Straus SG, 2011)	● "We only have to do this because the health insurance says so." (Therapist L) ● "Sometimes there are also therapists who really like psychotherapy, so they think the basic cognitive behavioral therapy is superficial, only they can go into depth with clients." (Therapist L)
	Computer experience	Lack of information technology (IT) skills can be seen as a barrier to the utilization of ehealth technology. (Vishwanath A, 2007) (Chen R, 2012) (Hackl WO, 2011)	● "There's a huge gap of digital expertise between people in MD and people who are actually using it." (Therapist L) ● "Quite often I see some therapists in the beginning of my training need to know how to make a screenshot." (Trainer A)
	Time pressure to learn	Physicians stated that learning required time and effort, which could not be avoided through design. (Dunnebeil S, 2012)	● "A lot we encountered was people barely finished the e-learning. Or if they do finish it, they go through it really quickly." (Trainer A) ● "As a trainer, I always have to fight to get the hours needed to train therapists. 8 hours are still not enough in my humble opinion." (Trainer A)
	Time pressure to use	Many studies have sited that lack of time and heavy workload are the key barriers to the implementation of ehealth. (Straus SG,2011) (Vishwanath A, 2007) (Vedel I, 2012) Physicians were concerned that they would not be able to effectively synthesize and address the large volumes of data. (Ajami S, 2013)	● "On average, I have seven patients in a day, and during every working hour I have a patient." (Therapist L) ● "I only have 15 minutes between two sessions to write down something or go to the toilets." (Therapist L) ● "Professionals have very little time to learn about ehealth, or even think about it." (Business J)
2. Organization	**Communication**	The managers in a team should use the communication techniques of being clear, concise, honest and consistent in daily interactions with employees. (Kiyomiya, 2012)	● "The reasons for therapists lacking of information could be either we didn't channel it properly, or it gets stuck in their organizations." (Trainer A) ● "Sometimes we got an email from the management, that there're new modules. But sometimes you read it, and you forgot about it."
	Management	Having organizational leadership or a champion encouraged the adoption of e-health technology. (Bramble J, 2010)	● "Our customers are big, badly managed organizations, who are reorganizing all the time." (Business J)
	Vision	Healthcare organizations that welcome innovation, rather than view it as a threat can reap gains in quality, safety, and coordination of care. (Cohn, K. H., 2009) A top down vision and framework for the implementation is crucial, only with such a framework can 'user needs' be articulated that transcend individual wish-lists. (Berg, 2001)	● "To increase the motivation for therapists, I think it's important that in the management team there are people who believe in e-health, and who love MD." (Therapist L) ● "We can influence the organizations a little bit by sharing successful experiences and inspiring stories, but the real change still need to be done by the organizations themselves." (Business J)

	Return on Investment	The effects of e-health technology are not always positive and the benefits of their use are not always straightforward. (Lupianez-Villanueva F, 2009)	● "The organizations fear that after their investment in money and time, therapists still not embrace it." (Business J)
3. Minddistrict	**Training**	Training would need to be tailored to the individual physician's knowledge of the e-health technology with "on-site experts" who are able to provide first-line support. (Ajami S, 2013) Follow-up training sessions and support were also considered important to the adoption of ehealth. (Davidson E, 2013)	● "Only the key users and managers can receive the training from MD, they gave us overwhelming knowledge within 2 hours. It's not enough." (Therapist L) ● "We developed a new blended way of training since last summer, and it really seems to work." (Trainer A)
	Implementation	Addressing barriers to the implementation of e-health technology is a complex process that requires support from health services authority, insurance companies, vendors, patients, and physicians. (De Grood, C., 2016)	● "The implementation strategy has to be customized according to what the customer wants. For example, a bit organization may have six locations, and within those locations you have several teams, so it's never easy to implement and keep them in the same pace." (Business J)
4. Platform	**Privacy and security**	Physicians were concerned that the integration of e-health technology into current systems may compromise the confidentiality of health data. (Ajami S, 2013)	
	Usability	Physicians expressed the importance of developing e-health technology that is simple to use, with physicians using terms such as "user friendly" and "intuitive". (Thorn SA, 2014)	● "The amount of modules in the current platform is a bit overwhelming, I don't know where should I begin with." (Therapist L) ● "I think in total I didn't use modules more than 10 within three years." (Therapist L)
	Perceived usefulness	Future development of mHealth technology needs to integrate ease of use, usefulness, trust and perceived risk to facilitate the use of mHealth technology for consumers. (Schnall, R., 2015)	● "What still happens a lot for the therapists is that they have no idea of what MD can actually do to the full extent." (Trainer A)
	Reliability	Physicians stated that they would be more likely to utilize e-health technology if research supports its utility. (Thorn SA, 2014) (Yau GL, 2011) (Vishwanath A, 2007)	● "In general, a concern that therapists comes up a lot is, are the modules validated? Can you show us in general if it works?" (Business J)
5. Social	**Different types of clients**	If it was perceived that patients liked their physicians utilizing e-health technology, physicians were more likely to use e-health technology. (Schectman JM, 2005)	● "The biggest obstacle is to get clients on the platform, to make sure they start/finish a module." (Therapist L) ● "When I proposed the MD to my clients, 80% of them are happy to accept it." (Therapist L) ● "Therapists engagement really depends on the first two clients, if the first two clients start with not doing it, then the therapist will immediately not motivated anymore to start again." (Trainer A)
	Peer effects	People from the social tie can affect engagement in a web-based health intervention. (Poirier, J., 2012)	● "It could be easier to motivate from people in the management team, or their colleagues first." (Therapist L) ● "I would like to include a bit more inspirational examples on the training platform, not too far out there, but just like normal people doing normal stuff." (Trainer A)

Chapter 3
Envisioning

3.1
Insights selection

The previous chapter listed all the factors that may lead to therapists low engagement in six categories. However, the challenge is which factors should be taken forward and leverage for ideation? Consider from the company's perspective, it is not possible to solve all these problems in a one-size-fits-all approach. Additionally, some factors may not be realistic for the company to solve at the current stage. Therefore, a method called insights selection was conducted to engage a wide range of stakeholders in MD, and identify a more appropriate range where we can propose design solutions.

The goal of this method are as follows:

- To understand how realistic and urgent the factors are for the company to solve;

- To collect ideas from employees when analyzing the factors;

- To further summarize the design requirements based on the employees' opinions.

| List all the factors | Position factors in the matrix | Generalize design directions |
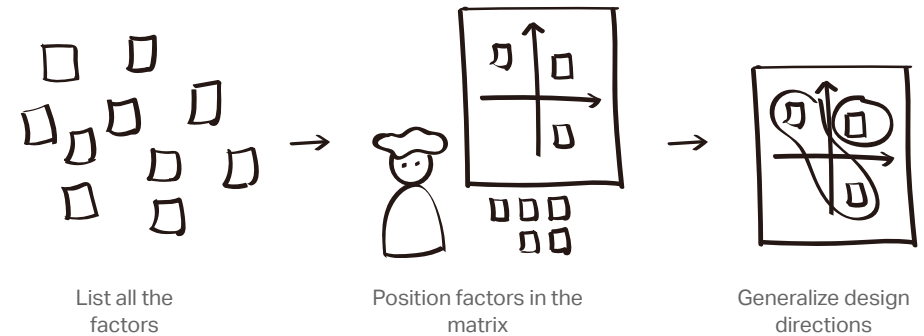
Figure 11: *The procedure of selecting insights.*

Insights selection

It is a simple evaluation tool which can facilitate a discussion to evaluate the gathered factors. The first step was to list all the factors on the post-it notes. Then the employees were invited one-by-one to place these factors onto one matrix; two axes of the matrix were feasibility and opportunity. Feasibility means how easy it is to solve this factor at the current stage. Opportunity means how possible to solve the factor in multiple ways. At the same time, the employees were asked to explain the reason why they place the note onto a specific area.

In total, three employees were invited to do this insights selection session. Their positions in the company are compliance officer, data scientist, and marketer.

Figure 12: *Examples of two employees doing the selection.*

(Therapists: Time pressure to learn): *It's more difficult to change. Because it's not something that they can complete in one hour, so I can't do anything in marketing to help. The only one who has the opportunity to change is* the directors of the healthcare companies. *They can say, we really have to learn this first, and if we invest in now, we can treat more people in the future.*

(Therapists: Time pressure to use): *If they don't have time, then no matter what we do will not change the situation. And also the time pressure to learn,* all these things are out of our hands, it depends on the organization. *Only when they allocate time to learn, we can do better.*

(Organization: Communication): *This one is also hard to change, but I think there are ways that we can help the organizations to do it. For example, if therapists in some large companies can* sign up for a specific newsletter, *and we can make sure that they get regular updates or have some tips and tricks. Then the communication will go much more smoother.*

(Platform: Reliability): *This is different in different countries. I think* in Netherlands, the reliability is quite all right. *But in the UK or in Germany, therapists don't really go along with our stories that this is evidence-based, they want it proved by RCT (randomized controlled trial).*

(Platform: Reliability): *It's not possible to do RCT of all 200+ modules that we have now. Because they will be renewed and be improved, and we make them into mobile, then the RCT is unvalidated. So we should* come up with different ways to validate them.

(Social: Peer effects): *I saw opportunities in this factor linked to the training and implementation. For example, we can advice therapists to pick out a colleague to learn together, and they can motivate each other.* If we could make sure that starting therapists have good first experience then the social attitudes could work as our benefits.

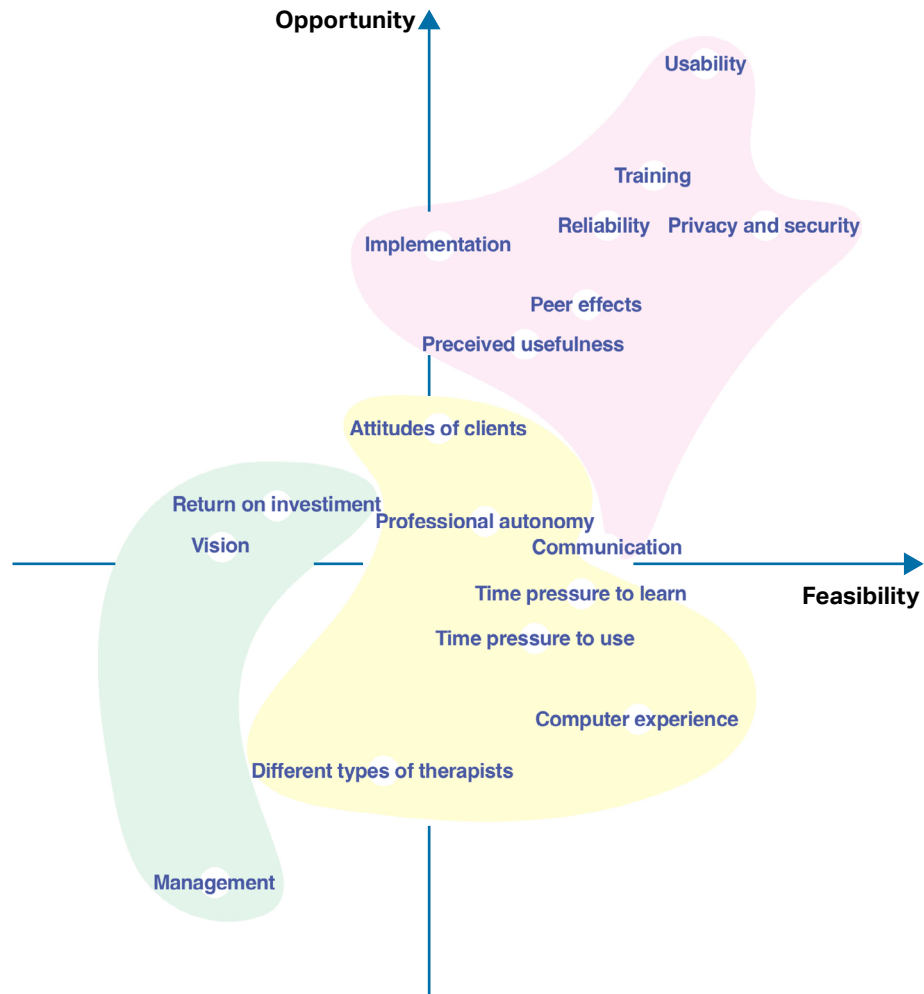The mapping results can be found in Appendix H.

Results:

Figure 13: *Summarized results of insights selection.*

This map (see Figure 13) summarizes the results from three participants, and these factors are divided into three categories. The factors in the pink block are factors that have more opportunities to be solved by feasible solutions. The factors in the yellow block have fewer opportunities compared to the pink ones, but hopefully, they can still be improved if we invest in more effort. However, the factors in the green block can hardly be affected by MD in the current stage.

Improving the platform is the most promising solution

A majority of the factors in the pink block are about the platform itself (usability, perceived usefulness, reliability, privacy and security). Since the company has more control over the platform, so whether the platform is excellent or not has a direct link with therapists' engagement. At the same time, MD is also responsible for training and implementation, so giving more training and having good implementation strategies is crucial to success.

A joint vision should be established

It was mentioned several times that how those organizations perform can have a massive impact on the therapists' engagement. However, the reality is that many healthcare organizations are badly organized and didn't attach too much importance to ehealth. If they don't allocate enough time for therapists to learn and use MD, or there are no passionate project leaders in the organization, then it is hard to achieve the expected effect.

Closer social connections could help

As mentioned by participants, creating a good social connection could work as our benefits. Because therapists' engagement can be affected by the attitudes of others easily. Providing more opportunities for therapists to collaborate and communicate with others is the key to create this professional social connection. This social connection can also reduce the cost of training and support for MD.

3.2
Design opportunities

In order to define design opportunities, the emotional map of therapists and the results of insights selections are the starting points. When taking the resources and time needed to make change happen into account, the most efficient way is to improve the platform first. The solutions to solve the factors related to the platform can be clustered into three aims: **removing obstacles, providing feedback and support, and creating motivation.**

First direction: Therapist's onboarding

There's a low peak in therapists' emotional journey map which is before they start to use the platform. The causes can be different, either they cannot see the benefits of using it, or they are worried that it is too complicated to learn. Although MD already has its blended training, there's no online onboarding for the first time users. Moreover, there might be a long-time period between the completion of training and the actual first practice, and many people find it hard and lack of confidence to operate independently. Therefore, a good onboarding process can help therapists to acquire the necessary knowledge and skills to become active members afterwards. At the same time, it can stimulate user's interest and establish trust between therapists and the platform in a very short time. Designing a good onboarding process is also a very feasible solution in the short term.
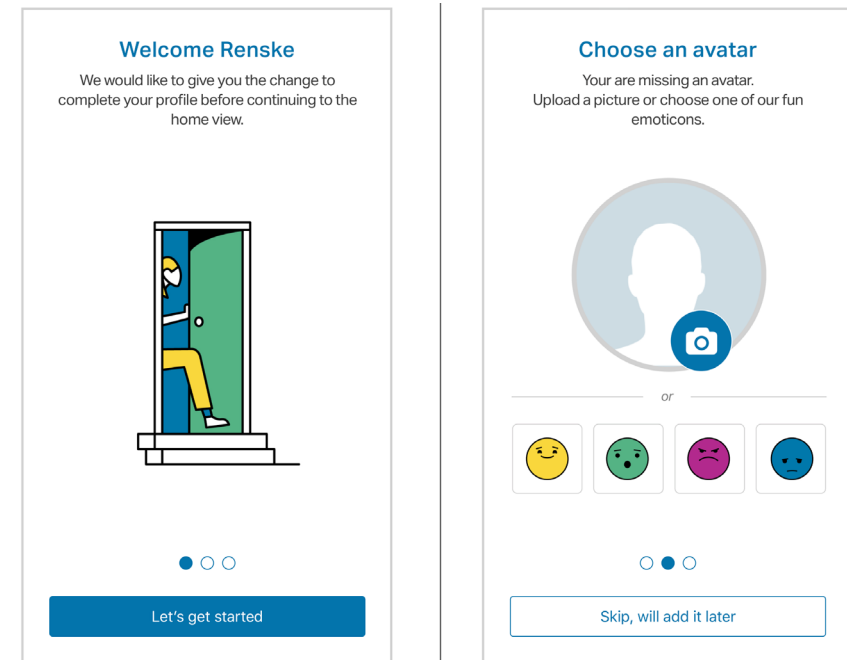
Figure 14: *Current onboarding screen for clients on the mobile app.*

Second direction: Online community

In the middle stage, establishing an online therapists community can be the next step to take. At the current stage, therapists can only send messages and have video calls with each other. Concluding from the previous research, there's a high demand for more communication between professionals from many stakeholders. Therefore, the online community is a very suitable design direction to go.

What therapists can expect in the online community are practical benefits, social benefits, social enhancement, entertainment and economic benefits (Gummerus, J., 2012). The community can be an internal channel for therapists to ask questions and receive feedback, which can help them to become more knowledgeable and aware of what MD is offering.

Third design direction: Future Technology

The focus of this design direction is to explore the opportunities to apply cutting edge technologies to improve engagement in the future stage. New technologies such as voice control, artificial intelligence, virtual reality, robotics, etc., are a major trend in forensic care. Since the time and technology limitation in this project, the third design direction will be presented in the form of design recommendations instead of a clickable prototype. These recommendations can be used to determine how and where to invest time and money for the coming years.

However, these three different design directions are not completely independent in chronological order but have connections to each other, shown in Figure 15. The therapist's onboarding is the prerequisite of other new features, while the future technology can be applied both in onboarding and community. Therefore, it was decided to explore all these three directions instead of choosing just one for the final solution.
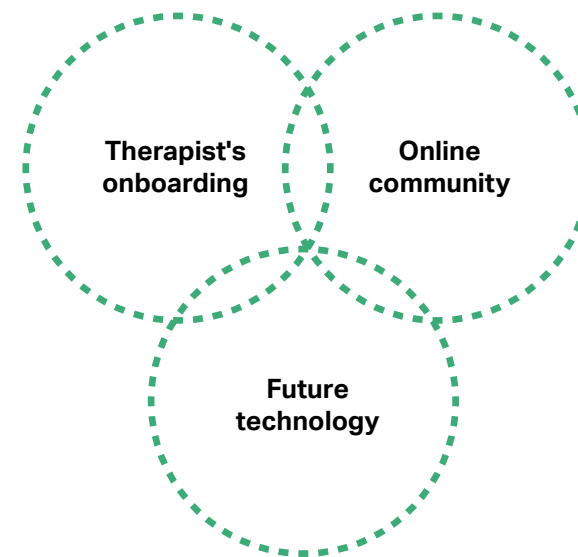
Figure 15: *Three design directions.*

3.3
Design vision

After identifying the possible factors affecting the therapist's engagement and selecting three promising design directions, the design vision is formulated as following:

> **We want to improve the therapist's engagement of using the Minddistrict platform, by providing a better onboarding experience and creating an online community where they can actively interact with each other.**

The onboarding experience should explain the benefits, display the features, and encourage the users to make their first try. Also, the online community should provide the therapists in one organization a channel to share knowledge, give suggestions and stay connected. The detailed design requirements are mentioned in the next chapter.

3.4
Design requirements

These are the nine design requirements that the final design ideas should meet. They are based on our design goal and research conclusion. Since this project has several design directions, so not every design idea has to meet all these needs.

Easy to use
Users should experience the platform as intuitive, and are able to perform tasks without many obstacles.

Quick to learn
Users should be able to catch up with the new features quickly, no long-winded manual needed.

Obvious benefits
The benefits that the new idea could bring to the therapists should be clearly explained.

Feasible
The solution should be practical for different departments in MD, such as development, marketing, etc.

Validated
The new approach or feature should be accurate and can assist therapists with making decisions.

Fun
Users should experience using MD platform as enjoyable and relaxing.

Personalized
There are some features that make the platform unique for different people and meet individual requirements.

Timely support
Whenever the users encounter some issues, they know whom to ask for help.

Social connection
The new idea should promote closer social connections for therapists.

Chapter 4
Therapist's onboarding

4.1
Introduction

Onboarding, also known as organizational socialization, refers to the mechanism through which new employees acquire the necessary knowledge, skills, and behaviours to become active organizational members and insiders. In the field of interaction design, onboarding refers to a way of making first-time users start using the app (Renz, J., 2014). Well-designed onboarding experience can increase the possibility that first-time users becoming high-engagement users.

Currently, MD does not have a very systematic onboarding process for therapists. The scattered information prevents therapists from understanding the main features of the platform and the convenience it brings. That is why still a lot of therapists see ehealth as an alternative rather than a useful tool.

In this chapter, design iterations and user tests that were conducted to find out how best to get therapists familiar with the MD product and its value are described.
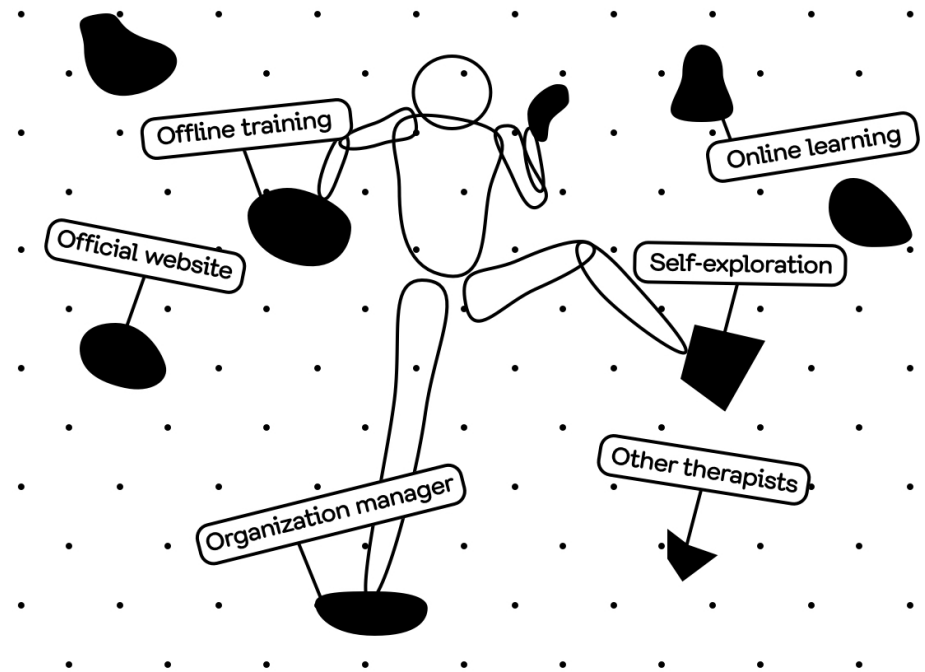

Figure 16: *An illustration of current onboarding situation.*

4.2
Current onboarding process

There are several major channels that can guide therapists on how to use the product. However, the therapists can easily miss some useful information because the different channels are not linked together.

Offline training & online learning:

Figure 17: *The process of current training.*

The managers from the healthcare organizations can receive the training from MD both online and offline. They first receive an email from the trainer in MD asking them to register online, then they meet in the office for a joint kick-off. After the kick-off, the therapists need to work independently with several online exercises. Then the therapists and the trainer will see each other again for a "peer coaching" activity

with a small group of professionals or managers to learn together, and it lasts for around 2 hours. After the joint activity, the therapists work independently online again (see Figure 17).

The whole training and learning process takes around 10 hours now, during which and therapists can grasp the necessary operational knowledge. However, even though only a small number of therapists gets this training, the whole process of learning (10 hours) is perceived as too long.

Organization manager & Self-exploration:

Most of the therapists are told to use MD by their organization manager. This results in self-exploration of the product, and asking the manager for help whenever problems are encountered.

Official website:

Therapist might go to the official website of the company to look for useful information. However, the information for different target users (healthcare organizations, therapists, clients) are mixed. As a consequence, the therapists may find it challenging to navigate to the target pages. Moreover, the overwhelming information on the website may mislead the user to perceive MD as software as software that needs high learning costs (see Figure 18).
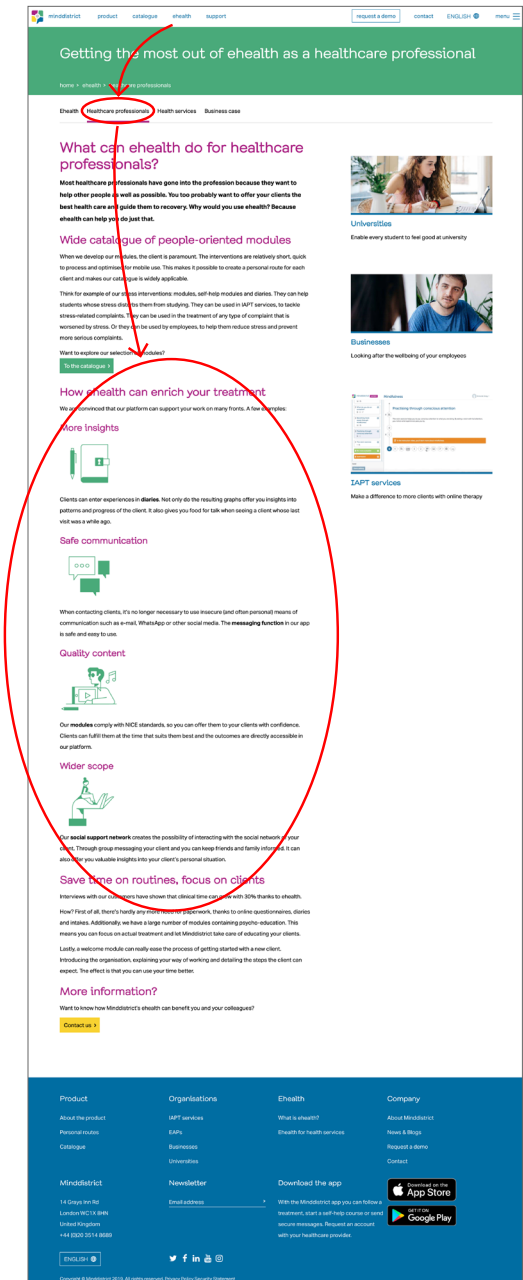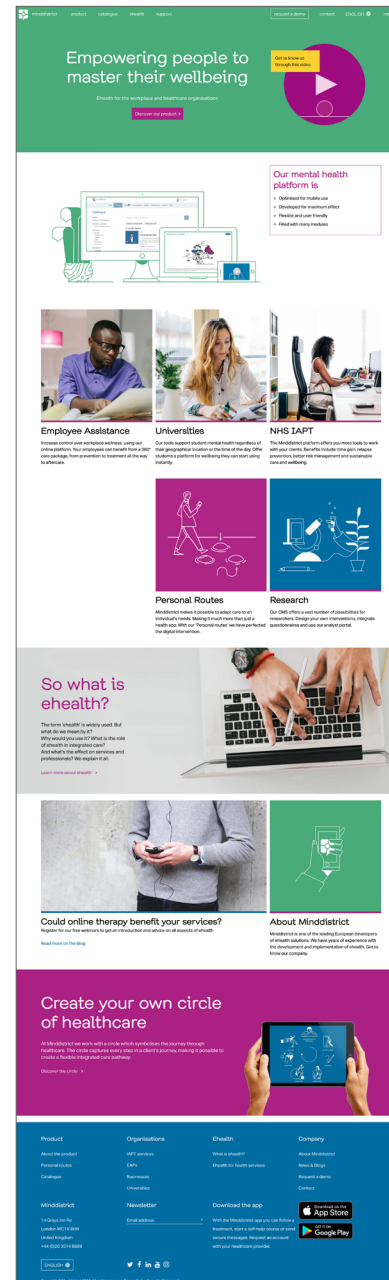

Figure 18: *Current official website and the steps for therapists to get relevant information.*

4.3
Swipe-through tutorial

The Figure 19 shows the redesigned onboarding process for therapists. The primary purpose of this idea was to integrate and refine the existing information channels and convey them to the therapists more understandably and straightforwardly.

A swipe-through tutorial including five pages showing what the therapists can expect from MD was added (see Figure 20). For each therapist who uses MD for the first time, the tutorial is presented before the therapist can further interact with the product. This idea aims to reduce both the learning curve, and the barrier for therapists experience when trying the MD.
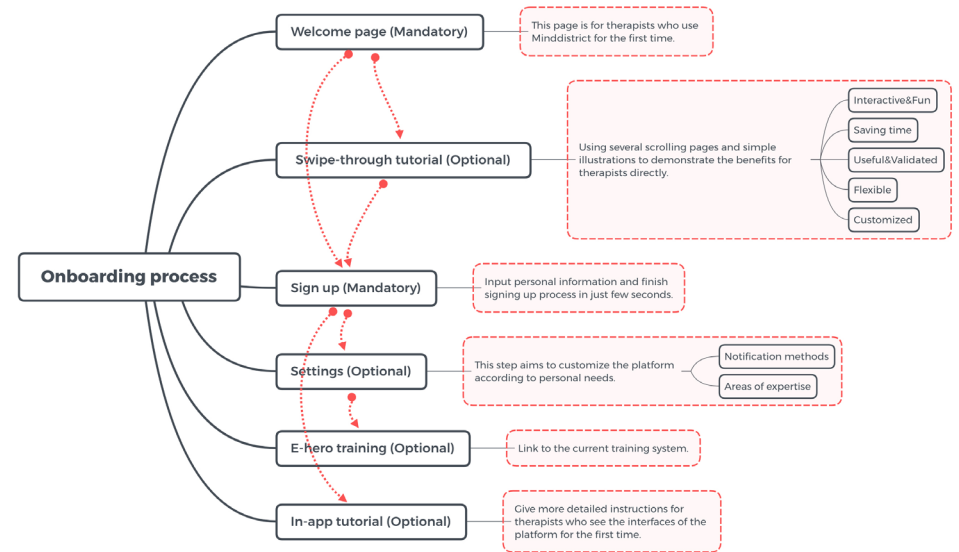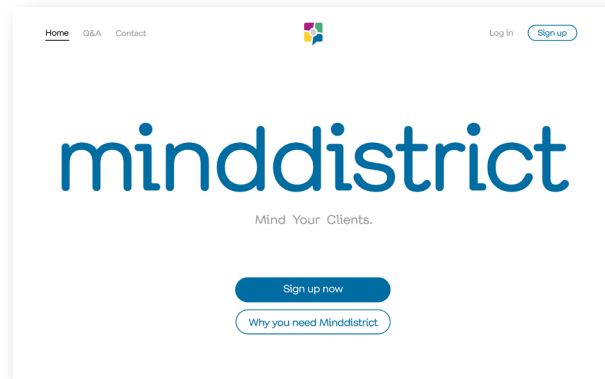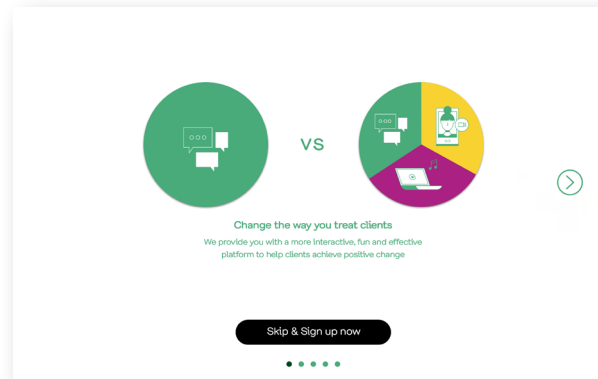

Figure 19: *Redesigned onboarding process.*
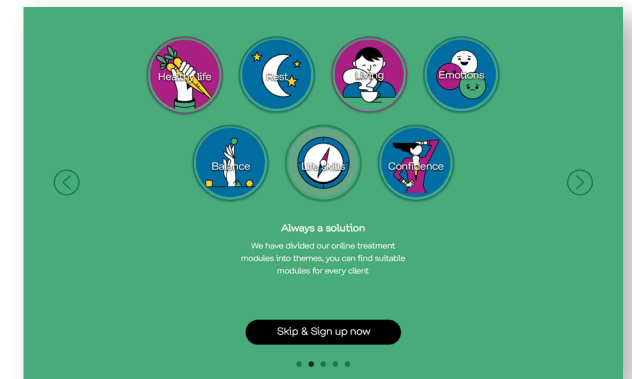
Interfaces

Welcome page: with a button "Why you need Minddistrict" to create motivation for beginners;
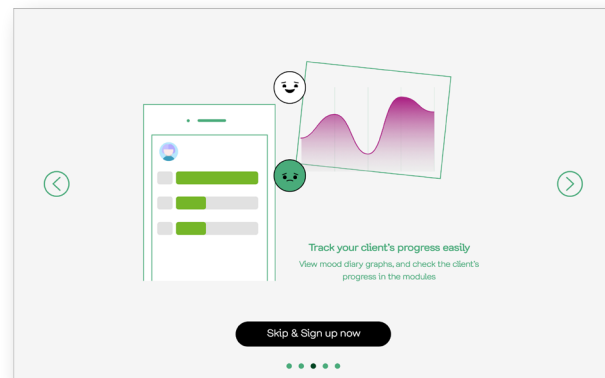

Interactive & fun: showing that the new way of giving treatment is more interactive and fun compared to traditional therapy;
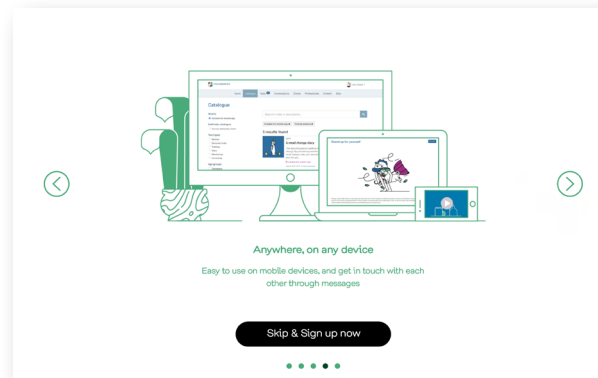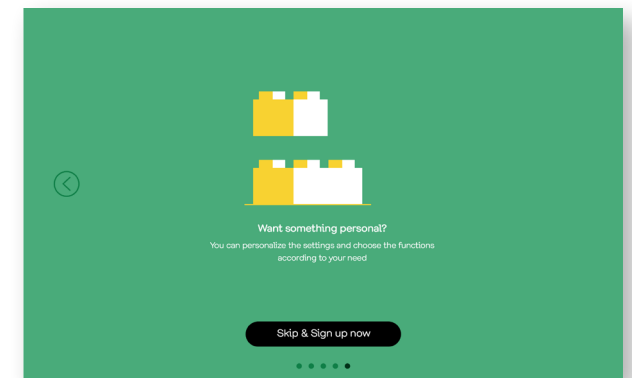

Useful: this page indicates that the vast number of modules on the platform can cover a wide range of topics;

Saving time: with the self-help modules and diary, therapists can spend less time on informing patients and have more qualitative time with them;

Flexible: therapists can use Minddistrict on multiple anywhere and anytime;

Customized: the functions on the platform can be personalized according to personal needs.

4.4
User test

Research questions:

- "Can people who never heard before about MD understand what the MD product is based on reading the tutorial only?"

- "What features and/or benefits are impressive for the participants after reading the tutorial?"

- "Are the participants eager to continue exploring the MD platform?"

Test setup:

Participants: 3 random students from TU Delft library.

Process:

The participants were asked to scan the tutorial of a new platform. No other background information was provided. The participants were asked to describe what is the product for, and what functions does this product have.

More questions were asked after giving the participants the context information, to see whether they understood all content.

Results

First participant (male):

Description:

"This seems to be a daily life assistant tool, maybe for female? I feel like the user has to fill out the form every day, just like the students need to report the progress to their teachers every day."

Other feedback:

- *"The first two pages are showing the functions, while others are showing the benefits and the user-friendliness, so the content is not uniform."*

- *"Personally, I would like to see page 5 earlier, because I think the customization might be more important or useful for me."*

- *"Actually, I seldom check these pages when using a new digital product, I prefer to explore the product myself."*

Second participant (female):

Description:

"I guess it's a tool relevant for the business clients? And the platform can provide those clients with training stuff. But I didn't figure out who should use the platform and the reasons why they use it."

Other feedback:

- *"Oh, I didn't realize it is a platform for therapists to treat patients, because you use the word 'client'".*

- *"The icons on page 1 make the platform looks more like an entertainment tool, a tool for watching videos and listening to music, instead of a health-care platform."*

- *"On page 2, you use the title "Always a solution", I cannot understand it, a solution for what? The seven circles in the picture seem to be classified rigorously, but when I read the text carefully, I felt that they are not on the same level (Figure 21), so I am confused why these modules are classified and according to what are they classified?"*
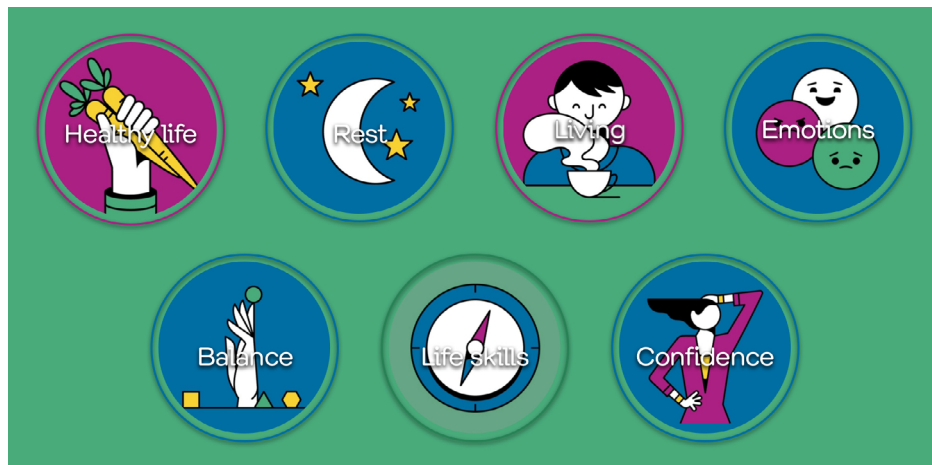

Figure 21: *Classification of modules.*

- *"The page 3,4,5 are very clear to me what you want to convey. But it's too general, it can be applied to almost any new product today, so it's not appealing enough for me."*

- *"Usually, I don't spend too much time reading the up-front tutorial carefully, only if they are very interactive and fun."*

Third participant (female):

Description:

"I think it's an online tool to help people with different problems, and this product can help you to track your emotions."

Other feedback:

- *"I cannot tell which one is better if I only see the pictures on page 1. I didn't figure out what those icons represent."*
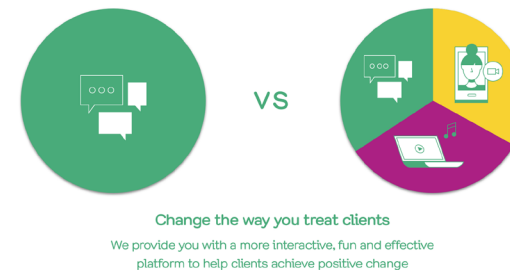

Figure 22: *Page 1. Interactive & fun*

- *"Page 2 has too much information compared to other pages, and I didn't grasp the point, do you want to express that the platform covers a wide range of mental issues, or the platform have detailed classification?"*

- *"I prefer to read the picture first, if I cannot understand it I will then read the text."*

- *"When coming to a new product, I'm more interested in how it can improve my life, so the introduction information on their official websites is crucial. But when I open the app, I already made the decision to use it, so the up-front tutorial has little impact on me."*

1. Make a clear distinction between "Benefits" and "Features"

During the test, the concepts of "Benefits" and "Features" were not clearly distinguished from each other, resulting in confusion of the participants, who were not familiar with MD. Take page 2 for example, it lists the 7 classifications of the health topics MD covers, and it seems like to show the "Module" feature, while the title "Always a solution" sounds more like a benefit for therapists.

This may confuse the users who are not familiar with MD, so it is necessary to make a clear distinction between these two concepts and keep the content at the same level.

> *"Here's what our product can do" and "Here's what you can do with our product" sound similar, but they are completely different approaches. (Jason F., 2013)*

2. When and Where to show the "Benefits" and "Features" is important

Based on the test results, users are more interested in the value than benefits that the company promised to deliver before using the product. Since all participants expressed their preference for learning by doing, the educational tutorial is more suitable to appear during their use of the product as hints or reminders.

The feedback from the tests also shows that users are more likely to

skip the up-front tutorial. The information on the official website is more convincing and determines whether one wants to continue to register or use the product.

3. Clearer positioning and more straightaway language

During the tests, none of the participants could describe that this is a tool for therapists, although they could all feel that this is a health-related tool. Even the word "client" could cause ambiguity.

Considering the therapists have different backgrounds, giving clear product positioning and providing information free of ambiguity is particularly important.

4.5
Improvement - Landing page

To make the onboarding process reasonable and attractive for the users, an improvement was made based on the test results and conclusions of the first idea. The main purpose of showing users the benefits stays the same, only where and how to show it changed.

First of all, the swipe-through pages for therapists who use MD for the first time were removed. Instead, the information on benefits the users can expect from MD was put on the official website. Considering the current official website provides mixed with information for different target groups (e.g., clients, therapists, health care organizations, etc.). So the new idea reorganizes all the information by providing options for different groups to choose (see Figure 23).
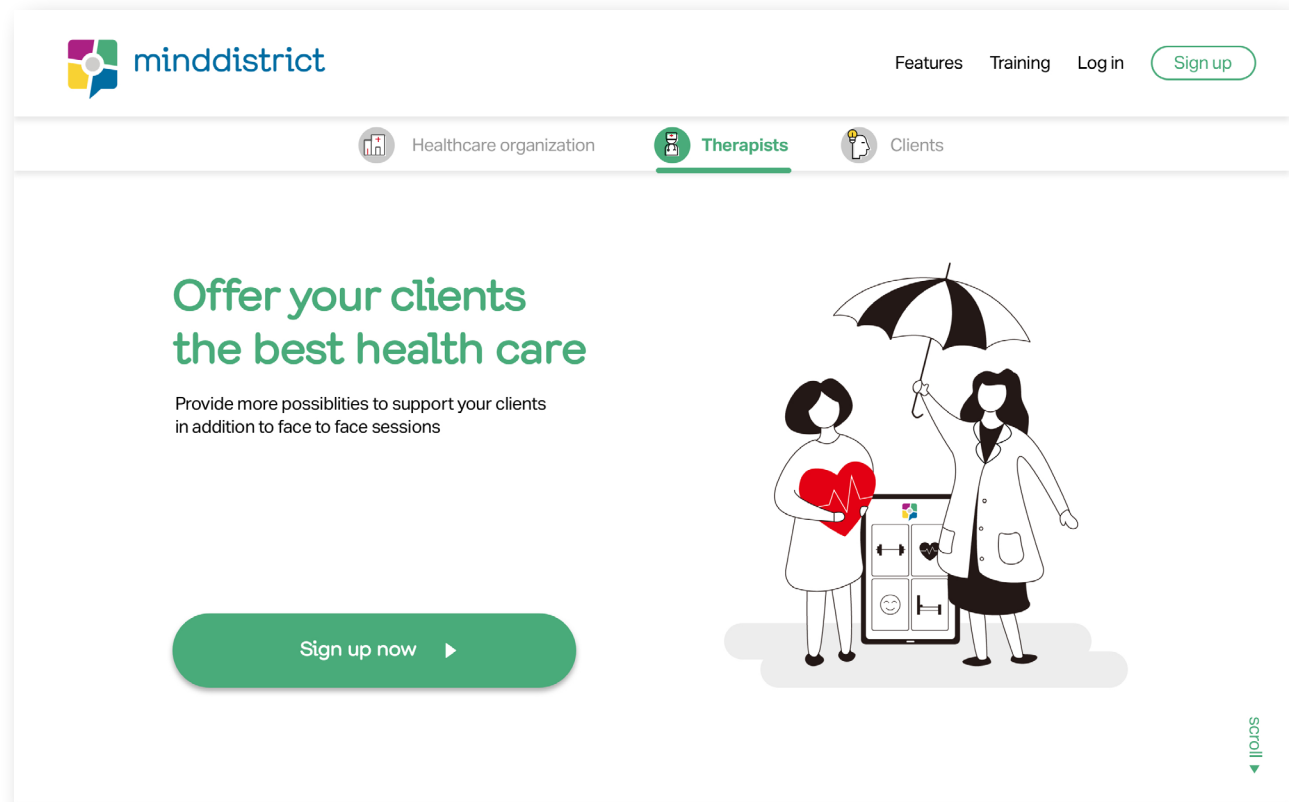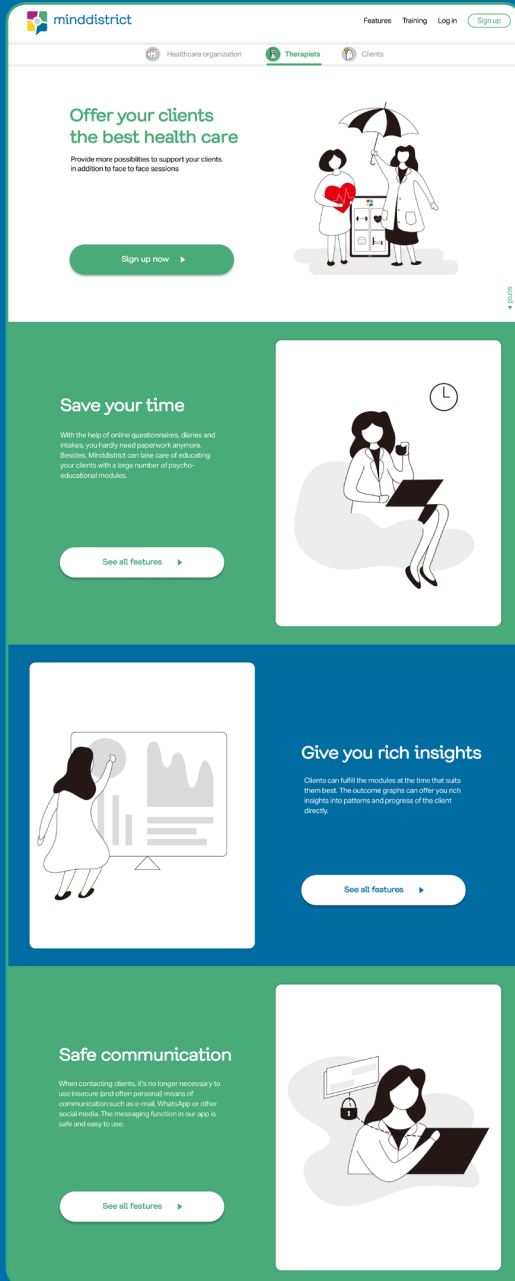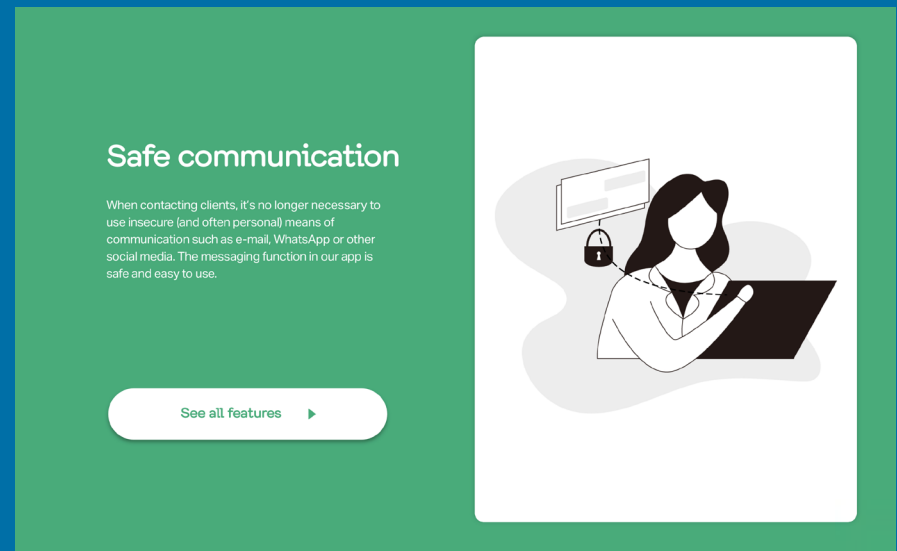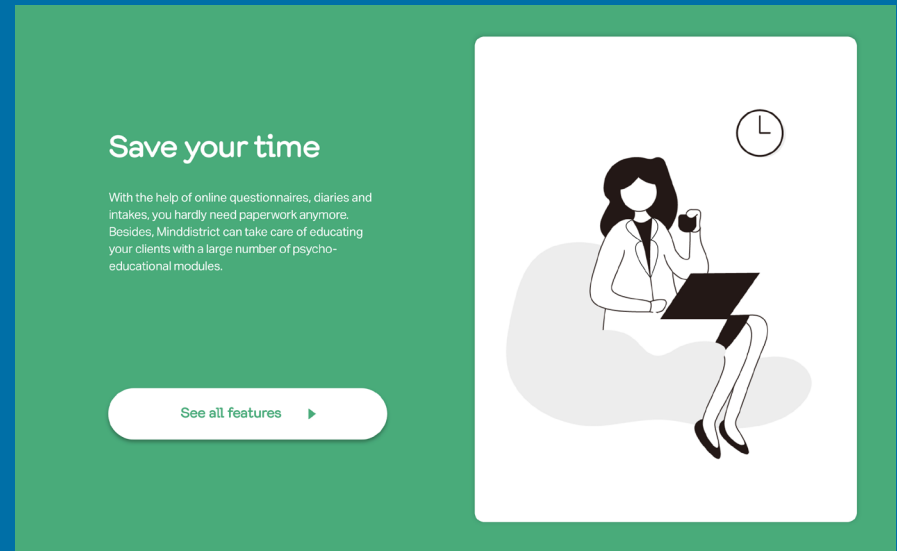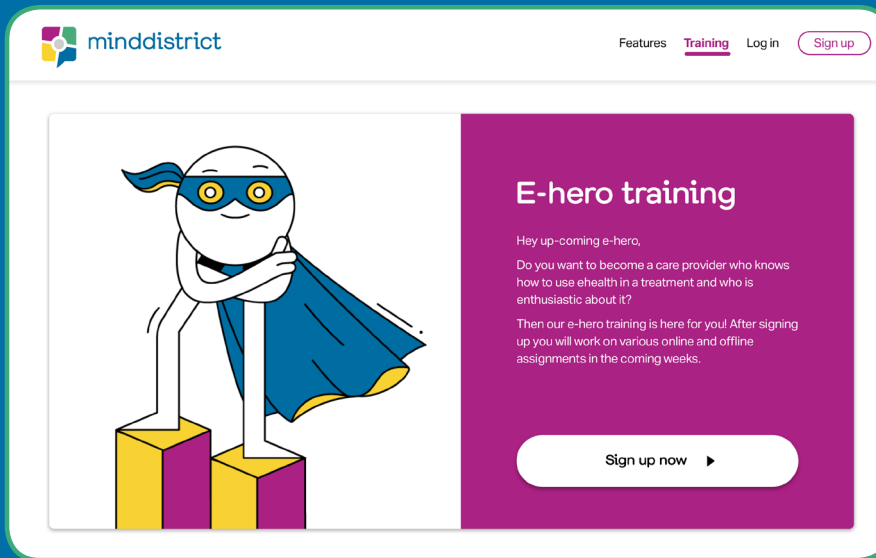

**Figure 23:** *Landing page of official website.*

Landing page

The new official website uses a set of visually-unified illustrations to show the possible benefits therapists can get. There is also a CTA button for therapists to click it and see the corresponding specific functions.

Save your time

With the help of online questionnaires, diaries and intakes, you hardly need paperwork anymore. Besides, Minddistrict can take care of educating your clients with a large number of psycho-educational modules.

See all features ▶

Safe communication

When contacting clients, it's no longer necessary to use insecure (and often personal) means of communication such as e-mail, WhatsApp or other social media. The messaging function in our app is safe and easy to use.

See all features ▶

Training as a part of onboarding

A training portal has been added to the official website as well. Therapists can register and schedule offline training session through this portal instead of using the email.
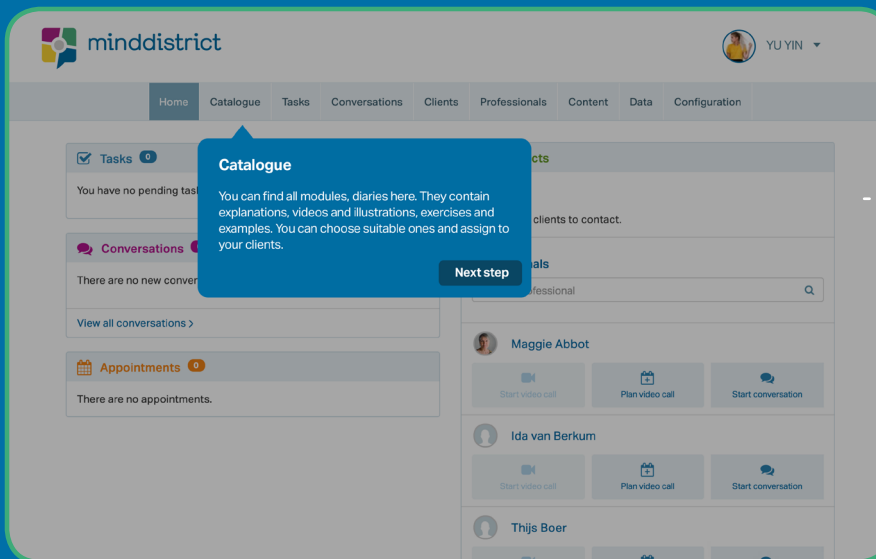
Walk-through tutorial

When the therapists use the platform for the first time, there will appear a step-by-step tutorial that guides the users to find specific functions quickly, in order to reduce the negative feeling caused by strangeness.

Chapter 5
Online community

5.1
Introduction

An effective and efficient way to solve the low engagement problem is to form an online social networking for therapist. Previous research has shown that users who feel a sense of connectedness and psychological closeness rather than isolation are more likely to actively participate in the platform (Young, S., 2011). The two significant aspects of online social networking are social connectedness and social support (Goswami, S., 2010). Social connectedness refers to the number of connections and the quality of interaction an individual has with other people in their social circle. Social support, on the other hand, means that members in the network can provide help to each other with the intention to be helpful.

In the current platform, communication between therapists is limited to text messages and video calls. According to the research results from previous chapter, most therapists still prefer offline methods such as email, or face-to-face communication.

The second design direction aims to create an online community for therapists. This intervention makes it possible for therapists to form connections with others online, and the platform provides different functions to increase therapists' social influence that may increase the usage of the platform. The personal activities within the platform become transparent. Therefore, therapists can see which modules their colleagues are using and their actual evaluation of the content.

To increase the interaction among therapists, options, such as recommendation of modules and "thumbing up" others' comments, are introduced. Online community does not only provide a reference for people who are not familiar with the platform, but also increases user's trust through acquaintance interactions.

5.2
Theoretical framework
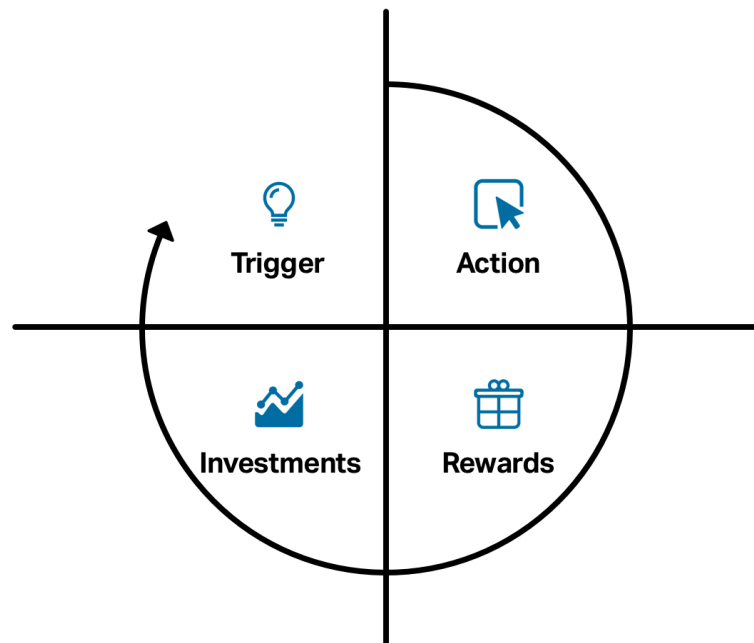
Behavior change theory - Hook model

Figure 24: *The hook model (Eyal, N., 2014).*

Helping users to form habits is essential for many social products ((Eyal, N., 2014)). For example, people are habitually checking their Facebook or Instagram for hundred times per day even if they do not receive any new message. As designers, we have the opportunity to influence our users, not only by guiding them to new actions, but also by developing long-term positive habits through repetitive actions. In this way, the users will use the product regularly while the company can win the loyalty of the clients.

Nir Eyal's hook model (see Figure 24) focuses on habit formation, which helps us design apps that can change the user's habits and improves user engagement eventually (Eyal, N., 2014). The hook model states that in order for a habit to be formed, the user needs to be sent a trigger that initiates an action. When the user performs this action, a reward is then given to encourage the user to repeats the action. By repeating this action several times, the user starts investing more time and energy in the app. Gradually, the habits are formed and the frequency with which the users use the app is enhanced.

⚲ Triggers:

According to the hook model, the trigger can be either extrinsic or intrinsic. The external trigger often comes from the product itself, and this could be an email, notification, or an sms. Therapists are flooded with trivial notifications every day, so they pay little attention to the update emails. Therefore, the external trigger should be more timely and intriguing. Associating a strong emotional response during each use can also help to form habits. The intrinsic motivation can be seen either as positive emotions (e.g. happy, exciting) or negative emotions (e.g. boring, lonely).
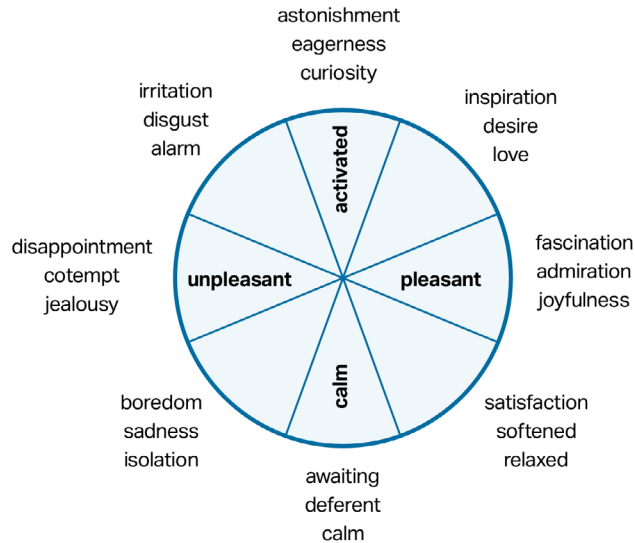
Figure 25: *Circumplex model of core affect with product relevant emotions (Desmet, 2007).*

Figure 26: *Fogg's behavior model (Fogg, B. J., 2009)*

Action:

Triggers alone are not enough to change users' behavior. We also need to take a look at the motivations and abilities for users to change. The Fogg Behavior Model (see Figure 26) shows that three elements must converge at the same moment for a behavior to occur: Motivation, Ability, and a Prompt (Fogg, B. J., 2009). This model is committed to putting users in an activatable state, which can be achieved by increasing users motivation or ability. More specifically, in this project, providing therapists with appropriate rewards, or promoting the product through acquaintance can increase their motivation. Making the product more user-friendly or giving more straightforward training may enhance therapists' ability to use the product.
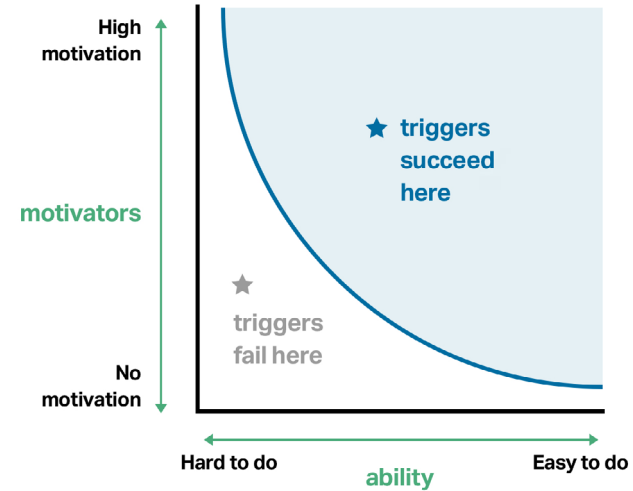
Rewards:

Variable rewards can serve as a method to positively reinforce users for the specific actions they take. The rewards can come from the tribe, for example, the comments from your friend circle. It could also come from the users themselves, when they master a certain skill, they will be self-rewarded. In this project, we have to think about what kind of rewards can be provided to the therapists, whether it is tangible or intangible; and who is responsible for providing the rewards, whether it is the healthcare organization or Minddistrict.

Investment:

Users tend to value a product that they invest in time and effort compared to the products that they put no labour into. As product maker, we can invite users to invest their personal data, content, reputation, or time.
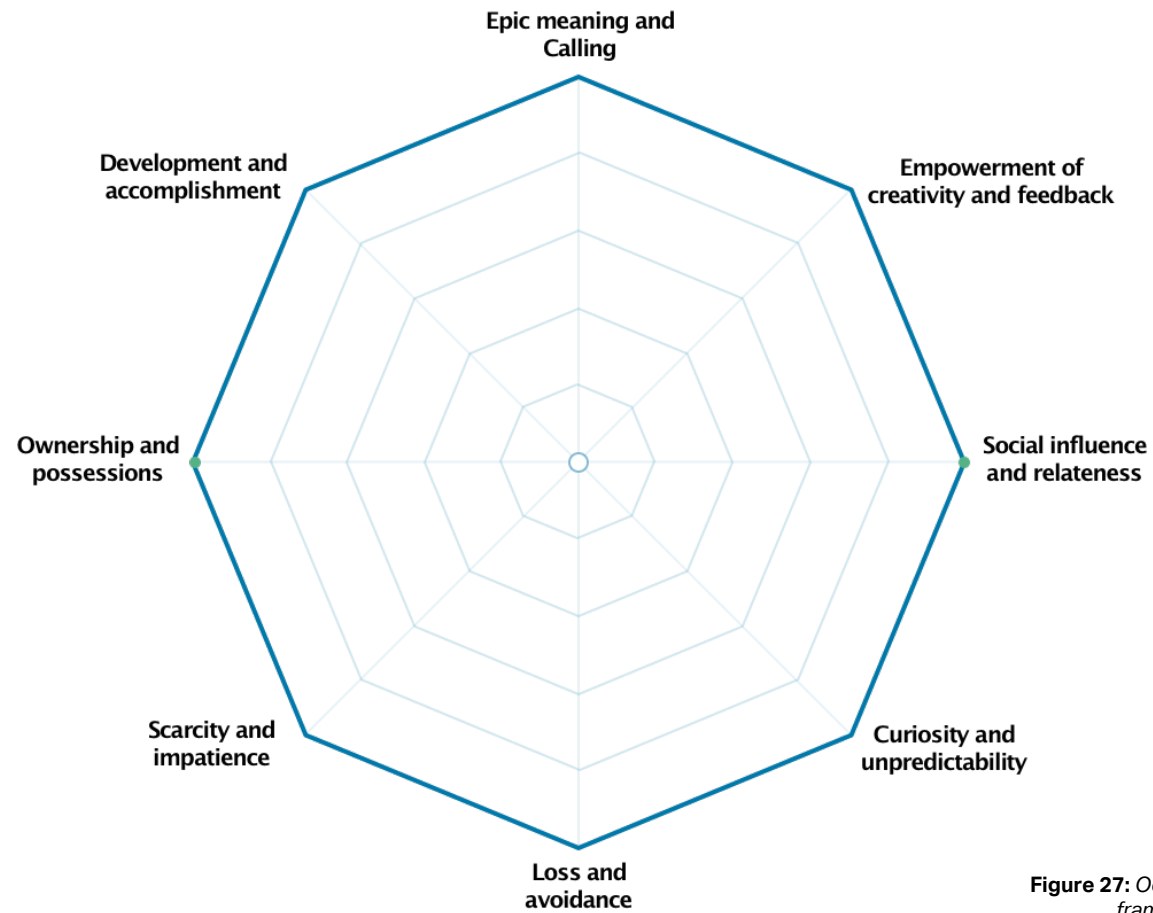
Gamification theory - Octalysis

Figure 27: *Octalysis – the complete Gamification framework (Yu-Kai Chou, 2015)*

In order to make the online community more fun and engaging for therapists, a gamification framework called Octalysis (Yu-Kai Chou, 2015) was also incorporated. Octalysis is a design framework based on an octagon shape and in the center of the shape are 8 core drives which can motivate people to do anything in games (see Figure 27).

Core Drive 1: Epic Meaning & Calling

This core value states that you feel motivated because you feel like you are a part of something bigger than yourself. In our context, it is important to convey the vision of helping people in need to all the therapists.

Core Drive 2: Empowerment of Creativity & Feedback

People need ways to express their creativity, and see feedback and then adjust. We should enable therapists to try different combinations if we want them to engage in the online treatment process.

Core Drive 3: Social Influence & Relatedness

This drive incorporates all the social elements that drive people, including: mentorship, acceptance, social responses, companionship, as well as competition and envy (Chou, Y. K., 2018). When you see your colleagues are using some modules and writing comments of it, you become curious as well. Also, when your activities become transparent online, what other people think of you will also affect your behavior.

Core Drive 4: Curiosity & Unpredictability

Because you don't know what's going to happen next, your brain is engaged and you're always thinking about it. Some tiny surprises or unpredictable effects such as the Easter eggs will keep the users wanting to know what will happen next.

Core Drive 5: Loss & Avoidance

This value means that you're doing something to avoid loss, because you don't want bad things to happen. On a small scale, it could be the therapists don't want to miss a time-limited offer. On a larger scale, it could be that the therapist don't want to lose the friends circle and everything they build up until now because they are now quitting.

Core Drive 6: Scarcity & Impatience

This core drive states that the users want something just because they do not have it. If there is something on the platform that not everyone can get it right now, this will motivate the therapists to think about it from time to time.

Core Drive 7: Ownership & Possession

This core drive states that the users are motivated because they feel like they own something, so they want to improve it, protect it and get more. So, if a therapist spends a lot of time customizing his/her profile or constructing friends circle, he/she automatically feels more ownership towards the platform.

Core Drive 8: Development & Accomplishment

You feel motivated because you feel like you are improving, you are leveling up, you are achieving mastery. It is the internal drive of overcoming challenges and making progress for therapists.

5.3
Detailed design

The focus of this concept is about creating more social connections between colleagues. Therapists will have more online communication with their colleagues. The users can evaluate the content provided by the platform, and the feedback is visible to everyone. At the same time, the therapists can have more freedom to manage the content and share it with friends. The main function modules can be seen in Figure 28.
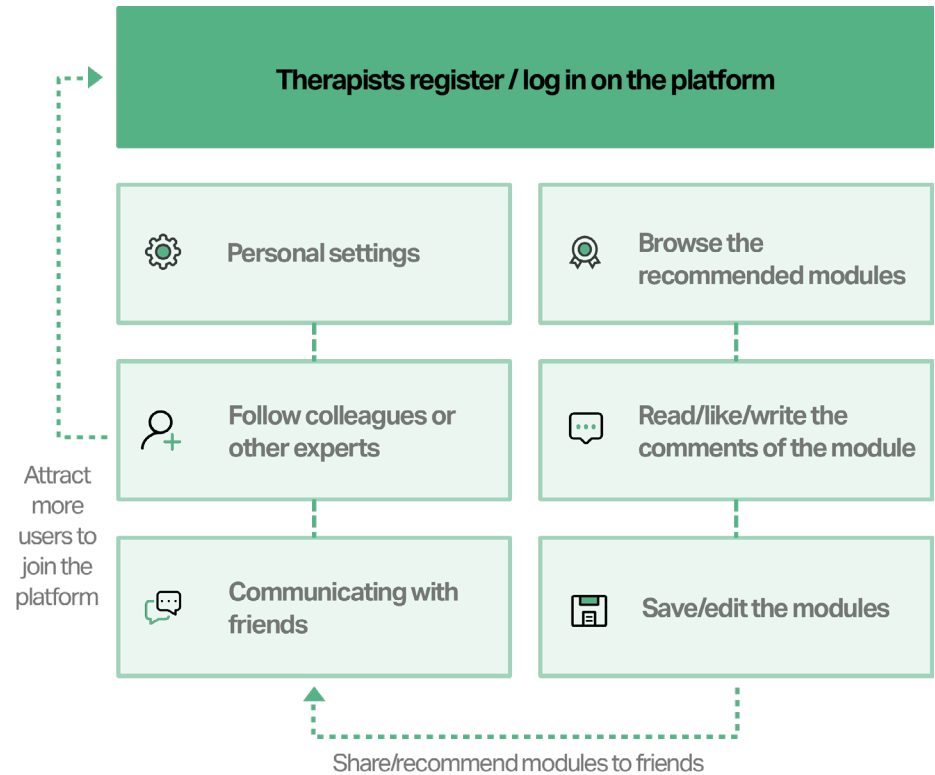
Figure 28: *The main function modules of the online community.*
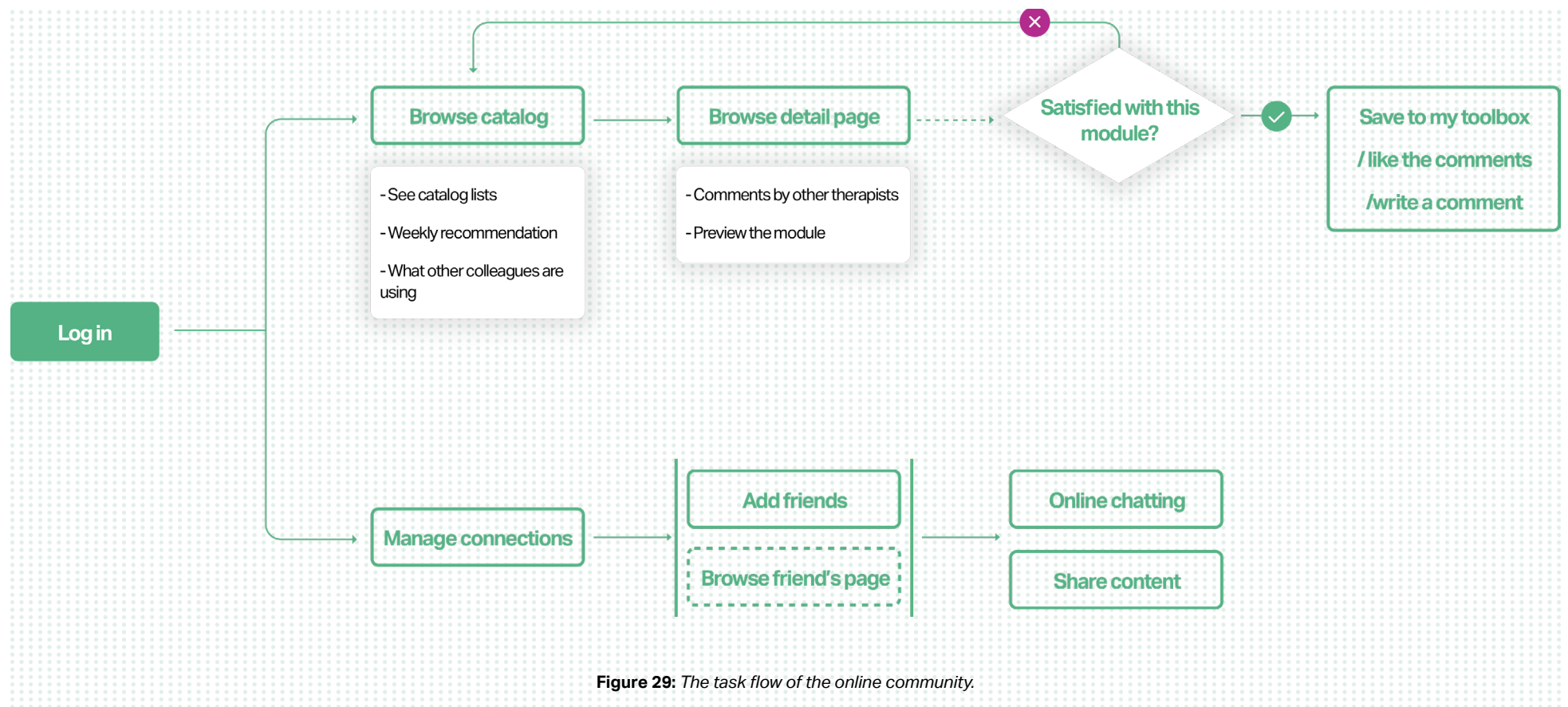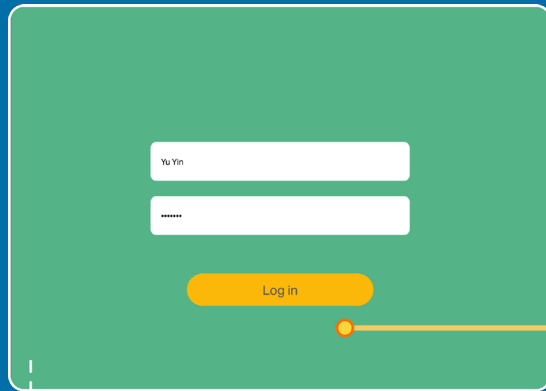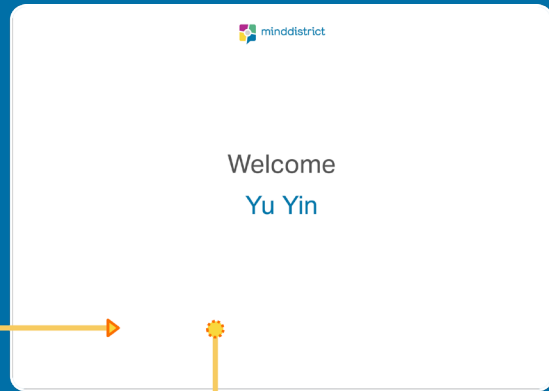
Task flow

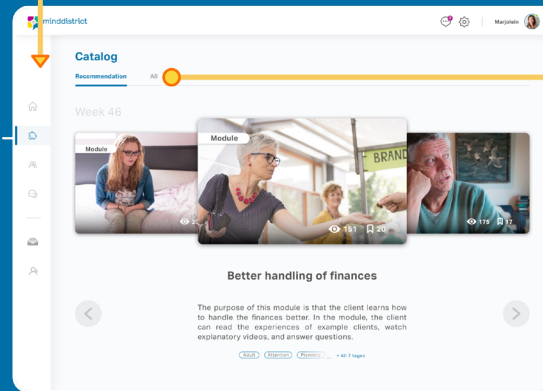**Figure 29:** *The task flow of the online community.*

2. Welcome page

Make the platform more friendly and let the user feels warmly welcomed. It's more than a working platform.

Welcome
Yu Yin

3b. Catalog page - lists

All the modules, diaries are listed on this page. There is a filter on the left side so it's more convenient for therapists to find specific module according to different needs. On the top of this page, there's a scroll bar shows what other colleagues are using, it can attract user's attention.

1. Log in page

By entering the username and password, users can enter the platform.
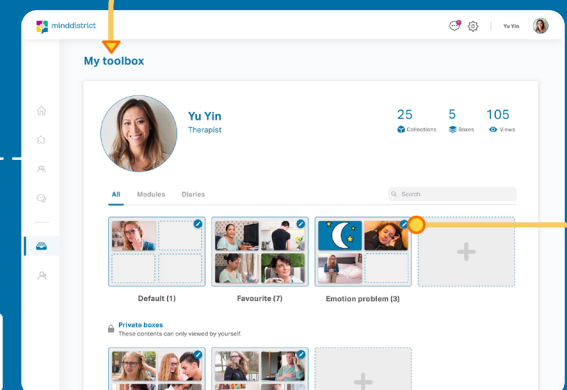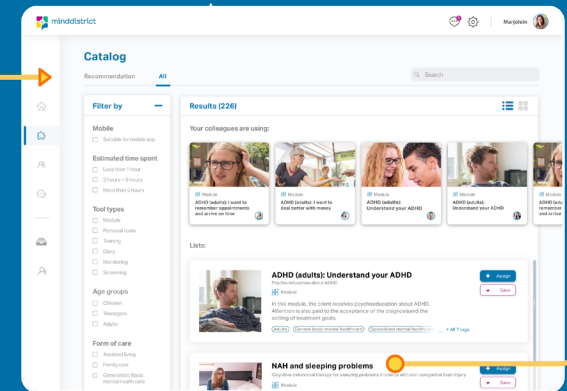
Yu Yin

••••••

Log in

3a. Catalog page - recommendation

Browse the weekly recommendation here, it only takes the users several seconds to go through it. It can save time for therapists when they want to discover something new.
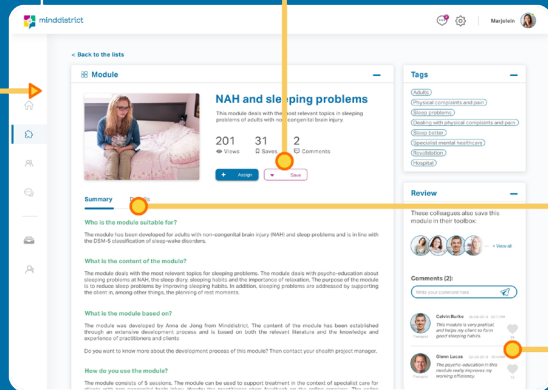
6. Personal toolbox

This is the personal toolbox collect all the modules that have been saved previously. The public content is visible to other friends. Therapists can also reorganize the modules collections according to their own preference.

Page flowchart overview

Figure 30: *Page-by-page walkthrough of the main features of the online community.*
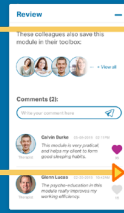
64

4a. Content page - Summary

When the user want to see more details of the content, they will click in, and this is what they see. There is summary of what's inside this module, including who is this module suitable for, how to use the module, etc. The numbers under the title can clearly show the users how many people viewed or saved this, and how many people gave comments on it.

4c. Content page - Details

Here is the structure of the content inside the module, the therapists can preview the content from the same perspective as clients.

4b. Comments
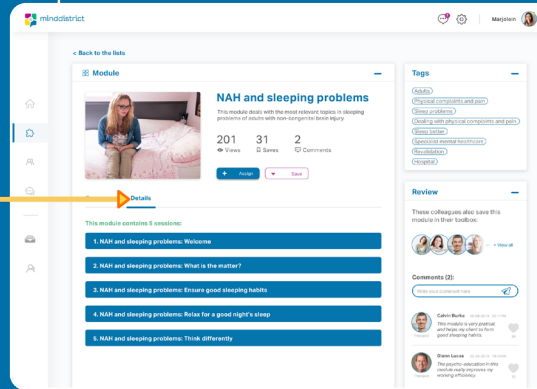
Like other people's comments or write comments here.
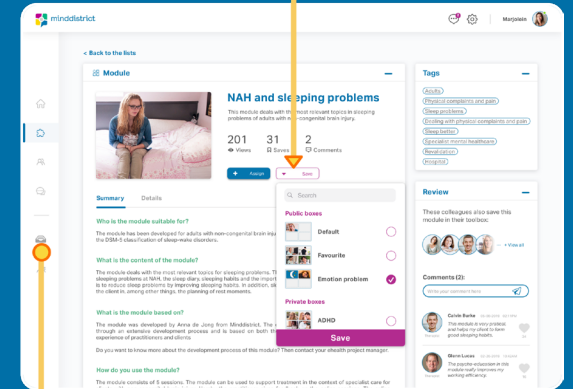
5. Saving module

If the users find this module particularly useful, then they can save it in the box, either public or private. So next time when they want to use the same module, they don't need to go through the lists again.
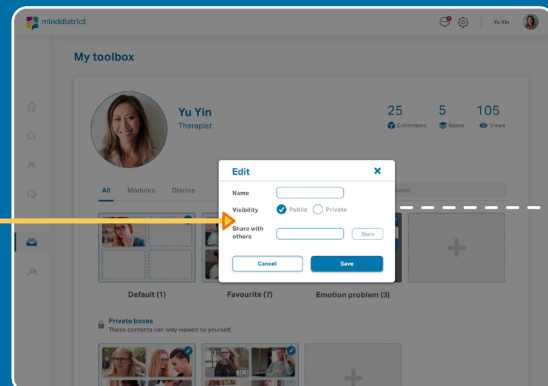
7. Edit the box

Therapists can rename the collection, make it public or private, or share it with other therapists.

Main features

1. Content recommendation

Compared with the current version that simply lists all modules on the platform, the new idea adds weekly recommendations and modules that your colleagues are using. Each week, MD is responsible for selecting popular contents, or related contents for a specific topic, and providing them to the users, in order to improve the visibility of all developed modules.

Your colleagues are using
There is a scroll bar on the top of the page where users can see what contents their colleagues are using, and the avatar can also attract users' attention.

Card display
Only three modules are selected every week and presented in the form of cards. It will only take therapists a few seconds to browse through them.
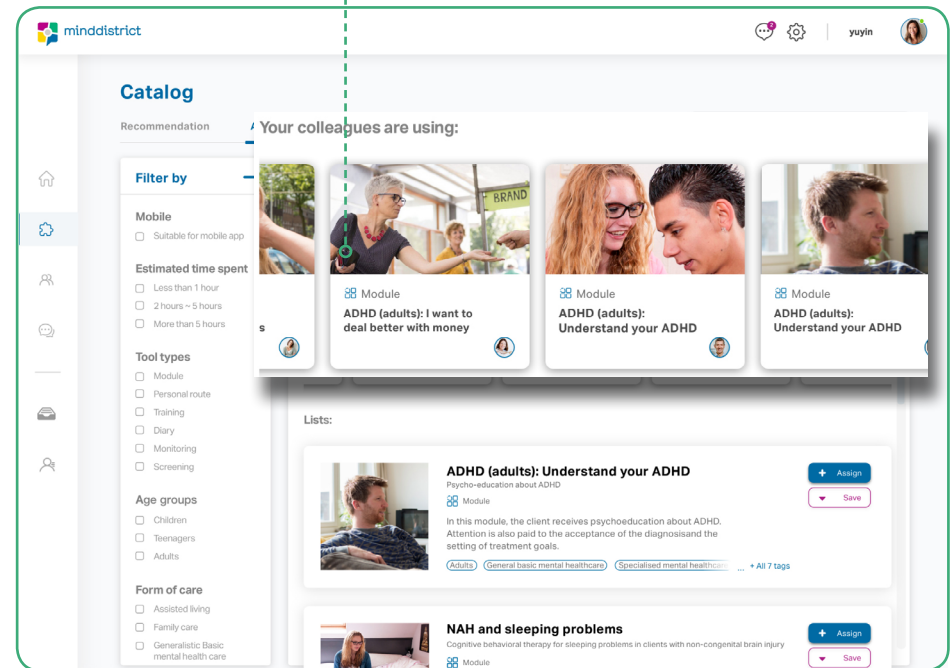
Real-time data
Show how many people have browsed and how many people have already bookmarked this module.

2. Evaluation of the module
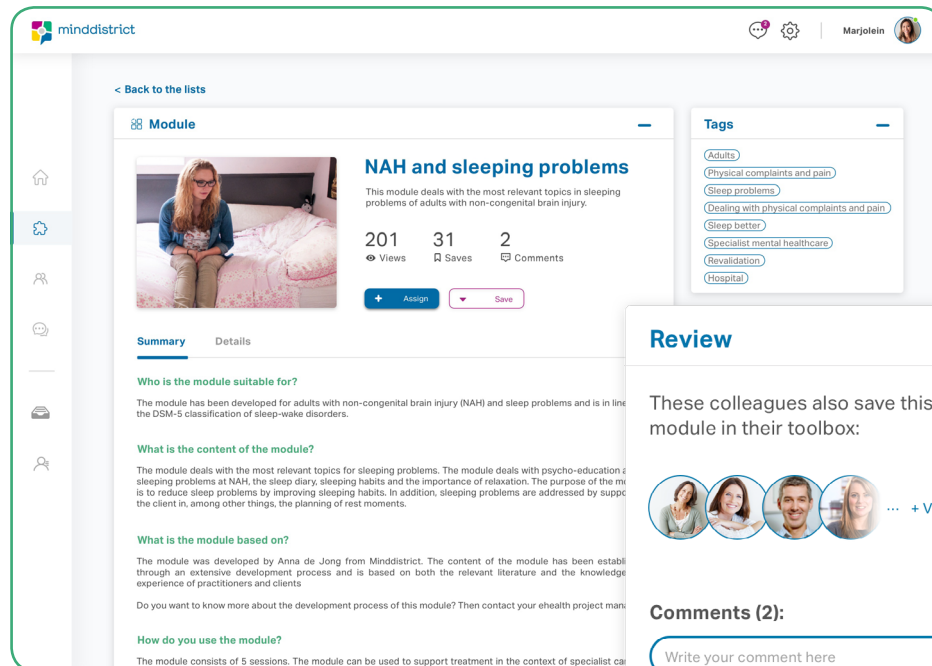
The new version of the details page has a clearer partition, and the reviews area is added. The therapists can see other experts' comments on a specific module, or they can write their own opinions. All interactions can be done on the same page without jumping to another page.
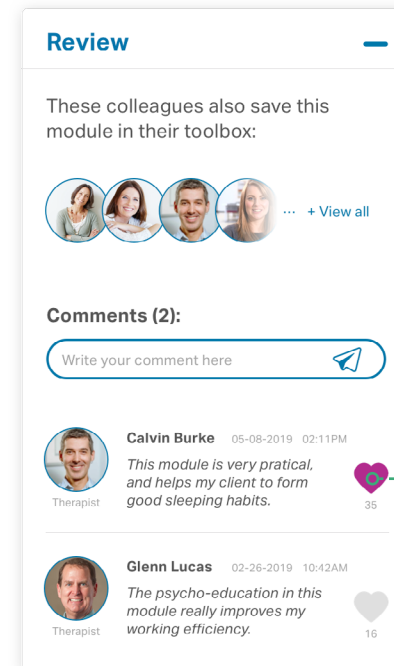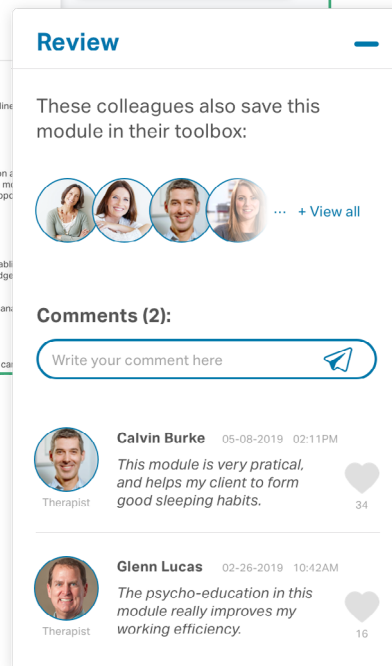
Like the comment
With little effort, therapists can interact with others. The number of likes of the comment can also represent the reference value to a certain extent.

3. Personal content management

This is a personal toolbox, where all the modules that you saved can be seen here. The collection of modules is called "box". The public boxes are visible to everyone while the private boxes can only be viewed by yourself. You can also reorganize the modules according to your own preference. Collecting commonly used modules in a box like this will make it easier for therapists to find a module next time.
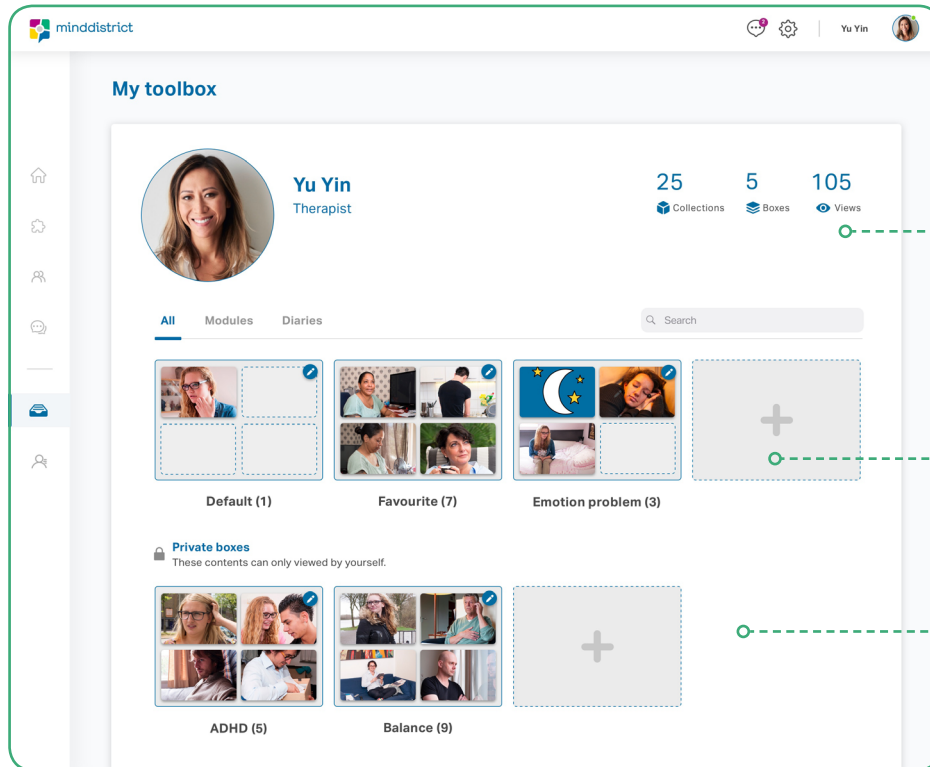
4. Information sharing

This new idea makes knowledge sharing much easier than the current way. Therapists can share the whole box by entering another person's email address or username. So if a therapists find some modules really useful and want to share them with others, they can use this efficient way to do that.
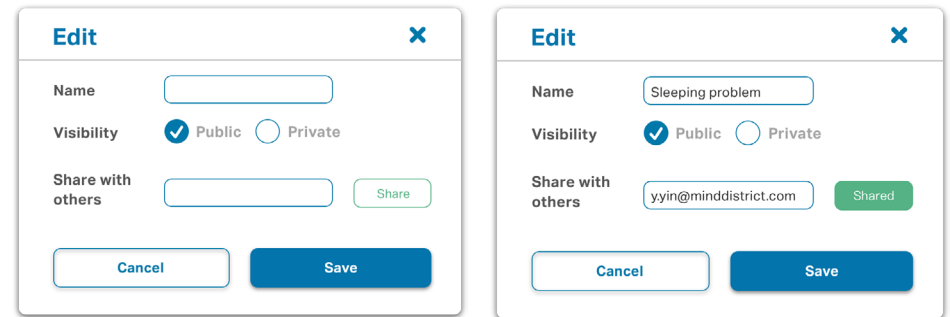
Number of visitors
The reason to show this data is that this can urge the users to build up their personal page because they know other friends can view this.

Create a new box
A new box can be created if you click this, the users can rename it, and collect modules that belong to the same category, or they used most.

Private boxes
If some therapists don't want their collections to be visible to everyone, they can choose to save the modules here, that only visible to themselves.

5.4
User test

The test lasted for about 30 minutes per user and was conducted with 4 participants including one therapist, two Minddistrict employees and one employee from TU Delft. The test included four distinct parts, an introduction to the overall project and the test, a short interview and pre-test questionnaire, the tasks to perform the prototype, and the post-test questionnaire. These parts are explained below.

Research questions

The goal of this research is to validate the concept "online community for therapists", whether this idea meets the design requirements: **"Easy to use, quick to learn, fun, closer social connection"**. Next to that, the usability and experience of the prototype was tested.

More specifically:

1. What are the problems that users experience with the prototype? (long reaction time, press the wrong icon......);

2. Whether the information on each screen is clear, can participants explain everything they see correctly, and can they understand correctly what is happening when an icon is clicked?

3. Which feature is most appreciated by the users, and fits the context best?

4. Do users consider this prototype more appealing compared to the one they are using now?

5. Do users feel that they have more social contact with colleagues on Minddistrict platform?

Test setup

Introduction   Perceptual map   Tasks   Questionnaire and interview
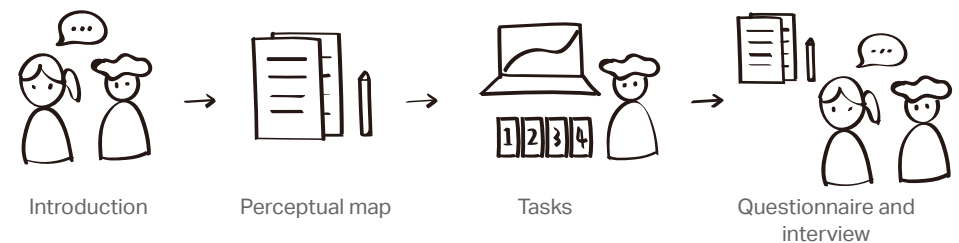
Figure 31: *The procedure of user test.*

Part one: Introduction

During the introduction, the participants were told the following things:

   -The test is to evaluate the idea of online community, which aims to improve the therapists' engagement in the platform;

   -What was expected from the participants during the test (tasks and questionnaire);

   -To think out loud, no matter whether they encounter any problems or found something useful.

Part two: Interview and perceptual map

After the introduction, a short interview was conducted. The questions were mainly about participants' proficiency in technology and their current knowledge about the online community.

A task called perceptual map was given to the participants. A perceptual map is a visual representation of the perceptions of users about specific attributes of an idea. Users skim through the prototype's interface without paying too much attention to the details, and each page only stays for two seconds. After that, they need to place a yellow dot along two axes indicating perceived ease of operation, and the attractiveness of the prototype (see Figure 32).
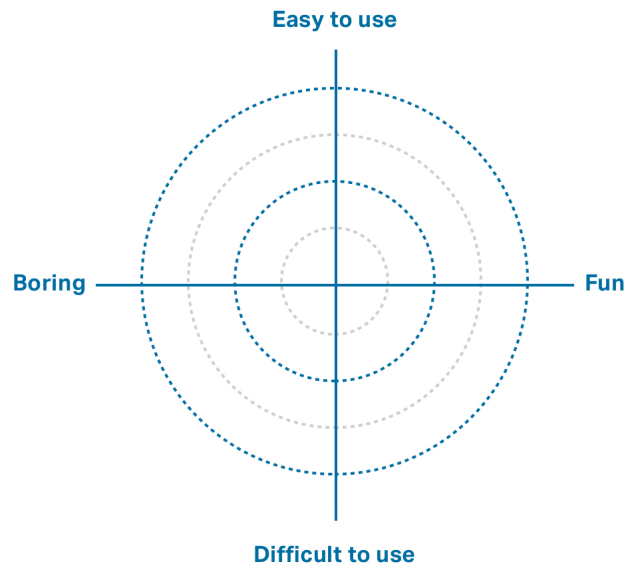
Figure 32: *Perceptual map*

Part three: Tasks

The participants were asked to perform the following five tasks on the prototype (see Figure 30 for the digital prototype):

1. It is Monday morning, you log in to the Minddistrict platform and see the weekly recommendation page. How do you feel about it?

2. Yesterday, you heard from your colleague that a module called "NAH and sleeping problems" is very practical. Can you find it and have a look at it?

3. You see a comment on this module from your colleague Calvin, and found his comment very useful. What will you do?

4. After reading the content of this module, you think it is indeed really practical, but your clients do not need it right now. You want to save it for next time. What will you do?

5. Your colleague Marjolein heard that you saved a collection of modules on how to improve sleep quality and wants you to share with her. What will you do?

After these tasks, a number of questions specific to the task were asked (for example: 'What do you think this,'[point at icon] 'means?'), and each time the participants open a new page, they were asked to describe what they see (for example, 'What elements you see on this page, and can you figure out the function of each section?').

Part four: Questionnaire and perceptual map

In order to tell the differences of experience among different participants, they filled in a questionnaire while elaborating on their answers. They had to rate different statements on a scale from one to five. Two of them are shown in Figure 33. Also, they were asked to place a green dot on the perceptual map again, to indicate what they think of the prototype after experiencing the prototype.

> The whole questionnaire and results can be found in Appendix I.

3. Is the information easy to understand?

Difficult   Easy

1	2	3	4	5

4. Do you think the community will save your time and effort?

Not at all   Yes, it will

1	2	3	4	5

Figure 33: *Two of the questionnaire that participants filled in.*

Data collected

Both qualitative and quantitative data were collected during the test:

Quantitative: Scores from the questionnaire, the amount of errors made during the test;

Qualitative: Answers to the questions asked during the test, elaboration on questionnaire answers.
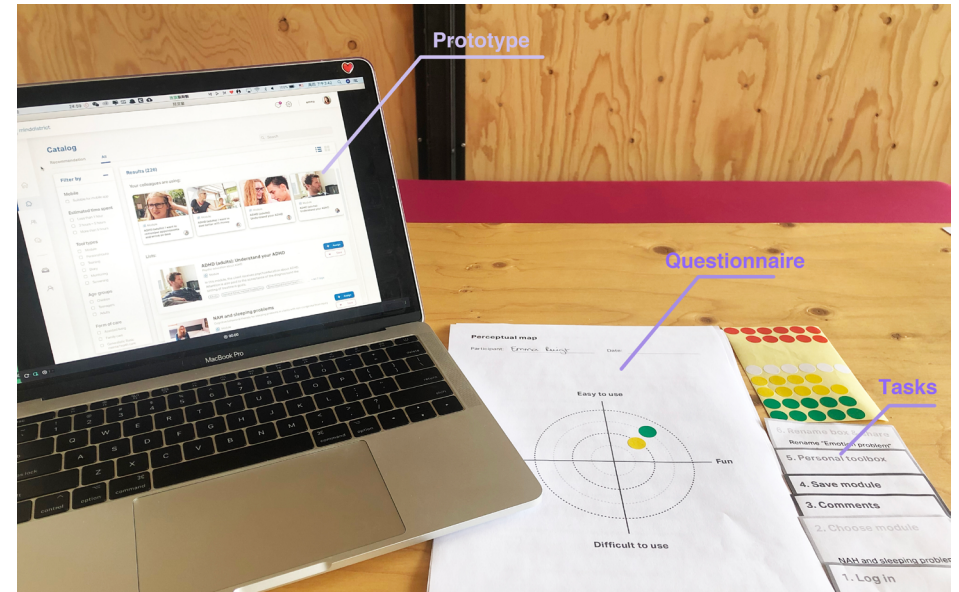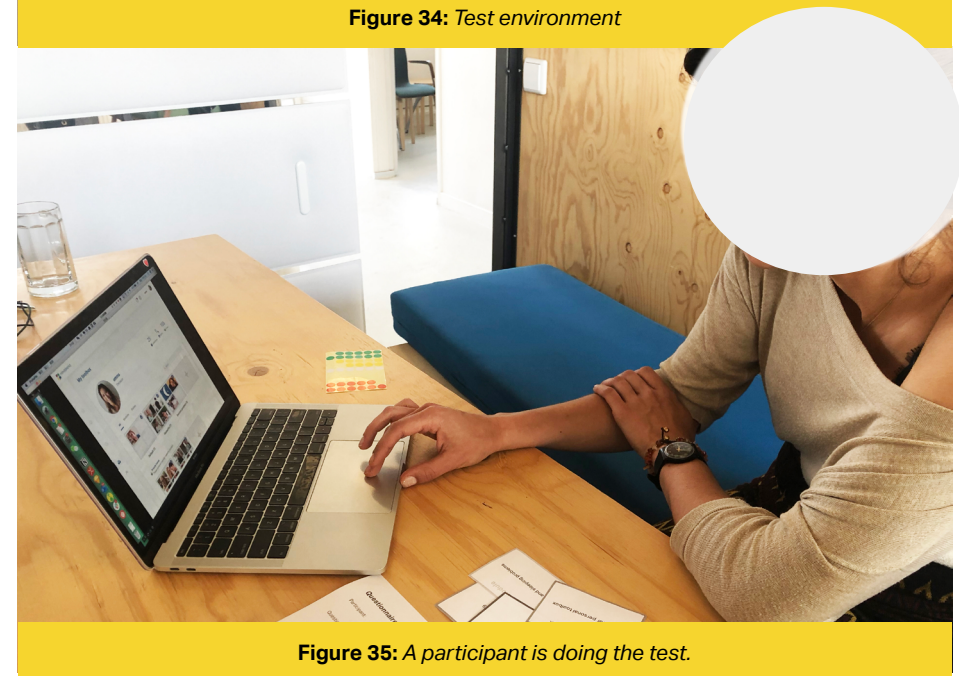

Figure 34: *Test environment*

Figure 35: *A participant is doing the test.*

Test results

Answers to research questions

1. What are the problems that users experience with the prototype? (long reaction time, press the wrong icon, etc.);

- Two of the participants struggled a little bit to find the right icon for personal module collection page, but they found it eventually.

2. Is the information on each screen is clear? Can participants explain everything they see correctly? Do participants understand correctly what is happening when an icon is clicked?

- For the different sections on each page, the users can clearly and correctly describe the function of it. But for some words that they were first introduced to, such as "box", "collections", "save", they were a bit confused about the specific meaning.

> *"I don't know the difference between saving and assigning."*

> *"I don't know the exact meaning of 'collections'."*

Figure 36: *Elements from the personal page that cause confusion for users.*

3. Which feature is most appreciated by the users, and fits the context best?

- Based on the answers from 4 participants, the saving modules and comment are the most practical and wanted functions.

4. Do users consider this prototype more appealing compared to the one they are using now?

- Yes, they think the new prototype can bring them more convenience and have more interaction with others.

5. Do users feel that they have more social contact with colleagues through this platform?

- Yes, compared to the current platform where they can only send messages, have video calls, now they have more channels to interact with.

The expectation of online community

During **"Part two - interview"**, the participants were asked: "If you hear of online community, what kind of functions do you expect to have on the platform?" Here are the answers:

> *- "I think the community can exchange trips and tips, and also if someone posts problems that others can respond with solutions."*

> *- "Maybe it's a platform where a group of therapists can exchange experience, or ask questions, or get advice about treatments of patients."*

- "I think that a therapist can ask advice from another therapist on what to do. And if someone would have some expertise in a specific field, maybe you can book time with them."

Feedback on different features

Recommendation

- *"The weekly recommendation, you can make it an option, so people who don't want it can switch if off. And also a week is too short, so it might be a burden for both Minddistrict and therapists."*

Comments

+ *"It's really nice that when you don't know the platform, you can see remarks from other therapists so that you get an idea of whether this module is useful."*

+ *"It (the comments) means something to a therapist when another therapist says "I like this module". Even if it's someone who is working on the other side of the Netherlands. It means so much more than Minddistrict says this is a really good module."*

+ *"I will look at the comments, but I would also look at who is this guy and where does he work, and maybe also see how many people he is related to?"*

Collections

+ *"I also like the box function because then you can have a nice summary of the most important modules."*

+ *"I like the saving and comments functions a lot. I can talk with my*

colleagues about stuff and collect my own favorite modules."

+ *"Once I have my collection, boxes, then I don't need to go into the catalog again, so that will save me time."*

+ *"It will be better if I can also leave a message about why I want to share the collections with someone."*

- *"I have some difficulties when trying to find the toolbox page, and I don't know exactly the meanings of some words."*

Perceptual map

The purpose of this map is to understand the users' first impression of the prototype (yellow dots), and the real feeling after the actual use (green dots). As the result shows that all the users felt the ease of operation of the prototype, as well as the perceived fun both increased after they performed the tasks.
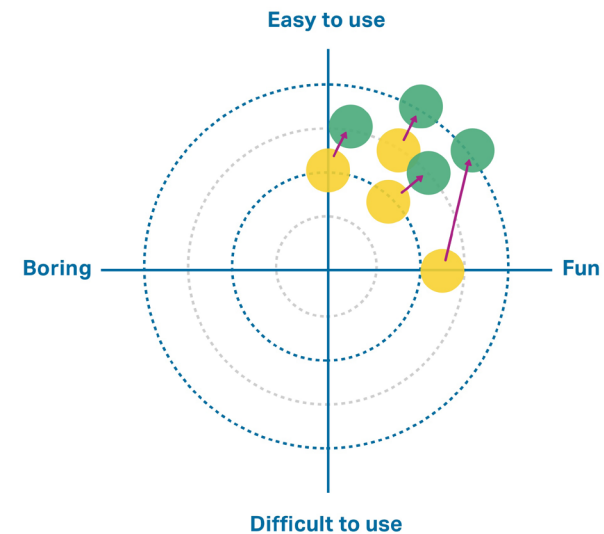

Figure 37: *Results of 4 participants filled in the map.*

Test conclusion

The following strong and weak points are the summaries of the test results, and it also combines the expert feedback from MD employees (product owner, data scientist, developer, etc.). Both strong and weak points are divided in terms of usability and user experience. With usability it refers to how users access the available functionalities (user interface usability), and with user experience it refers to users' overall thoughts and feelings regarding the product.

Strong points:

Usability

- The overall design style is clean and simplistic;

- The way how information is organized is very similar to the current platform, so users can quickly adapt to the new design interface;

- Easy to write comments and thumb up other comments;

User experience

- The function of collecting modules in one place can save time for therapists, and therapists can have more autonomy when creating their own collections and sharing with others;

- The comment system within familiar colleagues can be very persuasive, and it saves the cost and effort in marketing for the company;

Weak points:

Usability

- Not everyone can understand the icons in the left menu, especially the icon of the new feature "collection" may confuse users;

- The number of how many people have viewed the module seems less meaningful compared to how many times this module has been assigned to clients;

- The function of sharing the whole collection with others is placed in the "edit" submenu, which is not convenient enough;

User experience

- This community lacks a sense of development, and there's no reward for therapists when they achieve the desired skills;

- There are some concerns about the privacy regarding the new online community. For example, some therapists may not want the content they are browsing to appear on others' screens.

5.5 Improvement

In this chapter, the prototype of the online community was improved based on the test results and other feedback from MD employees. Some issues regarding usability were fixed, and a new feature was added to make the community more sustainable.

1. Show more meaningful statistic

During the user tests, not everyone noticed the numbers under the title. Moreover, one of them said: "I would rather see how many times this module has been assigned to clients by other therapists instead of seeing how many times it has been viewed." The number of times it has been assigned can better show the popularity of the module because many therapists click in just to browse the content inside roughly.
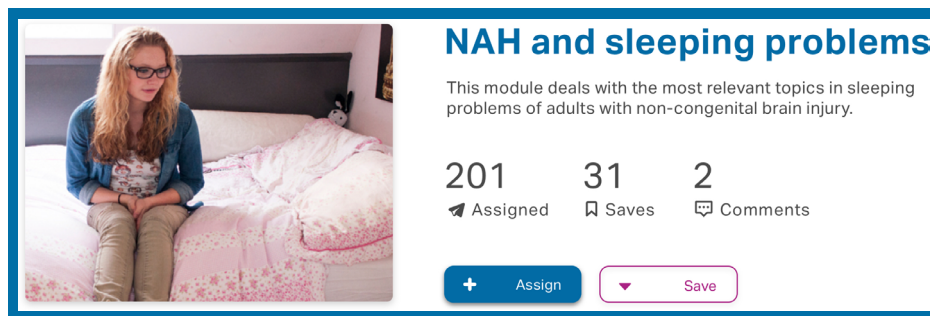
Figure 38: *Interface of the detailed description of a module.*

2. Separate the "edit" and "share" functions

Users need to click the edit icon first and then share the collection with others in the old version. However, this takes an extra step and cannot meet the user's expectation. So the new version separates these two functions. In the edit menu, therapists can rename the collection, and set it to public or private. While in the share menu, users can choose the person they want to share with and leave them a message.
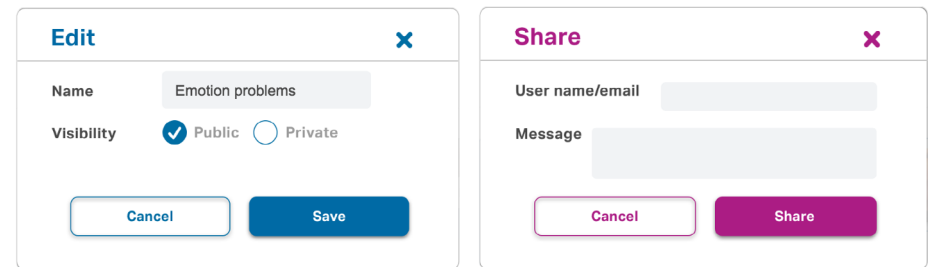
Figure 39: *Interfaces of edit and share the collection.*

3. More easy to understand menu

The test results show that only one participant can precisely tell the meaning of the icons in the main menu. So the explanatory text was added under the icons.
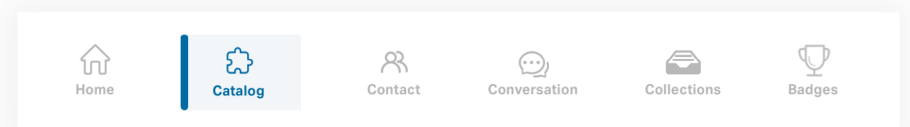
Figure 40: *Interface of the main menu.*

4. A new badges system
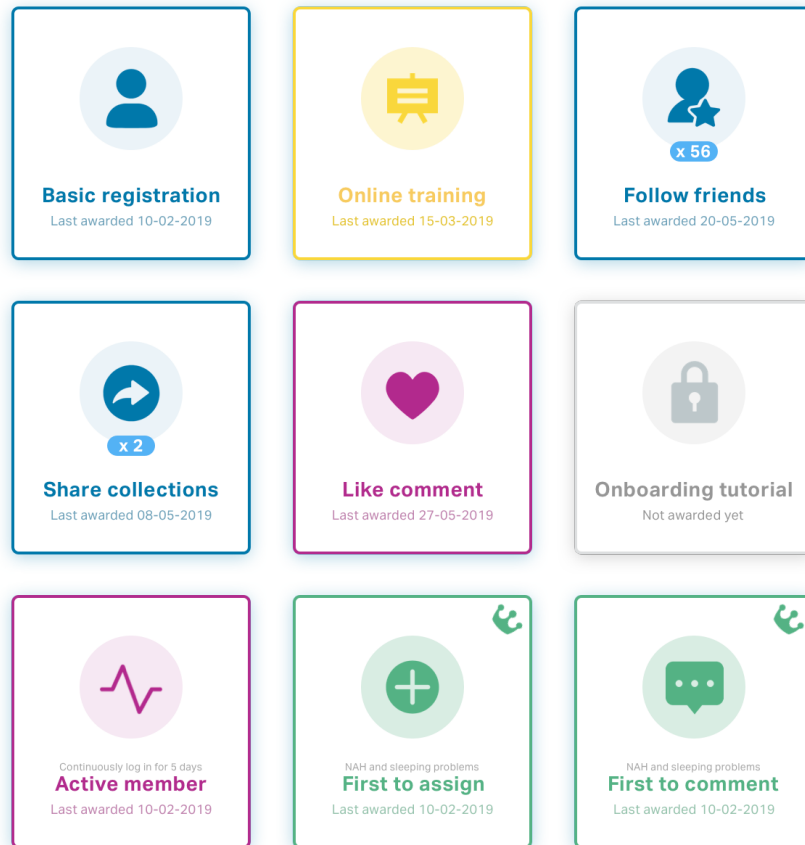
Figure 41: *Badges lists.*

A new feature about the badges system was added to the community. There are two types of badges, the basic ones and the special ones. When therapists perform tasks such as completing the registration, finishing the online training, or following other colleagues, they can get the standardized badges, which means every therapist has the same chance to get those badges, the only difference is the amount that they can get. But the special badges are more personalized. For example, if a therapist is the first one in the organization to assign this module, he/she can get a badge that only belongs to him/her.

There are multiple benefits to adopting this badges system. First of all, those basic badges can be seen as a tool for soft onboarding. Therapists are encouraged to explore new features on the platform when they see the unlocked badges lists. They can have a better overview of all the features of the platform. Secondly, the special badges seize the moments that only belongs to an individual and make it a milestone. These personalized badges can also create an emotional connection between therapists and the platform. Therapists are willing to devote more time to maintaining them and achieving more. Moreover, this system is also sustainable, with more features added to the platform and more content released to the clients, MD can always create new badges that attract therapists to get them.

5. Online prototype

Check the new prototype here:
https://share.protopie.io/aHjdM6QBaoG

This online prototype is made for the test participants to experience the renewed features.

5.6
Theory evaluation

Figure 42: *Spider diagram shows the performance of online community idea based on gamification theory.*
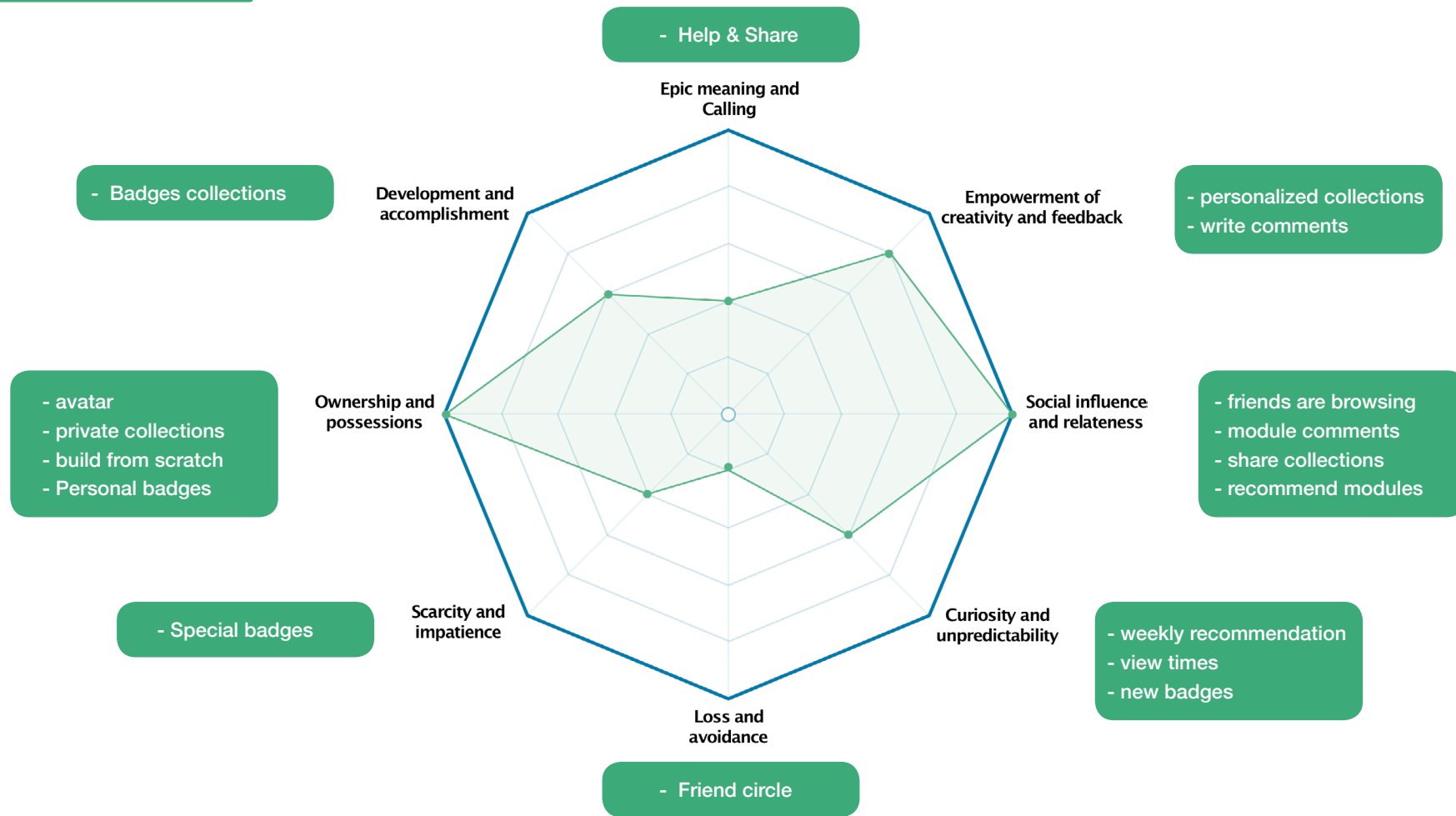
The spider diagram (see Figure 42) shows the performance of online community idea based on octalysis framework on various aspects. The green containers show the corresponding features of each core value.

Core Drive 1: Epic Meaning & Calling

In this idea, therapists can feel like a part of the community where they can share knowledge and help each other.

Core Drive 2: Empowerment of Creativity & Feedback

Compared to the current platform, therapists have more freedom to create their own collections of modules based on their own preference. This freedom provided by the platform will attract more users to keep investing in their time effort, and build their own collection pages from scratch.

Core Drive 3: Social Influence & Relatedness

This online community performs best at this core value. Features such as seeing what other colleagues are using, leaving comments on modules, and sharing collections to others, are all aimed at connecting therapists so that they can share their experience and expertise in a more easy way.

Core Drive 4: Curiosity & Unpredictability

This core drive is reflected on several aspects, such as the weekly recommendation, how many people have viewed your page, the comments from other people, and the content that your colleagues are using, all of this can trigger users' curiosity. Their brains are engaged by these and will keep thinking of it.

Core Drive 5: Loss & Avoidance

Because users have the freedom to build their own friend circle and collection page on this platform, they are not willing to give up easily, because that means the effort and time they have devoted into will be wasted.

Core Drive 6: Scarcity & Impatience

This core value can be seen from the individual badges. The personalization and uniqueness of those special badges can make the therapists feel the platform more valuable.

Core Drive 7: Ownership & Possession

Even if the personal collections of modules and badges are intangible, the therapists can still feel that they own these on the platform. This sense of ownership and possession will motivate them to keep it, and to collect more.

Core Drive 8: Development & Accomplishment

Although there's no points and levels system in this community, the badges can serve as a motivation for therapists to keep improving. By completing the given tasks step by step, users can feel they are mastering skills.

Chapter 6
Future technology

6.1 Introduction

6.2 Technology scan

6.1
Introduction

The third direction of this project is to scan the technologies which could be applied to improve the therapist's engagement in the near future. Literature review and technology scan was conducted to compare what are promising and less promising technologies for forensic care. In chapter 6.2 two technologies, virtual reality and robotic were discussed, and from that, we can see know what promising directions and technologies are for forensic mental healthcare, and what is needed to achieve the benefits and conquer the barriers.

In recent years, the use of new technologies in forensic care has increased considerably. Technologies in healthcare can be categorized in several ways. One way of categorizing them is based on how they are used in healthcare. They can be used to support the delivery of care, to manage personal health or to stimulate prevention and education in the context of public health (Kip, H., 2019). Another method of categorization is through the properties of technology, such as robotics, wearables, virtual reality, web-based applications, etc.

6.2
Technology scan

Below are two most popular techniques that selected for discussion. Sometimes there is overlap between different types of technologies. Each technology has unique features. Therefore, the aim of this technology scan is to find out how to apply these technologies and what are the potential barriers as a whole.

Virtual reality

Virtual reality is defined as an immersive and interactive three-dimensional (3D) computer experience (Pimentel, K., 1993). It happens in real time. Virtual reality application responds to users by using 3D computer graphics, which is corresponding to user's movements, so it can give the users a sense of the presence of being immersed in a virtual environment.

Roleplay: The VR technology can be used to practice behaviour in a realistic context that fits well with the patient's experience. This is possible, for example, in a role-play, the therapist plays the virtual other. The benefit of this is that the therapist does not have to take on the role play himself, but can do this as a virtual person, which can give the therapists a great sense of security.

Assist in therapy: Another advantage is that VR can be used to

observe certain experiences or environments during the therapy. For example, some clients have anxiety in public areas, and VR can help as a form of exposure. In this way, difficult situations can be experienced easily without the need to step out. Therapists will have more time and flexibility to arrange their work. What's more, the therapists can observe the client's reactions and behaviour to certain virtual situations and learn from them.

Training: Another possibility is to use VR during the training for therapists to deal with difficult situations such as aggressive patients. Most clients sometimes have difficulty reflecting on the cognitive aspects of treatment, but in virtual environments, the focus is on doing rather than recalling and talking, which can bring new insights to therapists.

Robotic

Robotics is a relatively new technology in the healthcare industry. With the development of big data, artificial intelligence, making social robots might contribute to therapists' daily work, support their decision making and reduce the workload.

Because not much is known about robotics in mental healthcare, relatively few benefits were mentioned in the literature. But there are still some contexts that we can use robotics to make the therapist's working environment better. There are also a lot of concerns about the ethical issues that robots and artificial intelligence may arouse. So the application of these technologies requires careful consideration, such

as issues if something goes wrong, how to protect the data storage and privacy.

Work automation: During the interviews, therapists mentioned a lot that the steps, such as entering the client's information and linking the accounts on the platform are very time-consuming. If the robotic on the platform and automize part of the work, this will save the therapist's time and encourage them to use more.

Virtual assistant: An idea about using robotic technology is to make the MD platform as a virtual assistant for therapists. It can remind people of appointments, suggest the next activity, and answering questions proposed by the users. We can also personate the platform of a helpful assistant, the impression of the MD platform from the therapists will not be a time-consuming tool anymore, thereby, the therapists are more willing to embrace it.

Chapter 7
Concluding remarks

7.1
Conclusion

This chapter summarized the whole project and reflected on the final results based on the design goal and requirements proposed in Chapter 3.

The initial goal of this project was to increase the therapist's engagement on the ehealth platform. Through the literature review and user research, multiple factors that may lead to low engagement from five main domains were found out. By collaborating with employees in MD, three design directions were selected based on their viability and feasibility. Also, the design vision was formulated as follows: We want to improve the therapist's engagement of using the Minddistrict platform, by providing a better onboarding experience and creating an online community where they can actively interact with each other.

The first attempt in the onboarding direction was the user tutorial, however, the effect of it is not ideal from the user test results, so the refined idea integrated the onboarding process into the official website, allowing the therapists to have exclusive access to find relevant information, and letting them to know the features of the platform in a short time. This step can build trust before the users start to use the platform.

The aim of the online community was to guide the therapists to form the behaviour of using the platform in a more intuitive way after the onboarding. To achieve that, the Hook model (Eyal, N., 2014) and the serious gamification theory (Yu-Kai Chou, 2015) were applied because the core values behind the theory can evoke the awareness and persuade the users to invest in time in the platform, in that way, users can form the habit of using it even there are no external triggers.

In the online community idea, the core of it was to build more connections between colleagues. Users can see the remarks on a specific module from their colleagues, share their collections of modules directly, and collect badges as milestones along the journey. They will not feel any pressure to use the platform as an extra work; instead, they will see it as a community where the shared expertise from others can save their own time. The results from the user tests and the feedback from other employees show that the online community is promising and possible to be implemented in the near future hopefully. The design requirements of:"easy to use, quick to learn, fun and social connections" are met.

With regards to future development, new technologies such as VR and robotics can be applied in many situations. Mainly focused on reducing the workload and improving the efficiency of training.

7.2
Limitations

Limited user samples

One of the main obstacles in this project is that the user samples are too small. The reason behind it is that it was challenging to contact with the end-users since Minddistrict is a Business-to-business company. Due to the time limitation and privacy concerns, even though the emails have been sent to several organizations, few therapists responded to participate in the research and user tests. The qualitative research results, such as the scores from the questionnaire, cannot be calculated. Therefore, there is no way to conclude that the feedback on the final design can also be affected by age and gender, which may lead to biases and inaccurate conclusions.

Insufficient exploration of the third direction

It was a pity that due to the time and technology limitation, it was not feasible to carry out any design iterations in the third direction - future technologies. From the limited number of literature, only a small number of scenarios are listed. It could get more insights if it was possible to embed the technology into more specific design ideas and test with end-users.

Too abstract implementation plan

Although there are argumentations of the implementation of the three design directions in Chapter 3, there is only a vague concept that they should be developed and implemented in chronological order. It could be more beneficial for the Minddistrict if I can carry out a detailed implementation roadmap, including what goals should be achieved in each stage, which departments should be responsible for what, how much budget should we prepare, and what are the risks and outcomes that could bring.

7.3
Recommendations

This section listed some recommendations based on the insights from the whole project.

Digital day

Through the talk with a therapist, we learned that some customers organize the weekly meetings to discuss the use of ehealth, and therapists can ask questions and exchange opinions during this meeting. Therapists found that these meetings are very useful. At the same time, our findings show that a big obstacle to the low usage rate is that therapists have limited time to learn and to practice.

Therefore we can promote the "digital day" idea, one day in a week when all the therapists in this day are encouraged to use ehealth platform. They will have plenty of time to practice it. There will be super users assigned to each region to answer questions and provide support. In this way, the "digital day" can evoke the awareness of the therapists to use the platform more.

Tips for training

Currently, the blended training is focused on the skills needed to master using the platform. However, some other skills are ignored by the company, such as the skills to explain the technology to the patients, to continuously motivate the patients using ehealth, and to deal with the resistance attitudes from the patients. Since the attitudes of the clients can have a huge impact on the therapist's engagement. In addition to these skills, broad knowledge, attitudes towards technology and enthusiasm are also worth paying attention.

Creating a joint vision

There are many stakeholders involved in ehealth implementation, and the interests of each group are different. From the interview, we also knew that sometimes the information we want to convey to the therapists is not well communicated by the organizations. Therefore, it is necessary to establish a joint vision first, that ehealth is worth investing in time and money. We can achieve this by invest in the participatory development process, invite practitioners, patients, financiers and other stakeholders to co-create in the development process.

7.4
Reflection

Reflection on the user research

I found it very challenging when doing the user research. First of all, the therapists are all very busy, and I have to wait a long time before the next participant. So it is difficult to have a comprehensive understanding from therapists as scheduled and use it for the next phase. Secondly, not everyone can describe their experiences very precisely. The generative session can help a lot; people like to use pictures and create their own work. Taking the context mapping to describe their daily routine for example, if they only describe it verbally, many details will be ignored.

Reflection on the evaluation methods

There are two rounds of evaluation conducted in this project. Including the user tests for swipe-through tutorial and online community prototype. Sufficient preparation before the test is the key to success user tests. During the tests, open questions can help the users to speak out their thoughts. What I found very interesting in this project is that many participants felt nervous and hesitated before the test, because they knew it is a professional tool for therapists, and they do not have the necessary skills. Therefore, it is necessary to tell them there are no right or wrong answers, and they can always ask questions when something is unclear.

Personal reflection

There are three personal ambitions that I mentioned in the project brief. Firstly, I want to improve my competence in balancing business needs and user needs. It is a valuable experience for me to work in a business company, and learn how to collaborate with different departments in a company. Secondly, I want to improve my skills in selecting appropriate research and analysis methods. It was my first time to apply some methodologies, for example, gamification theory, perceptual map and etc., in my project. When I cannot find a new breakthrough, these design methods indeed gave me a lot of fresh insights. Lastly, I want to improve my project management ability and organizational ability. It is challenging to arrange the project properly within five months, although I would like to have a bit more time to work on it. However, I succeeded in organizing coach meetings, contacting users, and completing the deliverables in time. What I found very useful is to record the daily activities in detail and reflect each week.

After finishing this five-month project, I am satisfied that I have the chance to use what I have learned in the past two years and validate them in the project, and become more confident for the future career.

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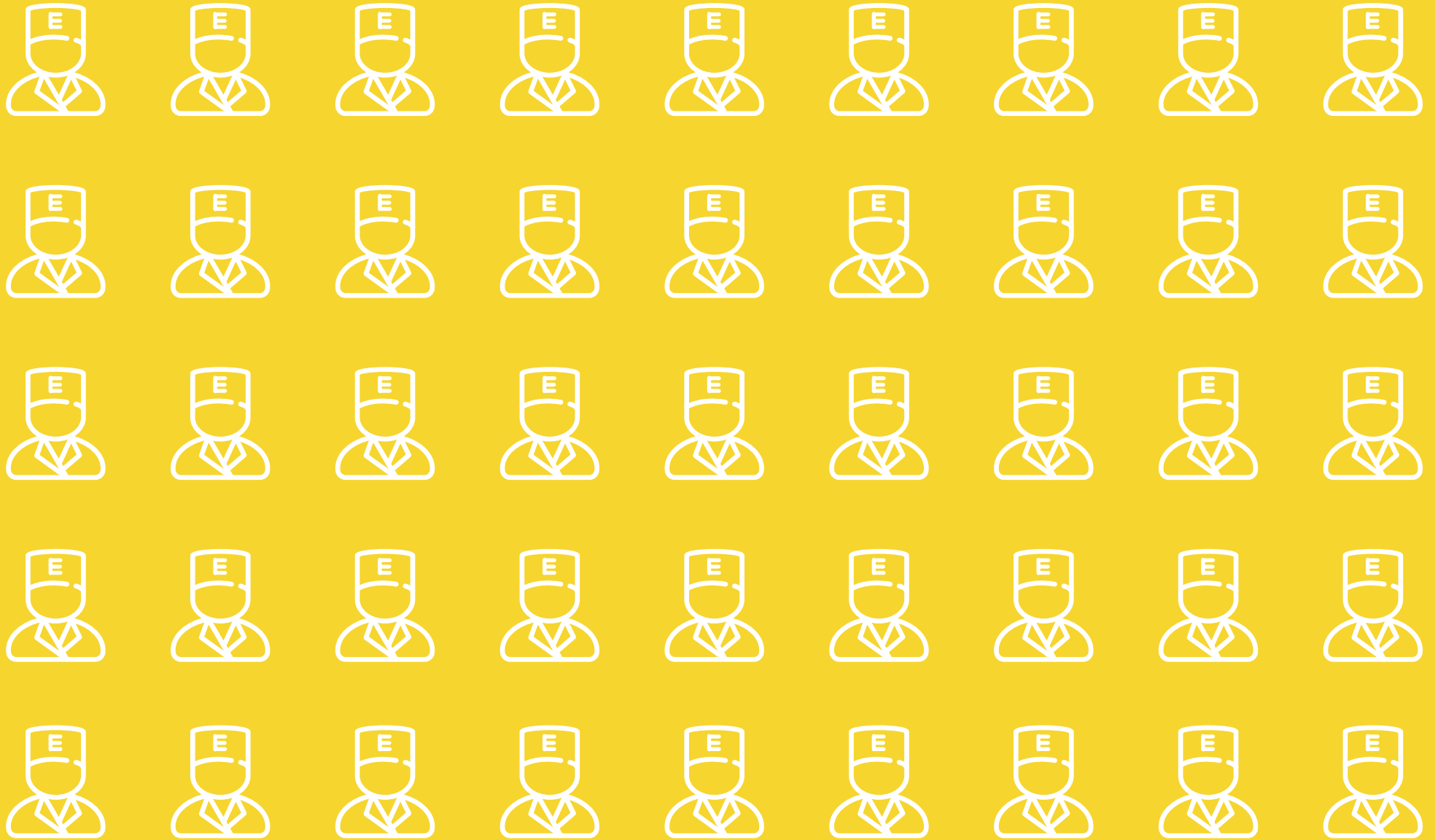
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2019. 08