Humanizing Algorithmic Matching in an Online Dating App

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Master thesis

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Preface

In front of you lies the final deliverable of my graduation project of the MSc. Strategic Product Design at the Technical University of Delft. It is not only a summary of what I have learned the past five months of my life but also during my bachelors and the past couple of years as a Strategic Design student.

Searching for a graduation topic was a tumultuous process due to many changing factors within my academic life. It started out during my internship at Deloitte where I developed my interest for optimizing digital products. I remember thinking that I was so early with thinking about my thesis subject that I would not have any trouble getting it right the first time.

This however changed when my internship was over and I, together with a group of friends, decided to enter into the world of entrepreneurship. Instead of coming together with an idea, we decided that the aim of this group was to quickly test and validate as many ideas as possible. We would then be more of a collective of entrepreneurs working on several ventures.

After having tested and invalidated a couple of ideas we decided to dive into the online dating market and the rest was history. We knew that this had the potential to be a successful company (and still do), but it involved a lot of uncertainty. I was constantly doubting if and when to start graduating as it was important that my graduation topic both delivered value for Breeze and the academic world. This is something that is easier said than done.

Luckily (or unluckily) Breeze had a big problem, too many people were canceling their dates. This was something that needed more and deeper research to tackle, however I was not able to pinpoint exactly how that would be translated into a thesis. That is where the help of Elisa and Derek came in.

Thanks Elisa for taking the time to go through the many different topic options with me and seeing the bigger picture when I talked to you about this topic. During the project I always valued your calmness and sharp feedback on details which helped get my project to the next level. I know it was a busy time for you having to coordinate the migration to online education, but you always had time to give feedback or answer my emails.

Thanks Derek for coming up with crazy ideas about online dating. I enjoyed brainstorming with you about, both the research topic but also about different aspects that would help Breeze in the long run. I also learned a lot from your guidance (and shared frustration) while writing the conference paper submission. Too bad it did not get accepted, but I'm hoping that there are more opportunities.

A big thank you goes out to the Breeze team for giving me this opportunity and supporting me and the project where needed. I did this for the team and truly hope that my results can help Breeze make an impact in the online dating industry.

I hope you enjoy reading this report as much as I did writing it!

Executive summary

When building online systems designers have to make many decisions that impact user experience. One of said choices is whether certain interactions are automated or remain human. To make matters more complicated, they can also decide to make certain interactions seem automated or human. Making the right decision has increased in importance as more of our interactions are taking place online.

Context
The aim of this thesis is to discover if guidelines can be developed to facilitate designers when making these decisions. It does so by taking a new dating app called Breeze as a use case. This dating app is different compared to existing dating apps because it automates the date arrangement process. Instead of being able to swipe through profiles and chat with matches, users receive two profiles per day and directly fill in a *date picker* when matched. Breeze then arranges the date and lets the match know where to be at what time.

The app faces the problem that many of the dates get canceled because users stop responding during the date arrangement process. User research reveals that, by having limited online interaction, this process has become impersonal, anonymous and inflexible which makes it easy to dehumanize your match. Dehumanization leads to loss of commitment when arranging a date. This leads to the research question:

What would the impact on commitment and the overall user experience when this process would instead be humanized? And how can these learnings help designers of other online systems decide when and how to humanize interaction?

Theory
To answer these questions, this thesis first elaborates why dehumanization is inevitable when interaction is mediated by technology. Dehumanization can be mitigated by humanizing interaction. However simply humanizing interaction is not the solution because, apart from its advantages it too has disadvantages. The ideal balance between dehumanization and humanization depends on the type of platform in question.

Findings
Through conducting two Build-Measure-Learn loops, this thesis finds that the ideal balance does not only differ between platforms but also differs within the customer journey of one platform. Within each step of the journey, users have different interaction needs, which not only depends on why they decided to interact with the system in the first place, but also with whom they are interacting at that point. Additionally the companies that build these systems also have conflicting needs, which depend on their strategy and available resources.

Result
In order to find this ideal balance between humanization and dehumanization, this thesis proposes the Framework for humanized interaction. This framework is validated through conducting expert interviews, a pilot with an external company and by applying it to the use case. The latter results in new concepts and recommendations suitable for implementation by Breeze.

“Distance only separates the bodies but not the souls“
- Erasmus

Reading guide

The reading guide is built to help readers identify what certain recurring elements and designs in the report mean and how that element should be read.

Each chapter starts with a short introduction and an overview of the contents. Other reading elements are explained in the figure below.

Theory
Indication that the page is related to building the theoretical framework.

User research
Indication that the page is related to user research.

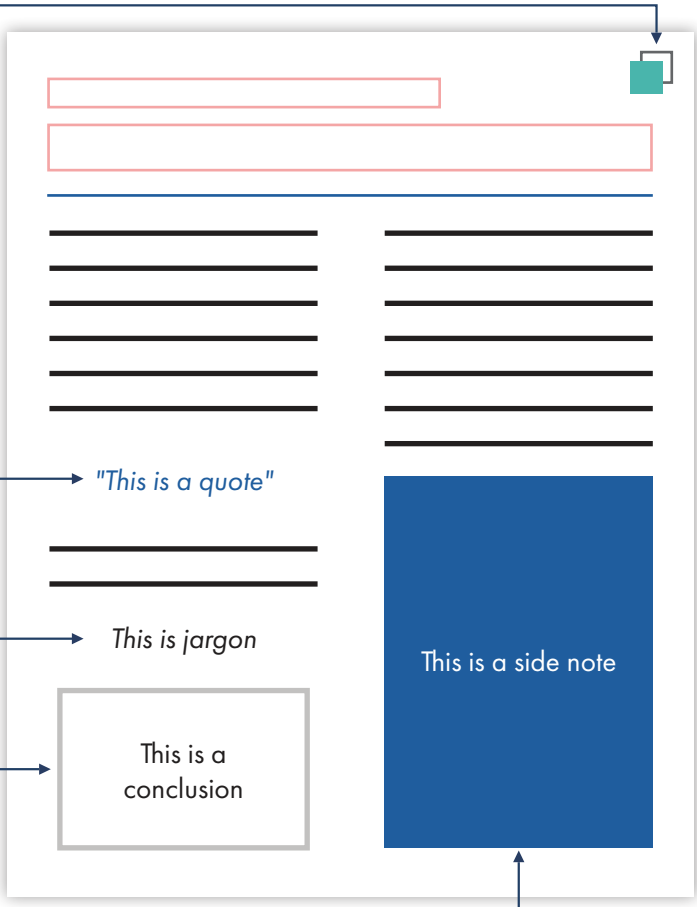
Practice
Indication that on this page the theory and user research are applied to the use case.

Blue italic text refers to quotes

Black italic text refers to thesis jargon.

These contain crucial insights and recommendations.

These contain further explanation by giving examples or additional theory or insights.



An overview of the different reading elements a reader might encounter in this thesis.

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Chapter 1

Project context & approach

This chapter gives an introduction of the thesis and provides an overview of the project context to show its relevance. It then gives a structured overview of the use case, a dating app called Breeze And elaborates on what the main research questions is and why this is a relevant use case to answer it. It concludes by sharing the approach that will used in this thesis.

Contents

1.1 Introduction

You probably recognize the feeling when you are chatting with someone and that person just does not understand what you mean. You have to think long and hard about how you phrase your sentences because that other person might interpret it differently than intended. What words do you use? Do you use an emoji? If so, which one will convey how I really feel? To give you some consolidation, this is not your fault, nor is it that of the person you are chatting with. It is the thing you hold in your hands that should carry that burden.

Even though technology, like your smartphone, has brought us more convenience, it has also decreased the amount and quality of real-life contact with others (Drago, 2015). Interaction mediated by technology creates a form of social distance between people which leads to a phenomenon called dehumanization (Lee, Fruchter & Dabbish, 2015). According to Waytz (2019), dehumanization can be defined as "neglecting another person's mind", where people do not recognize that other people have thoughts of their own and are capable of feeling emotions. The author describes a global survey of 12.000 young adults that found that, although 69 percent stated that technology improved their relationships, 61 percent said that these technological innovations are making them feel less human.

The levels of dehumanization differ based on the medium through which people are communicating online. This is because these media allow for different levels of contextual cues to be shared with one another which impacts the social distance (Lee, Fruchter & Dabbish, 2015). As an example, when comparing communication through Zoom for a virtual meeting, calling someone on the phone, texting with someone through Whatsapp or ordering a cab through an app on Uber, users share more contextual cues when they can see each other (on Zoom) compared to when they are texting with someone or ordering a cab through an automated flow in the app (Figure 1). In the latter case there is more social distance because users know little about, for example, where the other person is, with whom and what that person is feeling.

According to Waytz (2019) dehumanization can be mitigated by humanizing interaction. The author states that humanization involves acknowledging that others have complex minds and intrinsic worth as human beings. Designers of these systems can decide to what extent interaction is humanized or dehumanized. They have to make decisions about when to design an automated process or a human process. Within both these options they can also choose to make these processes seem machine-like (machine-like automated process or a machine-like human process) or human-like (human-like

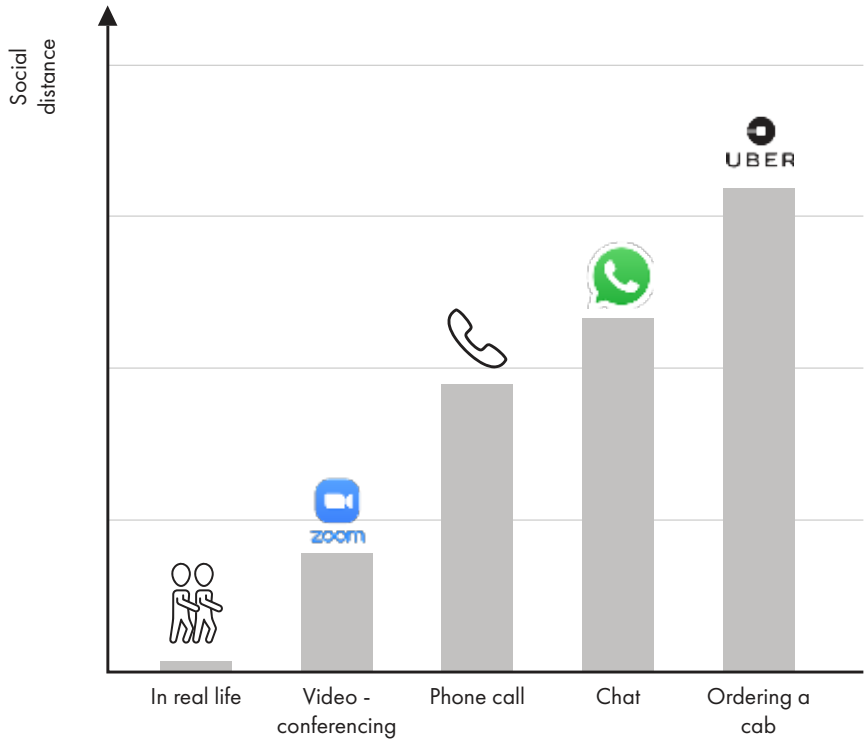


Figure 1- The less contextual cues people have when interacting through technology the bigger the social distance is between them.

Figure 2- Choices designers can make in deciding how humanized interaction should be.

automated process or machine-like process).
Examples of these choices that designers face can be seen in Figure 2.

All of these options have their advantages and disadvantages, yet it is unclear how we decide to what extent we humanize systems and how to humanize them. Is it necessary to humanize interaction as much as possible? Or would it sometimes be more useful to show the differences between human and machine? These questions have only increased in relevancy as more of our interactions take place online. The current corona pandemic impacted the way people communicate in a personal and professional context. Birthdays and parties are held digitally and so are networking drinks and business meetings.

1.1.1 Structure of report

This thesis investigates these possible tensions in the context of a new dating app called Breeze. This app and the problem it faces is first introduced in the Context section. This section also highlights the relevancy of this problem for this thesis. Afterwards, in chapter 2, research on the state of the art regarding dehumanization and humanization is done by highlighting the advantages and disadvantages of both. This research serves as a basis to create hypotheses that will be tested in the first Build-Measure-Learn loop in chapter 3. This loop is often used by startups because it allows for quick learnings and iterations. Learnings from this loop are translated into a framework in chapter 4. This framework can be used by service designers to determine how humanized interaction should be within the online platform that they are working on. Within chapter 5 parts of the framework are put to the test in the second Build-Measure-Learn loop. This loop is used to develop concepts that are tested in the live app. This thesis ends with conclusions, recommendations and limitations in chapter 6.

1.2 Context

The research in this thesis will be conducted based on a use case. This use case, a new dating app called Breeze, will be introduced in this section along with the problem that it is facing. It will then further elaborate on the company by giving an overview the online dating market and how Breeze is different.

1.2.1 Breeze - A humanized dating app

Breeze is designed to reduce the time and effort it takes for users to meet someone face-to-face. In contrast to the seemingly endless swiping and superficial chatting that happens on conventional dating apps, Breeze users do not "shop" for dates. Instead, an algorithm selects two profiles a day for each user that has a high match potential. Once users have a match, there is no chat. Instead, they fill in a *Date picker*. Finally, the date itself is also part of the Breeze service. Users get notified where and when to meet, which will always be at a safe location. Breeze does not earn money through selling premium profiles or advertisements. Instead, Breeze users pay per date. Once they have a match, they pay a fixed fee which includes their first drink at the date location. See Figure 3 for a high-level overview of this journey.

1.2.2 The problem Breeze is facing

Although the concept of actually meeting your match is something the users of the Breeze app resonate with, still, a lot of matches do not convert into dates. Users can cancel a date in the app. In doing so, they also have to fill in their reason for canceling. Breeze then decides if that is a valid or invalid reason to cancel. Of course the app aims to minimize the invalid cancelations.

As can be seen in Figure 4, taken from May 2019, there were a total of 1069 matches that could have been converted into dates, 58% got canceled. This means, more than half of the dates get canceled. From these cancelations, 78% is an invalid cancellation. The most common reason for canceling is because people stop responding somewhere in the process of arranging the date (while picking a date or just before the payment), about 67% of the time (Figure 5). If there is no response for more than a week, Breeze automatically cancels the date. There is no big difference between men and women in both the amount of cancels and the amount of invalid cancels (158 men and 189 females canceled their date in July, from both these numbers, 65% was canceled automatically).

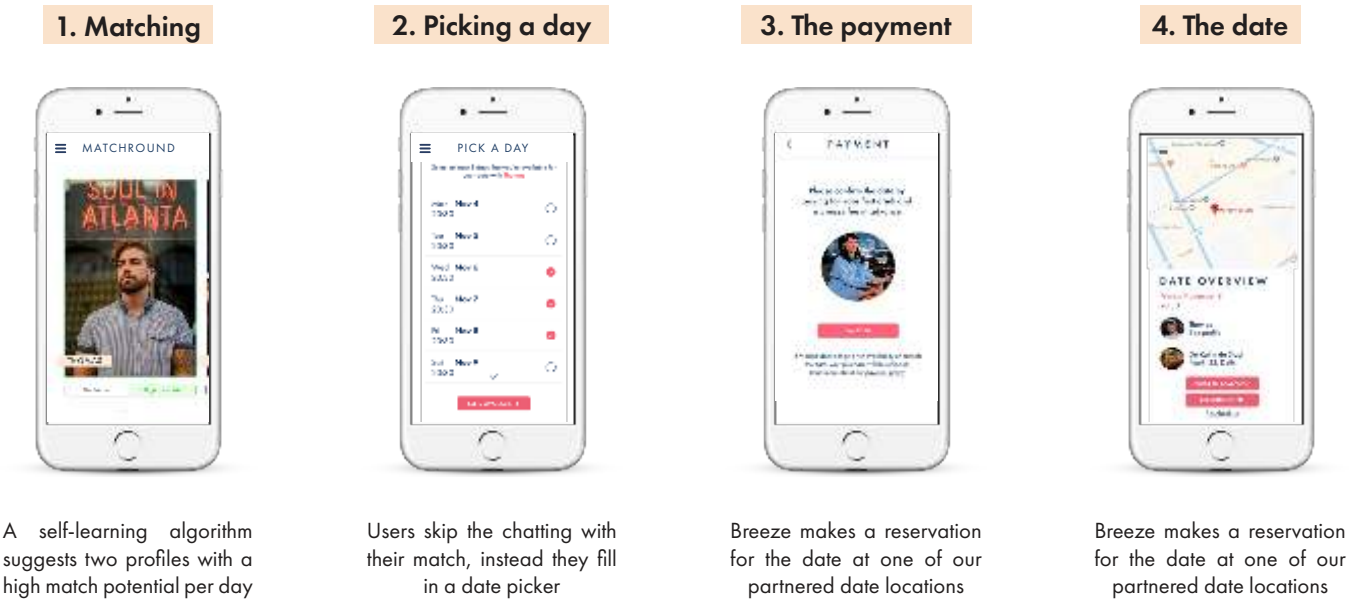


Figure 3 - Overview of the four steps involved in arranging a date with Breeze.

Important to note is that the Corona pandemic did have an impact on these numbers. Around the time when the virus got a foot in the door in the Netherlands, with a first confirmed case on the 27th of February, Breeze saw the number of canceled dates increase to 70% in March. Cancelations because of the Corona crisis were not treated as invalid meaning they skewed the ratio between valid and invalid cancelations.

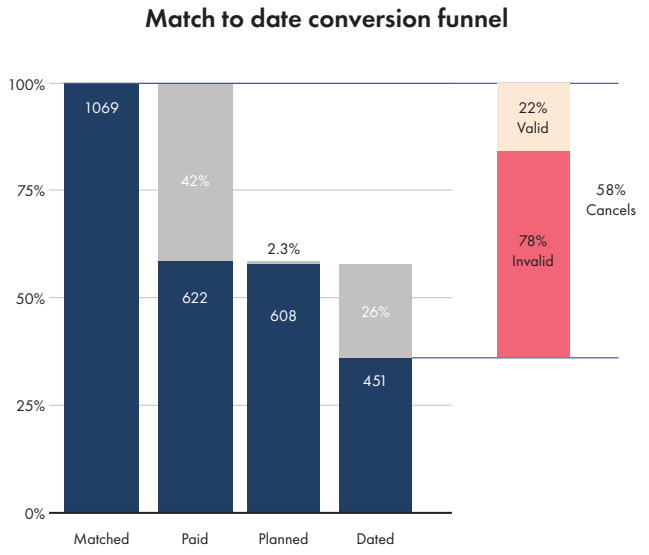


Figure 4 - The conversion of matches into dates. Many of the matches get canceled for invalid reasons.

1.2.2.1 Dehumanization as culprit

User research done by the author has revealed that dehumanization has a big impact on these cancelations. This research was conducted within two phases. Phase 1 was used to map out initial problem areas with short interviews over the phone. The researcher used a semi-structured interview guide approach and interviewed eight Breeze users within Breeze's target group who recently had a canceled date due to a no-response. Within phase 2, five, more extensive, interviews were conducted over the phone. Again using a semi-structured interview guide approach that was built to reflect the path of expression. This framework built by Stappers & Sanders (2013), is aimed at uncovering deeper needs by first asking questions about the present, then the past, and then looking for deeper layers in the past in order to facilitate thinking about the future.

These interviews were then transcribed and, using the Grounded Theory Method (Birks & Mills, 2015), clustered and translated into findings. Both phases focused on discovering if users know the rules of the platform and if so, why they are not complying with them. The sampling strategy, transcripts and clusters can be found in Appendix A, the names of the interviewees have been removed for privacy purposes.

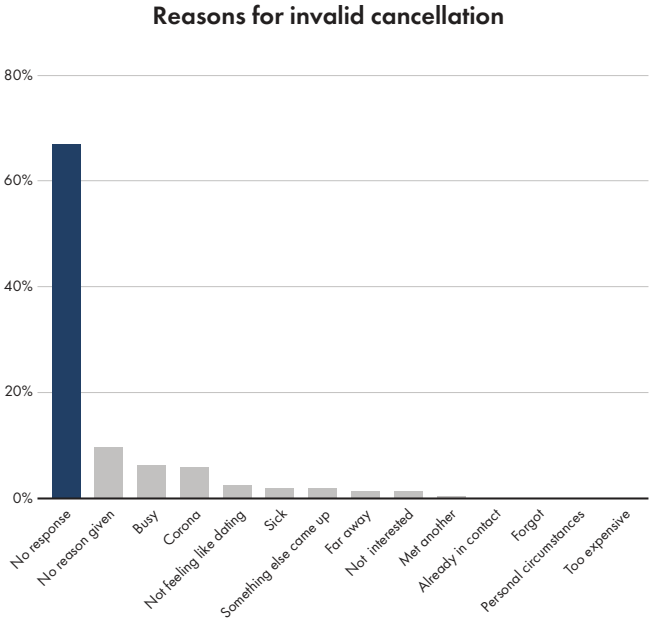


Figure 5 - An overview of the most common invalid reasons dates get canceled.

Learnings

Although users indicated that, when downloading the app, they understand the different policies Breeze has and start out committed to arrange a date, they seem to lose this when they are matched.

"Really going on a date. Yeah of course I understand, it's very annoying if someone cancels and that kind of stuff " - P4 (Male, 25, Leiden)

Losing the commitment to arrange the date results in them 'ghosting' their match. They behave this way because they are used to interacting like this on other dating apps. Ghosting or getting ghosted is common on these apps and only gets intensified when online interaction is limited.

"That person can't react with: Hey, why are you not answering" - P1 (Female, 26, Leiden)

"You easily forget someone you have never spoken to" - P3 (Female, 22, Rotterdam)

Due to the automated, anonymous and inflexible nature of the process of arranging a date, users indicate that it is easy to forget someone and thus forget the rules of the app.

"In the beginning, your conscious of these rules and you try to keep to them, however at a certain point they fade away" - P5 (Male, 25, Rotterdam)

A cause and effect model of the problem is shown in Figure 6. The fact that the nature of the app only seems to increase dehumanization causes friction between deciding how to design the UX in such a way to encourage commitment, while still taking the platform's viability into account. As Breeze grows, more human mediation (currently done by co-founders) will be automated to make sure it stays a viable business. Solving this problem for Breeze is not only important because it is linked to the business model (you pay once you have a date), it is also Breeze's value proposition towards users (minimizing the time it takes for you to meet someone face-to-face). This raises the research question: *What is the impact of humanizing the algorithmic matching for Breeze on user commitment and the overall user experience? And how can these learnings help designers of other online platforms decide when and how to humanize interaction?*

Breeze's automated date arrangement process causes dehumanization

The inherent dehumanized characteristic of computer mediated communication is only enforced due to the automated nature of Breeze's date arrangement process.

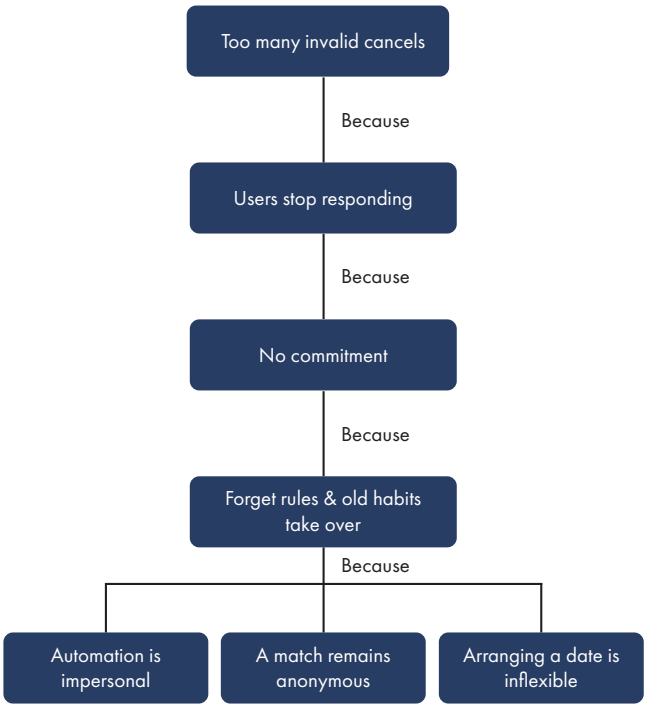


Figure 6 - The cause and effect model highlighting how the different problems relate to each other. There are too many invalid cancels because users stop responding, users stop responding because of a lack of commitment, they lack commitment because they forget the rules and fall back into old habits. This is because online interactions on Breeze are impersonal, anonymous and inflexible.

Dehumanization; A common phenomenon in online dating

Important to note is that dehumanization is a common phenomenon in the online dating industry (Marom, 2016). According to Marom (2016), these services are dehumanizing because they facilitate disassociation, self objectification and a shopping culture.

The author refers to disassociation as how well the online environment enables a separation within the mind. The internet has become fertile ground for this because it offers the possibility for self representation (for example Instagram encouraging users to edit their pictures to create a better representation of themselves)

This relates closely to the second element, self-objectification. This occurs when individuals have objectifying views of their own physical attributes from an observer's perspective. People prefer to be looked at and evaluated (this can be for example that people decide to follow up on another user's profile based on their pictures).

And lastly, the shopping culture mindset is apparent within online dating because users are able to select among an enormous pool of options. This overabundant selection, immediate availability and low emotional or physical investment results in users treating others as objects (Figure 7).

Figure 7 - One of the most popular dating apps, Tinder, allows users to swipe almost endlessly creating a shopping culture.

1.2.3 Breeze and the online dating market

1.2.3.1 Online dating market overview

The notion of matchmaking started in 1959 when Stanford students Jim Harvey and Phil Fialer matched 49 men and 49 women using a punch card questionnaire and an IBM 650 mainframe computer. This marked the beginning of a matchmaking industry which is now called online dating. The first real dating sites would see the light of day quickly after the World Wide Web became publicly available in 1995. The sites that claimed their domain at that point are still one of the most well-known dating sites we know today (Thottam, n.d.).

However, the real growth within this market started with the introduction of smartphones and their applications (apps) (Bijl, 2019). Dating services could now fit in your pocket, which made online dating easier and, even more important, socially accepted. The launch of these dating apps marked a new era for online dating as they were easily accessible and could be used by anyone, no matter the gender or sexual preferences. This resulted in online dating becoming the most common way couples meet (Figure 8) (Cardona, 2019).

Currently, the market consists of a large number of services, with apps like Tinder, Bumble and Plenty of Fish in the top three in the United States in terms of audience size (Clement, 2020) (Figure 9). Apart from the most popular apps, there are also a large number of smaller niche players that are focused on a much smaller subset of the population like Bristlr (dating for beard fans), Raya (only rich people allowed) and Vaganific (dating for Vegans). The fact that these niche players focus on fulfilling a specific need is reflected in the types of people in its user base. When a person decides which app to subscribe to, they also decide which part of their identity they want to emphasize in their dating life. In doing so, dating apps have created a new online culture, making people do things they have never done before (Bijl, 2019).

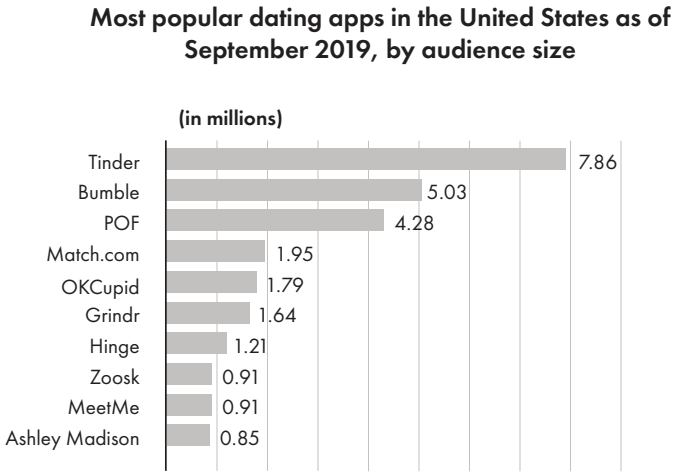


Figure 9- Popularity of dating apps in the United States by audience size

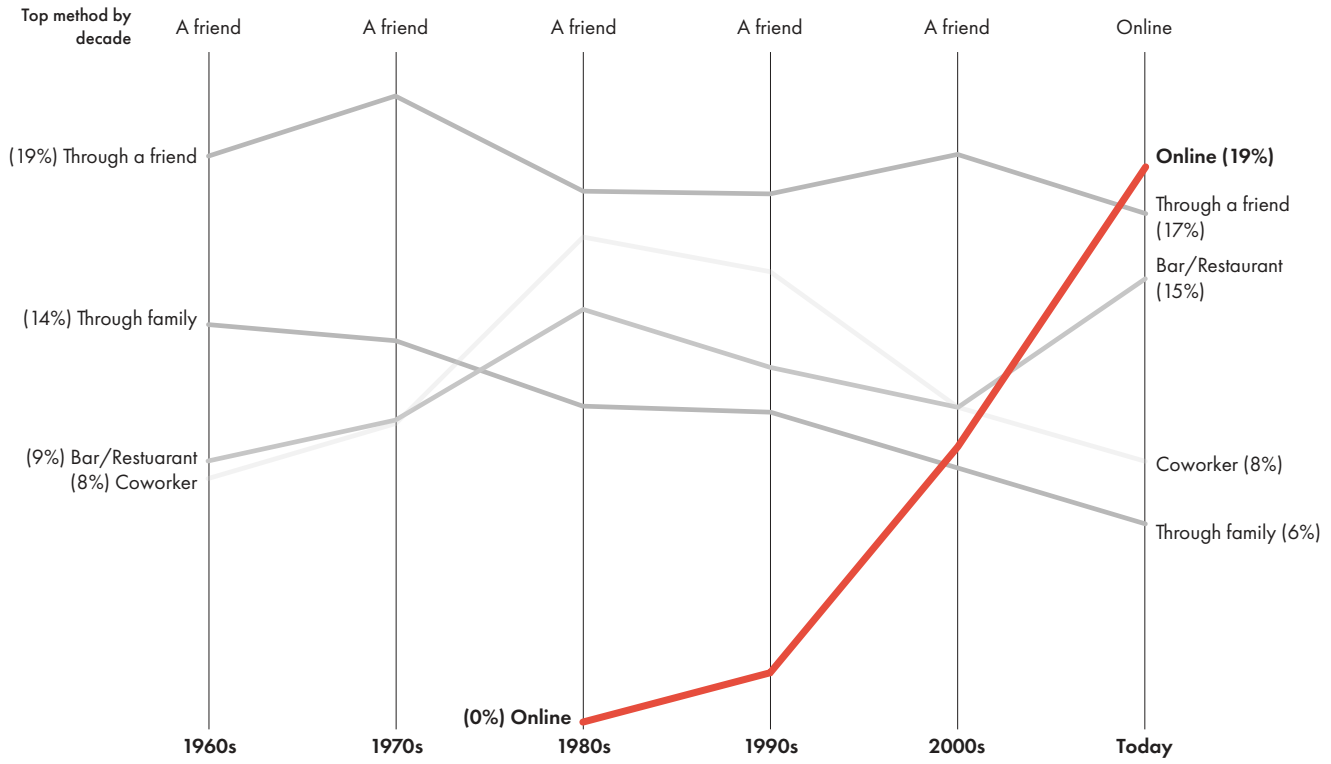


Figure 8 - As online dating gained popularity, it quickly became the most common way couples met followed by getting introduced through a friend and meeting in a bar/restaurant.

1.2.3.2 The market need

Breeze's value proposition of, reducing the time and effort it takes for users to meet someone face-to-face, arose because users of dating apps are currently being served by suboptimal solutions. As these apps are aimed at making it easier for their users to meet someone else, you would not expect that it takes on average 38 hours within the popular online dating application, Tinder, before a user meets a match face-to-face (Schuurmans, 2017). Tinder users swipe past 140 profiles a day on average (Pronk & Denissen, 2019). Furthermore, after having matched, they engage in online communication facilitated by a chat. Based on 60 qualitative interviews done by the founders of Breeze, users think it is difficult to start the chat because the chances are high that your match will not respond to your message or that the chat dies out because one or the other stops responding (a phenomenon called ghosting). Even if you seem to have a good conversation going, it is still difficult to arrange the actual date. The result is that these apps are not fulfilling the so-called 'job to be done' for their users, which is going on an actual date.

1.2.3.3 Comparing Breeze to other dating apps

Currently the app has been downloaded a little over 11000 times and Breeze has arranged 1000 dates. Through an internal analysis, Breeze has shown that it is more efficient in getting people on dates. Users need on average less than 4 matches before going on a date (Breeze is aiming to decrease this number to 1), this is much less than the 122 matches Tinder users need before meeting someone face-to-face (Appendix B). Furthermore, users spend less time in the app to arrange the date, it now takes them 2 hours instead of 38.

1.2.3.4 The impact of the corona pandemic

Like with many other companies, the corona pandemic has a significant impact on Breeze's business due to lockdown measures taken by the government. The fact that cafes have to close their doors and people have to stay at home as much as possible, means that Breeze was not able to arrange physical dates. At the start of the lockdown, the founders experimented with Video dates but quickly realized that this was not a solution for the problem that more and more singles would be facing as it could not replace real-life contact. The company chose to pivot towards offering responsible Corona-proof dates. Instead of only offering a drink at a cafe, users would now also be able to go on walk and talk dates with a drink on the go. This meant that people would meet at a certain location and could walk around together, passing certain highlights given by the app.

1.2.3.5 Breeze's target group

After having focused on students to validate the proposition, Breeze's focus has shifted towards the young professionals. These are people between 25 and 35 that have a higher education and are in their first or second step of their career. They are either almost done with their studies or already have several years of work experience. The reason the focus is on this group is because Breeze has identified that they experience a bigger pain in online dating. They are tired of endless chatting and superficial swiping. Furthermore, because they are at the start of their career, they have less time to spend on a dating app, yet more money to spend on dates. This focus is reflected in the age distribution of Breeze users (Figure 10).

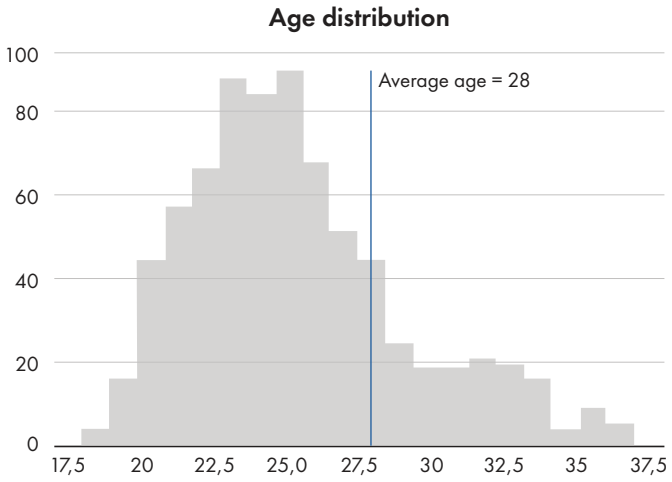


Figure 10 - Distribution of the age groups of Breeze users with an average age of 28.

1.2.3.6 Company goals

In order to reach the company's overarching goal of making an impact in the online dating industry, there are several underlying goals that should be met first. To make an impact, Breeze should be a successful business. Successful businesses are not only feasible and desirable but also viable. This means that Breeze should have a product that works and a user base that is willing to pay for the service. People are willing to pay as long as Breeze delivers on its value proposition of decreasing the amount of time and effort it takes to arrange a date. In order for this to be done successfully, users should actually commit by actually following through on arranging and going on a date.

1.2.3.7 Customer journey

A more detailed version of Breeze's customer journey including the walk and talk dates can be seen in Figure 11 and can be divided into 5 stages.

1. The Awareness & Consider stage

Breeze's main channels for gaining awareness are social media, Public Relations (PR) and Word of Mouth. The latter is the most important channel for Breeze as most of the new users get acquired through a recommendation from a friend. In essence, the other two channels should amplify the Word of Mouth. Breeze is currently experimenting with other offline channels, but these are left out of consideration for this thesis.

2. Get started

After hearing from Breeze, users can download the app in the Appstore or Google Play Store. This phase is divided into two parts. First users go through a registration flow which collects all the basic information needed to build a profile. This includes their Name, Date of Birth, Gender, Sexuality, City, Cities they would like to date in and Education. After having done this, users can choose to either finish building their profile straight away or do it later, thus enabling them to have a look at the app first. Continuing with their profile they have to upload a minimum of 1 picture, input their height and where they work or what they study. To finish off, they are required to fill between 5 and 10 tags that would describe them and they can choose to answer questions from a list of 10.

3. Matchday

Only when they have finished their profile, they can participate in, what Breeze calls the Matchdays. This means they are able to receive up to 2 profiles a day that Breeze thinks have a high match potential. The app sends out these profiles every day at 19:00. Once they receive profiles, users can choose with whom they would want to go on a walking date by choosing either: 'I'll have a drink' or 'Not for me'. Breeze has purposely chosen these versions of a 'Like' or a 'Dislike' in order to make sure that users make a conscious choice about who they would want to date.

4. Arranging a date

When users have a match they get sent over to, what Breeze calls the *Date picker*. Here they can give their availability. After having done so they pay for the date which includes a Breeze service fee for arranging the date. Additionally within this phase, users can replan a planned date or cancel the date. They do this by choosing one of the options and then have to write a cancelation or replan note for the other person. Team members from Breeze then check these notes and decide if it is a Valid or Invalid cancel (Figure 12).

5. The date

If the date is set, users immediately see where they will meet. A day before the date users have to accept the guidelines proposed by the RIVM and also confirm that they are going to show up. After the date, users get to rate their match, the date location and the service. This is valuable information for the matching algorithm in order to create better matches.

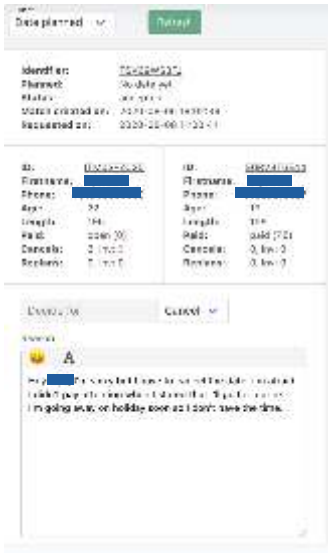


Figure 12 - An example of what it looks like when a user cancels a date. The reviewer can decide if this is a valid or invalid cancel.

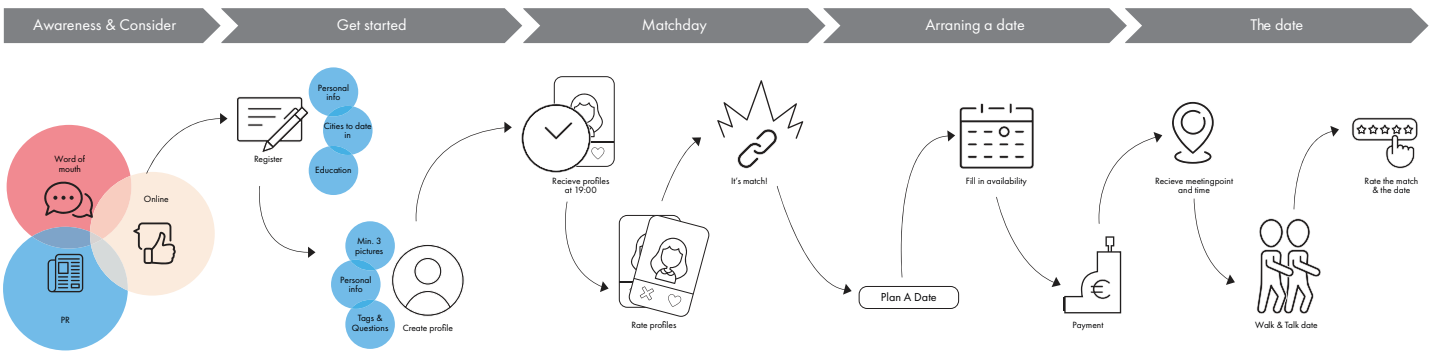


Figure 11 - Breeze's customer journey

1.2.4 Elaborating on algorithmic matching

In order to justify why the title of this thesis is "Humanizing algorithmic matching in an Online Dating App", some explanation is needed about what is meant with 'algorithmic matching'.

First starting with matching. Within this thesis there is a distinction between matching and matchmaking. Where matchmaking is the act of creating a match between two strangers within an app, matching has a much broader meaning. This thesis sees matching as not only bringing two strangers together within the app, but also bringing them together in real life. Thus, this involves the complete date arrangement process as well.

This links to the second word, algorithms. When people are communicating with each other through some form of technology, chances are that there are many algorithms that are working behind the scenes to make that communication work. This is especially apparent for Breeze where this communication is done completely through algorithms. They first make the match, afterwards pick the best suitable day for the date and then make sure the payment is made. Hence the reason for algorithmic matching.

The founders

The Breeze team consists of seven co-founders. These founders have studied or are still studying at the Delft University of Technology. Within the team there are four developers who either work on developing the front-end of the app, the back-end or the matching algorithm. Three of the developers have a background in computer science. These are Thomas Oomens, Thomas van der Pas and Daan Alkemade. The last developer has a background in electrical engineering, but is a self-taught developer and quickly picked up the needed skills as a front-end developer. The remaining three co-founders, Marco van der Woude (that is me), Marsha Goei and Joris van Doorninck, all have a background in Strategic Design (Figure 13).

Within the team we have a good combination of discovering how to build the right thing based on our experience with service design and building the thing right based on our experience in software development.

Figure 13 - The Breeze team in the office at Yes!Delft.

1.3 Project objective & approach

1.3.1 Objective

The central aim of this thesis is to determine when and why it would make sense to humanize interaction between users of online platforms. Using Breeze as a use case, the thesis aims to create a generalisable framework that other platforms can use as support in making these decisions.

On the one hand, this thesis adds value to literature, as it fills the gap in the literature with regards to not only building this framework based on theory but also putting it to the test through the use case.

On the other hand, this thesis adds value to Breeze, as the results will help to solve a major obstacle in the way of reaching its overarching goal; Making an impact in the online dating industry, as it might help people to commit to going on dates.

1.3.1.1 Research questions

To answer the main research question: *What is the impact of humanizing the algorithmic matching for Breeze on user commitment and the overall user experience? And how can these learnings help designers of other online platforms decide when and how to humanize interaction?* It is subdivided into the following sub-questions:

1. **Why does technology mediated interaction cause dehumanization?**
2. **What are the advantages and disadvantages of humanization and dehumanization?**
3. **How can these advantages be used to regulate user behavior?**
4. **What should you take into account when deciding how humanized interaction should be?**
5. **How can these learnings be translated into a generalisable framework?**
6. **How can Breeze's UX be humanized?**

1.3.1.2 Scope

1. Breeze

This thesis is done in collaboration with Breeze. Using this company as a use case means that the proposed guidelines and strategy are designed with Breeze as a context.

2. Culture

Behavioral patterns with regards to dating and marriage are culturally dependent. Culture depicts what interaction is like in order to contribute to the success of a relationship (for example, which correspondence channels one should use or what the timing should be before sending or responding to a text). Online dating in particular has a reciprocal relationship with culture due to its enormous popularity. Designers of, for example dating apps, borrow only a selection of characteristics relevant to the meaning of love and relationships which means they can in turn contribute to a new meaning of these phenomena (Stoicescu, 2019). Especially due to the novelty of Breeze's concept, which involves little online interaction before meeting someone offline. This thesis takes into account the Dutch dating culture and its conventions of behavior with regards to (online) dating.

3. In-app experience

Customer behavior can be influenced by more than just UX. Having said this, branding and marketing are left out of the scope of this thesis as it focuses on adjusting the in-app experience.

1.3.1.3 Thesis target group

The target audience of this thesis is two-fold. On the one hand, it is the founders of Breeze as they can use the findings in this thesis to improve their service. On the other hand, the more generalizable framework is aimed at people involved in the design of online platforms that facilitate interaction between people. These people can be community (UX/UI) designers, software developers and managers. These designers should be able to use this framework in co-creations sessions or within the team itself and should be able to adjust it to their liking.

1.3.1.4 Involved stakeholders

Next to the Delft University of Technology supervisory team and the Breeze team, additional stakeholders are involved. Users of the app have an essential role in sharing their experiences with the app and validating solutions. The developed framework will also be validated with the support of people working in the field of UX/UI design.

1.3.2 Approach

Grounded in theory but driven by user research

The approach in this project is a combination between the double diamond and the lean startup method. This way the thesis is grounded in theory but driven by user research. One of the main points of critique on the original double diamond is that it is basically a linear model. However, design is not a linear process. Figure 14 shows the approach used in this thesis. The top part of the figure shows the different methods used throughout the thesis whereas the bottom part shows the link between, how the theory can facilitate correct user research, which can facilitate building the right things to test in Build-Measure-Learn loops (BML) and how those learnings help steer the search and creation of theory in the consecutive phases.

Discover

After having done user research to discover the core of the problem previously introduced in section 1.2.2, this phase aims to gather an understanding of dehumanization and humanization.

A deepdive will be done into what dehumanization is and its causes. Furthermore, the advantages and disadvantages of humanization will be explored and so will the possibilities for using humanization to regulate behavior. To do so, theory will be drawn from research in the field of online communities. This is because there has been extensive research into how online communities can regulate behavior among their members and stimulate compliance with norms and policies of the community.

Define

Based on the findings from the previous phase, hypotheses will be developed within the Define phase. These will be tested in the first BML loop to determine how (de) humanization can be used to regulate behavior among Breeze users. This will be done by creating a persona based on the previous user research and by focussing on a section of the customer journey that offers the most opportunity for improvement. These items will be used as a basis for creating How-Might-We (HMW) questions suitable for ideation with members of the Breeze team. After this is done, ideas will be translated into clickable demos suitable for user research. The result will be (in) validated hypotheses translated into design guidelines.

Develop

Based on learnings from the previous phases, additional desk research is necessary to link the findings back to the theory. Furthermore, this research will be enriched by interviewing experts. These elements can be used to develop a humanization framework that can assist designers in deciding how to humanize the project they are working on. This framework will be validated within a co-creation that will be held together with users, Breeze employees and industry experts. Apart from the validation, this session will also produce input for concepts that will be tested in the second BML loop.

Deliver

The results of this co-creation will be implemented in the Breeze journey within the second BML loop. In order to get accurate data, the concepts will be tested through the live app. Because these concepts are built using the steps in the humanization framework, they again serve as a way to validate its use.

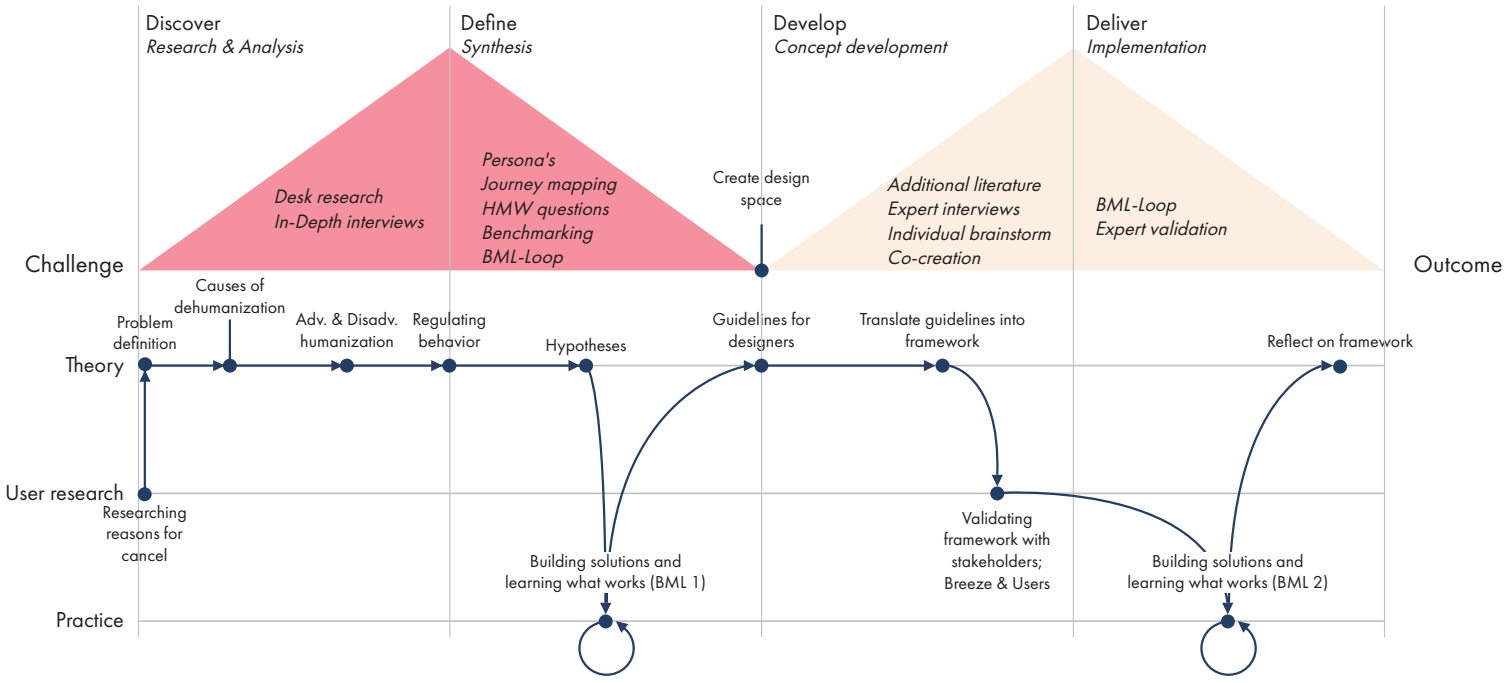


Figure 14- Overview of the project approach and setup.

1.3.3 Expert interviews

Throughout the project several expert interviews are done to put the findings into perspective and validate some of the results. These experts and their link to this thesis are highlighted in Figure 15.

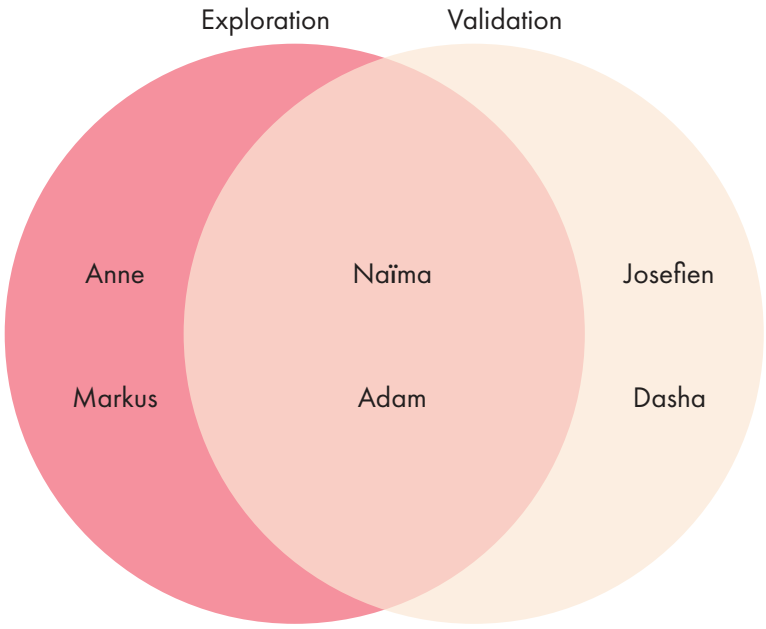


Figure 15- Overview of how the interviewed experts contributed

Interviewed experts

- **Josefien Scholtes** - Design Consultant at Microsoft
- **Naïma van Esch** - Senior UX Consultant at ABN AMRO
- **Dasha Simons** - Business Transformation at Consultant IBM
- **Adam Waytz** - Professor and psychologist at Northwestern University's Kellogg School of Management
- **Markus Weinmann** - Ph.D. Information Systems at University of Technology in Braunschweig
- **Anne van Lieren** - Senior Service Design at Consultant Livework

Chapter 2

The tension between dehumanization and humanization

This chapter provides the theoretical foundation of this thesis. It focuses on determining why interaction online causes dehumanization, how this impacts behavior and what the advantages and disadvantages are of humanization. It will then describe the importance of commitment in order to stimulate good behavior in online platforms and ends with hypotheses on how humanization can foster commitment within Breeze.

Contents

2.1 Dehumanization in online platforms

As was mentioned in the previous chapter, one of the reasons that Breeze faces the problem of too many canceled dates is because the date arrangement process is dehumanized. This section further explores the reasons for dehumanization and how automation impacts it.

Dehumanization often occurs when human interaction is mediated by technology (Marom, 2016). Haslam (2006) argues that it involves "the robotic pursuit of efficiency and regularity, automation-like rigidity and conformity, and an approach to life that is unemotional, apathetic and lacking in spontaneity". The author introduces two forms of dehumanization; mechanistic and animalistic. Animalistic dehumanization rests on the direct comparison between humans and animals. They are denied qualities such as civility, refinement, moral sensibility, rationality and maturity. Mechanistic dehumanization is defined as the notion of comparing humans to machines. They are denied qualities such as emotional responsiveness, warmth, cognitive openness, individuality and depth (Figure 16). Within this thesis, only mechanistic dehumanization is relevant and therefore animalistic dehumanization is excluded in this thesis.

Lee, Fruchter & Dabbish, (2015) prove that indeed mediating technologies influence people to make more dehumanizing decisions because it increases the so-called social distance between them. They hypothesize that there are three interconnected ways that this social distance is created. These are the Construal distance, Experiential distance and Relational distance.

Construal distance

This psychological distance occurs when one is not directly present in another's direct experience. This can either be special, temporal or social and leads to a more abstract representation of a person. The physical distance can decrease trust and cooperation between people and the decrease in contextual cues, inherent to technology mediated communication, leads to a more abstract representation of a person.

Experiential distance

Experiential distance depicts how immersed and engaged people are in the experience of communicating with each other. Because social cues and contextual information is limited in online communication and factual information of both parties is less impacted, mediating technologies have an impact on which information is made salient. This in turn can ensure that factual information increases in importance when decisions are made.

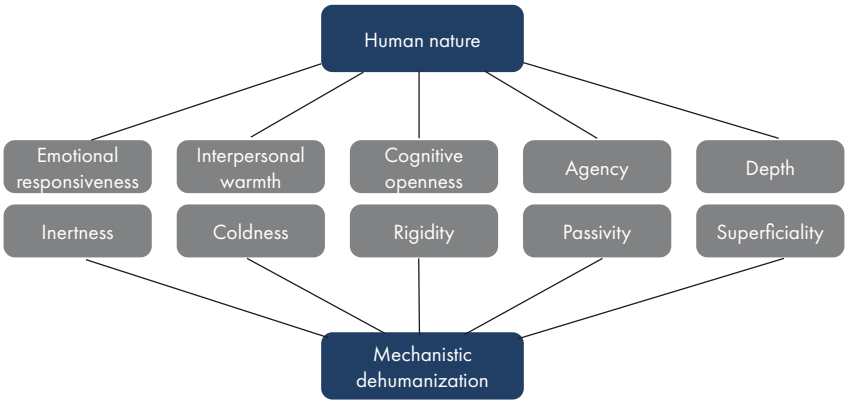


Figure 16 - Proposed links between our conceptions of humans and mechanistic dehumanization.

Relational distance

A relational connection between two people may be impacted negatively by mediating technologies because there is less perspective-taking. This is due to the reduced relational closeness which results in users basing their decisions on their own perspectives rather than that of the other person.

It is important to note that within their research the authors state that this influence is culturally dependent and also dependent on an individual's self-perception. They distinguish between individuals that perceive and define their identity as interdependent or independent. On the one hand, people with more independent self-construals identify themselves through their individual achievements, they base their identity through their own internal states. On the other hand, people with interdependent self-construals identify themselves through social interaction with others. They are more sensitive to emotions and base their identity more on social cues of others in combination with their internal states.

They conclude that dehumanization is only influenced by **experiential distance** when dealing with **interdependent individuals**, which indeed increases the saliency of factual information over social attributes. The discrepancy between their hypothesis and their results can be explained by the use case as they compared face-to-face interaction with videoconferencing interaction. Videoconferencing allows for relatively high amounts of online interaction as you can actually see the other person and have a real-time conversation.

2.1.2 Impact of automation on dehumanization

In contradiction to the manual mediation being done while Videoconferencing or communicating through Whatsapp, many online platforms result in automating mediation between users simply because it takes too much time and effort to do this manually. It is important that this mediation is automated in order to remain viable. As an example, Uber automatically matches a taxi to a person that needs a ride and prices are pre-determined leaving no room for negotiation. Specifically for Breeze, examples of this automated mediation are automatically sending notifications when new profiles are available or automating the process of arranging the date through the *Date picker*. Automating these steps is necessary as it would take too much time to, for example, call users when they have a match and arrange a date through the phone.

It is possible that, because direct online interaction is limited due to automation, there is an increase in the Construal distance (there are less contextual cues) as well as the Relational distance (no ability to form a first impression) between people. Increasing these social distances could increase dehumanization between users.

2.2 Humanization in online platforms

According to Waytz (2009), dehumanization can be mitigated by humanizing interaction by decreasing these social distances. The author states that humanization involves acknowledging that others have complex minds and intrinsic worth as human beings. There are several ways in which designers can influence to what extent interaction is dehumanized.

2.2.1 Humanizing through real human interactions

One way to counteract this dehumanization is by increasing the amount of real human interactions between users of the platform or between users and the platform owners. This can be done by for example having real humans interact directly with one another (through chat or audio). This option is chosen by many customer service centers (Figure 17). However, having real humans mediate interaction could have an impact on scalability. Other options could be to allow users to create profiles with their pictures, stimulating personal interaction by, for example, allowing users to share personal stories and experiences and/or use emoticons to do so (Aragon, 2003) (Figure 18).

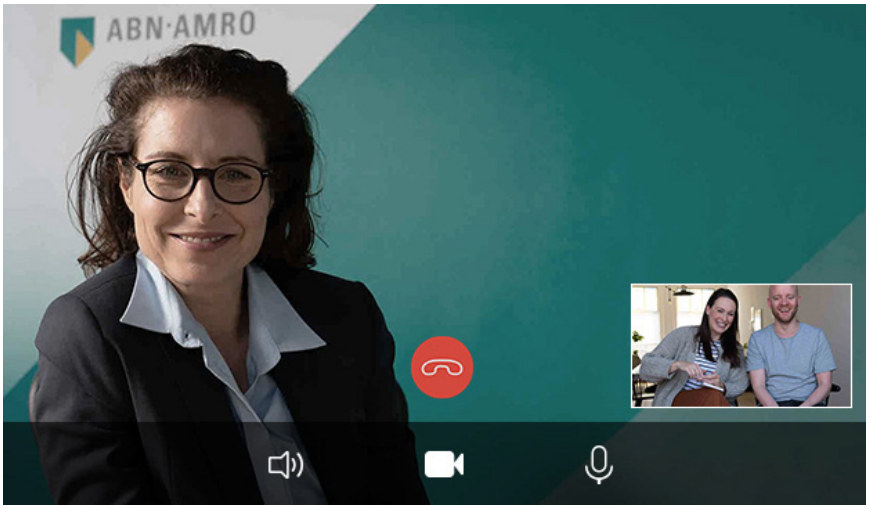


Figure 17 - ABN AMRO allows you to video call your banker.

Figure 18 - Lyft drivers share a picture of themselves and their live location when picking up a customer.

2.2.2 Humanizing by evoking anthropomorphism

Another way is through so-called anthropomorphism. This is the inverse from dehumanization and is defined as "the attribution of human form or characteristics to a non-human being" (Yuan & Dennis, 2017). This way, even though mediation is automated, it can still be perceived as human.

2.2.2.1 Means of evoking anthropomorphism

Anthropomorphism can be evoked through several anthropomorphism design cues (ADC). These ADC's can be divided into verbal and non-verbal (visual) design cues. On the one hand, verbal design cues aim to establish the perception of intelligence in a non-human technological agent (Adam et al., 2020). Examples are the ability to chat or talk with an agent. When talking with an agent it is important that voices are clear and consistent and that there is a fit between the voice and the physical appearance of that agent (male voices are used for technical questions whereas female voices are used for love related questions) (Yuan & Dennis, 2017). Non-verbal design cues, on the other hand, aim to improve social connection by implementing motoric and/or static human characteristics (Adam et al., 2020).

Researches show contradictory findings with regards to what kind of design cues have an influence on social presence:

Only verbal cues have an impact

Adam et al. (2020) found that verbal cues, without the precondition of visual cues, were enough to induce anthropomorphism when interacting with chatbots (these chatbots do not need a profile picture). Sah & Peng (2015) support this, stating that verbal cues induced higher social responses within their research on how anthropomorphism affects information disclosure on health-related websites. They found that having a human-like language is beneficial for a website because these cues afford a sense of communicative behavior. People are more likely to fill in a text field that poses the question 'How old are you?' instead of 'Age' (Figures 19 and 21 for examples). They state that visual cues, on the other hand, do not have an impact on social presence.

Only visual cues have an impact

This is contradicted by Nowak (2006) who found that images did have an influence on anthropomorphic judgments made by people in virtual environments, like an online game. This is supported by Yuan & Dennis (2017) who researched the impact of anthropomorphism in online auctions. They found that visual manipulation of a non-human object induced anthropomorphism and increased spendings, whereas no effects were found due to auditory manipulation. However, they did nuance this finding by adding that it is important to take the quality of the auditory manipulation into account as the difference in expectation between the visual manipulations and auditory could have impacted their findings. Another nuance is the fact that people are more used to seeing visual manipulations as compared to auditory ones. A more recent example is shown in Figure 20, which shows how Snapchat gives users the ability to create personal avatars to communicate with each other.

Figure 19 - Lyft asks you where you are going like a real taxi driver would

Figure 20 - Snapchat allows you to communicate with your own avatar

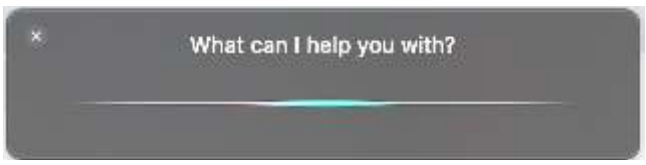


Figure 21 - Apple's Siri speak to you in a personal tone.

Both verbal and visual cues have an impact

Lastly, Qiu & Benbasat (2009) found that both verbal and visual cues were necessary and induced stronger anthropomorphic responses by users in e-commerce. Figure 22 show Chatbot Billie from the Dutch e-commerce site Bol.com and Slackbot from the communication software Slack. Apart from communicating with users in a personal way, they also have a human appearance.

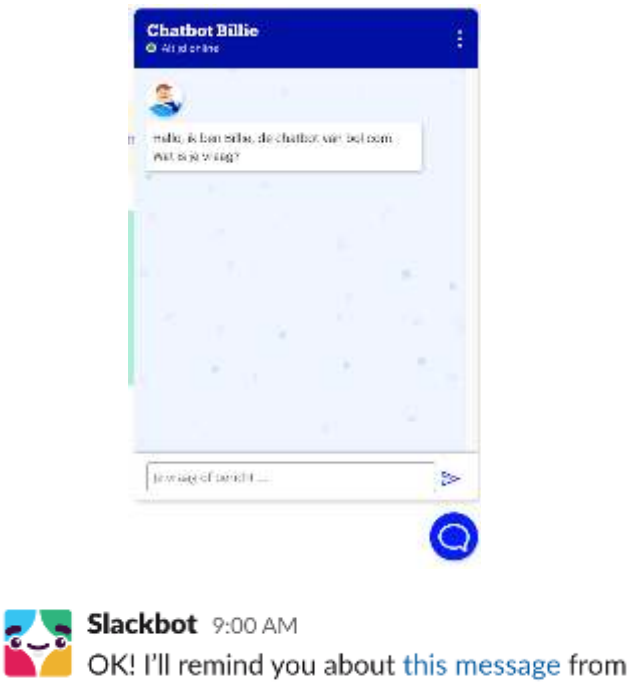


Figure 22- Examples of how chatbots are humanized.

2.2.3 Using social presence theory to understand the advantages and disadvantages of both options

In order to understand the advantages and disadvantages of dehumanization and humanization, it is first important to understand that these phenomena are mediated by the so-called social presence users feel when interacting. Social presence refers to "the feeling of "being with another" or the degree of salience of the other person in the interaction and the consequent salience of the interpersonal relationships" (Shen & Khalifa, 2009). Researchers characterize the social presence of a medium differently. Some focus on a medium's ability to transmit expressions, posture and other non-verbal cues, others stress the psychological connection concerned with the feeling of warmth (Hassanein & Head, 2007). This thesis focuses on the later; a medium should give the user a sense of human connection and sociability. There is no consensus about whether social presence should be measured as a stable property of a medium or as a fluctuating state of interaction between users (Biocca, Harms & Burgoon, 2003).

One can argue that, on the one hand, increasing social presence would decrease social distance and in turn humanize interaction. On the other hand, decreasing social presence would increase social distances and in turn dehumanize interaction.

Advantages of increasing social presence

Hassanein & Head (2007) researched the impact of different levels of perceived social presence on perceived usefulness, trust and enjoyment on users' attitudes towards e-commerce websites. They concluded that social presence indeed has an influence, indicating that high levels of social presence positively influence users' perceived usefulness, trust and enjoyment.

Various studies have shown that anthropomorphism can be used to increase social presence (Qiu & Benbasat, 2009, Nowak & Biocca, 2003) and that it has a positive impact on user behavior. For example, Yuan & Dennis (2017), who have also done research in the context of e-commerce, have proven that visual manipulation of a non-human object by adding human facial features and limbs induces anthropomorphism and causes consumers to bid more in online auction sites. However, Sivaramakrishnan, Wan & Tang (2007) nuance this finding and state that the impact depends on the nature of the products that are offered and the motive or goal of the consumers on the website. Their research proves that artificial intelligence chatbots have a positive influence on consumers' attitude toward the website, product, and their purchase intentions, only when the website has limited static information available and users have an experiential consumption motive, instead of a utilitarian one.

Another benefit of social presence is that it has been found to foster the formation of the commitment of users of an online system (Farzan et al. 2011). This finding is illustrated by Jung, Roh, Yang & Biocca (2017), who studied social presence within the context of online dating. They found that adding richer media features (like videos or GIFs) and sharing location-based information created a sense of closeness which increased the chance that users would purchase memberships or switch to face-to-face communication. This example shows how Breeze can benefit from increasing social presence in order to foster commitment. The importance of commitment to encourage voluntary compliance will be further elaborated in section 2.3.

Disadvantages of increasing social presence

Apart from these advantages, high levels of social presence also have a disadvantage. One of which is the fact that social presence can also cause more evaluation apprehension (fear of judgment). This can result in less information being shared by the user because they feel like they are being judged (Howley, Kanda, Hayashi & Rose, 2014). This is supported by van Bavel & Rodríguez-Priego (2016), we state that "an anthropomorphic character makes people feel observed, which leads them to be more careful in their disclosure of personal information."

Sometimes social presence just gets in the way as is highlighted by the qualitative findings in the research done by Hassanein & Head, (2005). As subjects mentioned that the infusion of social presence on a website that sold headphones would "distract from the product" or "obscure the product." The researchers conclude that "higher levels of social presence have varying effects on these attitudinal antecedents according to the product being sold online. Websites selling apparel (a product for which consumers seek fun and entertaining shopping experiences) benefit from higher levels of social presence. On the other hand, websites selling headphones (a product for which consumers primarily seek detailed product information) do not exhibit a positive effect from higher levels of social presence" (Hassanein & Head, 2005).

The advantages and disadvantages are summarized in Figure 23.

The difference between experiential and utilitarian consumption motives

Experiential and utilitarian consumption motives differ based on the way they are evaluated by consumers. Experiential products are purchased solely to experience and enjoy. It is not the utilitarian function of the product itself that is important but the feeling and sensations people experience while using the products (these can be both physical goods and services, for example a vacation or a ticket to an event). On the other hand, utilitarian products are chosen by giving importance to their functional features and utilities instead of their experience. These purchases are more cognitively driven and are chosen to fulfill people's needs (for example a shower gel which fulfils the need of having a clean skin or a computer which makes you much more productive) (Mazzotti, 2016).

Humanizing interaction fosters commitment

Decreasing social presence can increase dehumanization and increasing social presence can increase humanization. Humanizing interaction can foster commitment.

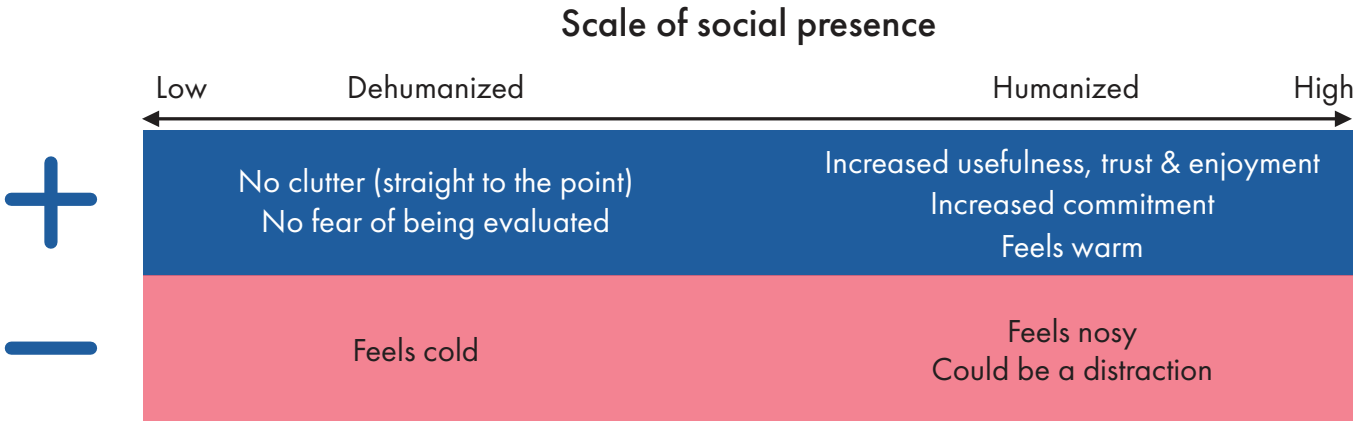


Figure 23 - Overview of the advantages and disadvantages of high and low levels of social presence.

2.3 Importance of fostering commitment

This section explains why fostering commitment is important in order to encourage good behavior. It does so by drawing theory from research on online communities. This is a well researched field with studies on why users misbehave and how good behavior can be regulated and encouraged. Appendix C explains why Breeze can be identified as an online community.

2.3.1 Why users misbehave

There is an extensive body of literature that proposes guidelines and success factors for these communities (Iriberri & Leroy, 2009). One of which has been done by Kiesler, Kraut, Resnick, & Kittur (2012). They state that there are several types of members of an online community that do not comply with the norms and policies of the community. Within the first type, members have no interest in the community functioning well. These members are usually outsiders to the group referred to as trolls or manipulators. Trolls on the one hand act as if they are legitimate members, but their actions are designed to provoke other members (think about trolls on Facebook that are deliberately provoking discussions). Manipulators on the other hand, do not aim to disrupt the community, but aim to get the community to produce particular outcomes. For example, in a community like Yelp or TripAdvisor manipulators might want to pump up the ratings of particular venues by giving fake reviews.

The second type of users that do not comply with norms, do so because they do not know the norms. However sometimes, if they do know them, they follow what they think should be the norm. In certain situations behavior that seems reasonable to an individual ends up damaging the group. This tension between the individual and the groups is known as a social dilemma. The most well known in a two person situation is called the prisoner's dilemma (Preece, 2001). In this dilemma (Kuhn, 1997) these two people (person 1 and person 2) can choose to comply or defect when faced with a choice (Table 1). Using Breeze as an example, if both comply then the payout is highest for both, because they get a date. However, if person 1 complies and person 2 defects, the payout for person 1 is the lowest because that person wants to arrange a date and gets rejected. If both defect then there is no payout for either one because they both reject each other. In this dilemma, the incentive for both is to defect because it is the least riskiest choice, which means in the end no date gets arranged.

	Person 2 Complies	Person 2 Defects
Person 1 Complies	5,5	-3,5
Person 1 Defects	5,-3	0,0

Table 1 - Prisoner's dilemma modeled as a system where a person can either comply or defect. Both of these options are linked to a certain payout for that person.

The power of trolls

Although the examples of Yelp and TripAdvisor are relatively harmless, trolls and manipulators can do substantial damages. Especially during the world wide corona pandemic there are all sorts of opportunities to spread misinformation. Recently news website Pointer has found that there are at least 50 Twitter trolls in the Netherlands that are using the platform to spread conspiracy theories. These trolls aim to polarize society and create confusion (Figure 24). The platform has already removed 4.5 million accounts that were trying to manipulate discussions about the pandemic ("At least 50 Dutch Twitter trolls are spreading coronavirus conspiracies - DutchNews.nl", 2020).

Figure 24 - There are many conspiracy theories circulating about the corona virus and Trolls benefit the ability to reach many people online.

2.3.2 How good behavior can be encouraged

There are several ways regulation can discourage non-normative behavior or encourage normative behavior. Kiesler et al. (2012) state that this regulation can happen through three mechanisms in order to prevent and recover from bad behavior. They can:

1. Create psychological motivations for compliance by making norms more salient or shaming people who violate them
2. Create economic incentives by building reputation systems or internal currencies
3. Use technical means like reversion tools and moderation systems.

According to these authors, designers can use these mechanisms to *limit the effect of bad behavior* (Figure 25). However, when the effect is limited, the damage can still be substantial if the action is done repeatedly. That is why they can also *limit the amount of bad behavior* (Figure 26). Lastly, apart from regulating non-normative behavior, *people can also be encouraged to comply voluntarily with the norms of the platform* (Figure 27).

Within this thesis the focus is on how voluntary compliance can be encouraged with norms. This is because norms have a significant impact on overall group performance. "They are low visibility and yet immensely powerful forms of control over human behavior" (Ivaturi & Chua, 2019). Furthermore, limiting the effect of bad behavior or the amount of bad behavior seem to be combating the symptoms of non-normative behavior, but not the main cause.

The focus is on encouraging voluntary compliance with norms

Online communities have norms and it is important to make sure people comply with these norms. This thesis is focused on encouraging voluntary compliance.

Figure 25 - Tripadvisor posts disclaimers when they detect if companies are writing fake reviews to improve their popularity or hurt competitors.

Figure 26 - Some websites require users to complete a task that is easy for humans but difficult for computers called a CAPTCHA. This way they can eliminate automated spammers who are trying to violate the community's norms.

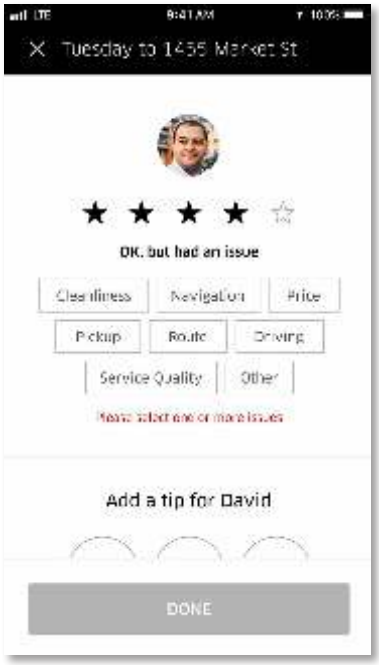


Figure 27 - Uber drivers and customers can rate each other. For drivers this rating corresponds with how many rides they are able to do and for users this corresponds with which drivers they are matched.

2.3.3 Enhancing voluntary compliance with norms by fostering commitment

Important prerequisites for encouraging voluntary compliance with norms are the fact that members must first know about these norms while making behavioral choices and second, members have to want to follow these norms (Kiesler et al., 2012). They propose several design claims that can be used to achieve just that. These claims and what they would like for Breeze can be found in Appendix D.

Through the user research in section 1.2.2 it became clear that users seem to know the policies Breeze has in place. Apart from that, that research has also shown that making them even more explicit is also not desirable for the users. This reduces the enthusiasm when having a match.

However, according to Kiesler et al. (2012), even if members do not comply with norms while knowing them, compliance can still be stimulated by increasing the commitment to the community. Commitment as a key competence of community is supported by Ren et al. (2012) as it enhances a "community's ability to surmount other challenges — getting newcomers to stick around, getting members to contribute, and encouraging community members to behave appropriately". Commitment is a well researched topic, more information on the different types of commitment and the drivers behind it can be found in Appendix E.

Commitment can enhance compliance

Commitment can enhance voluntary compliance with norms when members know the norms, but still do not comply.

Difference between Norms, policies and conventions

Roles, rules, policies and procedures differ from norms because the former are imposed 'top down' and enforced by formal agents. They are made to achieve a specific goal. Norms on the other hand are unofficial expectations within the group and are a form of social control as they are enforced by the community members themselves through social pressure. Norms, by definition, have to be accepted by everyone. Conventions or common practice, do not have to be accepted by everyone. In some communities certain words are common, but as they are not the norm, nobody would be sanctioned for violation. Appendix F gives a further explanation on how norms emerge and endure over longer periods of time.

2.3.4 Hypotheses

Based on this previous work two hypotheses were created (Figure 28):

H1: **Humanizing the interaction between Breeze and its users increases social presence and has a positive impact on commitment which in turn would mean an increase in compliance with norms.**

H2: **Humanizing the interaction between users increases social presence and has a positive impact on commitment which in turn would mean an increase in compliance with norms.**

These hypotheses were tested within the first BML loop in the next chapter.

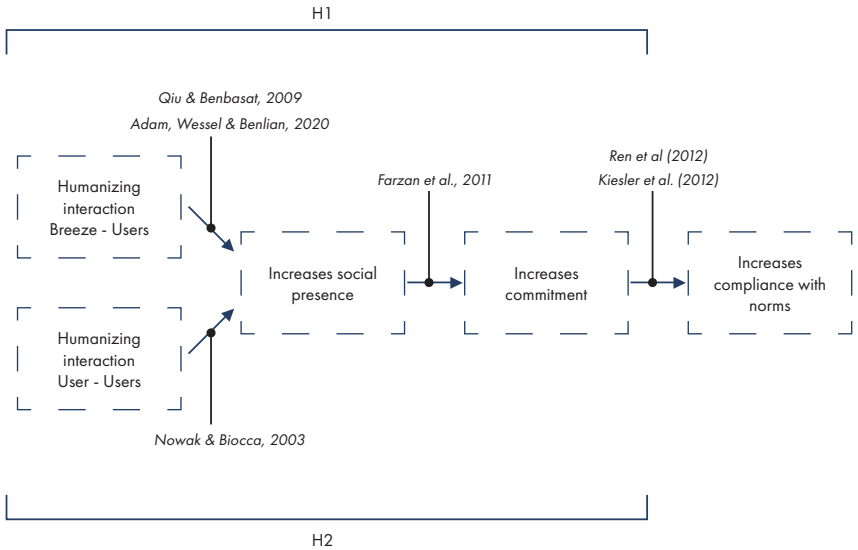


Figure 28 - The two hypotheses that will be tested.

Chapter 3

Build-Measure-Learn loop 1: Validating the hypotheses

To (in)validate the hypotheses, several concepts were tested both quantitatively and qualitatively in the first BML loop. On the one hand this loop aimed to discover if increasing human effort would increase social presence of users and in turn their commitment. On the other, the aim was also to understand the impact of humanizing Breeze-user interaction compared to user-user interaction.

Contents

3.1 Build concepts to test hypotheses

Within this section several concepts are developed that differ to which extent they are humanized and between who they facilitate humanization (between users or between Breeze and users). This is done by using the theory from chapter 2 in combination with a benchmark with other online platforms.

3.1.1 Benchmarking with other online platforms

A benchmark assisted in creating an image of how, and to what extent, other platforms and communities humanize interaction. For this benchmark the focus was on Tikkie, Lyft, Tinder/Hinge and Airbnb. A deepdive was done into Airbnb's journey of renting a house because of its similarities with Breeze's date arrangement process. Both these platforms are bringing together online strangers in real life, the processes usually both span a couple of days and they involve a lot of uncertainty. The journey can be found in Appendix H.

Tikkie

Tikkie is a payment app where users can easily request money from other people if they are owed money (Figure 29). This app significantly lowers the threshold of repaying someone. Users can make a payment request in the app and send that request through their preferred communication channel (for example Whatsapp, Facebook messenger or iMessage). The app humanizes the experience by suggesting a pre-written message which users can adjust to their liking. After recipients have repaid the money, they get directed to a payment confirmed screen. This screen includes a GIF that the sender can generate themselves giving it a more personal touch.

Figure 29 - TIkkie

Figure 30 - Lyft

Uber & Lyft

Both Uber & Lyft vary their amount of humanization within the customer journey. When requesting a ride, there is little humanization. Users are only interacting with the app while they fill in their preferences. However, when the match is made, interaction is humanized by showing personal information and a live location of the driver (Figure 30).

Tinder & Hinge

These apps have various small humanizing interventions. Apart from seeing each other's profile and being able to chat, Hinge users are able to comment on specific pictures and quotes on one's profile (Figure 31).

Figure 31 - Hinge

Figure 32 - Airbnb

Airbnb

Similarly to Lyft, Airbnb's journey also varies in the level of humanization when reserving a vacation home. The process starts off automated, but quickly gets humanized because a renter has to introduce him/herself to the host. The host can then reply to that message. Specifically for the example taken for this thesis, getting a reply from the host worked very well at reducing uncertainty and increasing commitment. The listing that was for rent had no reviews, which usually scares people away. It seems this journey is automated when efficiency is important and humanized when uncertainty needs to be reduced. Furthermore, being able to look up the profile of the host before making any form of commitment is also beneficial for increasing social presence (Figure 32).

3.1.2 Determining the focus for Breeze

In order to make this BML loop feasible, it was important to create focus on a specific section within the journey. This was done by determining where commitment was at its lowest and where it was most important. Figure [commitment overview] shows an overview of several sections of the customer journey plotted against how much commitment members currently show within that section and how important commitment is for Breeze in order to reach its goals.

The position on the y-axis (level of commitment) was determined based on the conversion rates for that specific section. For example, the commitment level of the 'Rate profiles on matchday' flow was determined by calculating the conversion rate between every profile sent out to users and the amount of ratings that were received (see Appendix I for all the calculations). The position on the x-axis was determined by discussing with the Breeze team which section contributed most to Breeze's company goals.

The green dot in Figure 33 highlights the section that was focused on (the critical area). This so-called match to date flow was chosen because commitment to arrange a date is important and, as mentioned within the problem definition, most of the norm violations happened within this stage due to low levels of commitment. This is also reflected in the conversion rate, which was 49% over May and July.

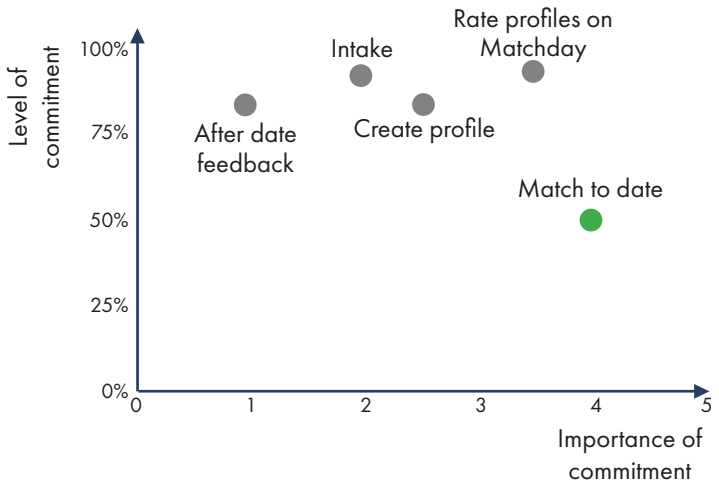


Figure 33 - Various sections of the customer journey plotted against how committed users are and how important commitment is. Level of commitment is calculated based on conversion rates over May & July. A 100% conversion would mean that everyone completes a certain section.

3.1.2.1 The match to date flow

As the name already implies, the match to date flow is the flow where users arrange a date when matched (Figure 34). In order to do so, they first receive a *Notification* that they have been matched (from now referred to as *Notification*). They then go on to the screen they first see when matched (referred to as *It's a match*). Afterward, they get directed to the *Date picker* where they can fill in their availability. If they have not completed this step, they will receive a *Reminder* each day. Once completed, they make the *Payment* for the date and get directed to a *Date confirmed* screen.

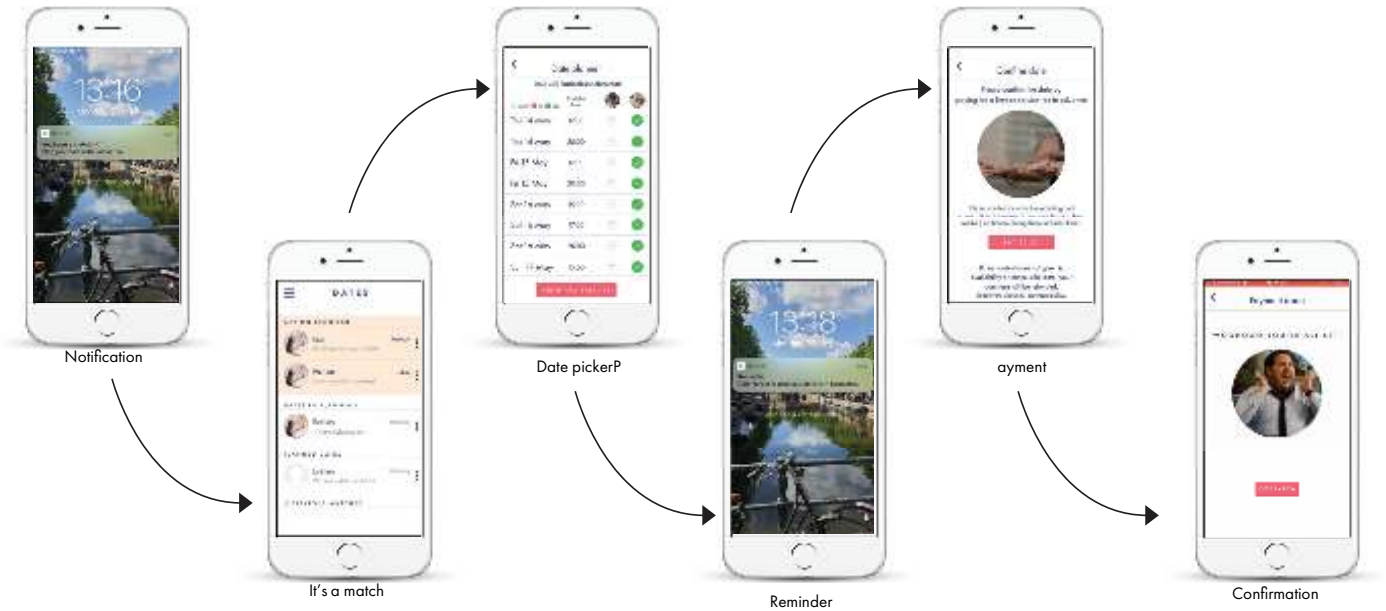


Figure 34 - The match to date flow, starting with the It's a match notification and ending with the confirmation screen.

3.1.3 Concepts for humanized interaction

3.1.3.1 Concepts for quantitative tests

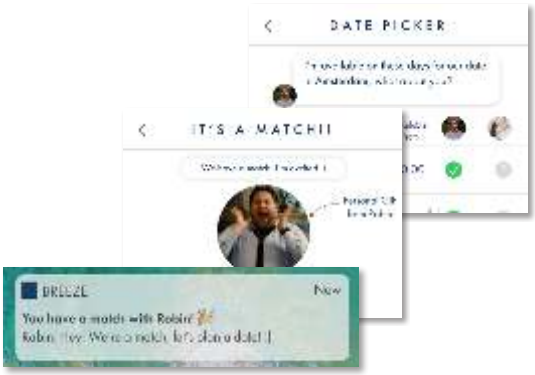
Three concepts were developed that differed based on between who humanization was facilitated and to what extent and tested through a survey. To mitigate the risk of survey fatigue among respondents, three screens in the journey were chosen to research. These were:

1. *Notification*
2. *It's a match*
3. *Date picker*

The three concepts are shown in Figure 35.

- The first concept had no humanization. The *Notification* did not include the name of the match, there were no pictures on the *It's a match* screen and also no match availability in the *Date picker*.
- The second concept humanized User-User interaction. It seemed like the *Notification* came from the match, the *It's a match* screen showed a GIF of the match and the Datepicker included the match's availability.
- The third concept humanized Breeze-User interaction. The *Notification* came from Jamy, Breeze's personal matching concierge. The *It's a match* screen included a personal note from Jamy and in the *Date picker* it seemed like Jamy was asking for a users availability.

No humanization



User-user humanization

Breeze-user humanization

Figure 35 - The three variations of the three screens that were tested, ranging from designs without humanization, designs that humanized user-user interaction and designs that humanized Breeze-user interaction.

3.1.3.2 Concepts for qualitative tests

Based on the design claims proposed by Kiesler et al. (2012) (Appendix D) and two persona's (Appendix J), three concepts were developed in collaboration with the Breeze co-founders.

Concept A - Enable more personal user-user interaction

This concept focuses on humanizing the user-user interaction (Figure 36). It uses both visual and verbal cues to highlight human effort. In doing so, communication is done in the first person from the match's perspective. Users are able to express themselves through various aspects like for example creating a GIF of themselves to celebrate a match, or through interacting with their match in a feed. This feed gives users the option to choose from a daily list of questions which they would like to answer and share with their match. At the start of the date arrangement process, users see their progress compared to their match. During the process users can send personalised *Reminders* to their match in order to encourage them to continue. The *Payment* screen is not personal and is straight to the point as this should be an interaction between the app and the user. After having paid, the *Date confirmed* screen again has a personal celebratory touch.

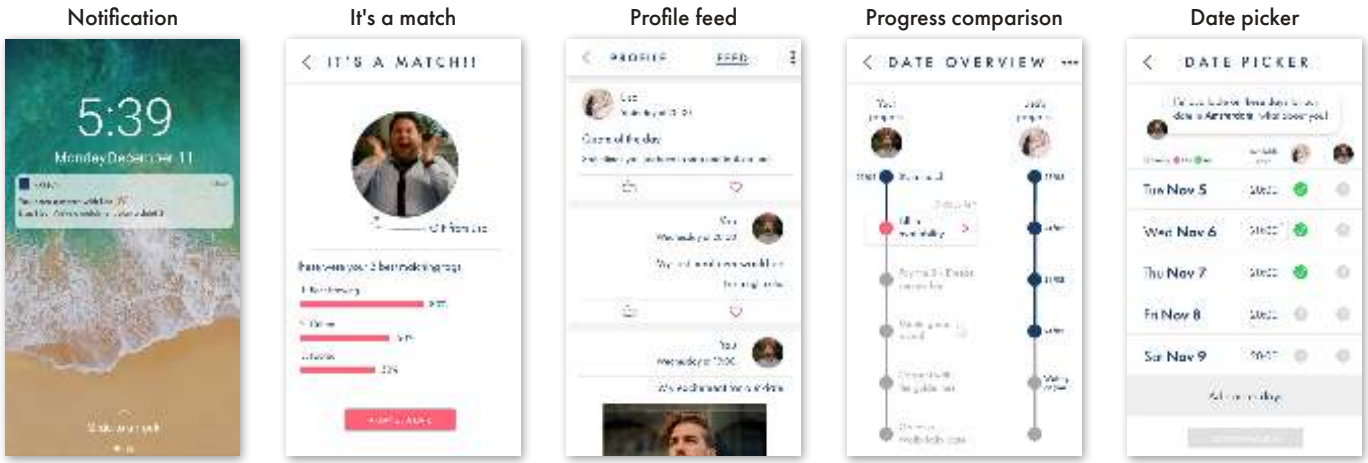


Figure 36 - Concept A included humanization between users. Users were able to interact with each other through various features like uploading a GIF of themselves and a personal feed. They could also compare their progress.

Concept B - Arranging a date through a Breeze date concierge

This concept focuses on humanizing the Breeze-user interaction (Figure 37). It also uses both visual and verbal cues to highlight human effort from a Breeze employee point of view. In doing so, interaction between user and match is mediated by the concierge (in this case Jamy) through a chatbot. The *Payment* screen is designed to highlight human effort from Breeze's perspective and so is the *Date confirmed* screen.

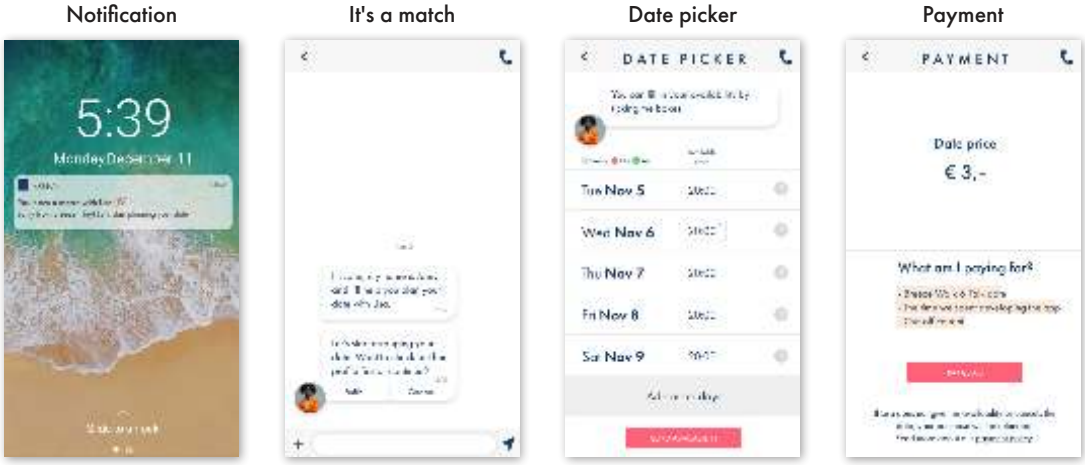


Figure 37 - Concept B included humanization between Breeze and users. Users would interact with a personal matching concierge (Jamy) who would arrange their date. The payment screen highlighted Breeze's value and tried to create some empathy by showing where the money went.

Concept C - Creating avatars and gamifying the process

This concept again focuses on humanizing the user-user interaction by incorporating both visual and verbal cues (Figure 38). The difference between concept A and C is the fact that it includes a gamification element as users are able to create their own avatar. Users have to stay committed in arranging the date in order to keep the avatar of their match 'alive'.

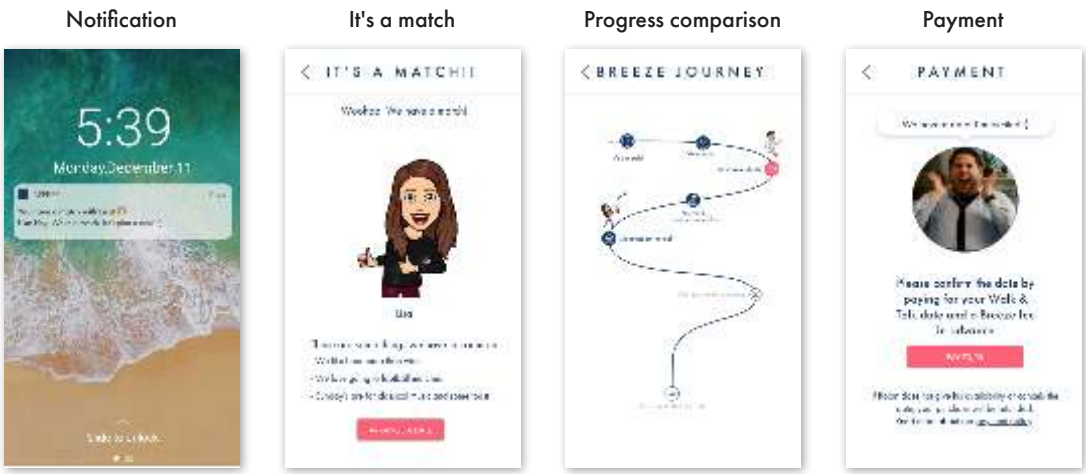


Figure 38 - Concept C included humanization between users but by including anthropomorphic cues. Users were able to create their own avatar that was interacting with the avatar of their match.

3.2 Measure impact on commitment

This section explains the setup of the survey that was used for the quantitative research and the setup of the interviews that were used to gather qualitative insights.

3.2.1 Quantitative setup

The quantitative research was done through a survey among Breeze users and was sent out through the in-app chat. It included eighteen questions and was done as an in-between subjects test. This meant that every respondent got to see the three variations of each screen and got a multiple choice question about which screen made them want to continue the most (commit) and why (Figure 40). They also had to fill in a 7-point likert scale about how machine like versus human like they thought interaction was. Lastly they were asked with whom they thought they were interacting. The last couple of questions were aimed at getting some personal information and usage information.

3.2.2 Qualitative setup

The qualitative research was done over the phone because the lockdown measures at that point did not allow face-to-face meetings. To facilitate the interviews, the developed concepts were shared with the participants through a web link provided by the prototyping software. This allowed the participants to go through the clickable demos while the researchers asked questions about their experience. The interviews were guided by an interview guide and were approximately one hour per respondent. Each interview was recorded and later transcribed.

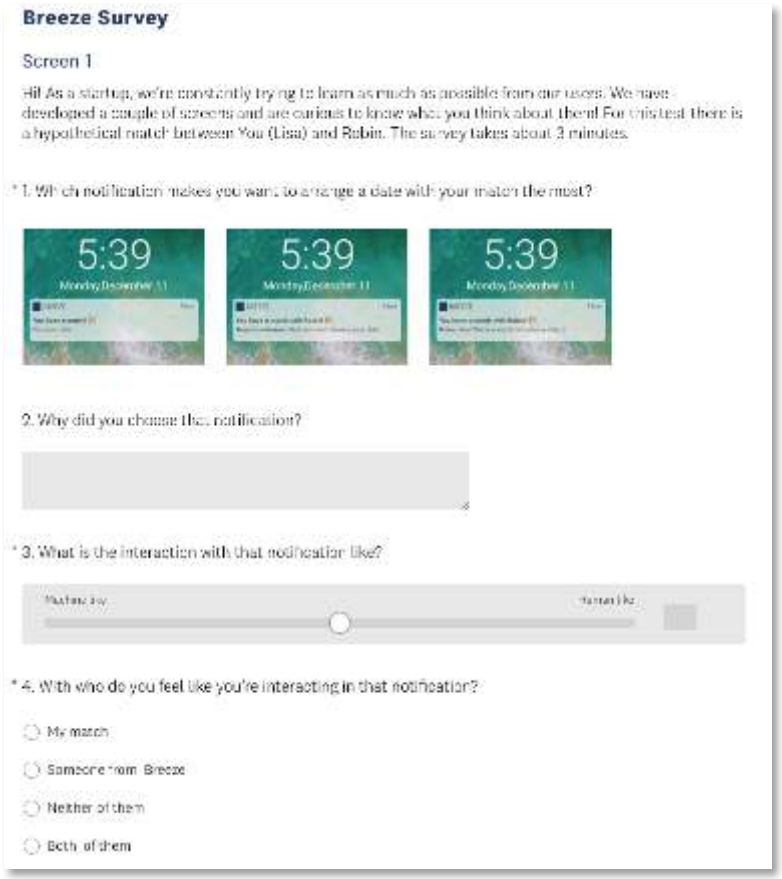


Figure 40 - The four questions relating to the Notifications. Each screen had the same questions and the order of these screens were randomized for each respondent in order to remove bias.

3.3 Learn if humanization increases commitment

After having conducted the tests, the results were summarized and synthesized. These results and learnings will be explained within this section.

3.3.1 Quantitative results

The questionnaire was answered by 90 respondents (68% male & 32% female) and the average age was 28. Figure 41 shows the results of each of the variations of screens tested. The analysis of the quantitative results of the questionnaire, indicated that humanizing user-user interaction had the most impact on commitment for Breeze users. Users that chose this option indicated that it indeed felt like they were communicating with their match.

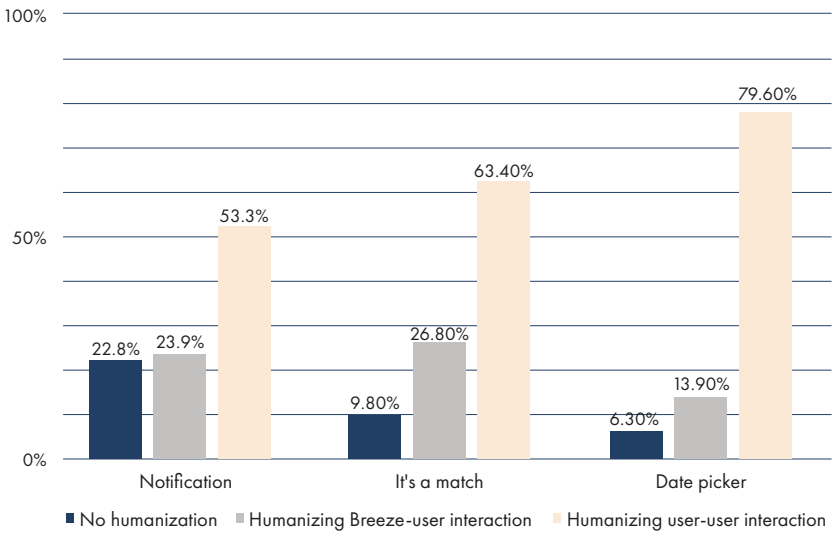


Figure 41 - Results of the questionnaire indicate that humanizing interaction between users has the most impact on commitment.

3.3.2 Qualitative results

However, when taking a closer look at the answers of the open-ended questions in the questionnaire and combining those insights with the insights from the seven in-depth interviews, it became clear that there is no one clear cut answer to whether humanizing Breeze-user or user-user interaction increases social perception and in turn commitment. Each stage in the customer journey requires different levels of humanization. The remainder of the qualitative results will be explained based on the four categories shown in Figure 42. The complete interview setup and answers to the questions can be found in Appendix K, the names of the interviewees have again been changed for privacy purposes.

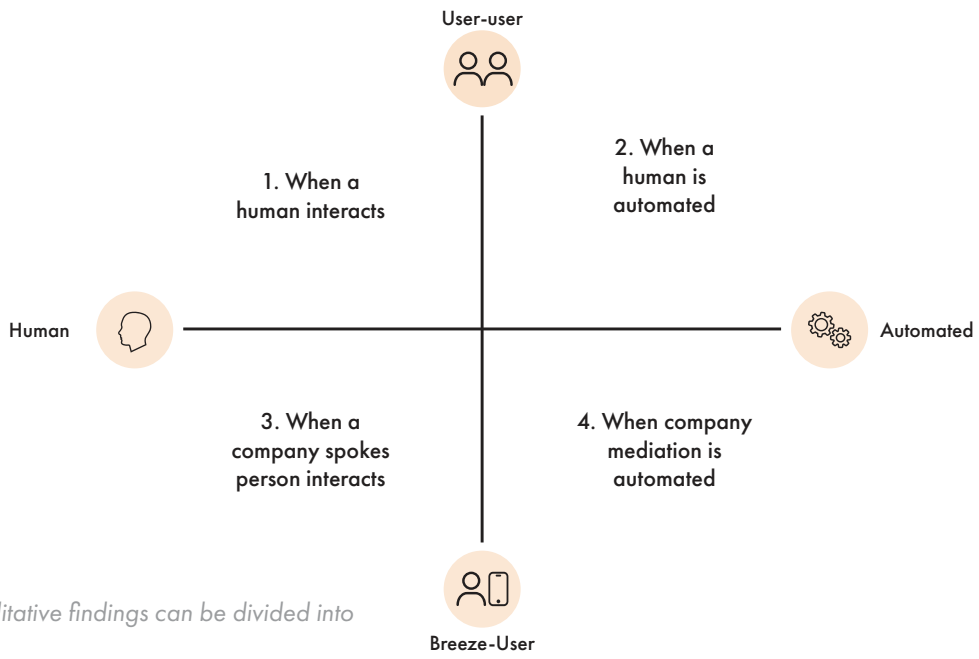


Figure 42- The qualitative findings can be divided into 4 categories.

1. When a human interacts

Even though the questionnaire showed that humanizing user-user interaction was preferred (for example allowing users to write the *Notification*), users indicated that having this possibility was not desirable. When discussing Concept A and C during the interviews, respondents indicated that, if people are allowed to create personalized messages, it might do more harm than good because members might get to know things about each other that they do not like. Personal conversations do not fit within the nature of the concept (e.g. no chatting with your match).

"As the concept is to have no digital chats before meeting, it seems weird to receive a message from a match." - P2 (Female, 28, Amsterdam)

However, in line with the questionnaire results, user-user humanization increases in importance further along the journey. Users indicated that they enjoy creating a connection with other users through what they call 'good types of interaction'. Interactions that fall into this category create a personal touch when users visit the *It's a match* screen, when they see someone else's progress or when they see someone else's availability in the *Date picker*. This gives them a sign of life from their match and shows a proactive attitude.

"Again, personal action from the user shows they are using the app and will probably be more open for the first date as they take an assertive lead." - P3 (Male, 23, Delft)

"When you see this [another person's progress] you think ah no, I'm behind. This is the good form of communication, you have not said anything, but you can keep an eye on each other" - P1 (Male, 24, Rotterdam)

Interestingly, in contradiction to the *Notification*, users indicated that receiving a more personal *Reminder* is desirable. They explained that personal *Reminders* are a bigger trigger to continue in the date arrangement process. The difference can be explained by the fact that they now know with whom they have a match and have established a connection.

"Now [when receiving the Reminder] it's ok to have a personal message because I know who I'm interacting with" - P3 (Male, 23, Delft)

2. When a human is automated

One of the main reason's users did not choose the *Notification* that was humanized was because they were afraid that this was an automated notification that was made to seem like it came from their match. This leads to the finding that, when humanizing human interactions, it is important that they are also initiated by humans and not automated and pretending to be human. Users indicated that this is perceived as misleading.

"Please don't go with the option where your match (Robin) says: Hey! We 're a match, let's plan a date! Only do that if you as a person can write a unique message yourself." - Anonymous respondent from the survey (Male, 25, Utrecht)

3. When company mediation is done by a spokesperson

Completely in line with the quantitative findings, Breeze-user interaction should not be humanized while arranging a date. The app is just facilitating the introduction of two unknown individuals and nothing more than that. Respondents indicated that interacting with the Breeze employee 'Jamy' in concept B felt a bit 'nosey' and like a privacy infringement to have another person know what they were planning with their match.

"Interacting with Jamy from Breeze feels a bit nosey" - P1 (Male, 24, Rotterdam)

"I'm arranging a date with my match, why does Breeze need to know about this" - P2 (Female, 28, Amsterdam)

Furthermore, having this intermediary also increases the distance between the match which inhibits the formation of commitment.

"My match feels very far away now" - P6 (Male, 35, Rotterdam)

4. When company mediation is automated

Within the concepts a distinction was made between automation, but making it be perceived as if it is human (through the chatbot 'Jamy') and perceiving it as a machine (for example the Payment screen).

Although users did not see the added value of having a chatbot mediate the process because it lacks efficiency, they seemed to have less problem with an agent pretending to be a human compared to when they interact with their match. This difference in acceptance can be explained by the fact that they are on the app to meet their match in real life and not someone from Breeze. Furthermore, interacting with an agent is fairly common nowadays.

"These chatbots nowadays are so good, I would expect them to be able to send a message like this" - P4 (Male, 25, Rotterdam)

In some stages of the journey users prefer the interaction to be dehumanized. These are the stages in which the facilitating functions of the app should become more prominent. An example is the *Payment* screen. Completing a payment is just a means of reaching their goal; a date. It is something that is between them and the app. It does not need to be humanized.

"Right now you just have to pay for the date, don't need interaction with someone" - P1 (Male, 24, Rotterdam)

To summarize

As the results indicate, some stages within the journey offer room for the humanization of user-user interaction, other stages should focus more on humanizing Breeze-user interaction and some do not benefit from humanization at all. Figure 43 shows a summary of the findings in an Humanization journey. This map shows the level of humanization in each stage of the journey. It shows that in essence there should be little humanization from Breeze's point of view within the researched area. Breeze should only play a prominent role in making the introduction (through the *Notification* and the *It's a match* screen). Afterwards, the service takes a step back and let's interaction over to the users. It makes sense to humanize the user-user interaction as much as possible because users should not be committed towards the service, but towards each other.

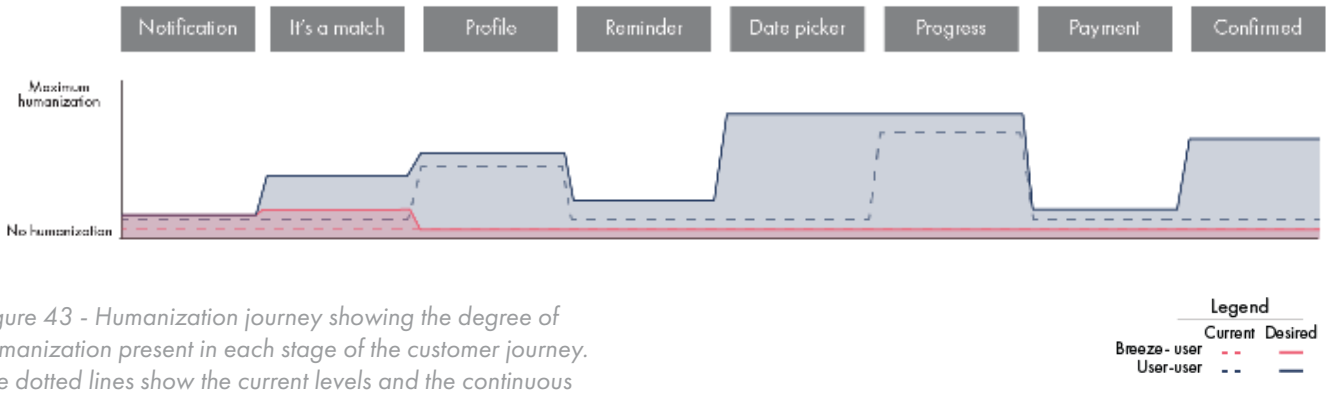


Figure 43 - Humanization journey showing the degree of humanization present in each stage of the customer journey. The dotted lines show the current levels and the continuous lines show the desired level.

3.3.3 Discussion

This research indicates that automation indeed increases the social distance between users. This might have a negative impact on commitment. On the other hand, the downsides of humanization are also confirmed. Users indicated that interacting with an employee from Breeze felt nosy and an infringement on their privacy. Furthermore, another downside is the fact that users do not necessarily desire to have too much interaction with their match due to the mismatch with the purpose of the concept.

Having said so, it has become clear that simply humanizing interaction is not a solution to Breeze's problem. In fact, humanizing interaction by increasing human interaction could even decrease commitment because members get to know too much of their match. This could end up in them discovering something they do not like. However, forms of interaction that did have an impact are the more subtle forms. These were seeing someone's progress in the *Progress comparison*, someone's availability in the *Date picker* and someone's excitement in the GIFs shown in the *It's a match* screen. Users indicated that these forms of interaction were the 'good kind of interaction' compared to for example writing a personal message to send as a *Notification*. These stages of the journey that benefit from humanization, do so when interaction is done through subtle nudges that just 'show signs of life'. These might be enough to evoke humanization and increase social presence while remaining close to Breeze's purpose of limiting the amount of online interaction. Examples of other platforms that use similar user-initiated nudges are the notification you get when someone has viewed your profile on LinkedIn or a Poke on Facebook. These findings have a couple of contributions when deciding how humanized interaction should be to encourage commitment and in turn normative behavior.

First, they show that it is important to establish a focus within the journey by taking a specific use case and plotting out the different sections in the customer journey on the commitment matrix.

Second, humanization of the service should be according to users' expectations. This is dependent on the nature of the product and the way users are used to interact with similar services. Determining this can be done by benchmarking with other platforms or by researching the users' needs. For example, Breeze users expect to arrange a date with their match, not with a chatbot. Breeze is a dating app; thus, users will compare it to other dating apps. However, the fact that users pay per date has more in common with an e-commerce website. Payments here are purely functional, which is why this should also be the case for Breeze.

These findings are in line with those of Hassanein & Head (2005) who have shown that social presence has a varying effect according to the product being sold online. Taking these learnings as an example, the same distinction Sivaramakrishnan et al. (2007) made between experiential and utilitarian consumption motives can be applied here. Online dating is an experiential good (i.e people buy the experience of meeting someone new) thus benefiting more from inducing social presence whereas buying headphones online are more utilitarian, thus benefiting from low levels of social presence.

And third, in addition to Hassanein & Head's (2005) findings, this study indicates that there is not only a difference between types of products sold online, but that within a certain type, levels of social presence can also vary (as is shown in Figure [Humanization journey]).

Humanization is not beneficial in every stage of the customer journey

This research indicates that humanizing interaction is not beneficial in every stage of the customer journey. In some stages humanization even decreases commitment.

Submitting these findings to the 8th annual HAI conference

These findings have been summarized in a paper which was submitted to the The 8th International Conference on Human-Agent Interaction. The submission can be read in Appendix L.

Chapter 4

The Framework for humanized interaction

The learnings from the first BML loop can be used to develop a framework that serves as a guide for designers to help determine the right balance between humanization and dehumanization within their project. Apart from using these learnings as a basis for the framework, interviews with two experts are done to help put them into a broader perspective. Finally, this framework is then validated in three rounds, starting with a co-creation session, following up with expert interviews and finishing off with a small scale pilot at Microsoft.

Contents

4.1 The tenets of the framework

The developed framework consists of four phases, Creating a humanized design space, Ideating humanized solutions, Building concepts and testing their impact and fit with the design space. Each phase of the framework will be explained by first stating its aim, then explaining the several steps involved within a phase. The canvases introduced in phase 1 will be elaborated with an example from Airbnb.

4.1 The tenets of the framework

Figure 44 shows an overview of the proposed framework. The framework not only includes new elements but also some existing design thinking elements. This makes it easy to fit within standard existing design processes, understandable at first sight and easily modifiable to a company's needs. The framework was created by not only using insights from the user research, but also by conducting expert interviews in order to put these insights in a broader perspective. The complete transcripts can be found in Appendix M.

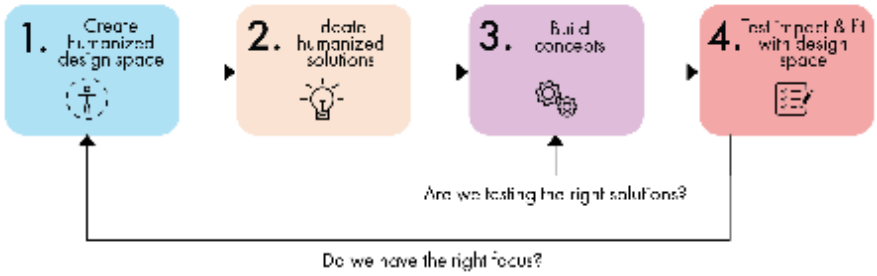
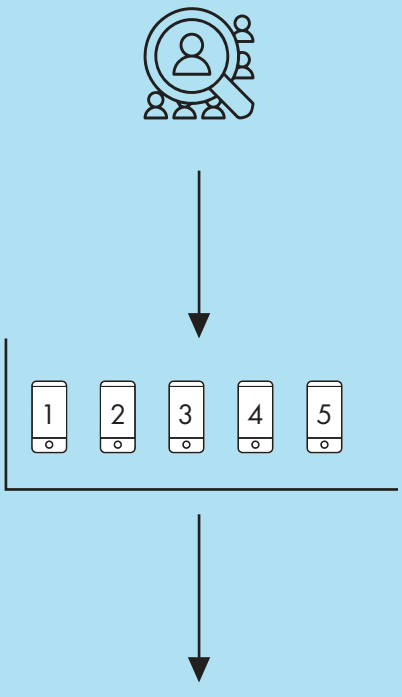


Figure 44 - An overview of the four phases involved in deciding how humanized interaction should be based on the Framework for humanized interaction.

1. Create a humanized design space

Create the boundaries in which new concepts will be developed.

1. Build customer journey for specific use case & persona



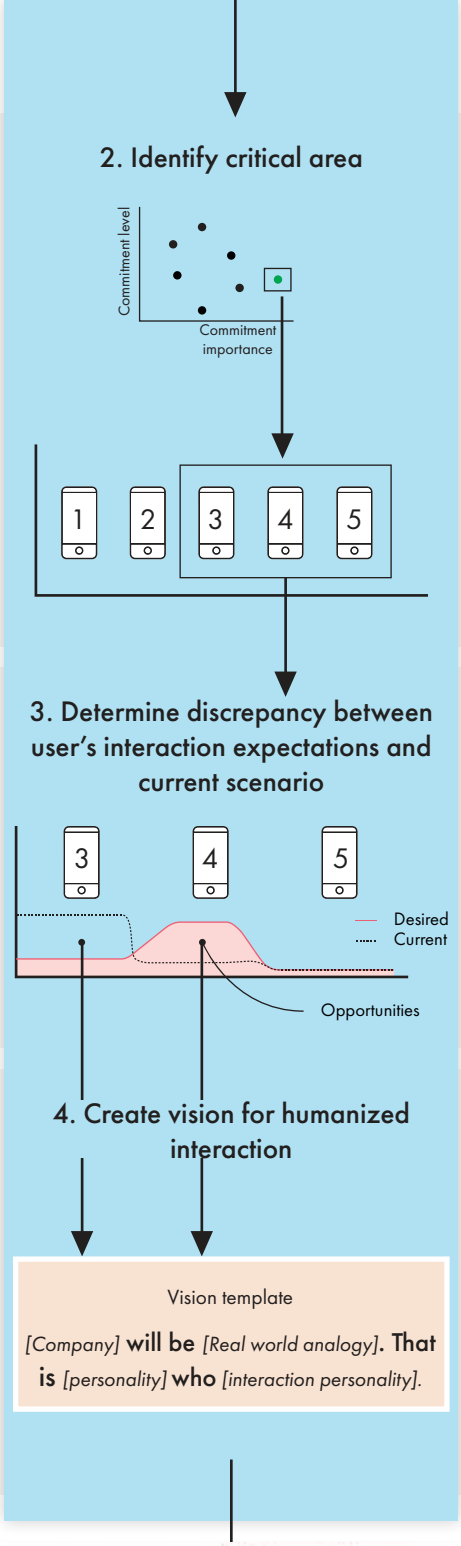
What

The first step is to create a first focus by creating a user profile (persona), a company profile and having a clear idea of the use case.

How

This first step can be done by filling in the left side of the first canvas (Figure 45). A use case can be chosen based on the project brief given by the client or, in case of an internal project, should reflect company goals and strategies. Furthermore, here designers can create a company profile (similar to a 'company' persona) and a user profile (similar to a user persona) within these personas they indicate what their interaction preference is (automated or human). This use case can be translated into a customer journey in the top right corner of the canvas.

"Take a look at the use case behind it. For example, if a user has suicidal tendencies, you could say that this person has secrets and does not want to be judged. So you could choose for interaction with a digital human because the user knows that there will not be any judgment. However on the other hand, you can also decide to go for a real person that is caring."
- Senior UX/UI designer



What

After this use case is translated into a customer journey, further focus is needed as the customer journey usually involves many different sections. This additional focus is called the critical area and can be created by using the Commitment matrix introduced in section 3.1.2.

How

This second step can be done by filling in the right side of canvas 1. After first creating a complete overview of the customer journey for that specific use case, they can then create focus by plotting the sections of that journey on the Commitment matrix. The sections in the bottom right corner (high importance of commitment and low levels of commitment) should be selected.

What

The third step involves using the Humanization journey introduced in section 3.3.2 to discover the discrepancies between user's interaction expectations and the current (or envisioned) levels of humanization.

How

For this step the second canvas is needed (Figure [canvas 2]). Here designers can start by creating their own humanization map from the section of the journey that they have focused on.

What

Within the last step of this phase, designers can translate the previously created Humanization journey into a humanization vision.

How

Creating this vision can be done by using a template sentence in the canvas. It can serve as a dot on the horizon for the project team. Apart from this, turning this map into a sentence can assist them in sharing their findings as it speaks more to the imagination of other stakeholders that are not as invested in the project.

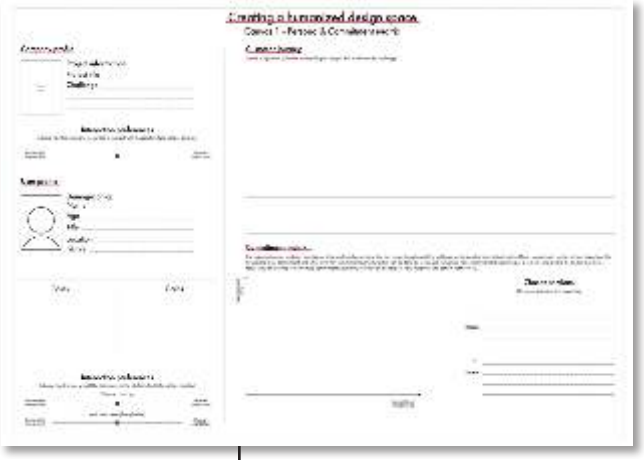


Figure 45 - Canvas 1 that can be used for step 1 and 2.

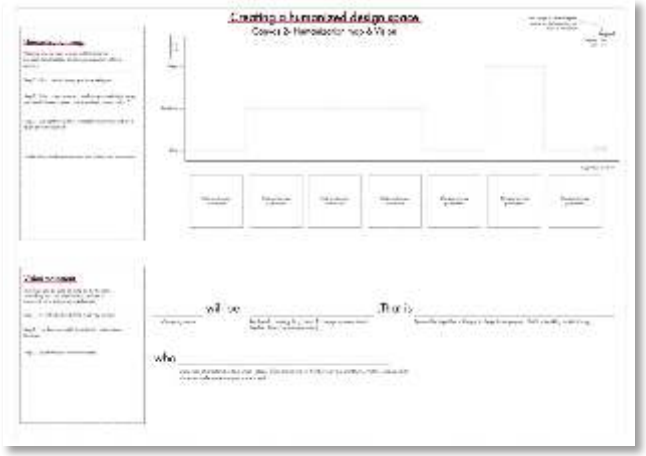


Figure 46 - Canvas 2 that can be used for step 3 and 4.

Applying canvas 1 and 2 to Airbnb

As an example, canvas 1 and 2 can be applied to a use case from Airbnb. This use case is about Thomas who wants to rent a house. Airbnb has identified that Thomas likes to browse though listing, but never actually makes the commitment to complete the reservation. They use these canvases to get insight into which section would benefit the most from humanization (Figure 47) and where they should and should not humanize interaction (Figure 48).

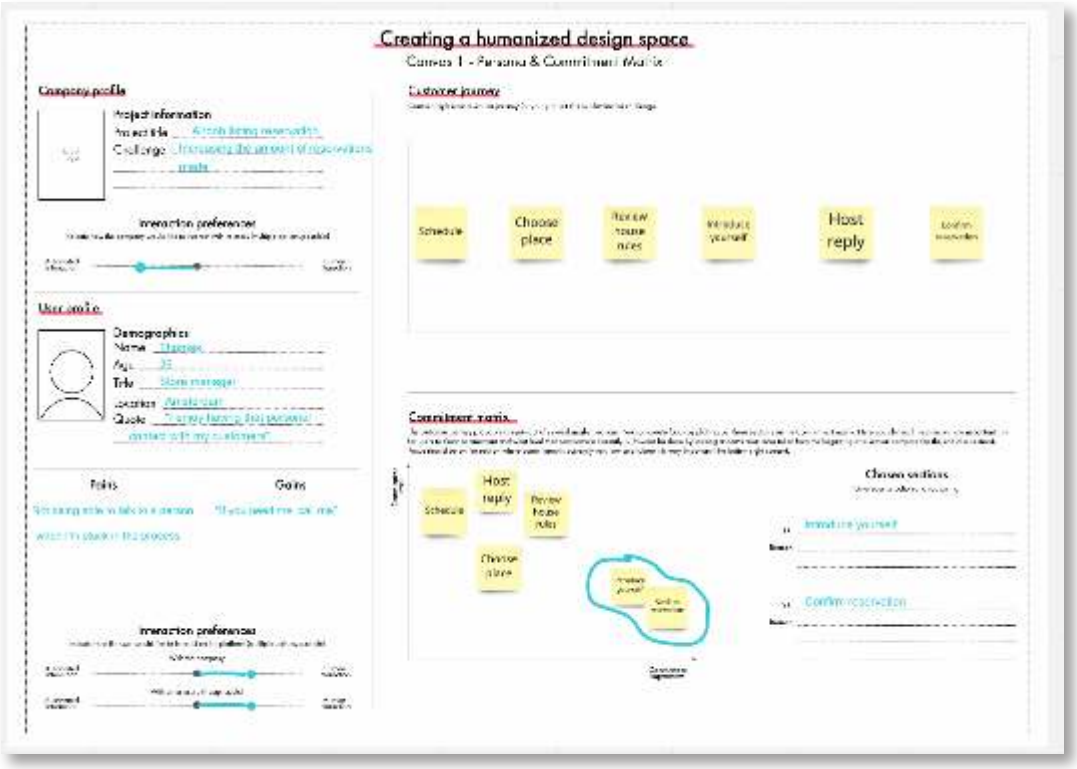


Figure 47- Canvas 1 filled in for the Airbnb use case

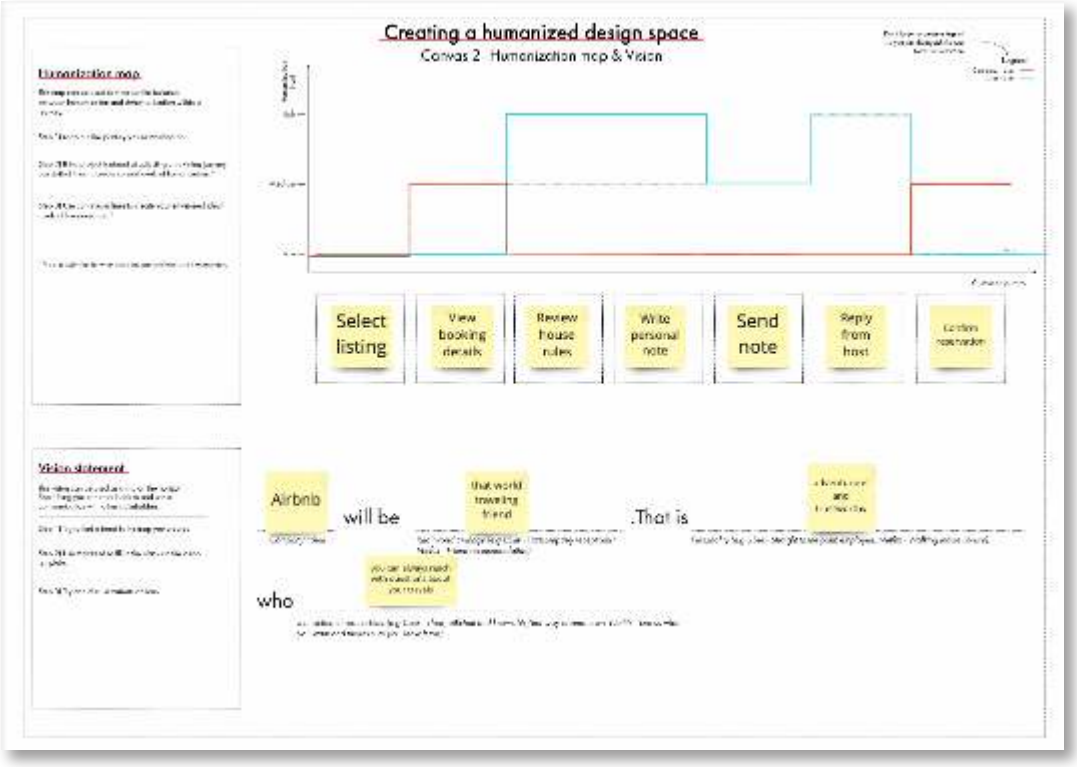
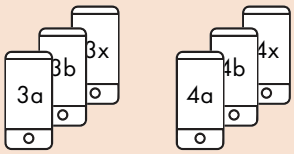


Figure 48- Canvas 2 filled in for the Airbnb use case

2. Ideate humanized solutions

Diverge and create many possible solutions.

5. Ideate solutions based on vision and interaction map



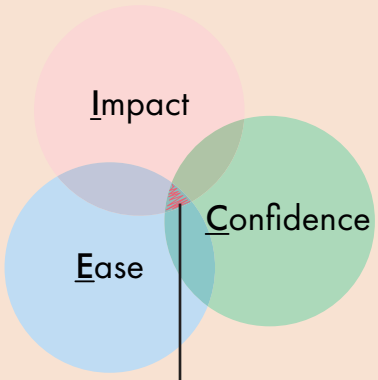
What

Create 'How-Might-We' questions about the sections in the journey that have been selected in the previous phase.

How

The designers at Airbnb could ask themselves: How might we create a more personal experience when users have shown interest in a listing? Additionally designers can choose to do a benchmark with similar platforms to discover the way other platforms humanize interaction. Important here is to make sure that these solutions fit within the humanized vision.

6. Select solutions



What

Select the most interesting solutions.

How

Being able to prioritize is a key step in product development because resources are always limited. There are various design methods available for selecting solutions. Methods that are often used by product managers especially in an entrepreneurial setting are the Lean prioritization matrix, or the ICE (Impact, Confidence, Ease) model. These are suitable for making quick decisions about which product features should be focused on (Kukhnavets, 2018b).

Lean prioritization is done by mapping out features against the value they deliver as opposed to the effort it costs to implement them(Kukhnavets, 2018b). When using the ICE model, not only the value (Impact) and effort (Ease) of a feature are taken into account, but also the confidence people have about the scores they give to these features when prioritizing (Kukhnavets, 2018a). As there are many other methods, using the ICE model should not be seen as the only one that fits within this model. Other methods could also suffice as long as they create a clear prioritization and support from the project team. They should be seen as ways to facilitate a discussion and should not be taken as the final decision.

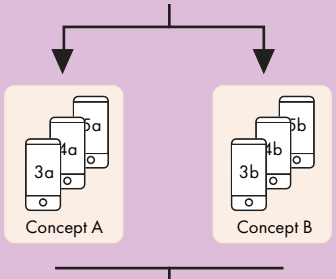
When using the ICE model, this support can be created by for example sending out a survey (Figure 49) to the whole project team and later analyzing the scores based on averages and standard deviation. A high standard deviation is an indication that there is a lot of disagreement which means that a discussion might be needed.

Figure 49 - Scoring features using the ICE scoring model.

3. Build concepts

Cluster the chosen solutions and translate into concepts.

7. Generate concepts



What
Synthesis of previous phases into concepts that are ready for testing.

How
These concepts can either be a combination of different steps in the journey or different variations of one step. Within this phase, designers should decide to what extent they will develop concepts in order to be usable for validation. Depending on the resources and skills within the team, concepts could range from drawn wireframes to clickable demos.

4. Test impact & fit with design space

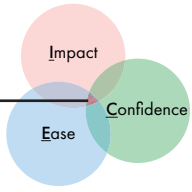
Test concepts on fit with Humanized journey and hypothesized impact.

8. Test

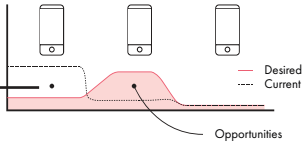
What
Synthesis of previous phases into concepts that are ready for testing.

How
The first feedback loop is aimed at learning if the concepts indeed deliver the Impact that was hypothesized in the ideation phase and if it is worth the effort to implement them. If so, they are ready for further development and should follow methods that are standard in the company. If not, designers can also choose to take a couple of steps back and ask themselves if the right focus was chosen in the first phase. These tests can be done using the many research techniques available for user testing. Choosing between, for example in depth interviews, observations, usability (A/B) tests and/or surveys is dependent on the quality of the developed concept and the available resources for testing.

Are the concepts creating the desired impact?



Are we focusing on the right opportunities?



When to use the framework

As mentioned before, the framework is aimed to be easy to understand and apply to the broad range of design processes companies use. This means that people who are less familiar with design thinking processes can decide to use the complete framework as a guide for their product development process. However, when people know how to apply design thinking to their design process or already have a process in place, they can use the different canvases either throughout a whole project or in a workshop. The framework then functions as a way for them to understand where these canvases fit within their design process.

A complete overview of the Framework for humanized interaction

Figure 50 shows a recap of all the phases of the framework with the steps for each phase and how these steps can be executed.

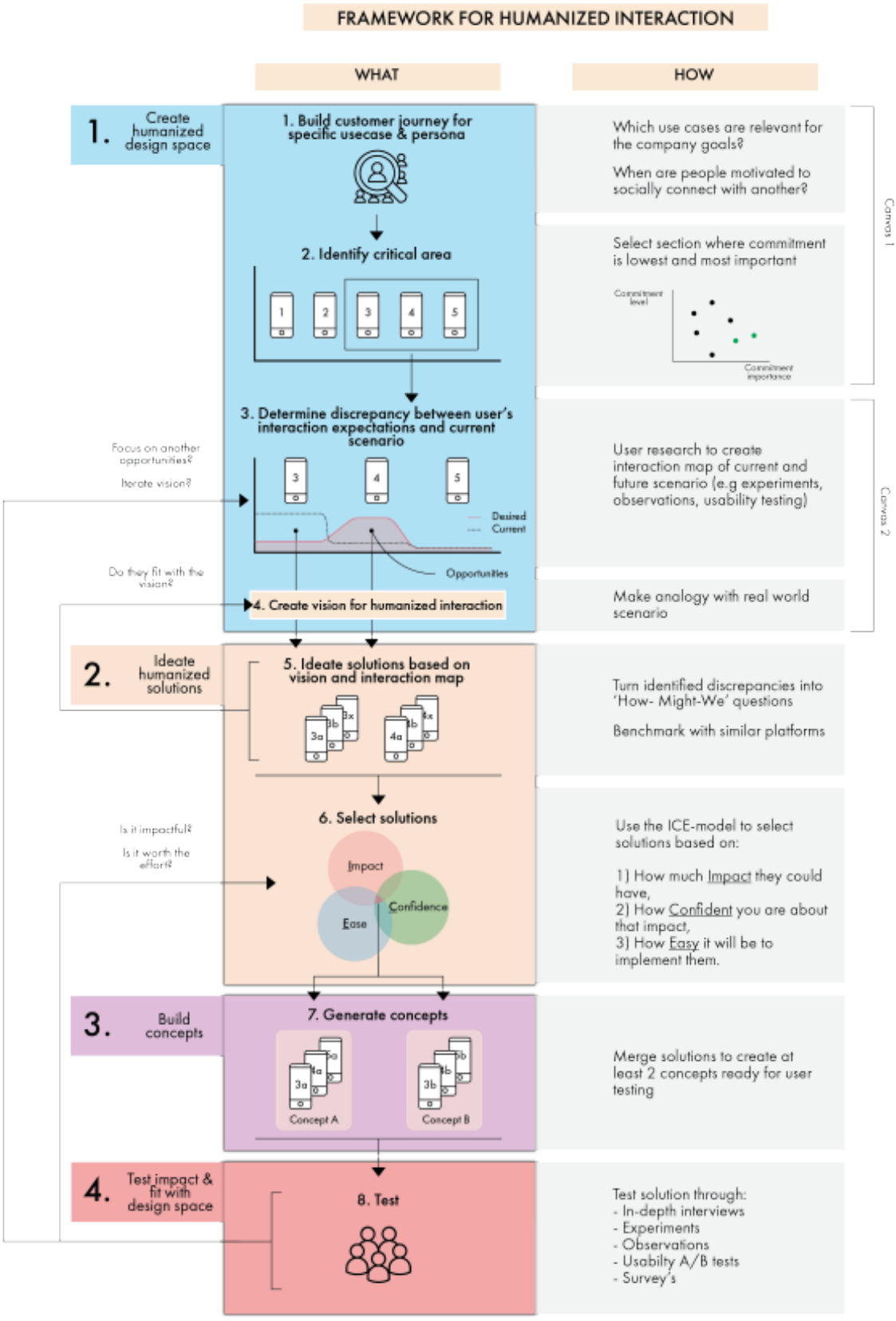


Figure 50 - The complete proposed framework with each step and how it should be executed.

4.2 Validating the framework

The framework was validated in three rounds of validation. The first round was a co-creation session, this choice was made because a session like this facilitated discussion between the relevant stakeholders (Breeze co-founders, users, industry experts) while using the framework. The second round was done by conducting interviews with people working in the industry and the third round was done by conducting a small scale pilot with a Microsoft employee. Each round will be explained by first elaborating on the setup, then the learnings and then iterations if they were needed.

4.2.2 Validation round 1: Co-creation session

4.2.2.1 Setup of the co-creation session

The session was conducted using the online conferencing software, Zoom, and an online collaboration tool called Miro (Figure 51). It was moderated by the author of this thesis and aimed to mimic the steps a designer would go through when using the framework. The participants included three co-founders (these were the CEO, VP of product and a front end developer), three users and two people working in the industry. One of which works as a Design Consultant at Microsoft and the other as a Business Transformation Consultant at IBM. This composition was chosen because it is not only important to have input from Breeze employees about how this would be used for Breeze, but also have their opinions mirrored by industry experts. Users were included to make sure that the developed were user centered and covered their needs.

The duration of the session was two hours and started with a short introduction round, a presentation about the project and the challenge for the day. After this the participants got spread out as evenly as possible into three groups. The first two groups included a user, a co-founder and an industry expert and the last group only included a user and a co-founder. The groups worked on two challenges aimed at testing the different phases of the framework.

Figure 51 - An example of a Miro board showing how users can collaborate using (digital) post-its.

For the first challenge, the groups were asked to create their own humanized design space based on the match to date flow discussed in this thesis (section 3.1.2). They had received a screen recording of this flow prior to the meeting in order to get acquainted with it. While taking this flow as a starting point, they were asked to create their own Humanization journey and humanized vision. In order to guide them in this challenge the Miro boards included a canvas with a template of the Humanization journey and vision (Figure 52). Afterwards, they presented their maps and vision to the group.

For the second challenge, participants were asked to use their Humanization journey and humanized vision to identify opportunities in the current flow and create concepts by first ideating solutions, then selecting the most interesting ones. They ideated solutions by creating HMW-questions for their chosen opportunity and selected the most interesting ones by dot-voting. This method was chosen due to time limitations. The participants were then asked to draw the solutions out and pitch them to the group. The session ended with feedback from the group on the session and the framework.

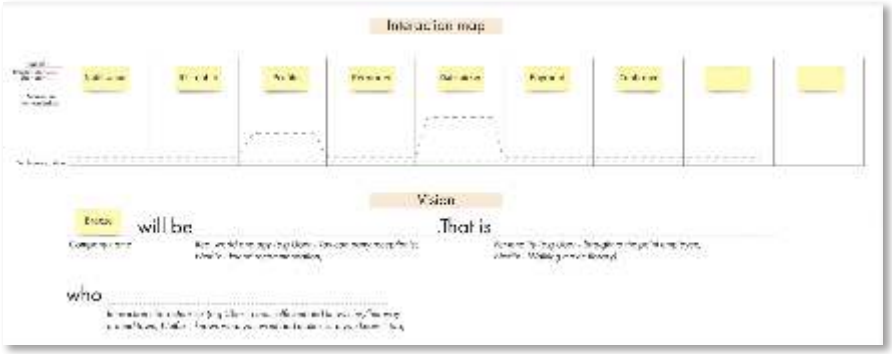


Figure 52- The canvas that was used by the participants in order to facilitate co-creation. In the top part of the canvas participants could draw their own Humanization journeys (the journey did not include the progress comparison because that was not part of the real journey yet at that time) and in the bottom part they could translate the maps into a vision.

4.2.2.2 Results of the co-creation session

Challenge 1

Creating the Humanization journey

Apart from some clarifying questions, participants understood how to create the Humanization journey. Having a template sentence for the vision helped them in shaping their own. Figure 53 shows what the result in Miro looked like for one group, the other maps can be found in Appendix N. One thing that immediately became clear, was the fact that the maps had some commonalities, but also a lot of differences. This was further explored in the synthesis, which will be explained in the next section.

Creating the vision

Users also understood how to create the vision. They were quickly able to use the digital post-its to fill in the blanks of the template. However, as can be seen in Figure [visions], some of them did not manage to create a consensus as they used multiple post-its to fill in one blank. This could've been an indication that there either was still too much ambiguity in the Humanization journey, the template sentence did not suffice or they just had too little time. When asking them about that, a user responded that time had the biggest impact.

"Yeah we just had 10 minutes to finish the vision so we just started jotting down post its" - User

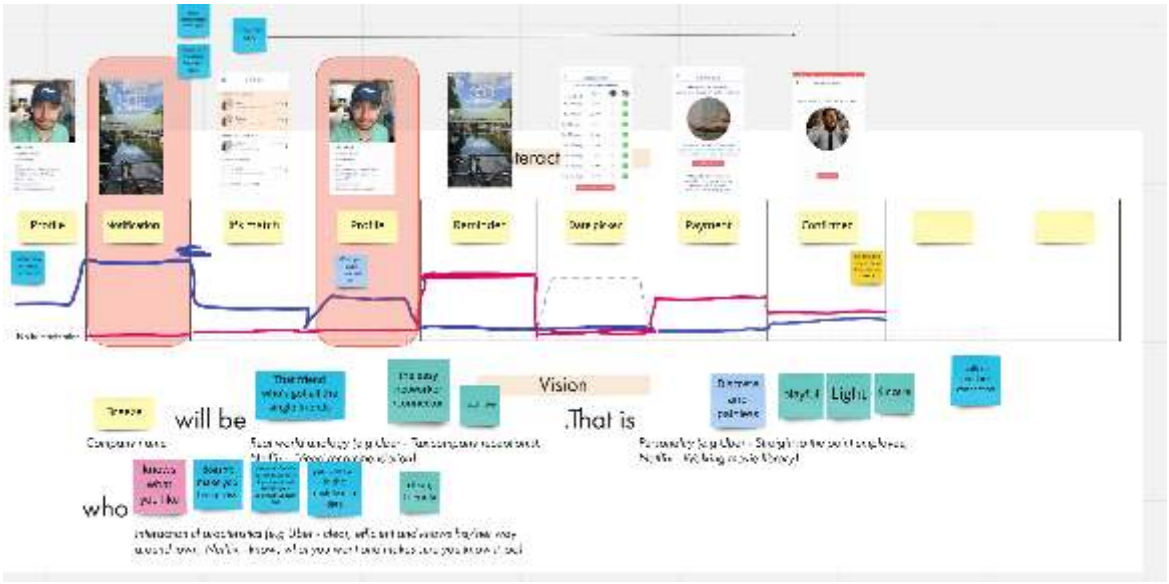


Figure 53 - The result in Miro of the first challenge for one group which shows their Humanization journey and their created vision.

Challenge 2

Ideating solutions

Based on their visions, the groups selected one section within the created as many ideas as possible. It was interesting to see the difference in the HMW-questions created. Where some created very specific ones for a screen, for example:

How might we humanize notifications? - Group 1

Others chose broader questions that not necessarily had anything to do with humanization or dehumanization. For example:

How might we keep the app exciting without messaging? - Group 3

However the resulting ideas were not very far apart from some of the previously identified methods of increasing social presence. Section 2.3.1 shows that increasing profile modality (uploading a short clip of yourself) can be used to increase social presence (Jung et al., 2017). Both group 1 and 3 came up with similar ideas (Figure 54).

This could be an indication that the users were well sensitized on the situation by first creating the map and the vision. Even though there was not a complete consensus about what the vision should have been, only the action of thinking about it would be enough to create suitable HMW-questions.

Selecting and developing the most promising ideas

Due to time limitations, respondents indicated that they skipped the dot-voting and already had some favorites that they wanted to further develop. The level of detail to which these were developed differed. Some groups had simple drawing while others had complete flows (Figure 55).

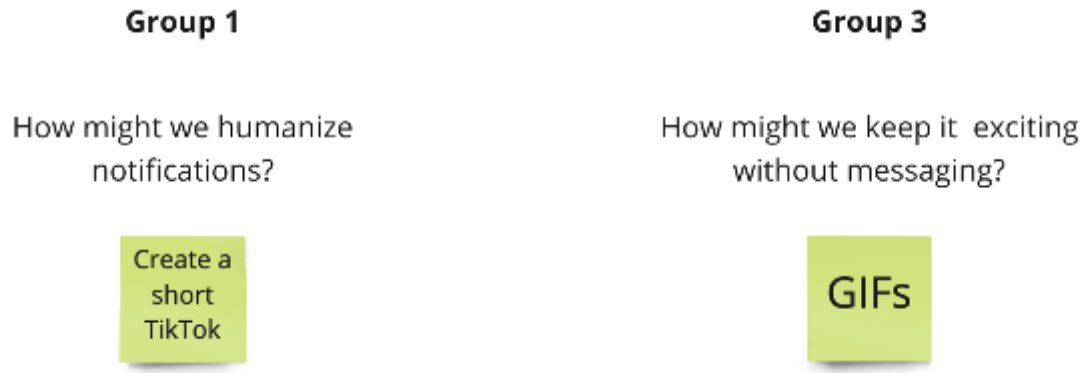


Figure 54 - The result in Miro of the first challenge for one group which shows their Humanization journey and their created vision.

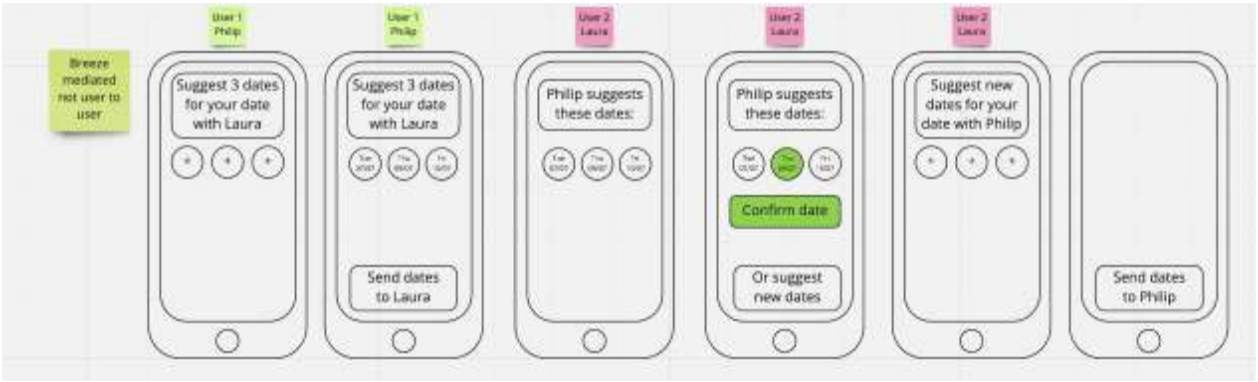


Figure 55 - A concept developed by group 2 focused on humanizing the date picker by mimicking real chatting but making that process more efficient. Users can suggest days instead of having to select from a whole list.

Feedback on the framework

Within the round of feedback all the participants indicated that they understood how it worked and could see themselves using this in future projects.

"The framework worked pretty well, there are definitely elements that I could see myself using. I think only using this to think about humanization already works" - Microsoft Design Consultant

One recommendation a user gave was to make sure that the vision can also be written to refer back to how interaction between users should be humanized. Now the vision is very focused on the company's role when interacting, but not the role of another user. This point got highlighted because the Humanization journey does make that distinction.

Furthermore, another feedback point was about the clarity of the journey. If people were not involved with Breeze they did not have a good idea of what the screen currently looks like compared to what they could look like. Luckily the teams included one Breeze team member who could answer their questions.

4.2.2.3 Synthesizing the results for Breeze

The final Humanization journey

When comparing the maps created in the co-creation with the one that was developed in the first BML loop ik became clear that there were some commonalities but also many differences. In order to be suitable for analysis, these maps were first digitized and their commonalities and differences were highlighted. These can be found in Appendix N.

The final map is shown in Figure 56. It shows that most of the interaction in the app should be humanized between users (*It's a match*, *Profile*, *Date picker*). This way people are encouraged to take the next step and create a commitment towards each other. However, the first touchpoints with the app (*Notification* and *Reminders*) are humanized between Breeze and users. It is Breeze's responsibility to get the users back in the app. Finally, when paying (Payment) for the date, Breeze should highlight its delivered value to make sure users commit to that last step.

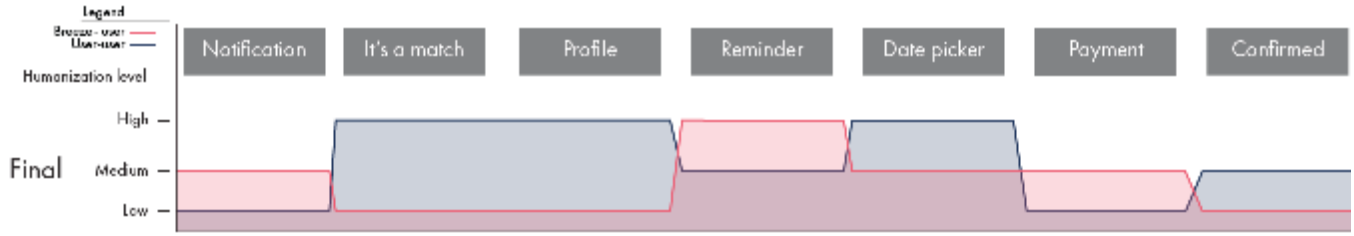


Figure 56- The four Humanization journeys summarized into one final map that will be used in the second BML loop.

The final vision

The visions had less differences (Figure 57), where the vision of group 1 focused more on being a service that gives users that extra push to take the next step, the vision of group 2 was more pragmatic and acknowledged that Breeze should be an efficient facilitator. It should just make that first introduction and be there when things do not go as planned. Group 3 created a vision that was similar to that of group 2, but made the platform's involvement even more discrete.

These visions and the final Humanization journey were used to create the humanized vision for Breeze which was used as a guideline in the second BML loop:

"Your perfect wing(wo)man. That fun and reliable mutual friend that makes the introduction, sets up the date, and who you can turn to when something is not right"

This vision reflects the fact that humanization between Breeze and user should only be present at the beginning of the journey when making the introduction and setting the scene, after that the platform should leave at the right moment and only act as an efficient facilitator throughout the date-arrangement process. This is when interaction between the match is humanized so they can do the rest. However, Breeze will always be there as a reliable partner when things do not go as planned. This way the app makes sure that dating is seen as something light and fun.

Vision group 1: Breeze will be your **skydive instructor,** that is **self assured, reliable and experienced** who **motivates you to take the next step**

Vision group 2: Breeze will be your **wingman** that is **practical and to the point** and helps you **avoid awkward moments**

Visions group 3: Breeze will be that **easy networker** with all the friends, that **makes the connection discrete and painless** who **you can call when something is not right.**

Figure 57 - The visions that resulted from the co-creation session.

The ideation

The ideas that resulted from the session were all mapped out on the customer journey (Figure 58). A selection was made based on initial thoughts of Impact, Confidence and Ease and their fit with the findings from the first BML loop. These concepts will be further elaborated in the second BML loop in chapter 6.

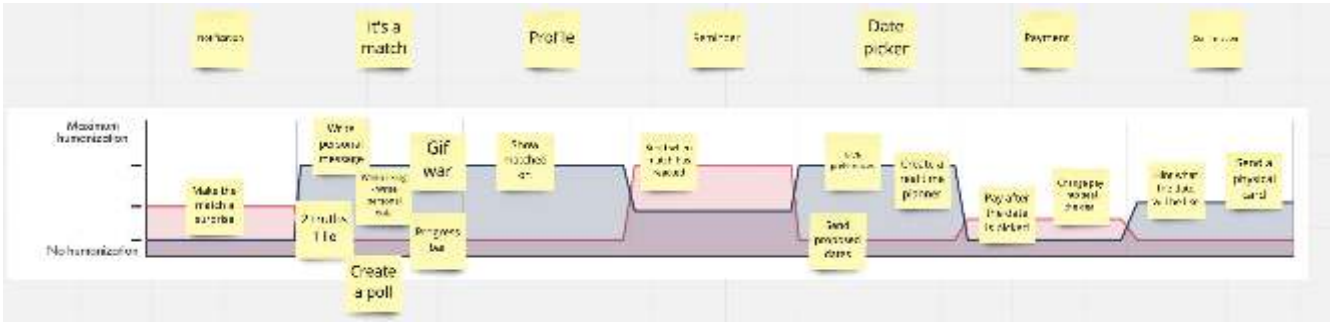


Figure 58 - Ideas created by the three groups mapped out in each stage of the customer journey.

4.2.2.4 Learnings and iterations to the framework

The analysis of the results of both the co-creation session led to several learnings and iterations to the framework.

Humanization journey

- *Level of detail in the journey:* One important learning for the creation of this Map is the fact that the level of detail of the customer journey has a big impact on how out-of-the-box the ideas are. If a journey is very detailed, it creates a clearer image of what steps users go through, however chances are that people will only come up with new designs for screens. If a journey is very broad, the steps users go through might be less clear, but ideas could range from designing specific screens to designing completely new flows. It is up to the designers to decide the level of detail required for a certain project. One can imagine that a consultancy project might require more detail as the journey of the client has already been established, however when building the project from the ground up there is more freedom.

- *Adding a scale on the y-axis:* A second iteration is to add a scale on the y-axis (Figure 59). Within the session this was not the case which meant each group had a different interpretation of what maximum humanization is and how high the graph should be to represent that. This resulted in difficulty when trying to analyze these different maps.

Vision

- *Vision should include user-user humanization:* As participants mentioned within the feedback round, the vision is too focused on the company's role in humanizing interaction, whereas there is no room to include the role of other users. This has led to an iteration of the template which can be seen in Figure 60 and is filled in for Breeze as an example. It now also nudges people to think about why interaction should be humanized and also between whom.

Ideation

- *Creating the design space is most important:* An interesting finding was that coming up with ideas by using HMW questions should be fine as long as the previous steps are done correctly. The action of building the Humanization Map and translating that into a vision is enough to make sure that the ideas generated fit within the identified design space.

- *ICE model is too extensive:* Although the ICE model is a good way to prioritize, it might be too extensive to use based on the time and resources available. Some companies do weekly sprints meaning that prioritization should be done quickly. Breeze uses a flattened-out version of the ICE model by only giving one score between one and five for new features (you could see this as an average of the three pillars within the ICE model).

Practical learnings for facilitating virtual co-creation sessions

Apart from these learnings about the framework, the fact that the co-creation session was done virtually was also very insightful. Some practical learnings are shared within Appendix O.

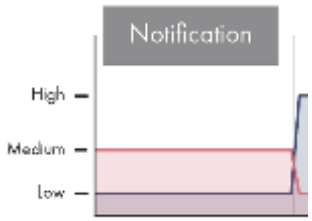


Figure 59 - Adding a scale to the y-axis of the Humanization map creates clarity for discussions and analysis.

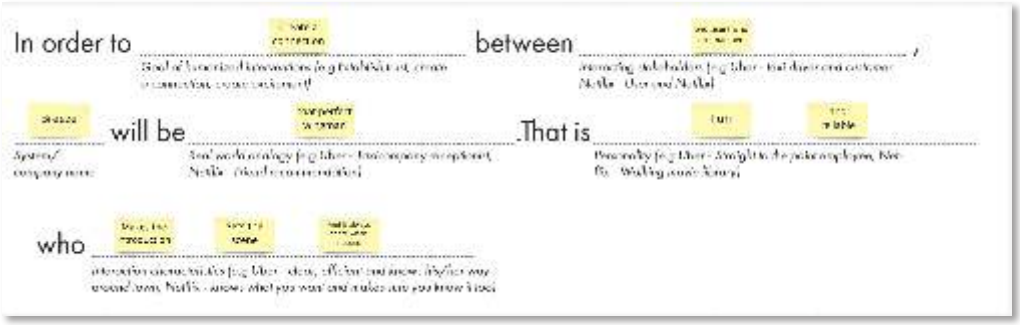


Figure 60 - The updated vision template.

4.2.3 Validation round 2: Expert interviews

4.2.3.1 Setup of the expert interviews

Four unstructured expert interviews were conducted with the same people that participated in the co-creation session and who were interviewed for the creation of the framework. Three of these interviews took place over the phone and one answered questions using email. These interviews were aimed at discovering if this framework would be useful for them and if so how they would use it.

4.2.3.2 Learnings from the expert interviews

Although the respondents agreed that the framework was easy to understand because the structure and names are recognizable, one respondent needed more explanation as to how it differs compared to existing design thinking methods. The things that caught her attention were the canvasses as she mentioned that designers usually learn by doing.

"This is framework works very well for business people with a management background because they can easily understand it, but people with a UI background need more tangible tools that they can use in a workshop for example, that is something i like to work with." - Microsoft Design Consultant

"Designers are more about tangible things instead of systemic things, we learn by doing." - Microsoft Design Consultant

Especially when the Humanization journey was further explained the respondent directly saw the added value of it within her work. It could be used as something she would either use from the start in a workshop with the client to decide when interaction should be humanized or for an existing project to discover where improvements can be made. This was supported by the other respondent as well.

"This format would fit within an envisioning workshop, so from the start. Or I would use it for a product that already exists and see how that can be improved." - Microsoft Design Consultant

"This is definitely a good baseline, especially for people that start from the beginning. For people that have already started, this can be used as a guideline to reflect and see what can be improved or if they have missed a step." - senior UX/UI consultant

This showed that there is indeed value in the framework however, because designers are used to working in this manner, they benefit more from tangible tools instead of systematic steps. For them, this framework is just a way of knowing where these tools fit within their design process.

4.2.4 Validation round 3: Small scale pilot

4.2.4.1 Setup of the pilot

The third round of validation was done by doing a small scale pilot with the previously interviewed Microsoft Design Consultant. This was done by having her apply Canvas 2 on a project she was working on. Afterwards, an unstructured interview was conducted over the phone.

4.2.4.2 Learnings from the pilot

Vision

Vision is used as intended: Judging by the result shown in Figure 61, the canvas was used as intended. She was able to create a humanization map and translate that into a vision. The function of this vision as a way to communicate the Humanization map with other stakeholders was confirmed.

"This [vision] is perfect for me to sell it to the client."

Start out with creating the vision: Although the end result of the vision was good, she did have some difficulty filling in the blanks, one of the reasons was the fact that the vision is now created based on the journey, whereas she preferred it the other way around.

"It is better if you start out with the vision, this is easier for people (especially engineers) to grasp. Based on that you can create the journey."

Humanization journey

Drawing out the different levels of humanization is used as a way to visualize discrepancies between current and desired situation: When discussing the process, it became apparent that she used the map primarily as a way to highlight the difference between what interaction is like now and what it should be. Due to many conflicts within her previous findings, she was looking for more ways to highlight those discrepancies.

"There are many conflicts in this project, I'm looking for ways to visualize those and show that to the client."

Commitment matrix

The current framework creates the wrong focus: Because it is a complex project it was difficult to draw the Humanization journey as she did not know between who interaction was humanized. In order to clarify this for herself she resulted in drawing out a stakeholder map which gave an overview of who was interacting with whom/what (Figure 62). After creating focus by selecting the relevant stakeholders she went on to draw out the Humanization journey.

When discussing this in more detail, it became apparent that the current framework is creating the wrong focus. Within the first version of the framework, focus was created within the journey by creating a persona, a use case and using the Commitment matrix. This matrix was meant to expose the sections of the journey where humanization would have the most impact. However, companies and designers usually start out with a specific problem they would like to solve, thus not needing the Commitment matrix.

Instead of creating focus within the journey, it is more interesting to create focus in the interaction stakeholders. This rhymes with the way the Design Consultant approached this pilot.

"Usually projects involve many stakeholders, that is why we start with getting a clear image of what their relationship is towards each other."

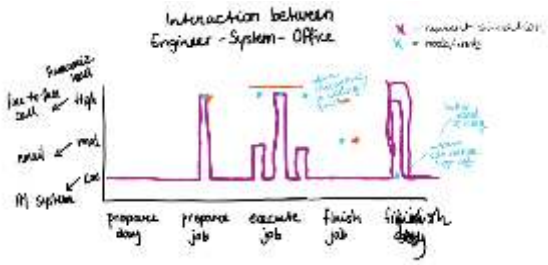


Figure 61 - The resulting Humanization journey and vision from piloting canvas 2 at Microsoft.

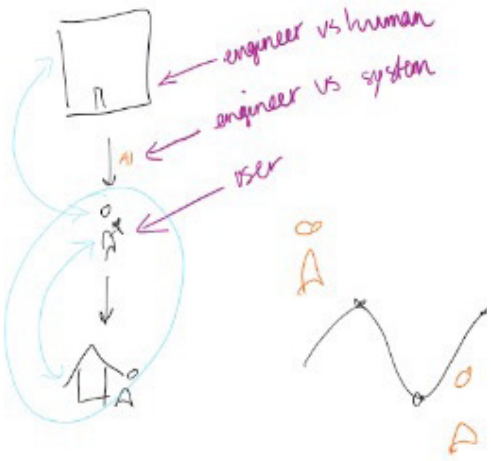


Figure 62 - The drawn stakeholder map to create focus.

4.2.4.3 Final iterations to the framework and canvases

Figure 63 shows the final version of the framework. The biggest iteration has happened to the way the Design space is created. Now, designers start with the Project challenge as input for the framework. Furthermore, the Commitment matrix has been has been replaced by the so-called Interaction map and Interaction profiles to create focus. The second iteration is switching the vision creation around with creating the Humanization journey. These iterations are further explained by filling in the new canvases for the same use case from Airbnb (Figure 64 and 65). The four created canvases can be found in Appendix P.

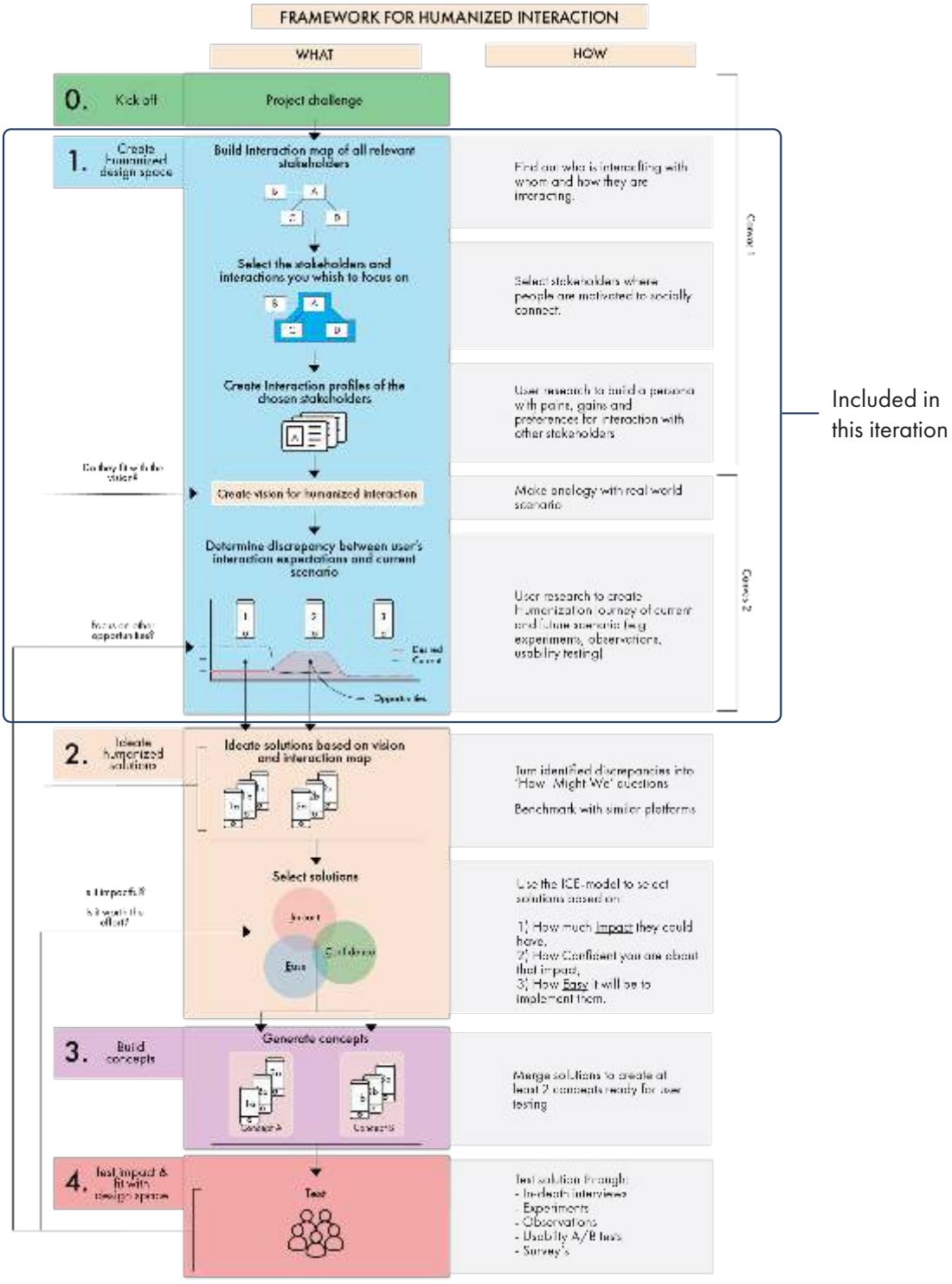
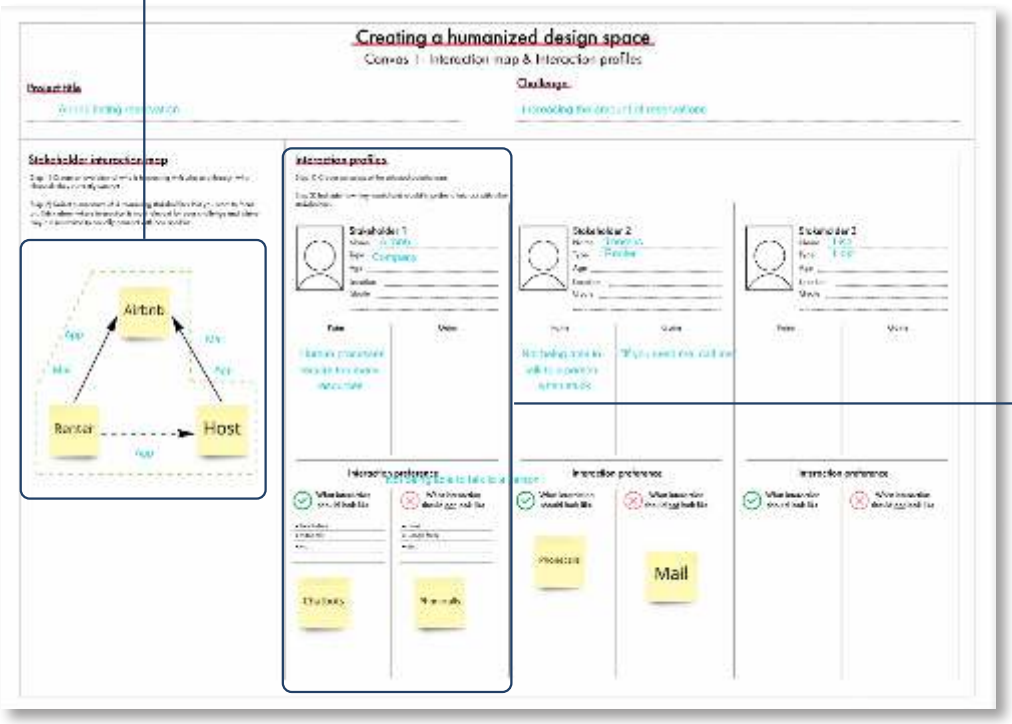


Figure 63 - The final version of the framework showing an iteration within the first phase.

Canvas 1 - Interaction map & Interaction profiles

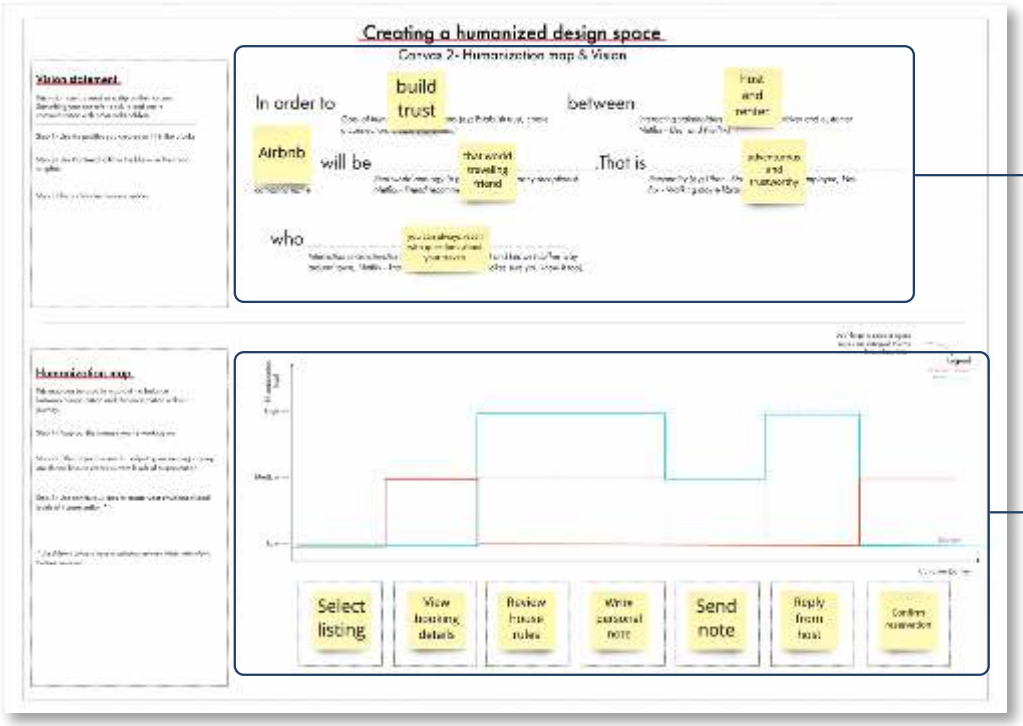
1. Create an overview of interaction stakeholders and how they interact with each other
2. Create focus by asking which stakeholders are motivated to socially connect with one another.



3. Create Interaction profiles. These are meant to sensitize people to start thinking about what the interaction needs are for the stakeholders and where there are potential conflicts between them.

Figure 64 - The iteration of canvas 1

Canvas 2 - Vision & Humanization journey



4. Use the previous canvas to create a humanized vision.

5. Translate the vision into the Humanization journey.

Figure 65 - The iteration of canvas 2

Chapter 5

Build-Measure-Learn Loop 2: Validating the last steps of the framework

A second BML loop is done in order to test the final framework and build a final concept for Breeze. It enters the framework in the ideation phase because it takes the learnings from the first loop as a starting point. Ideas are selected using the ICE-model and the new concepts are again tested qualitatively and quantitatively. Qualitative research is done through interviews with users, and quantitative tests are done by using A/B tests in the live app in order to have representative measurements and learnings.

Contents

5.1 Build second iteration of concepts

An interesting learning from the first loop was the indication that commitment could be fostered by allowing users to send out nudges. These, so-called user initiated nudges, were a fit with the purpose of the app while still allowing for the right amount of humanization. This chapter first takes a quick deepdive into the theory on nudging and afterwards creates concepts for both qualitative and quantitative tests.

5.1.1 Using nudges to increase commitment

5.1.1.1 Defining digital nudges

After Weinmann et al. (2016) introduced the concept of digital nudging, Meske and Potthoff (2017) defined it as "a subtle form of using design, information, and interaction elements to guide user behavior in digital environments, without restricting the individual's freedom of choice." Nudges are different from other forms of intervention because they are designed to preserve full freedom of choice (Mirsch, Lehrer & Jung, 2017). They can be, for example, as mentioned before a poke on Facebook, the viewed your profile notification on Linkedin, a prompt when sending an email that allows you to undo that action or getting insight into what type of products other customers bought when looking to buy a certain product online. Nudges can be grouped in several categories which are further explained in Appendix Q.

5.1.1.3 Considerations for creating successful nudges

One of the aspects to take into account when designing nudges is how they are framed. Nudges can be gain framed or loss framed, gain framed nudges emphasize benefits, while loss framed nudges emphasize loss (Figure 66). Research has shown that gain framed messages can be more persuasive if behavior leads to a certain outcome (for example encouraging people to stop smoking makes you healthier) whereas loss framed messages can be more persuasive when behavior leads to an uncertain outcome (for example running the risk of getting hacked when not having anti-virus software on your computer) (Tartaglione, 2017).

Both gain and loss framed messages were tested because Breeze could benefit from loss framed messages because the outcome (the date) is uncertain. However, the respondents know that the platform organizes dates, this is also why they decided to become a user, meaning that Breeze might also benefit from gain framed messages.

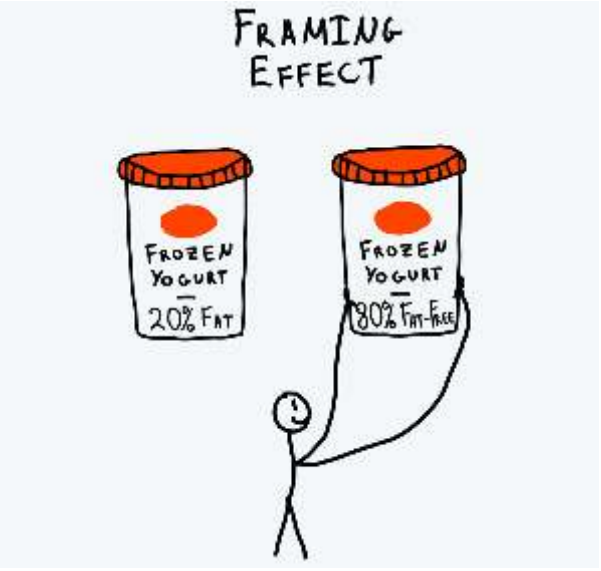


Figure 66 - Examples of a Loss framed nudge on the left and a Gain frame nudge on the right.

5.1.2 Second concepts for humanized interaction

Like in the first BML loop, the designs in this section were informed by the design claims given by Kiesler et al. (2012). In addition to this, theory on nudging and the learnings from the first loop were also taken into account. These designs and their link to the different theoretical concepts are illustrated in Appendix R.

5.1.2.1 Concepts for quantitative tests

Quantitative tests were done within the live app using A/B tests. However, like any other company, Breeze's resources are limited. This means that a selection was made for further development. In line with the humanization framework, this selection was made using the ICE model.

Selecting concepts based on their perceived Impact, Confidence of that impact and Ease of implementation was done by sending out a survey to the Breeze team. Within the survey, the team had to give a 1-10 score for how much Impact they thought an adjustment of one of the steps in the match to date flow was, how Certain they were about the impact and how Easy they thought implementation would be (Figure 67). They had to give a score for the following adjustments:

1. Humanizing *Notifications & Reminders*
2. Creating an extra *It's a match* screen when people open up the app
3. Creating a more personal connection when looking at the profile
4. Seeing each others progress
5. Mimicking more real-life date picking
6. Reminding users about the value that Breeze delivers when paying
7. Creating more excitement when seeing the *Date confirmed* screen

Prioritization was done by calculating the average score of a step within the journey for each scale (Impact, Confidence, Ease) and the standard deviation. This standard deviation was an indication to what extent the team agreed with each other. These scores were then analysed to answer the following question:

Which step in the journey scores the highest (or above average) on either Impact, Confidence or Ease and has the lowest standard deviation for that score?

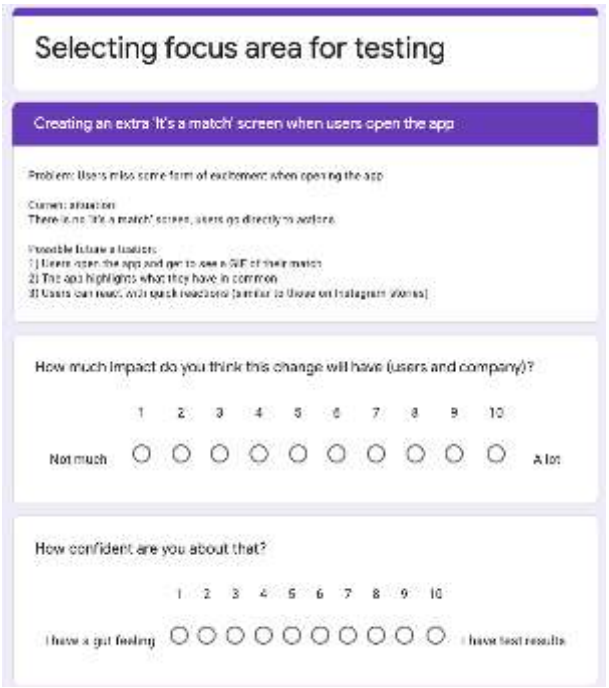


Figure 67 - A screenshot of one of the questions that the Breeze co-founders had to answer.

Reflection on the framework

Because the concepts were not completely developed yet, the researcher made a conscious choice not to include complete designs in the survey. Instead the questions included 'possible directions'. This way the respondents would not focus too much on what designs might look like and base their answer on that. The downside of this approach was the fact that respondents created their own image in their head of what a concept might look like. Ideally, this choice is made by first having a brainstorm with the complete project team to make sure people are on the same page with regards to what the concepts might look like.

The selected adjustments for the tests

Based on the results of the survey (Appendix S) three adaptations were selected for the A/B tests.

Humanizing Notifications and Reminders

The reason the *Notifications* and *Reminders* were chosen was because they scored the highest on the Ease scale and had the lowest standard deviation. This meant that, although the team indicated that they might not have that much impact (a low average), it would be a shame not to test them because this change was very easy to implement. This meant implementing the user initiated 'pokes' that came from the first BML loop and testing the effect of humanized *Notifications* which were either gain or loss framed. Figure 68 compares the current *Notifications* to the redesigns.

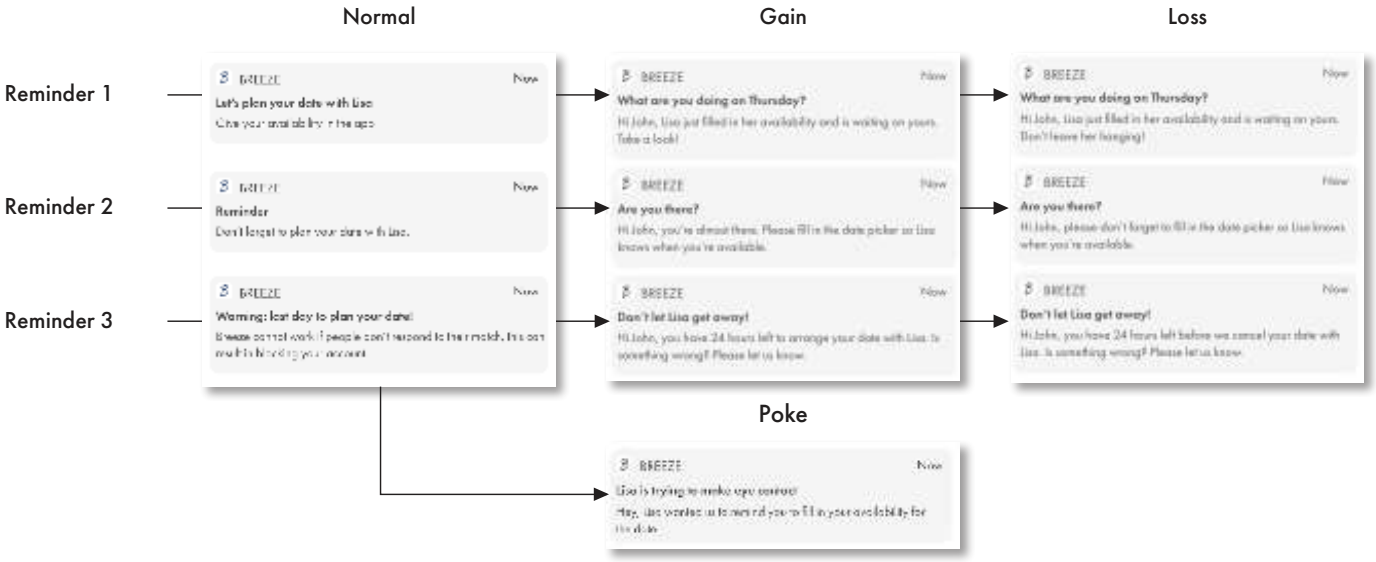


Figure 68 - A comparison between the normal notifications, the gain framed, loss framed and pokes.

Updating the payment screen

The *Payment* screen was chosen as a second adjustment because, although people did not agree with each other too much (an above average standard deviation), people thought it would have a high impact and was relatively easy to implement. In a discussion with the development team, rearranging the *Payment* screen with the *Date picker* would be too much effort. Instead the team chose to only focus on an update of the *Payment* screen. Figure 69 compares the current *Payment* screen to the redesign.

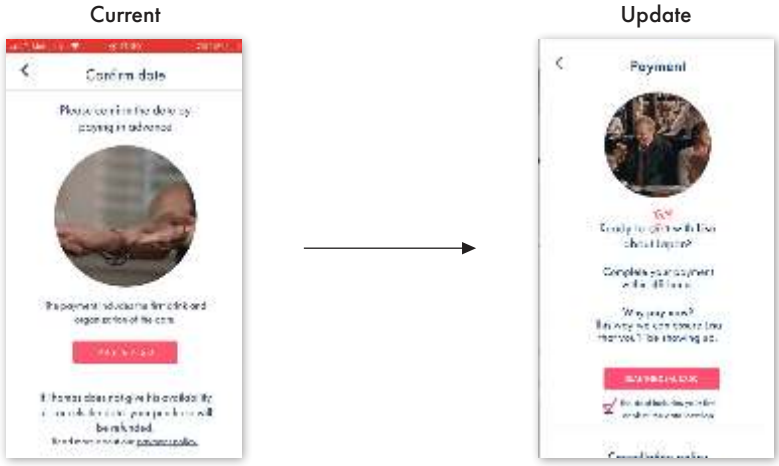


Figure 69 - A comparison between the current payment screen and the updated design.

5.1.2.2 Concepts for qualitative tests

Qualitative research was again done by creating two concepts that were used as clickable demos for the interviews with users. These concepts are shown in Figure 70 and Figure 71. These concepts aimed to test the different designs that were not tested in the A/B tests or have been tested within the first BML loop. As many screens and elements could be used interchangeably between the concepts, care was taken when asking questions in order to eliminate a correlation between the answers. As an illustration, at the end of the interviews, participants were not asked which concepts they liked best, but which element of which concept they liked best and at what point in the journey. Having said so, the concepts just served a purpose of facilitating the interviews and the final concept includes different elements of these concepts.

Concept A

When clicking on the *Notification* users got to see their match in the *It's a match* screen. Here they were able to react using the quick reactions and got to see what they had in common with their match. Afterwards, when viewing the *Profile* of their match they could react to different elements of the *Profile*. Furthermore they were able to react to the suggested days in the *Date picker*, make the *Payment* and end with seeing a personal GIF from their match.

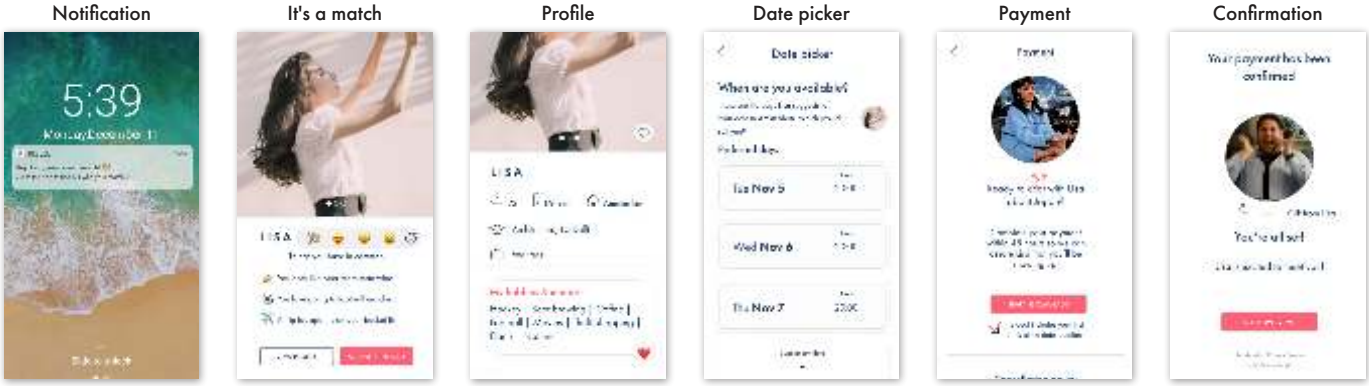


Figure 70 - Concept A that was used for the user interviews.

Concept B

When clicking on the *Notification* in concept B, users got directed to a GIF of their match which also showed the things they had in common. When viewing the *Profile* they were not able to react to the different elements of the *Profile*. However, this *Profile* did include a 'Great user' badge that users can get if they show good behavior (not ghosting their match or canceling the dates without a good reason). A big change here was the fact that users would pay before being able to fill in their availability, this is done because users indicated that once they paid they are also committed to go. This is also reflected in the match to date conversion funnel (Figure 4) . After having completed these steps, they got to see some more information about the date and could show their excitement by using the 'Excitement slider' at the bottom of the screen.

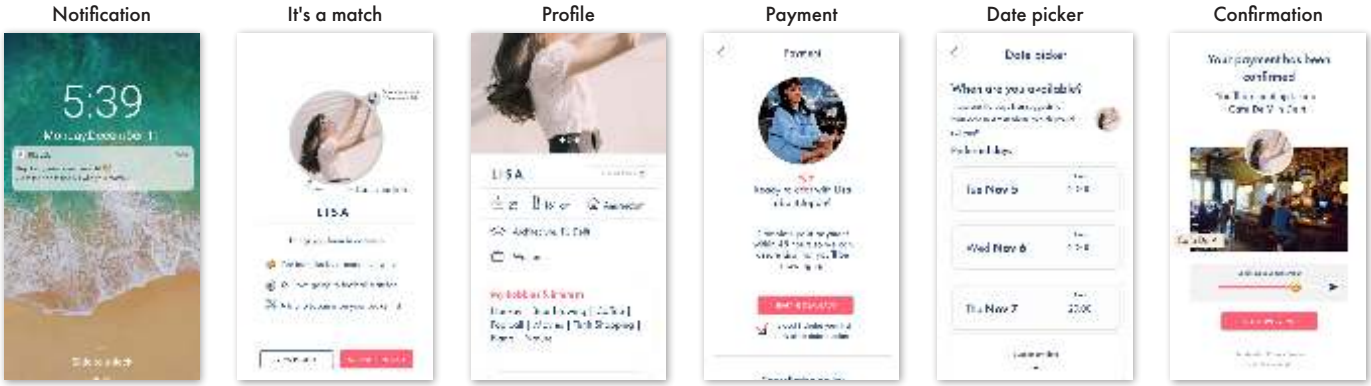


Figure 71- Concept B that was used for the user interviews.

5.2 Measure impact on Breeze

5.2.1 Quantitative setup

The selected adjustments for the quantitative tests were tested through a sequence of three A/B tests. This was done to ensure that measurements could only be attributed to changing one variable. The setup of the tests can be found in Table [setup]. The reason the amount of planned dates were not used as a measurement of commitment was because the tests were short, meaning small group sizes. Another reason is the fact that there are still enormous fluctuations in the amount of dates that get canceled each day. This is due to many other factors that have an influence on a cancelation. Instead they measure the smallest amount of commitment possible for that certain test. This can be used as an indication for further explorations.

Test	1 - User initiated pokes	2 - Gain/Loss framed messages	3 - Updated payment screen
Aim	Does humanizing the notifications if they are sent by the match increase the chance that users will open the app and arrange a date?	Does humanizing the notifications increase the chance that users will open the app and arrange a date? If so, do Gain frame or Loss frame work best?	Does highlighting the reason for paying and adding a payment deadline increase the amount of payments made?
Runtime	Day 1 - 5	Day 6 - 13	Day 14 - 20
A/B setup	A (control): 50% of created matches received normal notifications. B: 50% of created matches received 1 Poke 3 days after their match if they had not reacted yet.*	A (control): 33% of created matches received normal notifications. B: 33% of created matches received gain framed notifications. C: 33% of created matches received loss framed notifications.	A (control): 50% of created matches paid using the original payment screen. B: 50% of created matches paid using the new payment screen.
Commitment measurements	- Number of clicks on notification.	- Number of clicks on notification.	- Number of payments made

*Due to resource constraints, the researcher used a smokescreen method. This meant that users were not actually able to send pokes, they were sent automatically.

Table 2 - The setup of the A/B tests

5.2.2 Qualitative setup

In total, four interviews were conducted over the phone with users that had recently received a match and were in the middle of arranging a date, additionally two interviews were held during a casual open conversation. The reason the focus was on these users was because there was a bigger chance that they could relate their current match to the questions asked. These interviews were aimed at discovering what users would think about interacting through emojis, interacting using GIFs, paying before filling in their availability, being able to select from less options when picking a day and having a badge of good behavior on your *Profile*.

The researcher started with asking questions about how they are currently feeling about Breeze. Then questions were aimed at what they thought about the process when they were arranging a date. Finally the researcher went through the two concepts and asked questions that made them reflect on their prior answers. Each interview that was done over the phone took half an hour, was recorded and later transcribed. The complete sampling strategy, interview guide and summaries of the answers can be found in Appendix T.

5.3 Learn if concepts improve conversion

5.3.1 Results of the A/B tests

5.3.1.1 Results of test 1 and 2

In total 617 *Notifications* were sent throughout both the test with user initiated pokes and the test with the gain/loss framed *Reminders*. The click through rates of each version of the first three *Reminders* and the poke are shown in Table 3.

Within the first test, group A was the control group and received normal *Reminders*. Group B received a poke three days after they were matched and had not reacted. The results of the control group show that users, in general, do not click on the *Reminders* sent out by Breeze. This rhymes with the qualitative findings where users mentioned that they clicking on a *Reminder* is dependent on where and with whom they are. An explanation here could be that they are sent at the wrong time, thus needing more research into what times would be suitable.

The results also show that the click through rate for the pokes had some improvement, although this difference is very small.

For the second test, the same control group was taken as in the first test. Group B received gain framed *Reminders* and Group C received loss framed *Reminders*. The results, shown in the table, indicate that indeed these humanized *Notifications* worked better than the normal *Notifications* as the click through rate of Group A and B were higher. When comparing Group A and B the results show that the first two *Reminders* benefited more from being loss framed whereas the last *Reminder* benefited more from being gain framed.

Even though these click through rates seem very low, they do not differ too much from the industry average which is 7.8% (Del Rowe, 2018).

		Test 1	Test 2	
	Control group	User initiated poke	Gain framed reminders	Loss framed reminders
Reminder 1	4,1%	-	1,8%	5,5%
Reminder 2	0,0%	-	2,6%	4,4%
Reminder 3	0,0%	-	6,8%	3,2%
Poke		4,5%		

Table 3 - Results of the first two A/B tests show a small increase in clickrate for both the poke and the gain/loss notifications.

5.3.1.2 Results of test 3

The last test compared the impact of an updated *Payment* screen that explicitly mentions why payment is needed and also gives users a timeframe to pay with the old screen that just mentions the payment. The impact was measured in the amount payments made and can be seen in Table 4. Both the screens were shown to users a total of 363 times. The results show that there is almost no difference between the two designs.

Although these differences are very small and also insignificant due to a small sample size, they do offer guidance for further exploration. Furthermore, small percentages can have a big impact when Breeze's user base is ten or a hundred times as big as it is now.

		Test 3
	Control group	Updated payment screen
Total	174	189
Open	56	77
Paid	108	120
Payment percentage	62,1%	63,5%

Table 4 - Results of the third A/B test show a small increase in payments made with the updated payment screen.

5.3.2 Results of the interviews

Within this section the results are grouped based on the five aims of the interviews:

1. Interacting with emojis
2. Interacting with GIFs
3. Paying before filling in availability
4. Filling in availability by selecting from a list of suggested days
5. Having a badge on your *Profile* as an indication of good behavior.

The transcripts can be found in Appendix T and the complete overview of the learnings linked to each screen can be found in Appendix U.

1. Interacting with emojis

Interaction through emojis was well received by the interviewees. When discussing the *It's a match* screen, participants mentioned that the quick reactions did fill the 'interaction gap' that the app currently has.

"This is very fun, this way you can kind of show that you are excited for the date" - P3 (Female, 23, Leiden)

"This way I sort of a way to show that I'm enthusiastic about the match" - P4 (Female, 25, The Hague)

Especially the younger interviewees would use them, while the older ones said they would use them if their match had done so before. The type of emojis that they could choose from did have an impact on this. This means careful consideration is needed when choosing which emojis are used. Users also liked that they were able to interact on the different elements of one's *Profile*, especially reacting to specific questions was seen as a useful way to interact.

"By being able to like the different questions you are able to show what you specifically like about a person" - P1 (Male, 27, Delft)

However sharing excitement through the slider on the *Date confirmed* screen could cause awkward scenarios. Especially when your match shows less excitement than you. Hence, this is not desired.

2. Interacting with GIFs

Although the GIFs received positive reactions in the first BML loop, these interviewees were hesitant. None of the interviewees would upload their own GIF because they thought it seemed too pushy. However being able to choose your own GIF from a database was a much more accessible way of interacting with each other. This was enough for them to express themselves.

"No, I wouldn't upload a GIF. When seeing this from my match I would think, wow wow take it easy" - P3 (Female, 23, Leiden)

3. Paying before filling in availability

Paying before filling in availability received mixed reactions. Where some interviewees thought this was very logical because they understood that this was a necessary step when having a match (as long as the change was communicated clearly).

"When paying you have made this commitment. Seeing this now doesn't scare me, i know think lesgo" - P3 (Female, 23, Leiden)

Others mentioned that this made them feel like it is all about the money for Breeze and not about the date. They acknowledged that the way the message was framed had a big impact on this feeling. It would be better if the framing would be more about needing the payment to offer assurance to the match.

"It would be better if you frame it more like; This way we are sure that you will show up. Now it feels like pay so we can collect the money" - P4 (Female, 25, The Hague)

Due to these different opinions and the small amount of interviews it is necessary to further test this with A/B tests.

4. Filling in availability by selecting from a list of suggested days

Being able to select from a small amount 'handpicked' suggestions by the match was a big improvement over selecting from a list. The fact that there are less options means that people value the individual options more and might adjust their availability to fit these. One of the things that they were missing was being able to give short explanations about not being available in certain periods. Currently, when users are on, for example, a vacation they send their matches a complete list with days that they are not available (Figure [old datepicker]). Interviewees mentioned that this seems like their match is not really looking forward to the date.

"When I get a complete list with red crosses, I think, are you not available or do you just not want to fit the date in your schedule" - P3 (Female, 23, Leiden)

Furthermore, interviewees indicated that they needed end times for dates. Especially if they say that they are available at 15:00. This does not mean that they are available the whole day.

5. Having a badge on your profile as an indication of good behavior

Having a badge that would indicate if you are matched to a user that is committed to arranging a date needed some explanation. Users initially thought that this badge meant that their match was someone that dates a lot (a great user for Breeze).

"I had a different interpretation, now it seems like he is an active dater with like three dates a week or something" - P4 (Female, 25, The Hague)

However when the meaning of the badge was explained users did indicate that it would increase commitment because they now know that their match is not going to ghost them.

"My willingness increases a bit now because I know he won't drop out" - P3 (Female, 23, Leiden)

5.3.3 Final design & considerations

Based on these learnings one final design was created that is suitable for further development. This section will further elaborate on the final design and on why certain decisions were made and how it fits with the humanization map that was created in chapter 4 (Figure [final humanization map]).

Notifications & Reminders

The *Notifications* include low levels of humanization as they are clearly automated and sent by Breeze (Figure 72). However the first two *Reminders* are humanized and loss framed whereas the last *Reminder* is gain framed. Additionally users get the option to send one poke during the date arrangement process. Breeze should further expand on these A/B tests to get more significant results. Furthermore, Breeze should test sending the *Notifications* at different times to see if that impacts engagement.

Figure 72 - The final designs for the notifications that include both gain and loss framed notifications and a poke.

It's a match

Humanization levels increase when users open the *It's a match* screen (Figure 73). It humanizes interaction by including the Quick reaction option. This option was chosen over uploading a GIF because the interviews indicated that interacting with emojis did indeed fill the interaction gap that currently exists in the app and the GIFs seemed too pushy. These emojis allowed them to share their excitement with their match in a subtle way.

However, as the interviews indicate, they might not be suitable for everyone as some people are more used to interacting with them than others as they think that this is 'childish'. Luckily the people that give that response would react when they already had received a reaction from their match. Another important element that needs further research is deciding which emojis users are able to choose from. This can be done by executing some simple A/B tests with varying combinations of emojis.

In addition to mentioning what users have in common they also get information about what type of date it will be. By immediately giving this information they know what is expected of them.

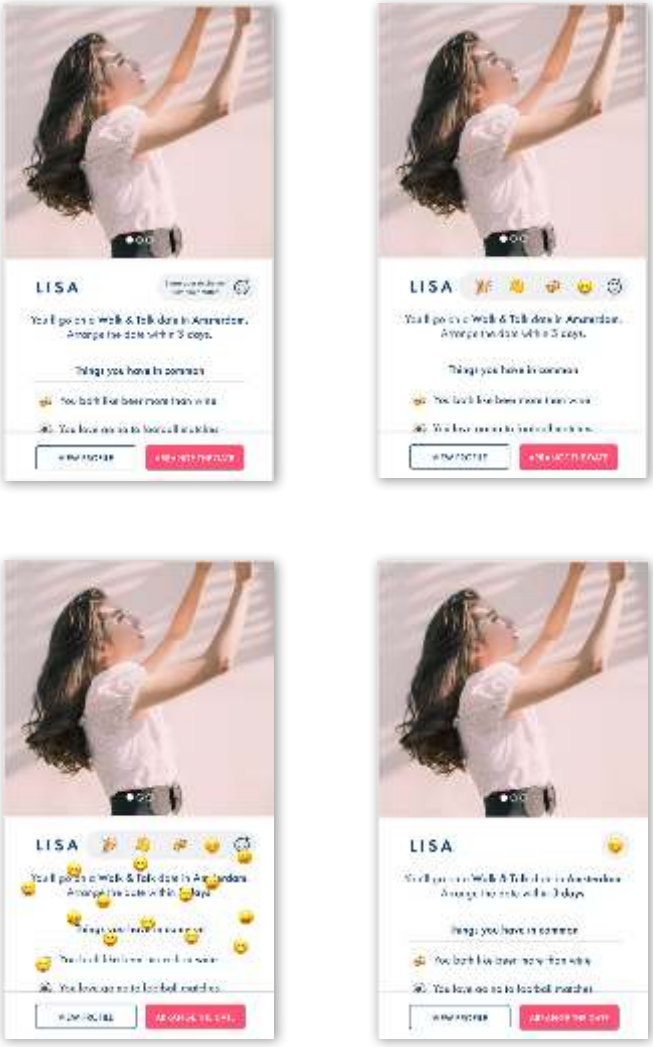


Figure 73 - Users are able to share their reaction with their match by sending an emoji.

Profile

Like at the *It's a match* screen, users enjoyed the ability to react to specific elements on the profile of their match (Figure 74). The tags got a redesign because this gives users the ability to react to specific tags instead of the complete list. In this way they can notify their match what they like about him/her, which can be something to talk about during the date.

Furthermore, users indicated that having a badge with 'Great user' on their profile seemed like it would be someone that just dates a lot, thus being a great user for Breeze. However, they did think that it was nice to see if someone is a good behaving user. Finding one descriptive word was difficult, which is why users now get several stickers instead. In doing so, they can get a sticker when they respond fast to execute tasks. Moreover, a sticker is also given when they did not have any invalid cancels. Which exact stickers are desired and if users should decide if they are shown or not should be further tested because they could work counter productive.

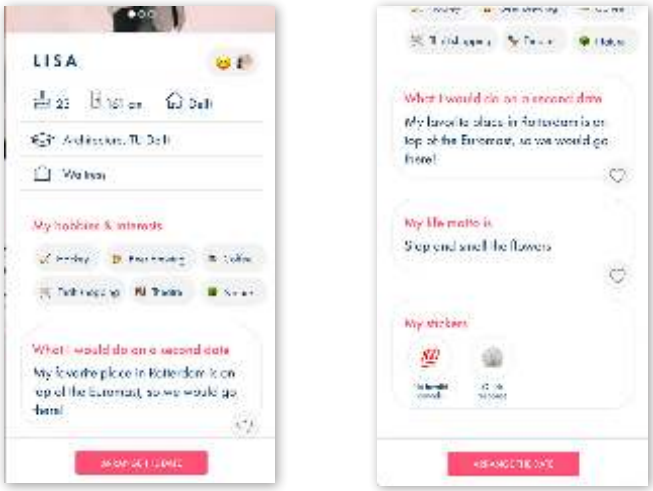


Figure 74 - The new profile designs include the ability to react to several questions and include stickers that highlight good behavior.

Progress comparison

One of the best received designs was the ability to see each other's progress (Figure 75). By having this insight users can keep an eye on each other which works great for encouraging commitment. This also falls in the category of subtle forms of interaction, thus humanizing interaction the correct way. An important remark here is that users only see the progress of their match if that person is further along the journey. If they would see that someone is behind them, it could create an atmosphere where people are waiting on each other to make the first move.

Figure 75 - Users can see the progress of their match.

Payment

One of the biggest adjustments is the fact that the payment is now in front of giving your availability. This adjustment still needs to be A/B tested to be sure that it indeed increases user commitment.

Another adjustment is framing the *Payment* screen in such a way that it is clear that payment should be done within a certain timeframe and that it is done so Breeze can assure the match that the user will show up for the date (Figure 76). This way the screen includes medium levels of humanization between Breeze and user. The A/B tests have shown a small increase in the amount of payments made, however, these also need to be expanded. Furthermore, qualitative research focused on understanding why users are not completing their payment is necessary. This can serve as a basis for another iteration.

Figure 76 - The payment screen highlights the reason for paying and includes a time frame for completing the payment.

Date picker

The *Date picker* also received a big adjustment (Figure 77). Instead of filling a complete list with their availability, users now just suggest three options to their match. If these options are either far in the future or far apart from each other, users get prompted to give a reason for this. Once they have sent their availability their match just needs to select one of the three options or suggest new ones. This process mimics the way users would normally pick a day for a date when using a chat, but makes it more efficient by integrating a calendar and pre-written reasons for not being available. A downside is that this design might result in more going back and forth when there is a mismatch in availability. This is something that also needs to be tested in the live app.

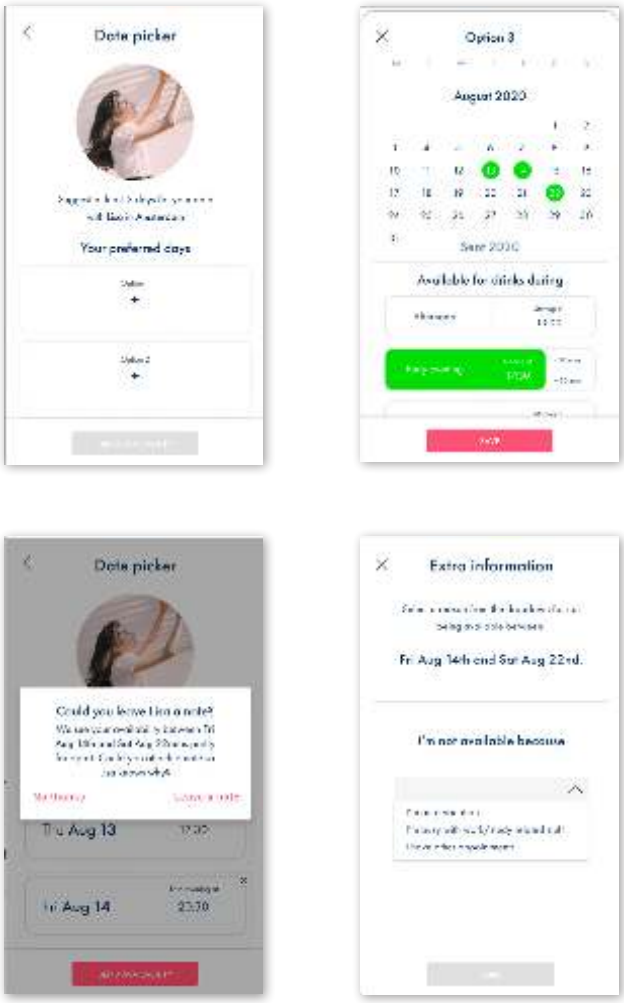


Figure 77- Users suggest days for the date and can include a note if their availability needs extra information.

Confirmed

The *Confirmed* screen has low levels of humanization between Breeze and users as it only includes more details about the date (Figure 78). Furthermore user-user interaction is humanized by giving them the ability to select a GIF from a database. This allows them to give one another a last sign of life. The choice was made to exclude the slider because it might cause awkward scenarios.

Figure 78 - Users can react to their match with a GIF from a database.

Fit with humanization journey

In line with the final step in the framework it is important to close the loop and check if the developed concepts fit with the previously created Humanization journey. This can be done by plotting the designs over the journey (Figure 79).

Figure 79 - The new concept fits within the previously created Humanization journey.

5.3.4 Reflecting on the Framework for humanized interaction

The framework was built on the premise of improving commitment through different levels of humanization. However, within this use case this has not yet been validated. The final designs have not been tested enough in order to be certain that different levels of humanization will actually solve Breeze's problem.

During the validation rounds it has become clear that the framework has a broader applicability and that it is not only linked to improving commitment. The pilot showed that, by assisting designers in creating an overview of the interacting stakeholders, building their interaction profiles and mapping out their desired levels of humanization, this framework can serve as a communication tool. One that they can use to highlight discrepancies between the current and desired scenarios which they can use in discussions with the team or the client. It remains questionable if the complete framework will serve its purpose as much as the individual canvases will.

Furthermore, as mentioned in Chapter 4, the ICE model is one way that leads to Rome with regards to prioritization. It is one that is extensive and, because of this, did not suit Breeze's needs. Breeze needs quick and dirty methods to use during strategy meetings, which is not what the ICE model is.

Clickable demo of final concept

Scan the QR code to view the clickable demo fo the final concept.

SCAN ME

Chapter 6
Conclusion

This chapter concludes the thesis by answering the main research question set out in the first chapter. It discusses the framework and shares recommendations for Breeze and for designers that are faced with the same challenges Breeze faces. Furthermore, this chapter clarifies this thesis' contribution to practice and its limitations. It is concluded by a personal reflection.

Contents

6.1 Conclusion & Recommendations

This thesis set out to discover if guidelines could be developed to help designers decide to what extent interaction should be dehumanized or humanized within online platforms. These guidelines were needed because, when designing the UX of these platforms, designers have to make decisions about whether certain interactions on the platform are automated or remain human. These decisions impact the way we interact with each other thus, as more of our interactions take place in the virtual environment, increase in importance. This development has especially been accelerated due to the current corona pandemic. Meeting each other in both work and social related contexts has shown us how different interaction online really is.

Research has been done by using a new dating app called Breeze as a use case. This dating app aims to bring back the human touch in online dating and take it offline again. It does so by not allowing matches to chat, but immediately arranging a date for them. This was a relevant use case for this thesis because the app faces the challenge of decreasing the amount of dates that get canceled without good reason. User research has shown that the automated and dehumanized nature of the app is one of the reasons that many users lose commitment to arrange the date and stop responding once they are matched, this forces Breeze to cancel the date.

In order to answer the main research question, this thesis first discovered that dehumanization is an inherent characteristic of technology mediated interaction. This is due to an increase in social distance between people. This increase causes people to lose commitment. Prior research has shown that designing the UX in such a way that it, instead, fosters commitment, is an effective way to encourage normative behavior among a platform's users. This thesis found that commitment can be fostered by humanizing interaction, however it also indicates that this is simply not enough. Humanization has its disadvantages as well. It can, for example, make interaction seem fake or nosey.

Finding an ideal balance is difficult because it not only differs between products or services, but it also might differ within different steps of the journey. Furthermore, it is also important to make the distinction between which stakeholders interaction is facilitated. Finding this balance with the help of guidelines was not sufficient. Therefore, this thesis developed the Framework for humanized interaction instead. This framework consists of four phases, Creating a humanized design space, Ideating humanized solutions, Building concepts and Testing their impact on the use case and fit with the design space. It is inspired by well known design thinking techniques and frameworks in order to be easy to understand and adopt by UX/UI designers that are facing these challenges. However, it does include some essential new elements that are grounded in theory on humanization and commitment as well as extensive user research (done in two Build-Measure-Learn loops) and expert validation (done within a co-creation session, through interviews and a pilot). These unique elements include the creation of an Interaction map and profiles and using translating those into the Humanization journey and a vision. These elements are translated into canvases that are directly applicable within workshops or throughout the complete design process.

This thesis opens up an interesting point of view with regards to our tendency to see automated or human mediation as something that is black and white and brings nuance into this decision. The corona pandemic has cause the dilemmas highlighted in this thesis to become more relevant than ever. By developing the Framework for humanized interaction, this thesis aspires to provide much needed assistance when designers are face with these dilemmas. In doing so, hopefully it will make sure that human interaction is not forgotten in a future where it is so easy to do so.

6.2 Contributions

6.2.1 Contributions to practice

This thesis has several contributions to practice. Firstly, after identifying the tension between deciding when to humanize or dehumanize interaction, this thesis creates an overview of the advantages and disadvantages of both these options and highlights that making the decision is dependent on the type of platform involved. It also uses theory from research in online communities to create a link between how humanization can foster commitment among users which can enhance compliance with the norms and policies of the platform.

Secondly, this theory is also put into practice which has indicated that not only do ideal levels of humanization differ between platforms but also that it differs within the journey of a platform. Building guidelines that designers can use to decide how and when to humanize interaction within the journey can be difficult because of the many variables involved. This leads to the third contribution, the Framework for humanized interaction.

The Framework for humanized interaction is developed and validated by using input from users, Breeze employees and industry experts. This framework is aimed at assisting designers deciding when and how to humanize interaction. It is important to note that this framework and the steps involved should not be seen as the holy grail, but gives designers handles that they can use when faced with these dilemmas. In doing so, designers should use their own intuition to determine when and how this framework fits within their product development processes.

6.2.2 Contributions to Breeze

The final contribution is the fact that several concepts that have resulted from this thesis have been, or will be, directly implemented within Breeze's customer journey. These designs are based on theory but driven by user research. They could have a substantial impact on the discussed match to date conversion and in turn Breeze's business.

6.3 Limitations

Apart from these contributions there are also several limitations that should be taken into account. These limitations can be attributed to both the contributions to practice as well as the contributions to Breeze.

6.3.1 Limitations for practice

The first limitation to the developed framework is that the focus was quickly laid on how humanization can contribute to encouraging normative behavior by fostering commitment. However, humanizing interaction can have other benefits apart from fostering commitment and should not only be applied to use cases where there is an issue with commitment. This became apparent when the framework was piloted at Microsoft. The challenge that needed to be solved had no overlap with a lack of commitment. This means that there is broader applicability of the framework that was left out of the scope of this thesis.

The second limitation is linked to one of the key elements of the framework, the Humanization journey. When using this framework to map out levels of humanization it is difficult to actually measure what these different levels mean and if the developed solutions actually fit. The scales, high, medium and low levels mean different things to different people. However, this subjectivity does evoke discussion which might be more important than having exact measurements.

The final limitation is the fact that the final version of the framework and its canvases were not validated. This validation is needed in order to be absolutely certain that they work as intended and offer the intended value to the target group.

6.3.2 Limitations for Breeze

For Breeze, the first and most impactful is the fact that the lockdown and social distance measures taken by the Dutch government meant that the researcher was not able to hold face-to-face interviews (with users and experts), usability studies and co-creation sessions. Instead these sessions were held either over the phone or using videoconferencing software. This limitation had an impact on the quality of the sessions because the researcher missed contextual cues and emotions that would be picked up in face-to-face sessions. The researcher could not see if users were confused when seeing a certain screen, or surprised when seeing another. These are all very valuable cues that can be used to further probe. Interestingly, this limitation falls in the category 'practice what you preach' because the downsides of dehumanization became directly apparent to the researcher.

A second limitation is the fact that, although this research accumulated a big amount of qualitative data, it lacked significance in the quantitative data. Especially the A/B tests had little significance which means there is little certainty about what the final concept should look like. This means these designs should be further tested with more extensive A/B tests in the future.

A third limitation is the fact that focus was needed for a specific section of the customer journey. Even though this focus was created based on research, the solutions proposed should not be seen as a standalone. Breeze's complete journey should be reviewed in order to discover other sections that offer opportunities for improvement.

6.4 Personal reflection

What a journey this has been! Within this reflection I will start with mentioning my personal ambitions as they were written within the project brief. After that I reflect on what went well, what could be improved and then elaborate on some of my learnings.

I had written three learning objectives. The first one was to be able to make quicker iterative cycles. I had this objective because, on the one hand, more iterative cycles meant more intermediate results and on the other I have the tendency to over engineer things which causes delays. The second objective was to improve my workshop facilitation skills as I think that this is one of the most important skills designers can have nowadays. Lastly, the third objective was to be able to lead product development initiatives because I will take up the role of product owner within Breeze after this thesis.

Something that went really well was being able to make quicker iterative cycles, however this should be put into context. I intended to have results almost bi-weekly which could be used by Breeze. However combining a graduation project with these quick results was very difficult in practice. The information you gather during a graduation project needs to be refuted with other sources, needs more time to sink in and also needs to be well documented. These are all steps that delay the process. The reason this did go well is because I was able to do two BML loops. This is something that is unusual for a graduation and I would be lying if I said that it was easy. Running a startup while doing two of these loops required a lot of effort, but I am happy that the results of this project are directly implementable for Breeze.

Another thing that went really well was facilitating the co-creation session. I learned that preparation is key, which made the session run smoothly. Holding a virtual session was something completely new to me and I am happy that I managed. A point of improvement here is that it is very important to not only prepare for the course of the session but also prepare what you want to get out of it. After the session I spent too much time trying to make sense of the results.

Something that could be improved was the fact that I had the ambition to run the A/B tests. However the whole infrastructure to run these tests still needed to be built. This, in combination with unhandy vacation plans, meant big delays and a failed first test. I had to work over hours in order to get back on track, which is something that impacted the quality of the project. The reason i kept on going was because I had already made that commitment, however this taught me that there is no such thing as sunk costs. Sometimes it is better to stop with what you are doing and take a step back to see how it relates to the bigger picture.

Another point of improvement was creating the right balance between generalisability and applicability to the use case. Because I was not only a graduate student at Breeze but also the co-founder I was in constant struggle with what could directly applied and what would be generalisable. This is also reflected within the report as some of it linked to theory and other parts are linked to practice. This also caused delays that could have been avoided if I had a clearer image of what my contribution would be.

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Appendices

Out of consideration of the environment the appendices of this thesis have not been printed. Instead they are stored in a Google Drive folder, which is accessible by scanning the QR code below.