Meetings in times of COVID-19

Dennis Arreman **Evie Tossaint** **Juliët Wahlen** **Mykel Schmidt** **Iris van Vugt**

INTRODUCTION

You almost got it; you have a job interview for the job you wanted since you were young. The interviewer approaches you and you start sweating. You want to make a good first impression, but with the social distancing rules, what do you do? A sturdy handshake is always a good opener, but currently highly inappropriate. However, using your elbow may lead to an awkward situation.

With the current situation regarding the COVID-19 pandemic, physical proximity and interaction norms have been thrown overboard. Handshakes, hugs and kisses are out of the question, while a new "standard" has yet to form. Birthdays, friendly meetups, and job interviews have suddenly become awkward situations due to the fact that people are restricted in their freedom to physically interact with others. Greeting people, acquaintances or strangers has become a hassle, as the normal handshake is now ill-suited.

Not only does the current situation regarding greetings or the lack thereof have an awkward feeling, it has severe social implications as well. Hugs or other intimate physical interactions can be used to communicate emotions (Hertenstein et al., 2009), and show support (Inagaki & Eisenberger, 2012). In formal situations, a handshake elicits willingness to cooperate (Schroeder, et al., 2019) and results in higher recommendation rates in job interviews (Stewart et al., 2008). The current lack of clarity and consensus about 'the best way of greeting' in times of COVID-19, had caused many situations of discomfort and awkwardness (Katila, Gan & Goodwin, 2020).

A possible solution to the lack of physical interaction in times of social distancing is found in "mediated social touch". As defined by Haans & Ijsselsteijn (2006), "Mediated social touch allows people to touch each other over a distance by means of haptic feedback technology." Numerous prototypes exist which try to accomplish similar goals, such as sending messages (Oakley, I., O'Modhrain, S., 2002; Rovers, A.F., van Essen, H.A., 2004) or creating connectedness to two physically distant individuals (Tollmar et al., 2000; Strong & Gaver, 1996). However, most of these prototypes did not continue past the envisioning or prototyping stage. Nevertheless, the number of design prototypes hints at the broad spectrum for which mediated social touch can be effective in.

Target group

Undoubtedly, the lack of social touch in meetings and greetings is a problem that affects a wide range of people, if not all people in times of COVID-19. However, for our design project, we chose to focus on students as a target group. This decision was based on a number of reasons. Firstly, one of the key characteristics of students is that they experience and participate in many meetings; they often have to work in teams with other students, and they also have to attend meetings with mentors, coaches and teachers. Although part of the meetings are organized online, students might also encounter offline meetings. Secondly, students will start their career soon, and are starting to attend more and more job interviews and other formal meetings such as network events. During these meetings, it used to be the norm to give people a handshake, but because this is no longer possible, it might cause an uncomfortable or awkward situation. Lastly, in our opinion it is crucial for our design process that we have in-depth conversations with our target group to discuss their needs and motivations with regard to the lack of social touch in meetings and greetings nowadays. To facilitate this, offline conversations with our target group were preferred. Considering that the arrangement of offline meetings is difficult in times of COVID-19, choosing students as a target group would make it easier to arrange offline meetings with our users. This is due to the fact that they are most often no risk group for COVID-19, and easy to bring together in a focus group on the university campus. Consequently, we would have the opportunity to conduct our user research in the way we prefer. In addition, besides students, other stakeholders in our design space are the people who students have meetings and greetings with, and who have to collaborate with students. It could be expected that all parties in the meetings want to create an open, safe, and comfortable atmosphere.

Overview over the design process

Our design process has started with an extended literature review and brainstorm session to find an interesting topic for our project. In appendix I, photos from our brainstorm notes can be found. Subsequently, we defined our target group. These steps are described in the sections above. When the aim of our design project and our target group were specified, we set up a problem definition (see appendix III for a WWWWWH) and started the 'empathizing with our user' phase. This phase will be elaborated in the next section; a focus group was conducted. In addition, an overview over the information we needed to conduct empathic research can be found in appendix IV.

The input from our participants of the focus group was used to make an affinity diagram. This would lead to an overview over the needs, motivations and values of our target group with regard to meeting and greetings. With this information, design requirements could be elaborated and improved. This would be the start of the conceptualization phase: we would organize brainstorm sessions to ideate over design concepts. Preferably, additional interviews with our target group would be conducted to validate our ideas. The next step was to prototype our 'best' concepts, and user test some of them. The best prototype idea would be chosen, worked out in higher fidelity and finally tested and validated again with our target users.

Empathizing with the user

In the stage of empathizing with the user, two focus groups are organized to find the needs of the participants with regards to the greeting.The aim of the focus group was to let people discuss amongst each other what they think of the past and current greeting methods with and without social distancing rules. This aim was also the reason a focus group was chosen, as this discussion part is not possible with other qualitative research methods, such as interviews. The idea behind using a focus group as a method was that people would give more information when interacting and discussing with other users compared to only giving answers to a question as is the case in an one-to-one interview (Morgan, 1996). People can share different viewpoints and discuss why they agree or disagree, which also results in extra information on the commonalities and differences between participants. Moreover, during the focus group, there is also room for a brainstorm which is useful since the goal of this empathizing stage is to discover as much information as possible about the needs of the users (InterQ, 2020). Each of the two focus groups had five participants. The participants recruited for the focus group were all students.

The questions asked in the focus group were divided into five parts and each part was started with a discussion point. The first part consisted of discussing the greeting before and after the start of COVID-19, the changes during this period, and the differences in several situations. The second discussion point was about discussing people's ideal greeting before the social distance rules in different settings.The third part focussed on the function of (social) touch during the greeting to discover whether people prefer touch in the greeting and whether this differs in different social situations. In the fourth section, there was a short brainstorm asking the participants to write down their specific needs with regards to the greeting and potential future alternatives for the greeting while maintaining social distance that they would find preferable. In the fifth and last section, participants were asked to give their opinion on four potential greeting alternatives to discover whether people prefer certain solutions over others and why. The exact questions asked can be found in Appendix XX. To be able to really discover the needs of the participants follow-up questions were asked by both the participants themselves during the discussion, as well as by the focus group leader by asking a lot of 'why' questions to discover the needs, motives, and values behind certain preferences or statements.

Defining - Analyzing User Data

After the data collection, we reviewed the notes that were taken during the focus groups with the audio recordings to make sure that no important information was missed by the notetakers. These notes were evaluated statement by statement and clustered by the whole team to avoid bias. Afterwards, the verbatim statements of each cluster were summarized with a list of bullet points that described the content of all the original statements. Then these clusters were grouped into themes in an affinity diagram by each of the team members individually and compared afterwards. This was another measure taken to avoid bias. Shown below is the picture of our final affinity diagram. In the appendix, all the individual affinity diagrams can be found.

The first theme 'why do we greet' describes the underlying needs and reasons why a greeting is important in our society. These reasons include that greeting is the norm, and we are used to doing it when meeting people. Furthermore, greetings are helpful to start a conversation as they can be an icebreaker, create a warm ambiance, and

create a comfortable atmosphere. Last, greeting also indicates to the other person the connection between you and this person.

The second theme is related to family and friends, and it describes the different aspects of a greeting in a casual and informal setting. In this setting, the social touch is missed the most, and this leads to more indifference towards the COVID-19 rules even though people realize it might not be safe. People have a closer connection with their friends and family, and this leads to more physical interaction within this setting. Furthermore, a hug is the most used in this setting and it was very clear from the focus groups that there is no possible greeting replacement for a hug that shows the same amount of affection.

The third theme relates to strangers and formal settings. The two themes—family and friends, and, strangers and formal settings—illuminate the big difference in needs between the groups, which is important to consider when choosing for whom to design. Unlike with friends and family, in formal settings and settings with strangers, social touch was not considered important. Wanting to make a good first impression was an important reason as for why people greeted strangers and in formal settings. Handshaking was associated with introducing yourself. Lastly, with respect to strangers, people noted there is a degree of uncertainty about whether the other person is following the covid-19 guidelines.

The fourth theme describes the needs relating to the establishment of a new greeting standard. The needs for a new greeting standard are important to consider when designing a new technological prototype that aims to become a new greeting standard. First and foremost, the greeting standard must be clear to all parties to prevent awkwardness. Furthermore, the greeting needs to be easy to perform and the greeting needs to be presented as a "new norm" (for example presented by authorities) to ensure people will greet using the new standard.

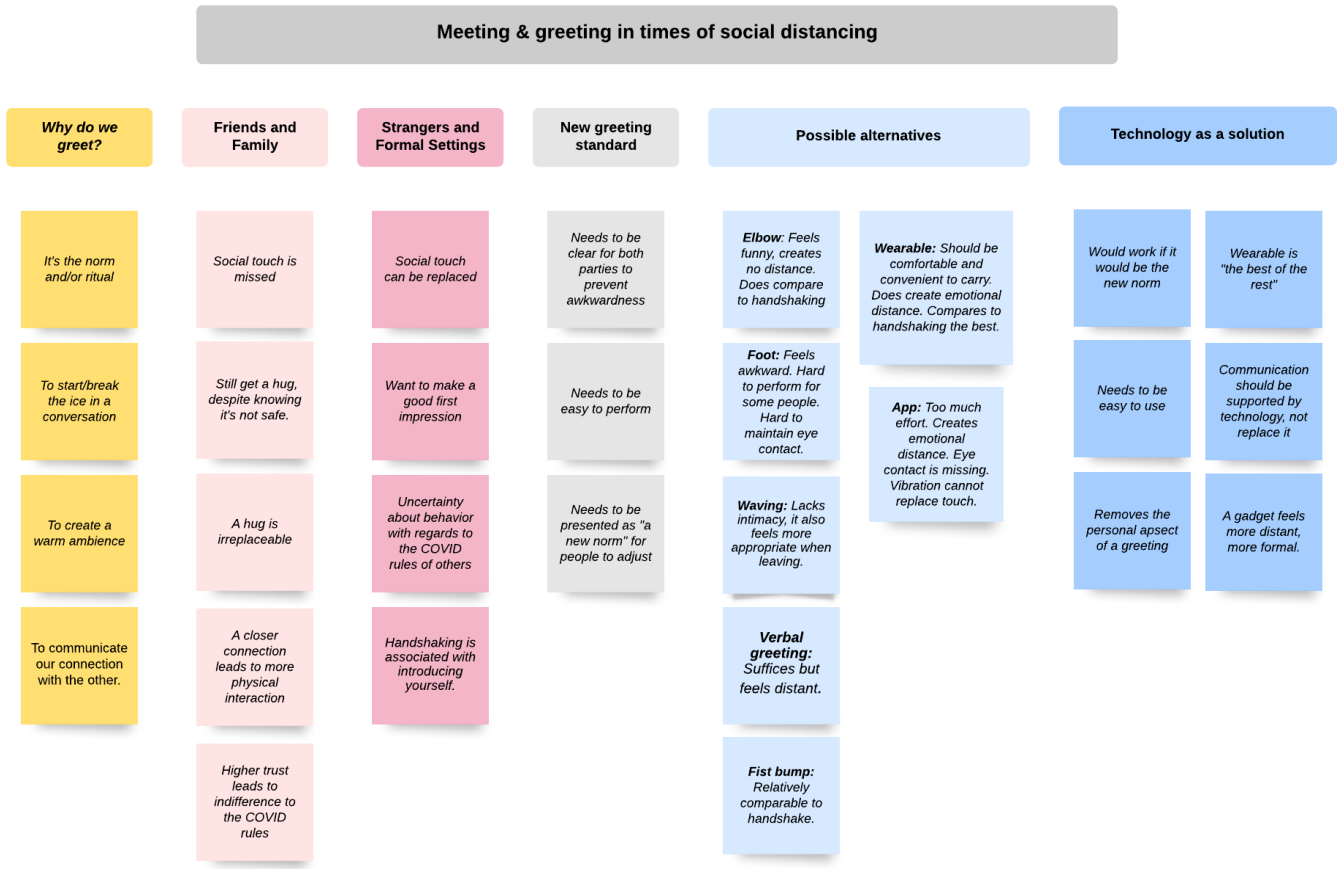


Figure 1: Affinity diagram of focus group data.

The fifth theme consists of a collection of possible alternatives. For the ideation of the technological prototype, it is very useful to have opinions on alternatives. This can help in choosing a direction. Greetings using the elbow or feet were considered funny and awkward. Simply saying something, or waving, lacked intimacy and felt too distant. For greeting each other with a wearable that mediates touch, it was important that the device was comfortable and convenient to carry. However, using a wearable to greet does create emotional distance. Another alternative was using an app to indicate your greeting preferences, but it seemed too much effort. Lastly, an app that can vibrate to simulate touching was considered futile, as the vibration cannot replace touch.

Technology as a solution is the sixth and last theme. This theme collects the general thoughts about whether technology can help people to greet while maintaining social distance. It came forward that it could work, but only once the technological greeting was established as a norm. Furthermore, the technology needs to be low-effort and easy to use. Technology does remove the personal aspect of the greeting and using such a gadget does feel more distant and formal. Communication should be supported by technology, not replaced by it. From the technological solutions, the wearable was considered the best.

IDEATION

For our new brainstorming session, we opted for the brainwriting technique. We used brainwriting as our session was online and this made it harder to have a moderator. With brainwriting, we could easily work in an online tool where we could put down our ideas without having the possible problems of a bad internet connection. Furthermore, during online meetings, we experienced that it was harder to see when someone was going to talk, resulting in more occurrences where people started talking at the same time. With brainwriting everybody could work at their own pace and this way we could include an equal contribution of every team member and not only dominant people. In the brainwriting session, the online tool Miro was used and every team member got their own color post-its. Everyone started by putting down some ideas that could form the start of solutions or key problems in their own section of the board. Then we would shift so that everyone was at the section of another team member and would give feedback, ideas, and extensions on the information that was already there. This was done for each section and afterwards each section was discussed and the important design aspects and ideas were summarized.

This led to a total of five ideas, which were evaluated and discussed related to their feasibility and originality using the COCD box. Three of these ideas were placed in the red box, indicating that they were both feasible and original. The first design idea in the red box is a smartwatch notification that makes people aware of the greeting style in an upcoming meeting. This idea focuses on a technology that is easily accessible as smartwatches are always in reach. The second idea is a phone notification that appears when you are being close to the person you are meeting, as a sort of electronic greeting. This notification would also introduce the greeting style. The last idea is a whatsapp message with an avatar or gif demonstrating a type of greeting, with the goal of decreasing the awkwardness of a greeting through a fun visual.

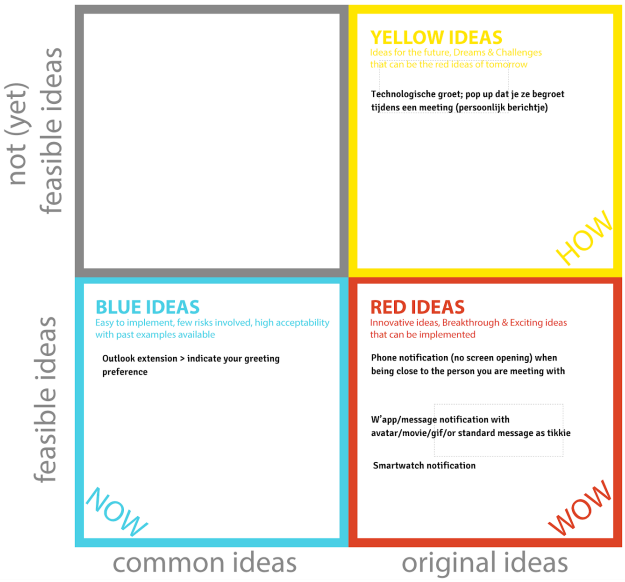


Figure 2: COCD box made in the ideation phase of the design process.

To converge these ideas, we decided to combine some of them together, to be able to encompass most of the aspects that each solution tackled. The final idea was called ‘MeetAndGreet’, and functions for two different settings: informal and formal. In the informal setting, the idea is a whatsapp extension where you can add a meeting with time, date and place and select a greeting style with a GIF showing the chosen greeting style. You can send this to other people in Whatsapp, and the receivers can either

approve, decline or suggest an alternative time, date, place and greeting style. The idea for the formal setting is an outlook extension where you can indicate your greeting preference for a specific meeting in a meeting request. This meeting request, including the greeting preference is sent to the receiver and they can again either accept, decline or suggest alternatives. A short time before the meeting, the user gets a notification on their phone (or smartwatch) telling them that the meeting is taking place shortly and shows the approved greeting style.

The reasoning behind choosing this idea was that we concluded from our focus groups that a greeting should not be too much effort; it should be easy to use. Therefore, we did not want to make an entirely new application, as this could be viewed as too much effort (downloading a new app, getting used to using it in a daily routine, etc,), while an extension to an already widely used application would be easier to implement in a user's routine. Furthermore, at the interim presentations, we received input that it might be more valuable to support social distancing greetings by removing ambiguity instead of replacing the greeting itself. We chose two different settings to accommodate both informal and formal meetings, as we were unsure for which type of meeting the solution would be more valuable. And they both have the issue of ambiguity surrounding greeting, thus it could be applicable to both settings. As whatsapp is already a widely used informal communication application and outlook is already a widely used formal communication tool, it was beneficial for adoption to ideate extensions for these two applications.

As this idea can be used in both a formal and an informal setting, we have created two scenarios, one for each setting.

Informal scenario
Dave follows the course UX design, and works on a project with a group of four students. Because of COVID most meetings are online, but once every two weeks he organizes an on-campus meeting with his team. All students use Whatsapp to plan meetings.

Dave gets his phone to plan next week's on-campus meeting on Whatsapp. He fills in the people, date, time and place. Additionally, by using the MeetAndGreet extension, Dave chooses his preferred greeting style from a few options: 'elbow', 'box', 'namaste', 'wave', 'just smile' and 'custom'. Dave clicks 'elbow', and below Dave can add a GIF to his greeting request. Dave can choose from multiple GIFs that show a video of people or characters doing an elbow. Some are funny, others symbolic or more serious. There is also a 'custom GIF' option, which Dave clicks. The camera of his phone opens and he makes a video of himself pointing an elbow towards the camera, smiling. The video gets converted to a GIF automatically. Dave accepts that the GIF will be sent with the greeting request.

Somewhere else, Ayah gets a notification of a message on her phone, showing Dave's greeting request for next week. She opens the message, and sees the other team members' names, the date, time and place, and Dave's GIF. She chooses to select an alternative. Then, a new window appears, saying: "propose a new greeting style". First she clicks 'wave'. Then she clicks 'custom GIF'. Her camera opens, and she waves politely, and with a smile to the camera. Her new greeting style proposal will be sent back to Dave and the other team members automatically.

A week later, Tom is walking towards the location of the meeting of his project group. He feels a buzz of his phone, and sees that he got a reminder of today's meeting. A pop-up appears, saying: "Keep in mind that you should keep social distance during an on-campus meeting!" in such a way that Tom experiences it as a friendly reminder, instead of a warning or order. In the same window, he sees Ayah waving and smiling. He recognizes that GIF, because he accepted it last week. He smiles, swipes away the pop-up and walks towards the meeting room where he will greet his fellow group members with a wave.

Formal scenario
Dave has a meeting with a stakeholder called John. As it is an important meeting, they decided to have the meeting in an offline setting. Because of COVID, a handshake as greeting is not appropriate anymore. Dave and John use Outlook to plan meetings.

Dave uses his laptop to plan this meeting with John in the Outlook application with a meeting request. He fills in John as the receiver, date, time and place. Additionally, by using the MeetAndGreet extension, Dave also selects his preferred greeting option from a option menu. Dave can choose from a few options: 'elbow', 'box', 'namaste', 'wave', and 'just smile', and selects 'namaste'.

Somewhere else, John gets a message in his mailbox, showing Dave's meeting request for next week. He sees the date, time and place, and Dave's proposed greeting style

through an animation demonstrating the greeting style. He accepts the meeting request with the proposed greeting style and a message is sent back to Dave with this acceptance.

A week later, John is walking towards the location of the meeting with Dave. 15 minutes before the meeting, he feels a buzz of his phone, and sees that he got a reminder of today's meeting. A pop-up appears, saying: "Keep in mind that you should keep social distance during an on-campus meeting!" In the same window, he sees the animation demonstrating the greeting style. He recognizes the greeting animation, because he accepted it last week. He smiles, and walks towards the meeting room, where he greets Dave with a namaste.

ETHICAL ENVISIONING

For the creation of the future scenario, the ethical and future criteria of the final design idea 'MeetAndGreet' were analysed using the respective envisioning activities. This analysis can be found in appendix VII. The following value scenario was created in response to the analysis.

Value scenario

Sarah (19) is a computer science student who, unfortunately, deals with a lot of social anxiety. Ever since she was born she had trouble with communication and touch; she was diagnosed with Asperger syndrome. As a computer science student, she is part of a mostly male friend group who like to organize things using the latest technology, including the MeetAndGreet Whatsapp extension. MeetAndGreet was developed 5 years ago in response to the COVID-situation, it included a variety of greetings that respected the social distancing guidelines. However, the COVID-situation has dwindled down, and now the extension includes a bunch more physical greetings. In just a few hours she has to meet up with the guys with a greeting which makes her highly uncomfortable—a greeting which was suggested by a funny GIF and well-received by all the other members of the friend group. Therefore, she has no choice but to perform the suggested "jumping chest bump", or to face the awkwardness of having to text that she doesn't want to perform the greeting. She is afraid that she will be considered weird if she does that. Sarah is forced into a dilemma where she has to experience significant discomfort, one way or the other.

The scenario includes the two ethical criteria: values and stakeholders. The key value in this scenario is comfort. The stakeholders include Sarah (indirect stakeholder), the other invitees (indirect stakeholders), and the organizer of the meeting (direct stakeholder). Furthermore, the scenario includes the two future criteria: time and pervasiveness. The scenario plays out five years after the launch of MeetAndGreet, and MeetAndGreet is widely used, particularly among tech-savvy students.

Value Tensions

As stated before, the key value in the value scenario as described above is comfort. The current description of MeetAndGreet results possibly in socially uncomfortable situations while the main aim of MeetAndGreet was to prevent awkwardness ,and thus discomfort, due to ambiguity. The discomfort in the value scenario is mainly due to personal circumstances, although similar situations may occur if personal opinions or physical limitations are present. The discomfort is created by the fact that the stakeholder who experiences this (Sarah) feels social pressure into acceptance towards the proposed greeting. This is in line with the notion of conformity; the notion of having similar beliefs and behaviours to those of group peers (Cialdini & Goldstein, 2004). Discomfort and similar socially awkward situations are to be avoided when designing the final form of MeetAndGreet, as this was the main aim of the project.

The design decision

To avoid these situations, when indicating that you are not agreeing with the proposed greeting, one has the option to do so anonymously. This decision is based on the large amount of research which shows that anonymity results in lower perceived peer pressure (Alpizar et al., 2008; Soetevent & Adriaan, 2005). If the person who disagrees with the proposed greeting decides to propose a new greeting anonymously, the other group members only get a notification that the proposed greeting has been disagreed with by another group member, together with the new proposed greeting. If the anonymous option has not been checked, the name of the group member which disagreed is shown, to open up potential mediation.

We are aware that the decision to implement this anonymity option does not fully remove the possibility of social discomfort. For example, group members may find out nonetheless who the disagreeing group member is. In this

case, the anonymity option was ineffective. However, this chance decreases if group size increases.

Other options into decreasing the chance for social discomfort or conformity against one's will included indicating that you preferred to not greet at all or to indicate that you wanted to greet without physical touch at all times all resulted in social awkwardness or discomfort still being present. Therefore, we argue that the anonymity option is "the best of the rest", having the lowest amount of (chance of) social discomfort.

An alternative design decision (not implemented in final prototype)
Another implementable solution to the ethical tension on comfort came in our minds only after the user tests. It is also quite experimental. For these reasons it is not part of the final prototype. Regardless, it may still be a valuable insight for future considerations.

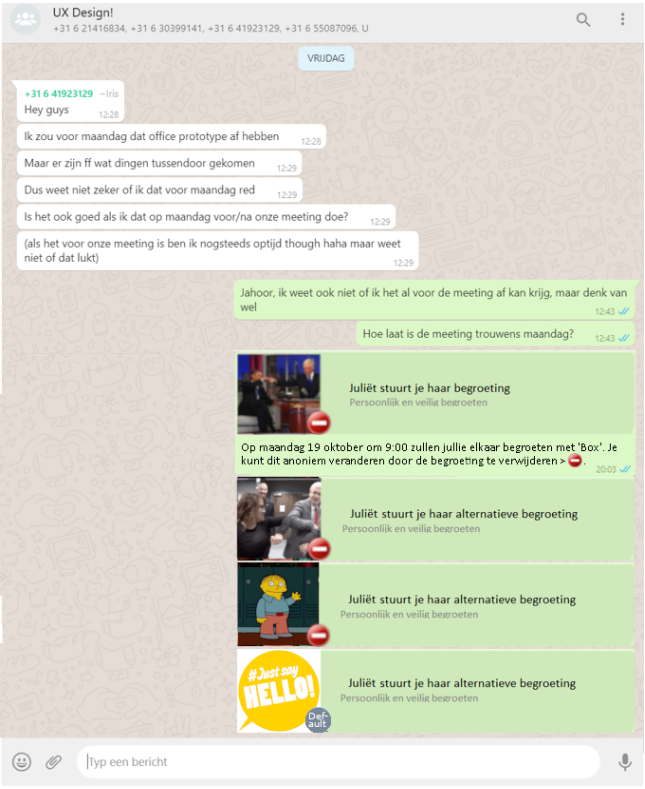


Figure 3: adaptation of design to solve ethical tension.

To solve the ethical tension on comfort, it is important that any invitee can—on his/her own—veto any greeting, anonymously. This resulted in the following solution. The meeting creator may choose a couple of greetings that he/she wants to propose as options. When he/she selects a greeting, it shows a '1' in the checkbox, when he/she selects another greeting, it shows a '2', etc. This decides the order in which the greetings are listed in the WhatsApp chat. The verbal greeting is the default greeting, this greeting does not have to be selected and is always listed as the final option (or as the only option, if no other greetings are selected).

The invitees will see the selected greetings in the WhatsApp chat, as shown in the image. The greeting up top—corresponding to the greeting that was selected first by the meeting creator—is the greeting that will be used for the meeting. This is clearly indicated to avoid confusion.

Up till an hour before the meeting, invitees can anonymously delete any of the proposed greetings (with exception of the default verbal greeting). When a greeting is deleted, the subsequent greeting simply moves a position up. As said before, the greeting that is in the top position, is the greeting that will be used, it is important this is clearly indicated to avoid confusion. In case all proposed greetings get deleted, the verbal greeting remains, which is a good compromise as this greeting does not pose a problem for anyone.

PROTOTYPING
We decided to make two different prototypes, one for the formal design idea in Outlook and one for the informal design idea in WhatsApp. In other words, our design concept was prototyped in an Outlook extension, as well as a Whatsapp extension. As mentioned earlier, these two ideas fit the user's need of ease of use since they are small extensions of the applications people are already used to. The main goal of the user test was to discover what people think of these design ideas and which of the two extensions people would prefer to use. To be able to show the design ideas, two interactive prototypes were made in Adobe XD. As our aim was to test the prototypes conceptually and not functionally, we chose to show people the operation of the two tools instead of letting participants interact with the prototypes themselves. For this reason, the prototypes were made interactive so that we could show the participants the overall design idea, but the level of interactivity was not high enough that participants would be able to click on every button. To be able to communicate the design idea well, we aimed for making realistic prototypes. This meant that the prototypes looked similar to the real applications of Outlook and WhatsApp. Therefore, we chose to make a mid

fidelity prototype which resembles the real applications visually (Pacheco, 2014). Since this was still the first prototype, it was not in that level of detail in the look and feel of the product to call it a high fidelity prototype.

The two prototypes were both an experience prototype, where users are interactively led through a collection of screenshots of the extension that resemble common use scenarios. The screenshots were visually adjusted to include the buttons and menu options of the MeetAndGreet extension. This type of prototype allowed users to get an understanding of the design concept, and allowed us to find out whether the idea "works" conceptually. The prototypes cannot be categorized as either vertical or horizontal prototypes (Barendregt, 2020). With regard to horizontal compromise, the prototypes include nearly all use cases and thus most of the functionality is shown, e.g., setting up a meeting, suggesting an alternative greeting, accepting a greeting, checking the notification of a meeting. However, most screenshots had, at most, only one interactive element, therefore we consider our design to still be horizontally compromised. With regard to vertical compromise, the features of both prototypes are walked through thoroughly, with realistic and highly detailed design, so the prototypes do well in this respect.

For the layout and aesthetics, we have decided to keep the same layout and aesthetics as the applications already use, to make the interface, and thus the design patterns, recognizable for the users, so that they can easily use them without much explanation. As the interface is recognizable this makes the onboarding very easy as users do not have to do a lot of additional steps than when they would normally plan a meeting they only have to fill in two additional menu options.

In appendix VIII, some important screenshots of our final prototypes can be found. The link to the (partly) interactive prototype we used for the user test can be found in this appendix as well.

TESTING

The main goal of our user test was to find out which application (Outlook or Whatsapp) would be preferred by users to have an extension that applied our design concept in the organisation of real meetings. To prepare our user tests, we first discussed the Adobe XD prototypes with all members of our design team. We wrote a scenario for both applications (Outlook and Whatsapp) that clearly described the storyline of how to walk through the prototypes. This was done to make sure that all team members conducted the user test in the same manner. After writing the scenarios, we set up a set of questions that could be asked to find out what the user thought of our concept. Each team member found one participant for the user test, which resulted in five participants. All user tests were performed offline.

User test protocol

We structured our user tests in three parts. Firstly, we walked the participants through the Outlook prototype showing how it works in various scenarios and from multiple perspectives (e.g., organizer vs. invitee). This means that the participants sit next to the interviewer and observe the interviewer click through various screens of the interactive prototype. After finishing the demonstration, participants were interviewed about the Outlook extension. The questions were focused on how the participants felt about the concept of the prototype, not on user-experience details such as the GUI. Secondly, we showed the participants the Whatsapp prototype and asked them questions about the Whatsapp extension. This part followed the same process (walkthrough and subsequently an interview) only now for the Whatsapp prototype. Finally, a general interview was held that inquired further about the participants' opinions on the overall concept of MeetAndGreet. The scenarios for the user test, including the questions that were asked can be found in Appendix IX, and the consent form for our user test can be found in Appendix X.

User test data analysis

The five interviews were recorded and subsequently transcribed. The statements were then aggregated and summarized in bullet points, this was done collaboratively to avoid introducing bias. The bullet points were clustered in affinity diagrams. For each prototype we have an affinity diagram with two clusters: "pros" and "cons". The reason for this is that we were focused on finding insights for improvement, and these clusters seemed helpful for this. Additionally, we made another affinity diagram about our general design concept. For this affinity diagram we created three clusters, each representing one of the questions about the general concept of MeetAndGreet that we asked during the user test. The three diagrams can be found in Appendix XI.

Insights

Overall, participants were enthusiastic about the concept of MeetAndGreet, because they all recognized the awkwardness due to ambiguity of greeting style during meetings. People felt that the extension removed the ambiguity and the resulting discomfort regarding greetings. Therefore, most users thought of the extension as useful and are willing to use it. The goal of the concept was clear for the participants, and they found it a useful tool in times of social distancing. For example, one participant mentioned that it was a great way to avoid misunderstandings, and having clarity of what is expected from you is useful. Another participant was convinced that people would greet each other with less social touch in the future (possibly after COVID as well). It was also mentioned that 'every little bit helps' to keep social distancing in mind during COVID-19.

With regard to the main aim of our user test, we found mixed results: we found that there was a need for both solutions. For people that already are (daily) users of Outlook, the extension would be a good way to make sure that awkwardness and unclarity of greeting style during meetings was diminished. One person mentioned that he found it easier to imagine himself using an Outlook extension to indicate a greeting style, because planning meetings is already integrated in the Outlook system, and not in the Whatsapp system. Another participant highlighted somewhat the same, namely that Whatsapp did not have a calendar function yet so Outlook might be better to plan meetings anyway. On the other hand, participants who did not use Outlook that frequently, liked the Whatsapp extension better. One person mentioned that using Whatsapp for the application made the extension feel more personal, which fitted the aims of the design concept. Furthermore, whether people would use MeetAndGreet preferably in a formal or informal setting was dependent on individual differences. Therefore, as a design team, we would propose to embed the MeetAndGreet extension in formal, as well as in informal applications.

Suggestions for improvement

We also found some points of improvement for our design in our user tests. Some users saw an issue when the number or meeting attendees became larger. Since we had the possibility to propose an alternative, it may occur that multiple attendees keep switching the proposed greeting as they do not want to accept a different greeting. It is important to mention that this is not the same problem as the problem discussed in the Ethical Envisioning section of the report, because in this case, the problem occurs because of the number of meeting attendees and not because a person is uncomfortable rejecting the greeting style. As an additional adjustment to the design we propose that the meeting organiser can remove the option for other users to propose alternatives when creating the meeting. If people still feel that they want to perform a different greeting, they are still able to reject the proposed greeting. When this happens, the default greeting will occur.

Other suggestions were more detailed. One person suggested that the proposed greeting styles in the menu of the extension were not all corona-proof. We should keep in mind that in the next phase of the design process, individual greeting styles should be validated by a large number of people, to make sure most people agree that the greeting styles in the extension can be performed at sufficient social distance. Lastly, another person suggested to show (a link to) current COVID measures in the extension as a reminder. This might be a way to raise awareness of the COVID measures among users of applications with the MeetAndGreet extension.

Final Exhibition

The final product presented during the exhibition included both the Outlook and Whatsapp extensions. We decided to only explain one of the two concepts in more detail due to time limitation, so we mainly focussed on the Outlook extensions. In the video pitch, we explained the problem, the solution MeetandGreet, and walked through the Outlook concept from multiple perspectives (e.g., organizer vs. invitee) using the prototype. The final product also included the option to disable other users to propose an alternative greeting which is added to the concept based on the user test.

Feedback final exhibition

For the final exhibition, we made an empty miro board proposing three questions about our design. Students from another group could answer these questions online, on post-its in miro. This feedback can be found in Appendix XII. The feedback we found most valuable will be discussed in the next sections.

Alternative greeting proposals

During our user test, users indicated that they saw problems in having the possibility of proposing an alternative greeting when there are a large number of attendees.

However, removing this possibility could result in social discomfort when people do not agree with a particular greeting. We asked other students to give their opinion about this issue. It was proposed that it might be the most practical to let the person organizing the meeting be in charge of the greeting style. He or she could have the final call for the decision, also when problems arise related to disagreements between attendees. Other proposals were to integrate some kind of voting system for the greeting style or to give people an opportunity to explain why they would want to alter the greeting style. Lastly, there was a proposal to give people an opportunity to show their most preferred greeting style, so that meeting organizers could see the preference of meeting attendees before sending out a meeting request. For the next phase of the design process, these suggestions could be implemented in the next prototypes. However, they should be tested with users first, so see which solutions would work best.

Anonymous alternative greeting proposal

Another issue related to alternative greeting proposals was related to anonymity. Some people might prefer to propose the alternative greeting anonymously so that they cannot be blamed for rejecting the proposed greeting. As a design team, we were wondering what would be the best way to let people propose an alternative anonymously. Here, an anonymous voting system was proposed by fellow students as well: greeting style preference could be collected anonymously and the one that was selected most was shown. However, in this case, there is still ethical tension when a person strongly disagrees with the most voted greeting style. Therefore, it might be the best option to just show all attendees a message saying: 'the greeting style has been changed to…' , as multiple people suggested in their feedback. Again, the meeting organizer would be in charge to deal with disagreements in a proper way.

MeetAndGreet extension on other applications

One of our aims was to design something that is scalable and that can be used by many different people within our target group. For this reason, we not only want to elaborate on Whatsapp and Outlook in the design process, as it might be possible to apply our design idea to other applications (in the future) as well to reach more users. We questioned whether there are other platforms or applications on which the MeetAndGreet extension can be applied. The feedback provided by fellow students contained the platforms Google Calendar and the TU/e Book My Space application. One student also mentioned that it would be interesting to create something that can be implemented in every business calendar from specific companies. It could also be implemented in Datumprikker and it might be nice to be able to select a different greeting with each person. Lastly, one student mentioned that this might be interesting to implement in dating apps to remove the awkwardness during the greeting of first dates. This shows that there are several options to apply the MeetAndGreet extension to other platforms or applications and that it is scalable.

Future of MeetAndGreet

One question regarding the design idea was whether MeetAndGreet could also be useful in a future after the pandemic in which there is still uncertainty of which greeting to use. In our opinion, MeetAndGreet can also be very useful for the planning of greetings after the pandemic. Also before the pandemic there sometimes was uncertainty about what greeting to use when meeting someone, so being able to plan this in the future might remove the awkwardness. The only thing that needs to be done is changing the type of greetings people can select to the proper future greeting possibilities.

References

[1] Alpizar, F., Carlsson, F., & Johansson-Stenman, O. (2008). Anonymity, reciprocity, and conformity: Evidence from voluntary contributions to a national park in Costa Rica. *Journal of Public Economics*, *92*(5), 1047–1060. https://doi.org/https://doi.org/10.1016/j.jpubeco.2007.11.004

[2] Barendregt, W. (2020). *Lecture 7B - Prototyping* [Lectureslides]. Canvas. https://canvas.tue.nl/files/2698159/download?download_frd=1

[3] Cialdini, R. B., & Goldstein, N. J. (2004). Social Influence: Compliance and Conformity. *Annual Review of Psychology*, *55*(1), 591–621.

[4] https://doi.org/10.1146/annurev.psych.55.090902.142015

[5] Haans, A., & IJsselsteijn, W. A. (2006). Mediated social touch: a review of current research and future directions. *Virtual Reality*, *9*(2/3), 149-159. https://doi.org/10.1007/s10055-005-0014-2

[6] Hertenstein, M. J., Holmes, R., McCullough, M., & Keltner, D. (2009). The communication of emotion via touch. *Emotion, 9*(4), 566–573. https://doi.org/10.1037/a0016108

[7] Inagaki, T. K., & Eisenberger, N. I. (2012). Neural correlates of giving support to a loved one. *Psychosomatic medicine*, *74*(1), 3–7. https://doi.org/10.1097/PSY.0b013e3182359335

[8] Katila, J., Gan, Y., & Goodwin, M. H. (2020). Interaction rituals and 'social distancing': New haptic trajectories and touching from a distance in the time of COVID-19. Discourse Studies, 1461445620928213. https://doi.org/10.1177/1461445620928213

[9] Morgan, D.L. (1996). Focus Groups. *Annual Review Sociology, 22*, 129-152. https://doi.org/10.1146/annurev.soc.22.1.129

[10] InterQ (2020). Focus groups vs. in-depth interviews. InterQ. Retrieved September 25, 2020, from https://interq-research.com/focus-groups-vs-in-depth-interviews/

[11] Oakley I, O'Modhrain S (2002) Contact IM: exploring asynchronous touch over distance. *Proceedings of CSCW 2002*, November 16–20, 2002, New Orleans, LA

[12] Pacheco, M. (2014, February 27). Understanding Design Fidelity for Creating a Great Product Experience. *Cantina*. Retrieved November 2, 2020, from https://cantina.co/understanding-design-fidelity-for-creating-a-great-product-experience/#:~:text=Defining%20Fidelity&text=There%20are%20three%20levels%20of,almost%20represent%20the%20finished%20product.

[13] Rovers, A.F., van Essen, H.A. (2004). HIM: a framework for haptic instant messaging. *Extended abstracts of CHI 2004*. ACM Press, NY. https://doi.org/10.1145/985921.986052

[14] Schroeder, J., Risen, J. L., Gino, F., & Norton, M. I. (2019). Handshaking promotes deal-making by signaling cooperative intent. *Journal of personality and social psychology*, *116*(5), 743–768.

[15] https://doi.org/10.1037/pspi0000157

[16] Soetevent, A. R. (2005). Anonymity in giving in a natural context—a field experiment in 30 churches. *Journal of Public Economics*, *89*(11), 2301–2323. https://doi.org/https://doi.org/10.1016/j.jpubeco.2004.11.002

[17] Stewart, G. L., Dustin, S. L., Barrick, M. R., & Darnold, T. C. (2008). Exploring the handshake in employment interviews. *Journal of Applied Psychology, 93*(5), 1139–1146.

[18] https://doi.org/10.1037/0021-9010.93.5.1139

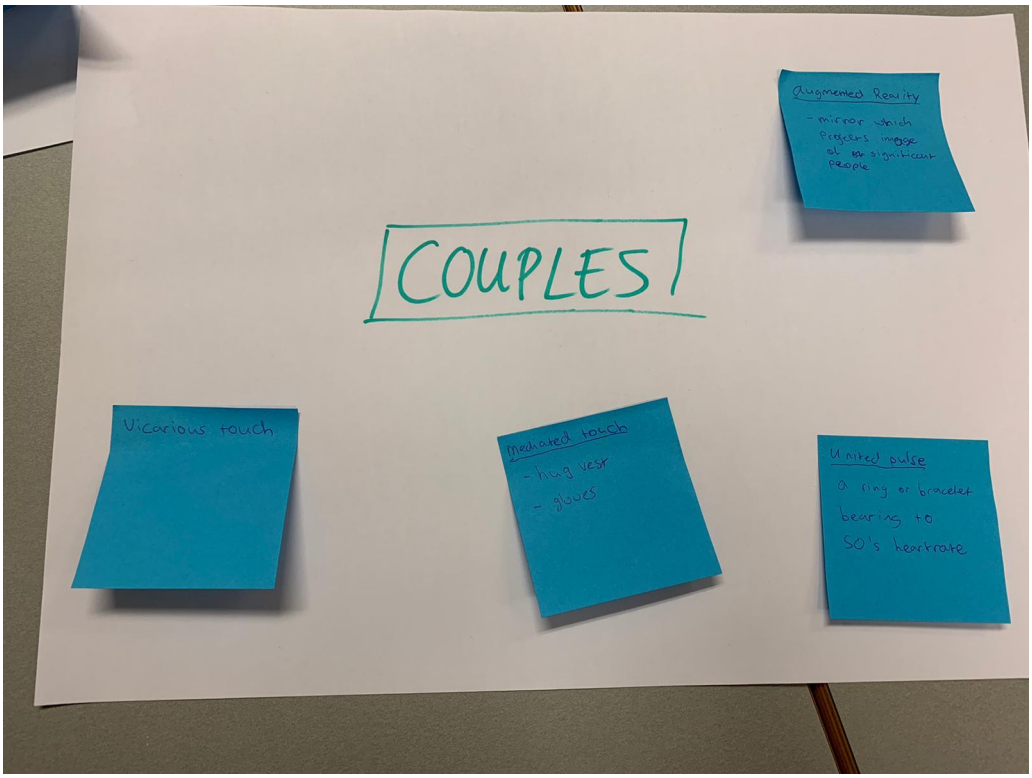
[19] Strong. R., Gaver, B. (1996) Feather, Scent and Shaker: supporting simple intimacy. *Short paper presentation at CSCW 1996*, November 16–20, 1996, Boston, MA

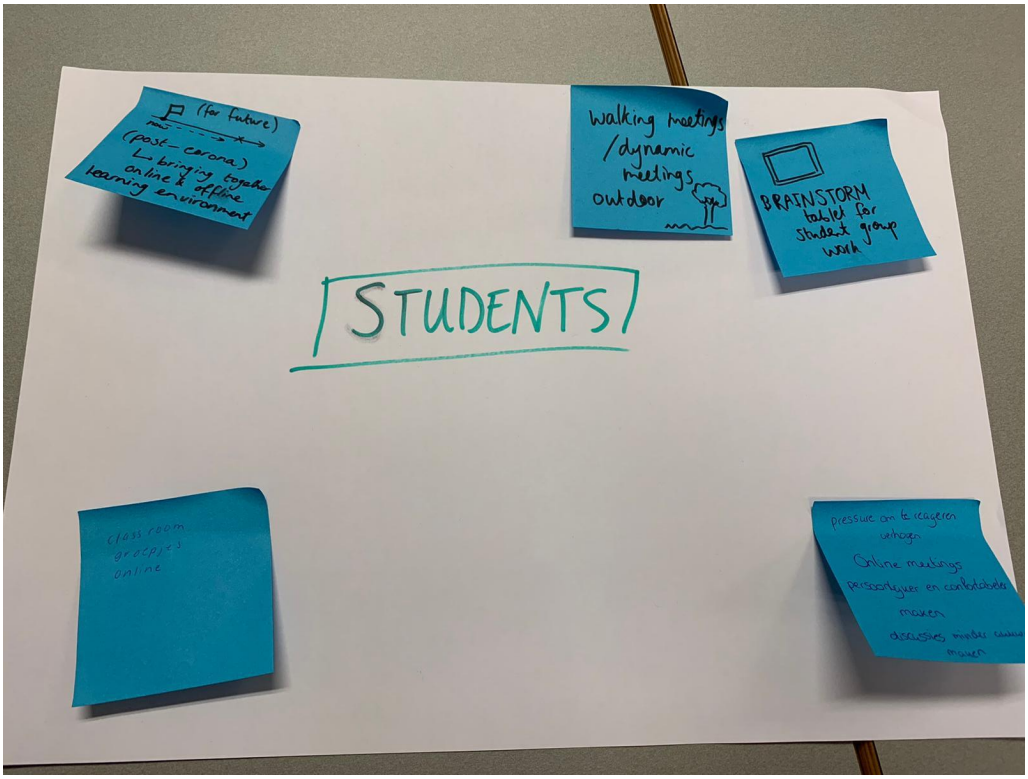
[20] Tollmar, K., Junestrand, S., Torgny, O. (2000) Virtual living together: a design framework for new communication media. *Proceedings of DIS 2000*. Boyarski D, Kellogg WA (eds)

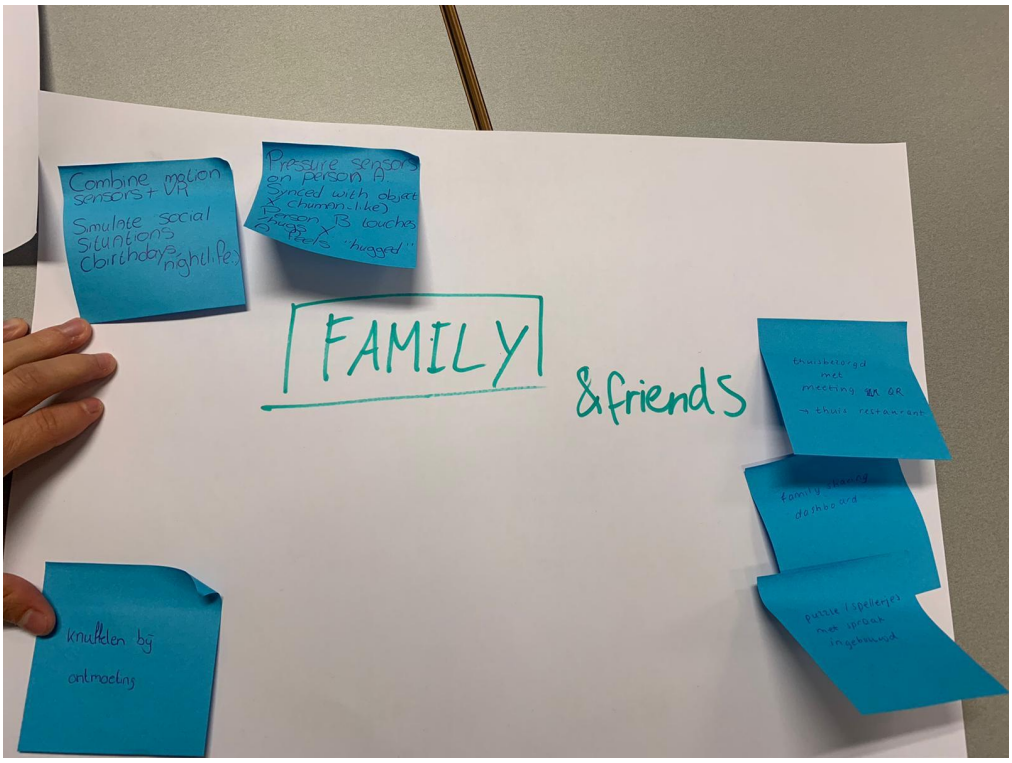
[21] ACM Press, NY. DOI https://doi.org/10.1145/347642.347670

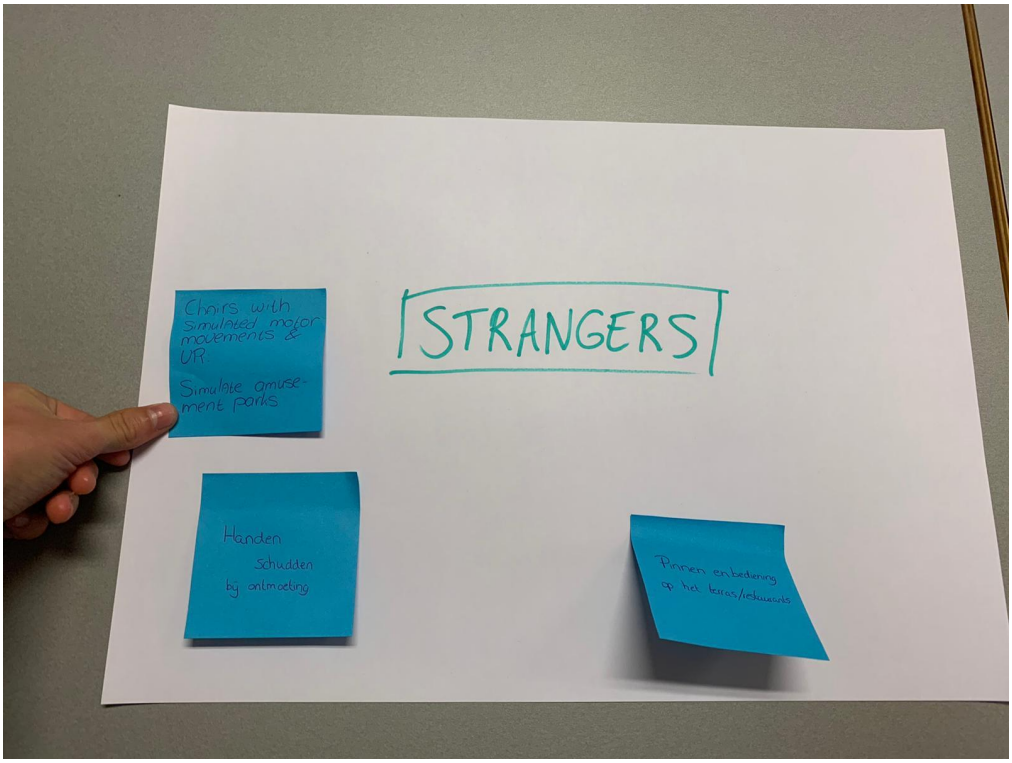
APPENDIX

Appendix I **Brainstorm Notes**






Combine motion sensors + VR
Simulate social situations (birthdays, nightlife)
Pressure sensors on person A synced with object X (human-like)
Person B touches object X
Person A feels "hugged"
FAMILY
&friends
knuffelen bij ontmoeting


Chairs with simulated motor movements & VR
Simulate amusement parks
STRANGERS
Handen schudden bij ontmoeting
Pinnen en bediening op het terras/restaurants

Appendix II
Focus group questions

Wat willen we weten:

- Waarom begroeten mensen elkaar?
- Wat vinden mensen fijn aan een begroeting (ook in tijden van social distancing)? Aanraking of niet?
- In welke scenario's missen mensen een begroeting (met social touch) het meest?
- Problemen die mensen ondervinden met begroeten in tijdens van social distancing
- Mensen zelf met iets laten komen als alternatief
- Verschillende oplossingen voorleggen en ontdekken wat mensen goed/slecht vinden aan de oplossingen

Focusgroep vragen

Introductie

- namen ronde
- Naamkaartje laten maken door participanten met een letter voor de notulen
- wat is focusgroep -->benadrukken dat zij zelf discussie moeten voeren
- introductie van het onderwerpen: ontmoetingen in tijden van social distancing

Openingsvraag: begroeting binnenkomst

Jullie zijn net binnengekomen en er zijn hier mensen die je nog niet eerder kende, sommigen deden dit… sommigen dat.., wat vonden jullie van deze begroeting? Wat vond je fijn en wat niet? Hoe was dit geweest zonder de social distancing regels?

Bespreek de begroeting van voor en na Corona, is er iets veranderd en hoe verschilt dit in verschillende situaties?

- Hoe is de begroeting veranderd sinds de COVID situatie?
    - wat is je ervaring met begroeten tijdens corona?
    - wat vind je hiervan? Zijn er problemen die je hierbij ervaart?
    - guidance:
        - hoe is het in formele setting?
        - hoe is het in informele setting?

- Mis je de fysieke begroeting? (en waarom?)
    - mis je het fysieke aspect?
    - mis je behalve het fysieke aspect nog iets?

Laten we eerst een teruggaan naar de begroeting voor Corona: bespreek met elkaar wat jouw ideale (of fijne) begroeting is (in verschillende situaties)

- Guidance:
  - in formele setting
  - in informele setting
- Waarom is dit jouw ideale begroeting?
  - geef een voorbeeld van een situatie waarin je een fijne begroeting had
    - waarom was dit fijn?
  - geef een voorbeeld van een situatie waarin een begroeting niet fijn ging
    - waarom was dit niet fijn?

- Waarom begroet je iemand? Wat is het nut hiervan? Wat denken jullie dat de reden is dat mensen elkaar begroeten?

Begroeting en 'social touch' en 'social distance'

Heb je een voorkeur voor wel of niet aanraken tijdens een begroeting? Is dit verschillend per situatie? Beschrijf de situaties.

- guidance:
  - hoe is het in formele setting?
  - hoe is het in informele setting?
  - vergelijk handshake, knuffel, kus, box etc.

Oplossingen

Vragen naar de needs en als ze een idee hebben evt oplossingen

- Wat zijn jullie needs met betrekking tot begroetingen? → needs laten opschrijven
  - guidance: terugkoppelen aan wat eerder besproken is

- Hebben jullie ideeën voor de toekomstige begroeting op afstand? Vijf minuten nadenken en laat iedereen ideeën op post-its schrijven. Later toevoegen dat ook technische oplossingen welkom zijn
  - Guidance richting technology:
    - hoe zou technology kunnen helpen om een comfortabele manier van begroeten te creëren?

- Hebben jullie al gehoord van andere oplossingen? Wat vinden jullie van deze oplossingen? Wat zijn de voordelen/nadelen?

We hebben oplossingen gevonden in literatuur, die willen we bespreken:

- gebaren op afstand
  - voet touch
  - elleboog
  - buiging
  - zwaaien

- wearable
  - met sensoren (bv. druk, warmte, trillen) om op afstand social touch na te bootsen

- app:
  - Een app op je telefoon die een trilling veroorzaakt als jij en degene die je begroet de telefoon naar elkaar uitsteken
  - Een app waarin je een begroeting uit kan kiezen met de persoon die je gaat begroeten, dus je kan allebei van te voren zien welke begroeting je voorkeur naar uitgaat

- Denk je dat bij een van deze ideeën je de social touch vervangen?
- Heeft er iemand nog iets wat ze wil delen?

Appendix III
WWWWWH: What, Who, Where, When, Why and How

- **What is the problem? What has been done to solve it?**
  Problem of greeting in times of corona and social distancing. Touching when greeting (e.g. handshake, hug, box, etc.) was in many situations the norm. Because people cannot do that anymore, and are in many cases unsure what they cán do, an awkward situation appears.
  Solutions have been elbowing, waving, etc.

- **Who has the problem? Who has an interest in finding a solution? Who are the stakeholders?**
  Basically everyone could have this problem, but our target group is students. If they have to collaborate with others, if they want to show that they trust other people or if they want to appear kind/empathic, they want to have a good moment of greeting. Stakeholders are all parties that have to collaborate with each other, and want to create an open, safe, and comfortable atmosphere.

- **Where is the problem? Where is a possible solution?**
  The problem exists in all environments where people meet and greet each other, especially if they have to collaborate on something after the meeting. Solution should be in that same space, or perhaps before the meeting/greeting?

- **When did the problem occur? When should it be solved?**
  Same as with where, could occur at any time during a greeting / before a meeting. Solution should be at that same time, or perhaps before the meeting/greeting?

- **Why is it a problem? Why is there no solution?** → also described in ‘what’
  Solutions have been elbowing, waving, etc. But the problem with those greetings is that
  1. Some people find them childish
  2. People do not know from other people how they are going to greet and what they expect from you
  3. Solutions (or no greeting ritual at all) might be experienced as impersonal.

- **How did the problem come about? How did the stakeholders try to solve the problem?**
  Problem because of COVID19 and social distancing. See above

GROUP K | USER RESEARCH PLANNING 1/2

Description

What are the business and experience goals of the system/product?

Requirements
- It should facilitate a smooth process of greeting, that will lead to a more relaxed atmosphere during the rest of the meeting.
- It should not feel 'childish', but
    - Natural
    - Comfortable
    - Personal
    - Perhaps a bit fun to break any tension
        - Gamification?

The goal is to recreate the way in which social touch enhances trust, openness, collaboration

Users (assumptions)

Who are the target users? What are their key characteristics?

Target users are students. Key characteristics:
In formal situations:
- want to make a good impression

In collaboration groups:
- Want to create a relaxed atmosphere, no awkwardness
- Want to get to know each other
- Want to create an atmosphere of collaboration, openness

What are the hypotheses regarding their needs, motivations, fears...?

- They want the greeting/meeting each other to go smooth and without awkwardness
- They want good collaboration

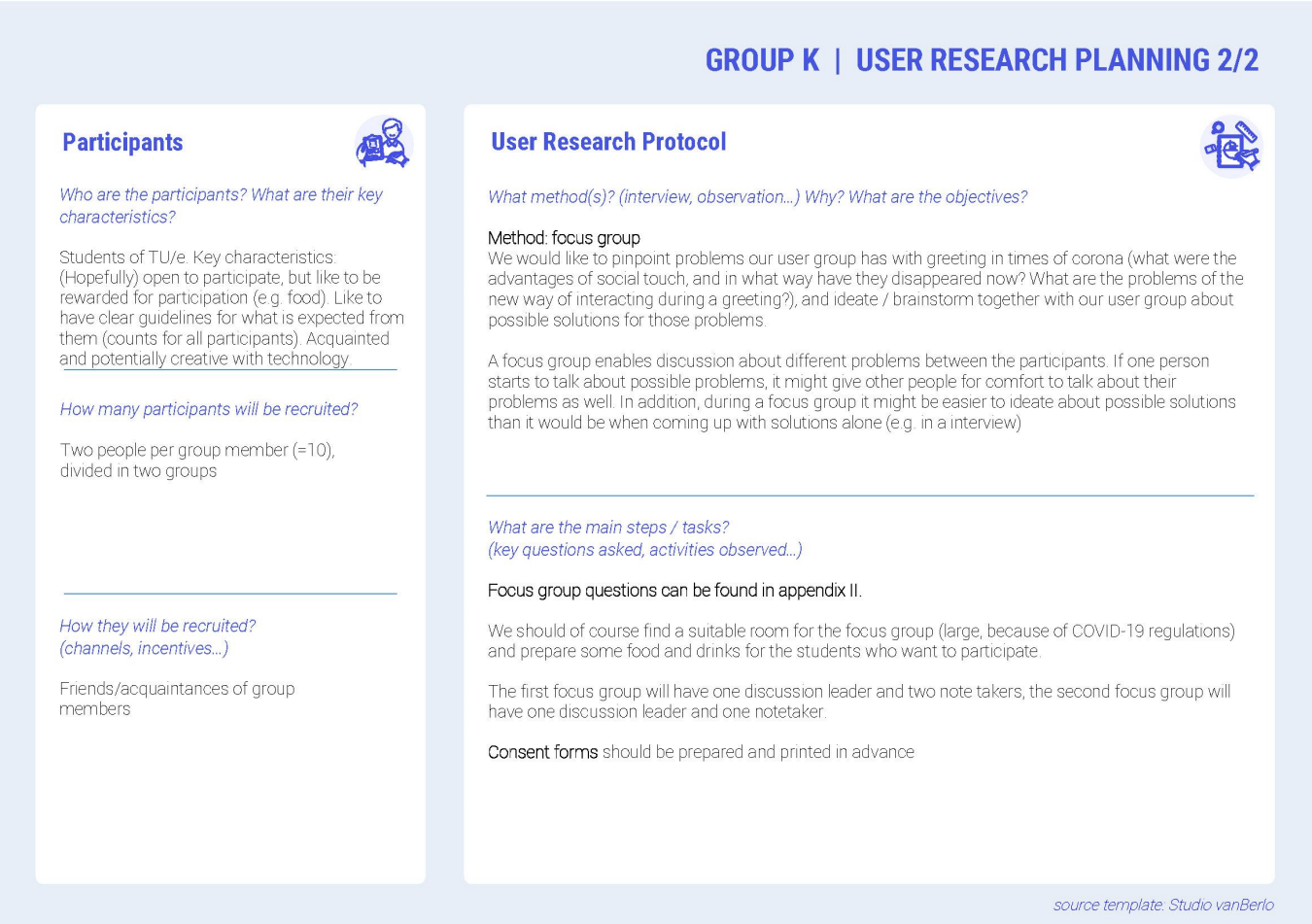
They fear
- To appear distant, not open/trustworthy
- That an awkward situation arises in which people do not know what to do

---

What do you know already about the target users? (from previous research, secondary research, literature review...)

→ people think they do not actually need social touch, but in reality it is such a norm that an awkward situation arises if there is no social touch
→ people do not know what to expect from each other, and are afraid to make mistakes (and a bad impression with those mistakes)
→ social touch increases feeling of trust, good for collaboration

source template: Studio vanBerlo



GROUP K | USER RESEARCH PLANNING 2/2

Participants

Who are the participants? What are their key characteristics?

Students of TU/e. Key characteristics: (Hopefully) open to participate, but like to be rewarded for participation (e.g. food). Like to have clear guidelines for what is expected from them (counts for all participants). Acquainted and potentially creative with technology.

How many participants will be recruited?

Two people per group member (=10), divided in two groups

How they will be recruited? (channels, incentives...)

Friends/acquaintances of group members

User Research Protocol

What method(s)? (interview, observation...) Why? What are the objectives?

Method: focus group
We would like to pinpoint problems our user group has with greeting in times of corona (what were the advantages of social touch, and in what way have they disappeared now? What are the problems of the new way of interacting during a greeting?), and ideate / brainstorm together with our user group about possible solutions for those problems.

A focus group enables discussion about different problems between the participants. If one person starts to talk about possible problems, it might give other people for comfort to talk about their problems as well. In addition, during a focus group it might be easier to ideate about possible solutions than it would be when coming up with solutions alone (e.g. in a interview)

What are the main steps / tasks? (key questions asked, activities observed...)

Focus group questions can be found in appendix II.

We should of course find a suitable room for the focus group (large, because of COVID-19 regulations) and prepare some food and drinks for the students who want to participate.

The first focus group will have one discussion leader and two note takers, the second focus group will have one discussion leader and one notetaker.

Consent forms should be prepared and printed in advance

source template: Studio vanBerlo

Appendix V

Informed consent focus group

Information form for participants

This document gives you information about the study “Meeting and greeting people during social distancing times”. Before the study begins, it is important that you learn about the procedure followed in this study and that you give your informed consent for voluntary participation. Please read this document carefully.

Aim and benefit of the study

The aim of this study is to get an understanding of your needs for a technology to support social interaction when it is not possible to meet other people in person, for example during the Covid-19 pandemic. This information is used to develop a prototype of a supportive technology.
This study is performed by Dennis Arreman, Evie Tossaint, Juliët Wahlen, Mykel Schmidt and Iris van Vugt, students in the course User Experience at the HTI master, under the supervision of dr. Wolmet Barendregt of the Human-Technology Interaction group.

Procedure
You will participate in the study via a face-to-face focus group. In the focus group, you will be asked to participate in an active discussion about your experiences with social distancing.

Risks
The study does not involve any risks, detrimental side effects, or cause discomfort.

Duration
The focus group will take approximately 60 minutes.

Participants
You were selected because you are a student at the Eindhoven University of Technology.

Voluntary
Your participation is completely voluntary. You can refuse to participate without giving any reasons and you can stop your participation at any time during the study. You can also withdraw your permission to use your data up to 24 hours after they were recorded. None of this will have any negative consequences for you whatsoever.

Compensation
You will not receive any compensation for participating in the study.

Confidentiality and use, storage, and sharing of data.
All research conducted at the Human-Technology Interaction Group adheres to the Code of Ethics of the NIP (Nederlands Instituut voor Psychologen – Dutch Institute for Psychologists), and this study has been approved by the Ethical Review Board of the university.

In this study, only the experimental data (e.g., your responses to the questions asked during the interview and your feedback about the prototype) will be recorded in the form of notes made by the student and an audio recording. The notes made by the student will be completely anonymous. The audio recordings will be deleted immediately after the transcription. No personal data will be recorded in the study. We will not share personal information about you or your responses in this study with anyone outside of the course (classmates and teachers). Only the team members will know your identity but they will not disclose this information to the other teams or to the teachers.
After the end of the course, all notes will be deleted.

Further information
If you want more information about this study, the study design, or the results, you can contact Dennis Arreman (contact email: d.arreman@student.tue.nl) or Evie Tossaint (contact email: e.d.tossaint@student.tue.nl).

If you have any complaints about this study, please contact the supervisor Wolmet Barendregt (w.barendregt@tue.nl). You can report irregularities related to scientific integrity to confidential advisors of the TU/e.

Informed consent form

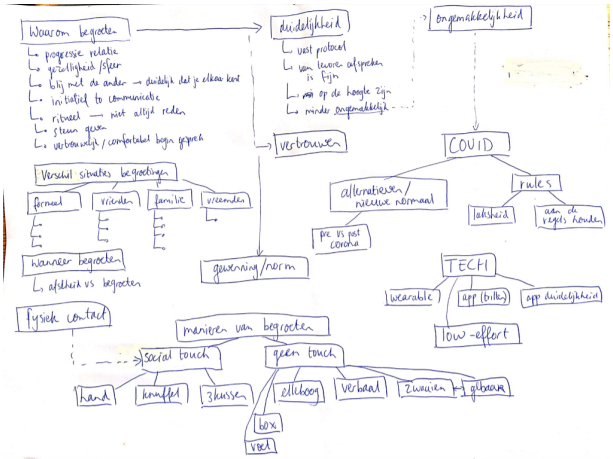
- I have read and understood the information of the corresponding information form for participants.
- I have been given the opportunity to ask questions. My questions are sufficiently answered, and I had sufficient time to decide whether I participated.
- I know that my participation is completely voluntary. I know that I can refuse to participate and that I can stop my participation at any time during the study, without giving any reasons. I know that I can withdraw permission to use my data up to 24 hours after the data have been recorded.
- I agree to voluntarily participate in this study carried out as part of our education in the Human Technology Interaction master programme of the Eindhoven University of Technology.
- I know that no information that can be used to personally identify me or my responses in this study will be shared with anyone outside of the project team.

Certificate of consent

I, (NAME)
……
want and provide consent to participate in the focus group

Participant's Signature Date

Appendix VI
Individual affinity diagrams



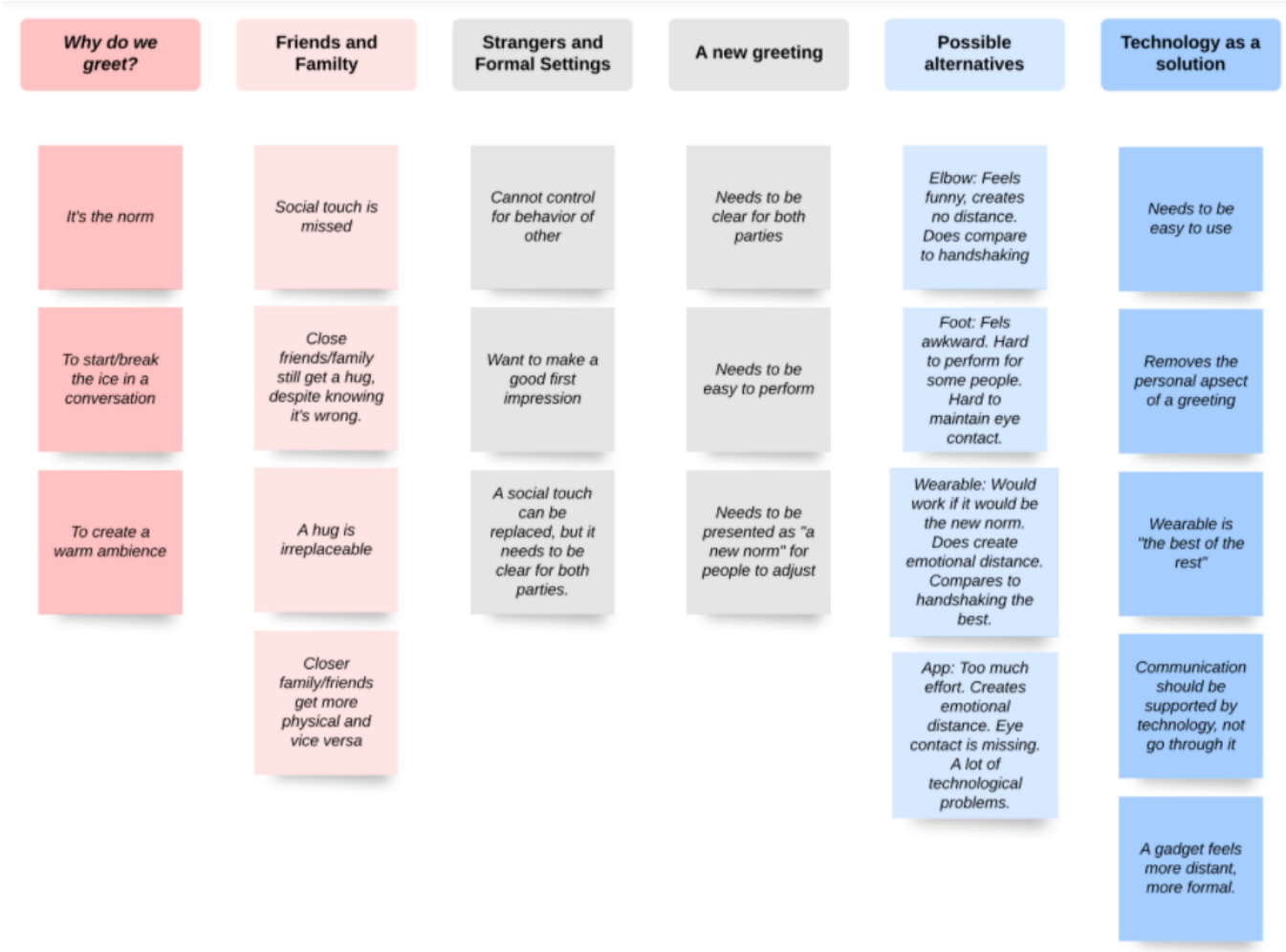
Myke Affinity Diagram

Why we greet	Greeting standard	Hug	Handshaking	Alternatives	Technological Alternatives
We greet out of habit.	The lack of a standard has made greetings awkward.	Hugs cannot be replaced by an alternative.	Handshaking was a formality and a norm.	Touching the knuckles is closest to the handshake.	The wearable should be comfortable and convenient to carry.
We greet to create a pleasant vibe.	It is important to be aware of the greeting standard.	Hugs are missed for good friends and close family.	Handshaking made people feel at ease.	An elbow greeting is close to the handshake, but it feels forced and goofy. It also does not allow for 1.5m distance.	The wearable could work once established as a standard.
We greet to show our intention to communicate.	The current situation can become the new standard.	Women hug more than men.	Handshaking is associated with introducing yourself.	Greetings with the feet are awkward and can be difficult for some people. It also does not allow for 1.5m distance.	With the wearable there is no desire for touch with strangers.
We greet to communicate our happiness with the other.	TV can play a role in establishing a new standard.		Handshaking with strangers felt normal and pleasant.	Waving lacks intimacy, it also feels more appropriate when leaving.	The app seems too much effort.
We greet to monitor the status of the relationship.	Culture plays a role on the standard.			A verbal greeting suffices but it feels distant.	The app could only work once established as a standard.
	Once the COVID-19 situation resolves, we will go back to the old standard.				The phone vibration is not enough to simulate physical touch.

Reasons behind greeting	Family and close friends	Strangers	Awkwardness due to ambiguity	Future greeting	Possible (non-technological) alternatives	Technological alternatives	Reasons for (not) andhering to the rules	Social touch
Showing availability for communication	Social touch is necessary	No touch needed	High need for new norm	Need for new norm	Handshake can be replaced	Ease of use important	Too much trust/no trust	Only with people you trust
Showing that you are happy to see someone	Giving no hug feels strange/awkward	Ambiguity about way of greeting	Discussing it together feel awkward	Needs to be simple	Giving three kisses has always been awkward	Takes away the personal aspect of greeting	Following the others behavior	family/ close friencs

Affects creation of a certain (cozy) atmosphere	No alternative for hugging possible	Need for a clear alternative becoming the norm	Unclear when to say your name	Low in effort/high ease of use	No alternative for hugging family/close friends	Wearable could be an alternative as this would become a norm	Feels too strange to not do it	Shows connectedness
Used to it/ritual	Handshake enough for far family	Handshake communicates personal characteristics		Norn can be created using examples on TV	Waving feels distances/awkward, but proper for goodbye	Application requires too much effort	Forgetting the rules	Level of need for social touch differs amongst individuals
Shows progression of relationship	You trust them in having no Corona				Need for distinction between formal and informal greeting gestures		Hand when being together for a longer period	No alternative possible
Trust indication	Hugging creates connectedness				Verbal greeting feels distanced, but can be enough in formal settings		Avoiding risks of contaminating others	
Giving support					Box is most closely to regular greeting		Hard to tell others you want to adhere to the rules	
Different meaning in greeting vs goodbye					Elbow is informal and feels as a joke		Belief in research results on effectiveness	
					Feet greeting feels awkwards as no eye contact is made			

Why greeting	Family/close friends	Strangers	Formal Meeting	Social touch	Technical alternatives	Non-technical alternatives	Awkwardness and unclarity	New Normative
Progression of relationship	Hugs are missed, without it feels strange	Touch greeting not necessary for e.g. dentist	Important to make good impression	With handshake touch or strangers social touch not necessary	Ease of use and low effect important	Box close to handshake	Awkwardness due to unclearity	Should be simple and without contact
Cozy atmosphere	Kisses are not missed	Greeting is not as missed but weird	Does not have clear replacement	Some need social touch, others do not	Curiosity to use wearable but not able to simulate touch	Verbal greeting feels more distanced, but okay in formal setting	Pre-corona also awkward greetings due to indecision about which greeting	No idea about what new norm should be
Showing happy to see someone	Some still hug each other	Handshake necessary to introducing	Awkwardness is to be prevented	No consensus whether touch is more important during greeting or leaving	Wearable and app make greeting less personal	Waving is less intimate and sometimes awkward but is fine when norm	Waving instead of handshake is awkward	Things that are not the norm feel weird
Showing you want to communicate in comfortable way	Norms are different per friends/family		Handshake is formal and feels proper	Showing affection and enthusiasm not replaced by alternatives	Looking at phone during greeting not nice	Gesture at a distance e.g. nod shows acknowledgement like handshake	Meeting strangers feels strange	If the pandemic takes long time new norm will be established
Habituation	Hugs are irreplaceable			People can get used to no social touch if it is norm	Buzzing of phone is not useful	Elbow feels forced, funny, awkward, and not safe	Elbow feel strange as it is not safe	Hug to friends and family not possible anymore
Showing you know someone	Only physical greetings with people you trust			Handshake to comfort people	Selecting greeting before is too much effort, not necessary, feels obligatory and weird, and not fit for formal meeting	Feet greeting feels awkward, no eye contact and not safe	Clear protocol is needed and everybody should be informed	TV can help with creating new norm
Giving support in difficult situations	Close relationship, more touch/ not following the rules				Communication should only be supported by technology			


Why do we greet?
It's the norm
To start/break the ice in a conversation
To create a warm ambience
Friends and Familty
Social touch is missed
Close friends/family still get a hug, despite knowing it's wrong.
A hug is irreplaceable
Closer family/friends get more physical and vice versa
Strangers and Formal Settings
Cannot control for behavior of other
Want to make a good first impression
A social touch can be replaced, but it needs to be clear for both parties.
A new greeting
Needs to be clear for both parties
Needs to be easy to perform
Needs to be presented as "a new norm" for people to adjust
Possible alternatives
Elbow: Feels funny, creates no distance. Does compare to handshaking
Foot: Fels awkward. Hard to perform for some people. Hard to maintain eye contact.
Wearable: Would work if it would be the new norm. Does create emotional distance. Compares to handshaking the best.
App: Too much effort. Creates emotional distance. Eye contact is missing. A lot of technological problems.
Technology as a solution
Needs to be easy to use
Removes the personal apsect of a greeting
Wearable is "the best of the rest"
Communication should be supported by technology, not go through it
A gadget feels more distant, more formal.

Appendix VII

Envisioning activities for the creation of a future value scenario

Filling in the envisioning activities

1. **Ethical** criteria: (and their respective possible envisioning activities)
    a. **Stakeholders**: direct and indirect
        i. **List direct stakeholders**. In what key roles will individuals interact directly with the system? **Organizers and invitees**
        ii. **Identify non-targeted use**. Who might use the interactive system for nefarious or unplanned purposes? In what ways? Identify 3 possibilities. **1. To endanger people's health. 2. To coerce social touch. 3. To force uncomfortable situations.**
        iii. **List indirect stakeholders.** What are five roles that will be affected by the interactive system but will not directly interact with it. **Invitees: invitees may or may not directly interact with the system.**
        iv. **Consider benefits and harms.** For each role above, what are benefits or downsides of interaction with the system?

            Organizer:
            + **Can evade awkwardness**
            + **Can evade health risks**
            + **Can increase social intimacy**
            - **Can upset people who do not want the proposed greeting.**

            Invitee:
            - **Can feel forced to perform a certain greeting**
                - **discomfort**
                - **health risk**
            - **Having to suggest another greeting**
                - **discomfort**
                - **time-expensive**

    b. **Values**: which are supported, which are at risk.
        i. **Choose desired values.** Create a list of three values the system should support. **Connectedness, Health, and Freedom of expression**
        ii. **Consider values at stake.** Create a list of five values that are impacted by the design. **The three above. Well-being, Autonomy, Informed consent, Safety, Community**
        iii. Some values: *autonomy, community, democracy, environmental sustainability, fairness, human dignity, inclusivity, informed consent, justice, privacy, self efficacy, trust, etc.*
2. **Future** criteria: (and their respective possible envisioning activities)
    a. **Time**: 3, 5, 10+ years
        i. **Reflect on future trends.** Imagine five years into the future. Your design has been widely adopted and impacts all stakeholders. What are the implications for:
            1. How people do their **work…**
            2. How people make/maintain **relationships…**
            3. Physical **health** and **wellbeing…**
            4. **Those who cannot afford** the technology…
            5. **Norms** and **social expectations**…

            Indicating the greeting in a meeting has now become the norm. Meetings are

not finalised until the greeting has been decided upon. Different greetings are used for different relationships (formal vs informal; friends vs colleagues). Physical well-being is improved, due to the lower amount of physical interaction. (with regards to the COVID-19 situation).

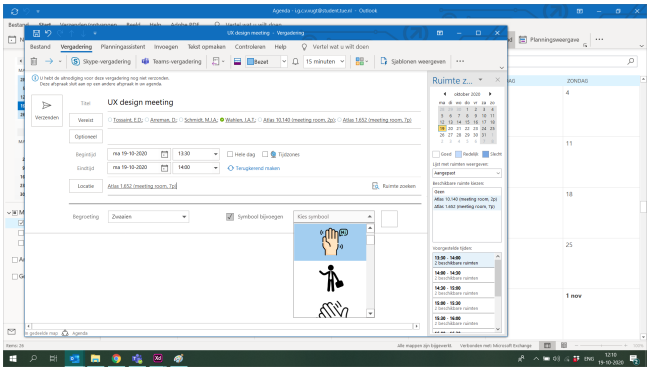
b. **Pervasiveness**: e.g., culture, geographic region, context of use.
   i. **Consider masses of direct stakeholders.** Imagine 10, then 100, then 1000, individuals interacting with the system. What new interactions energy from widespread use?
   With an increasing number of people interacting with MeetAndGreet, it may emerge as a new standard for setting up meetings. It may be the case people create new types of greetings due to the prevalent use of MeetAndGreet and its feature to create your own GIFS (if it becomes a trendy/hip thing to do).
   ii. **Consider masses of indirect stakeholders.** Same as above with indirect stakeholders.
   With an increasing number of people interacting with MeetAndGreet, it may become a norm to agree on a greeting style before meeting someone. So much so, that even people who do not use MeetAndGreet are specifying greetings when they set up a meeting with someone.
   iii. **Identify implications of widespread use.** Same as above but then with places. (e.g., 1 university, vs 10, vs 1000 universities) How do interactions change as the use spreads?
   iv. **Consider widespread geographic locations.** Imagine interactive system use across regional geographies (e.g., rural areas within a state)
   Widespread use aids in making MeetAndGreet a standard. As a new standard, it will have the same consequences as mentioned earlier by masses of stakeholders.

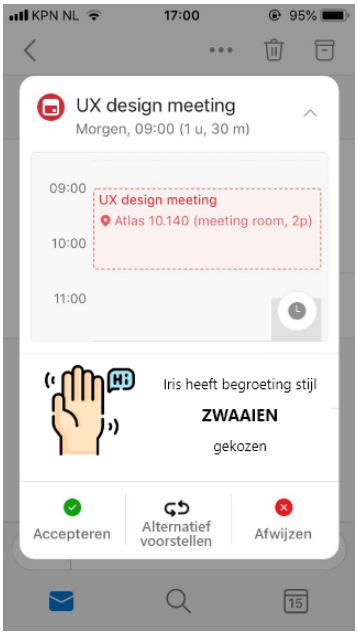
Appendix VIII

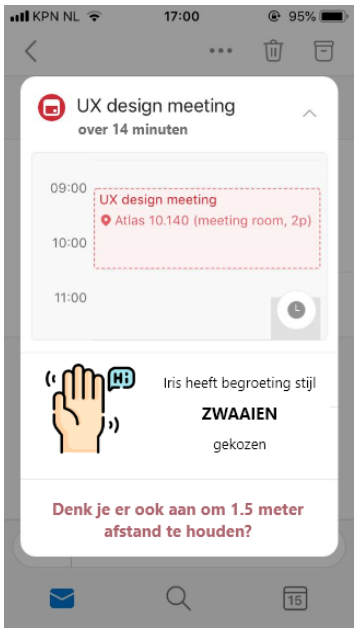
Final Prototype: screenshots

In this appendix, some important screenshots of our final prototypes can be found. Additionally, our (partly) interactive prototypes we used for the user test, can be found via this link: https://xd.adobe.com/view/23e5549a-d07a-4d68-56c9-d6e4956ef224-55d4/

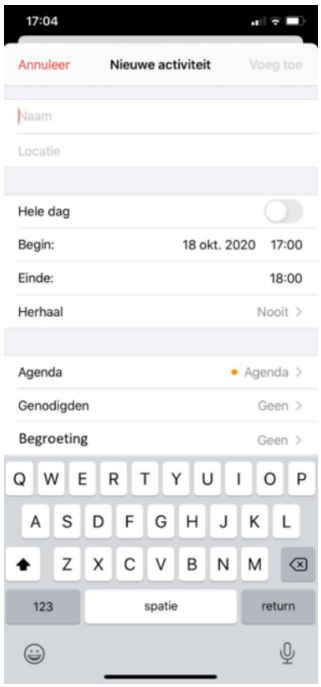
1. Outlook extension

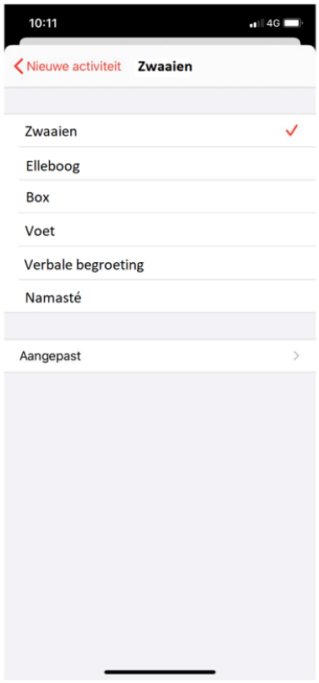






2. Whatsapp extension





Appendix IX
Scenarios and questions user test (Dutch)

Scenarios user test
Het idee is dat je ter voorbereiding op een fysieke meeting kan laten weten welke type begroeting (op afstand) je wil gebruiken. Hierbij zijn twee versies van een prototype gemaakt, een voor een formele meeting (in outlook), een voor informele meeting (in app). Ik zal beide versies laten zien en hier vervolgens vragen over stellen.

We beginnen met de outlook versie:

1. Startscherm van outlook kalender van Iris
2. Nu ga ik een nieuwe meeting toevoegen (klik op nieuwe meeting)
3. Hier kan je alle gegevens invullen (titel, deelnemers, datum, tijd etc)
4. die zijn voor nu al automatisch ingevuld, normaal doe je dit zelf
5. onderaan deze meeting heb je een keuze menu voor begroeting en dan kan je een begroeting kiezen
6. Voor nu kiezen we de begroeting zwaaien, dan kunnen we ervoor kiezen een symbool toe te voegen en uitzoeken. We kiezen de bovenste, dan komt hij in de invite erbij te staan
7. Nu verzenden we de meeting request
8. Nu ontvangt een van de deelnemers Evie een notificatie op haar telefoon van de door Iris aangemaakte meeting request.
9. Je opent de notificatie en ziet de door Iris aangemaakte meeting request. Je klikt op RSVP en dan zie je de gegevens van het request inclusief de gekozen begroeting en symbool. Deze begroeting kan je vervolgens accepteren, afwijzen of een alternatief voorstellen.
10. We gaan een alternatief voorstellen, dus we klikken op alternatief voorstellen
11. Hier kunnen we de begroeting aanpassen, we kiezen i.p.v. zwaaien, elleboog en verzenden het alternatief.
12. Stel we zouden zwaaien wel accepteren dan klikken we op accepteren i.p.v. alternatief voorstellen
13. Vijftien minuten voor de meeting krijgt Evie de volgende notificatie op haar telefoon te zien met de informatie over de meeting en als je op het pijltje rechtsboven klikt zie je het symbool van de begroeting. Als je de melding opent dan zie je de request in je inbox. Als je op weergeven klikt zie je weer alle informatie over de afspraak plus de herinnering dat je afstand moet houden van anderen.

Vragen:

- Wat vind je van deze outlook extensie?
- Wat vind je van het keuzemenu van begroeting als toevoeging aan de meeting request? Wat vind je ervan dat je uit verschillende begroetingen kan kiezen?
    - note: je kan ook een eigen begroeting toevoegen
- Wat vind je van het toevoegen van een symbool bij de begroeting?
- Zou je iets veranderen/anders willen zien?
    - meeting aanmaken
    - alternatieve begroeting voorstellen
    - notificatie (“reminder”) ontvangen
- Zou je extensie zelf gebruiken? En waarom wel of niet?

Nu ga ik de WhatsApp versie laten zien:

1. Juliët wil met haar werkgroep een afspraak plannen en opent de whatsapp groep.
2. Vervolgens klikt ze op het plusje en op ‘agenda afspraak’. Hierdoor komt ze in het menu om de afspraak en alle informatie hierover toe te voegen.
3. Onderaan kan ze de begroeting stijl toevoegen die ze zou willen uitvoeren tijdens de meeting. Juliët kiest zwaaien als begroeting stijl, je ziet dit nu ingevuld staan. Als ze naar onder scrolt en op bijlage toevoegen klikt, dan kan ze een GIF bij deze begroeting toevoegen. Dit is nu al gedaan.
4. Ze klikt op voeg toe om de meeting request te versturen.
5. Nu zie je de door Juliët verstuurde afspraak met bijbehorend voorstel voor de begroeting.
6. Anderen kunnen nu reageren op haar voorstel.
7. Juliët krijgt van Iris een reactie op je voorstel met een alternatieve begroeting ‘de box’. Deze heeft Iris op dezelfde manier geselecteerd als wij dit gedaan hebben na op ‘alternatief voorstellen’ te klikken in het door Juliët's gestuurde appje. Juliët vindt het voorstel van Iris ook prima, dus klikt op accepteren. Vervolgens krijgt Juliët te zien dat de andere 4 deelnemers deze begroetingsvorm ook geaccepteerd hebben.
8. Er was nu een nieuw voorstel gedaan, maar dat had niet gehoeven. Iris had het verzoek van Juliët ook kunnen accepteren. Stel Iris had de begroeting ‘zwaaien’ die was voorgesteld door Juliët geaccepteerd, dan zou ze 15 minuten voor de vergadering een melding krijgen over de afspraak. Wanneer Juliët hierop klikt ziet ze het gifje van de begroeting.

Vragen:

- Wat vond je van deze Whatsapp extensie?
- Wat vind je van de mogelijkheid om een afspraak te plannen via Whatsapp?
- Wat vind je van het keuzemenu van begroeting als toevoeging aan de meeting request? Wat vind je ervan dat je uit verschillende begroetingen kan kiezen?
    - note: je kan ook een eigen begroeting toevoegen
- Wat vind je van het toevoegen van een gif bij de begroeting?
    - wat vind je van de optie om een custom foto als begroeting
- Zou je iets veranderen/anders willen zien?
    - afspraak aanmaken
    - alternatieve begroeting voorstellen
    - notificatie (“reminder”) ontvangen
- Zou je extensie zelf gebruiken? En waarom wel of niet?

Algemene vragen:

- Welke extensie heeft jouw voorkeur? Waarom?
- Zou jij zelf gebruik van een dergelijke extensie in Outlook of Whatsapp? Waarom wel/niet?
- Zie jij het nut van zo’n extensie?
    - In tijden van social distancing?
    - Denk je dat het helpt met de ongemakkelijkheid die nu soms aanwezig is bij een begroeting op afstand
    - Denk je dat het helpt met de onduidelijkheid die soms wordt ervaren bij een begroeting op afstand?
- Wat zou je er van vinden als anderen je via deze extensie inviten voor een meeting?
    - Kun je situaties voorstellen waar je dit wel/niet fijn zou vinden? (Waarom?)

Appendix X
Informed consent form user tests

Information form for participants

This document gives you information about the study “Meeting and greeting people during social distancing times 2”. Before the study begins, it is important that you learn about the procedure followed in this study and that you give your informed consent for voluntary participation. Please read this document carefully.

Aim and benefit of the study

The aim of this study is to demonstrate and evaluate two prototypes that support social interaction when it is not possible to physically greet each other, for example during the Covid-19 pandemic. This information is used to further improve the demonstrated prototype.
This study is performed by Dennis Arreman, Evie Tossaint, Juliët Wahlen, Mykel Schmidt and Iris van Vugt, students in the course User Experience at the HTI master, under the supervision of dr. Wolmet Barendregt of the Human-Technology Interaction group.

Procedure

You will participate in the study via a face-to-face user test. In the user test, you will be demonstrated two prototypes and are asked several questions regarding your evaluation of these prototypes.

Risks

The study does not involve any risks, detrimental side effects, or cause discomfort.

Duration

The user test will take approximately 30 minutes.

Participants

You were selected because you are a student at the Eindhoven University of Technology.

Voluntary

Your participation is completely voluntary. You can refuse to participate without giving any reasons and you can stop your participation at any time during the study. You can also withdraw your permission to use your data up to 24 hours after they were recorded. None of this will have any negative consequences for you whatsoever.

Compensation

You will not receive any compensation for participating in the study.

Confidentiality and use, storage, and sharing of data.

All research conducted at the Human-Technology Interaction Group adheres to the Code of Ethics of the NIP (Nederlands Instituut voor Psychologen – Dutch Institute for Psychologists), and this study has been approved by the Ethical Review Board of the university.

In this study, only the experimental data (e.g., your responses to the questions asked during the user test and your feedback about the prototype) will be recorded in the form of notes made by the student and an audio recording. The notes made by the student will be completely anonymous. The audio recordings will be deleted immediately after the transcription. No personal data will be recorded in the study. We will not share personal information about you or your responses in this study with

anyone outside of the course (classmates and teachers). Only the team members will know your identity but they will not disclose this information to the other teams or to the teachers. After the end of the course, all notes will be deleted.

Further information

If you want more information about this study, the study design, or the results, you can contact Dennis Arreman (contact email: d.arreman@student.tue.nl) or Evie Tossaint (contact email: e.d.tossaint@student.tue.nl).

If you have any complaints about this study, please contact the supervisor Wolmet Barendregt (w.barendregt@tue.nl). You can report irregularities related to scientific integrity to confidential advisors of the TU/e.

Informed consent form

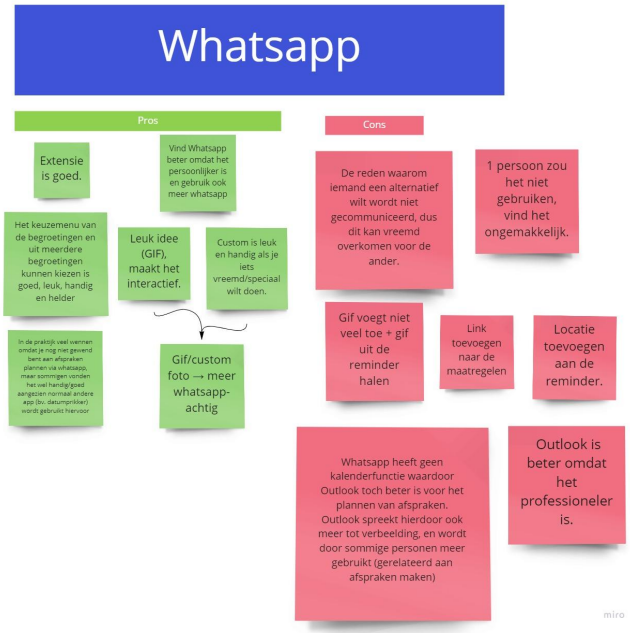
- I have read and understood the information of the corresponding information form for participants.
- I have been given the opportunity to ask questions. My questions are sufficiently answered, and I had sufficient time to decide whether I participated.
- I know that my participation is completely voluntary. I know that I can refuse to participate and that I can stop my participation at any time during the study, without giving any reasons. I know that I can withdraw permission to use my data up to 24 hours after the data have been recorded.
- I agree to voluntarily participate in this study carried out as part of our education in the Human Technology Interaction master programme of the Eindhoven University of Technology.
- I know that no information that can be used to personally identify me or my responses in this study will be shared with anyone outside of the project team.

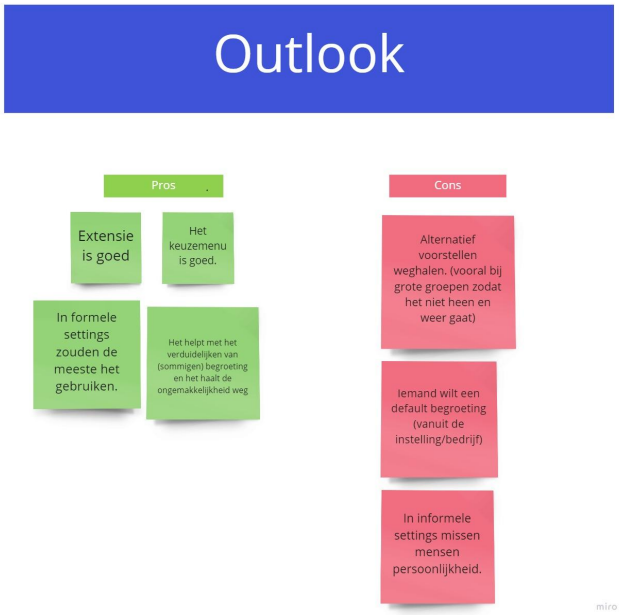
Certificate of consent

I, (NAME) ……..……want and provide consent to participate in the focus group

Participant's Signature Date

Appendix XI **Analysis User Tests**





Appendix XII
Feedback questions final exhibition