

Design for Behavioural Change - Retake

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ABSTRACT

The following paper contains the retake assignment for the course Design for Behavioural Change. The first three assignments were made as a group, the reflections are individual.

DISCLAIMER

When this concept was first designed, the situation surrounding sars-cov-2 was still different. People were allowed to have six people over [11]. However, in the current situation, this is no longer the case. We do not want to insinuate that doing research like this is necessary or responsible. Therefore, the current setup of the validation study is based on the rules before the full lockdown here in the Netherlands.

THEORETICAL ANALYSIS

We analysed our project from the Theory of Reasoned Action (TRA) [6-8] and Theory of Planned Behaviour (TPB) [2,4] as these theories have been used to predict many health-related behaviours [10]. For example, the TPB which was used to create the Intention to Maintain Social Distancing Scale (IMSDS) [9].

From the three beliefs guiding human behaviour [2,4,6-8], the study by Iwaya et al [9] suggests that attitude (behavioural belief) and Subjective Norm (normative belief) are most influential in the intention to maintain social distancing. It seems fitting to use these to see how our design could be more effective in creating the intention to socially distance in a private setting.

Concepts

The intended behaviour change for our initial prototype was: increase the amount people talk about boundaries and wishes concerning social distancing. By changing the attitude towards this behaviour, it was expected that it would trigger a change in the intention to perform the behaviour of social distancing.

In our renewed concept, we focus on changing the factors directly influencing the intention to socially distance using our prototype. Based on the research presented earlier, the subjective norm was chosen as the 'main' factor to target with our design.

Improvements

The old concept contains a detour. By influencing the attitude of 'talking about social distancing'-behaviour with a prototype, we expected social distancing behaviour to be performed. This is an indirect influence, and it is not likely for this intervention to have the desired effect.

The new concept directly affects factors influencing the intention to perform the intended 'social distancing'-behaviour. The focus now lies on the subjective norm and the normative beliefs influencing it. The normative beliefs concerning your friends and family's expectations of your behaviour, as well as the motivation to comply, are targeted in our design.

Via a mobile application, users can anonymously declare the behavioural expectations are not being met. This sends a signal to a shape-changing artefact - a balloon which will inflate based on the number of people pressing the app's button. The size signals the urgency, the larger the balloon, the more people who are feeling uneasy. When everyone changes their behaviour, and the number of presses in the app decreases, the balloon will slowly deflate as a motivation to comply.

This deflation should be a motivation to comply, for only if everyone performs the behaviour, will the balloon deflate.

By directly influencing factors with more relative weight, it is more likely that the design influences the intentions and the intended 'social distancing'-behaviour [3].

CONCEPT EVALUATION

As our target audience includes every person over the age of thirteen [11-12], the age diversity in our evaluation should reach from teenagers to senior citizens. To simulate private settings, we will need to make multiple participants groups. Each group contains eight participants, of which two are residents and six are guests. Three groups will be formed, creating a total of twenty-four participants. Next to that, the participant groups should exist of friends or relatives to simulate private settings. We will have to find and select varying participant groups to make sure all age groups are represented.

To evaluate the effect of using our intervention against not using our intervention, we will use reversal design [13]. For each participant group, we will plan four consecutive measurement sessions, alternating baseline and intervention sessions. Reversal design relies on a stable responding to the situation [13], which is why we chose each session to be a three-hour sitting to simulate a usual family or friends get together and to give the intervention time to generate a stable responding. The first session generates a baseline: a get-together without the prototype. The second session is an intervention, a get-together with the prototype. This structure repeats for the third and fourth session.

After each session, the participant will fill in a questionnaire, which is an altered version of the one used by Iwaya et al [9] to better fit the researched situation. See Figure 1 for examples of altered questions. By analysing the results after each session, we will be able to see if the intervention has an influence on the subjective norm factor and how this changes behavioural intentions.

To validate whether our prototype has meaningful results and fulfils the goal of increasing social distancing in private settings, the intervention phase should result in an increased behavioural intention towards social distancing. If this is not the case, we can conclude that the intervention has no impact on social distancing in private settings. Figure 2 shows an

IMSDS Questionnaire question	Altered questionnaire question
I intend to maintain social distancing for the next few days.	I intend to maintain social distancing in private settings.
People whose opinion I value would like me to maintain social distancing for the next few days.	People whose opinion I value would like me to maintain social distancing in their presence.

Figure 1: The left column shows questions from the questionnaire used in the IMSDS research (Iwaya et al., 2020). In the right column these questions are altered to fit this user evaluation.

Behavioural Change technique	Determinant	Change objective
Provide information about other's approval, by discussing the topic with relatives and friends [1].	Subjective norm towards maintaining social distancing,	Increase in intention to maintain social distancing, not only in public but also in private settings.

Figure 2: Outcome logic map.

outcome logic map representing these validations. The second baseline phase's results should resemble the first baseline phase and not the intervention phase to prove that the intervention caused the behavioural change [13]. Otherwise, there might have been another cause for behavioural change. This other cause could then be researched.

DESIGN FRAMEWORKS

Cialdini's influence principles were chosen as a framework, more specifically the principles commitment and consistency, social proof and liking [5]. This framework and these principles were chosen because they rely on the subjective norm to influence behaviour.

Commitment and consistency

According to Cialdini [5], by explicitly asking someone to commit to a cause, in this case social distancing, they are more likely to do so. People will not want to be known as inconsistent and uncommitted, especially among friends and family. This could have negative

outcomes for the future because an individual might be trusted less.

Asking visitors of a gathering to download the app that controls the prototype, could be presented as a way to explicitly commit to the social distancing rules. The host shows their preference for these rules to be upheld by using the artefact and application at a gathering. The concept helps people to be mindful of social distancing and the host does not have to keep reminding people.

Social proof

Social proof means that people base their behaviour on what others in their environment are doing [5]. So, when a group is social distancing, people might feel convinced or pressured to do so as well.

The balloon blowing up serves as proof of people's discomfort and want for more distance. Visualizing this want could influence others to also keep more distance. This size of the balloon is a collective responsibility, when everyone complies with social distancing an

extra stimulation could be the balloon deflating. This reward is given when people keep a distance for a long, consecutive time and requires a team effort.

Liking

People's willingness to commit to something is increased when it is requested by someone they like [5]. Regarding social distancing this would mean that people want to protect their loved ones, thus comply with their want to obey the social distancing rules.

By preventing the host from having to police people during the event, the 'liking' of the host will not decrease. Next to that, a feature could be added to the concept to raise people's awareness of how many of their friends and family they have (indirectly) helped by keeping a distance. This could make the results of your actions more visible and shows you have helped people you care about.

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REFLECTION - STAN BETTERAIJ

In the original Design for Behavioral change report, I assumed the task of explaining how our design solution was based on theories and frameworks. In explaining the design process, I tried to mention as many theories as I could, thinking this would make strong arguments for our design choices. As a result, most of the theories and frameworks were used wrongly, or not used with enough depth, making the design choices weak and unsupported. By focussing on only one theory to justify the design solution in the retake assignment, I see that the chosen theory is applied in more depth. This way, the designer learns more about the theory and the argumentation becomes more correct and stronger. The elective provided me with a number of behaviour change

theories that will be useful in my future design projects and taught me to carefully select which theory to apply to a design process depending on the design goal.

In the retake assignment, I focussed on the evaluation method. Instead of simply applying user evaluation methods I use in other projects, I dug into the evaluation methods provided by the course lectures and expanded these with related literature and prior research. This led to a more grounded user evaluation.

From the group work in this elective, I learned about the importance of looking at your team members' work critically. When working in student teams, I usually do not feel responsible for other students' work because I trust in their capabilities. I do read their part of the

assignment and see if their work sounds believable, but I never check the facts they use to support their work. This has two negative results. First of all, I do not learn much from parts of assignments team members write, missing opportunities to gain knowledge and understanding of their topics. Secondly, I am not able to review their work critically. I think that if we had done more research in each other's parts of the assignment, we could have seen the mistakes that we made and corrected each other in the original elective report.

Altogether, I think that doing the retake for this elective taught me about making use of theories in a more meaningful way and to be more involved in the assignments of team members.

REFLECTION - HANNAH VAN ITERSON

Theory

Revisiting the theories and the way we applied them, has shown me that I only had a surface-level understanding of them. Diving into the TRA and TPB for this assignment, helped me gain a deeper understanding of that specific theory. Having read papers of it being applied was very helpful. I want to do this with the other theories as well, as well as -if possible- apply or involve them in future projects.

Design methods

The design methods were, for me, the clearest. In my other projects, I've done my best to practice applying and thinking about these frameworks. Specifically, the Design with Intent cards have been useful in ideation about ways we could influence the behaviour in our M1 project. Having access to several design methods is, in

my opinion, very valuable for a designer, for it can help when a group is stuck in ideation or when ideating with a multidisciplinary group.

Evaluation

Doing research and understanding how to set up a proper study has never been my forte. I focussed on this during the initial part of the project, and I did not execute this part well. To improve in this, I took the time to look back at the lectures and do my best to understand them better. I will get more practice with setting up an iterating or evaluation methods in my future research project.

Teamwork

In my previous reflection, I mentioned that I found collaborating remotely quite tricky. I can see this back in our report: It is quite messy. During this assignment, it became clear that we all had a different understanding

of our prototype and what the exact goal and methods were through which it worked.

This shows that we did not communicate effectively. I have tried my best to take it upon myself to improve my communication in the group. By being as explicit and open as possible, and I feel others have as well. Thanks to this, we have now got a better shared understanding of the design, allowing us to improve our work.

Conclusion

Concluding, I feel like this course has given me a fair first step into understanding the ins and outs of designing for, and evaluation of, behaviour change. I plan to work on my understanding of the evaluation, along with the application of the theories and design methods in the following semester in my research project.

REFLECTION - AYAH YACOUB

By choosing one of the theories (TPB and TRA) that we studied during the course for this assignment it became easier for me to understand more in depth how the theory can be applied to our concept. Normally during projects I don't consciously use theories to create a design concept but to support the design concepts. By using theory as a starting point I learned that you always start from facts instead of assumptions about how to tackle certain situations making them more concrete.

The design frameworks and methods are easier to apply more directly to a design. However, in my opinion the hard thing about deciding on one framework is that most of the frameworks and methods had elements that could

improve the design concept. I think the frameworks would be more easy to apply at the beginning when making design decisions. Using them to critically analyse our concept and how it could be improved was a nice learning point.

For the evaluation of the design concept one of the challenges in my opinion is the change in the rules and guidelines by the government as they influenced our set up. When we created the concept it was based on the rules and situation of COVID-19 during that time, these rules have now changed. The evaluation set up is now based on the rules during the creation but in the future it would be interesting to me to see how a proper set up can be created for the current situation.

The teamwork was more efficient this time around compared to before. This does not mean that it was bad before, but I think we discussed some of the previous misunderstanding regarding the concept which resulted in all of us being on the same page. By communicating well we were able to work very efficiently and concretely help each other where needed.

Overall, I learned how to directly apply theories and frameworks within a design process at the beginning of a design process but also as a reflective improvement tool. In the future I will try to continue designing from existing works as they already give many insights that can be practiced within different situations.