

Idun Sarre Ramstad

Well-Behaved Design

How can Behavioural Design help navigate the ethical landscape of the increasingly complex world of persuasive technologies?

June 2020



Norwegian University of
Science and Technology

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Idun Sarre Ramstad

Industrial Design Engineering

Submission date: June 2020

Supervisor: Trond Are Øritsland

Co-supervisor: Torbjørn Helland Solhaug

Norwegian University of Science and Technology
Department of Design

Well-*Behaved* Design

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Preface

This master's thesis is written by Idun Sarre Ramstad at the Department of Design, NTNU. I used this master's thesis as an opportunity to challenge design as I know it, and gain a deeper understanding of my privilege to solve societal issues and my power to influence the world for good. This thesis allowed me to have the critical, speculative and discursive approach I've always wanted to implement, but never previously got the chance to try.

After five long years, it feels good to wrap my knowledge and experience in a layer of awareness and responsibility. It feels good to have used this thesis as an opportunity to discover applicable ways of designing for social good, considering the current state of the world (I assume this is pretty self-explanatory). I am proud of the work I've put into this thesis, and the reflections that came out of it. And I am excited to have reached my goal.

I am grateful for my supervisor Trond Are Øritsland, for introducing me to the landscape of political and critical design, and always listening and making sense of my messy thoughts. I would also like to thank my co-supervisor Torbjørn Helland Solhaug for his brilliant insights and constructive feedback.

Furthermore, I would like to thank all my classmates who have made these past five years such a good experience, full of joy, frustration and inspiration. A special thanks to Vilde, Malin, Mia and Maureen for the consistent emotional support, guidance and feedback.

Finally, I would like to thank Lee for proof-reading this thesis and for his consistent support, despite spending half the semester in home isolation with me. And of course, I am grateful to my family; my mother, sister and brother, for motivating me throughout my thesis with their love and support.

Oslo, 21.06.20

A handwritten signature in black ink that reads "Idun Ramstad". The signature is written in a cursive, flowing style.

Abstract

We are living in the time of human downgrading. Technological devices are becoming increasingly powerful and influential, and are exploiting our cognitive weaknesses by persuading our behaviour to fit their needs. Simultaneously, Behavioural Design has emerged as a new framework for systematically influencing human behaviour, through a set of explicit techniques for behavioural change. Despite most designers using these techniques for social good and in alignment with the user's desires, these techniques can sometimes result in harmful and unwanted social implications. However, the same goes for traditional design, which is implicitly persuasive in nature as it modifies the environment in which a user makes a choice. This thesis aims to explore how Behavioural Design can help designers navigate the ethical landscape of the increasingly complex world of persuasive technologies. Could Behavioural Design be an opportunity for achieving a more transformative and reflective design approach, to facilitate increased awareness of the impact of our designs?

Through a literature review, desktop research and expert interviews, the thesis explores what Behavioural Design is, some common persuasive techniques, and how it's currently applied by designers today. Then, through a more critical perspective, the thesis seeks to define if, and to what extent, all design is implicitly persuasive, and the possible social implications of influencing human behaviour through design.

Following this, the thesis takes a more speculative approach to better understand how we got where we are today, and the possible implications of staying on the same path of human downgrading. Through the use of the Futures Cone and the Futures Wheel, the thesis seeks to identify the impact of our current design approach, and the human-technology relationship that waits within the Probable future. By creating Rapid Research Probes, the thesis manifests the values of the Probable future within a tangible reality, making it easier to discuss and reflect with other designers.

The thesis then explores the Preferable future; what it could be, and how we might get there. Based on existing design research the Preferable future was identified as 'inclusive', and it was then explored through a design workshop that focused on how we could design for an inclusive future society. Building on these insights, the thesis then explores using Behavioural Design to facilitate inclusivity. Through exploring social media for societal norms, attitudes and values, I discover the challenges permeating racist ideologies.

Following this insight is a design process 'designing for active anti-racism', using Behavioural Design as a framework for a reflective and transformative approach. The result of this approach is a process with applicable methods, that lead to a provocation to provoke and encourage critical reflection. To conclude the reflections and transformative approach, the findings are presented in a visual booklet for designers, to facilitate increased awareness of their own bias and the possible impact of their designs, regardless of their intentions. Finally, the last chapter seeks to present and discuss the contributions of this thesis and evaluate its approach, reflect on the future of Behavioural Design, and review the implicit power and responsibility that comes with design.

Sammendrag

Vi lever i en tid med menneskelig nedgradering. Teknologiske enheter blir stadig mer kraftige og innflytelsesrike, og utnytter våre kognitive svakheter ved å påvirke atferden vår til å passe deres behov. Samtidig har atferdsdesign oppstått som et nytt rammeverk for systematisk påvirkning av menneskelig atferd, gjennom et sett eksplisitte teknikker for atferdsendring. Til tross for at de fleste designere bruker disse teknikkene til samfunnets beste, og i samsvar med brukerens ønsker, kan disse teknikkene noen ganger føre til skadelige og uønskede sosiale implikasjoner. Imidlertid gjelder det samme for tradisjonell design, som er implisitt påvirkende gjennom å endre miljøet brukeren tar et valg i. Denne masteroppgaven tar sikte på å utforske hvordan atferdsdesign kan hjelpe designere med å navigere det etiske landskapet i en stadig mer kompleks verden av innflytelsesrik teknologi. Kan atferdsdesign være en mulighet for å oppnå en mer transformativ og reflekterende tilnærming til design, gjennom å øke bevisstheten vår om effekten av design?

Gjennom litteraturanalyser, vitenskapelige studier og ekspertintervjuer, undersøker oppgaven hva atferdsdesign går ut på, noen av de eksplisitte teknikkene for atferdsendring, samt hvordan dette benyttes av designere i dag. Gjennom et mer kritisk perspektiv søker oppgaven å definere om alt design er implisitt påvirkende, og de mulige sosiale implikasjonene av å påvirke menneskelig atferd gjennom design.

Etter dette tar oppgaven en mer spekulativ tilnærming for å bedre forstå hvordan vi havnet der vi er i dag, og de mulige implikasjonene av å holde oss på den samme veien med menneskelig nedgradering. Gjennom bruk av Futures Cone og Futures Wheel, søker oppgaven å identifisere virkningen av vår nåværende designtilnærming, og det menneskelige-teknologiske forholdet som venter i den sannsynlige fremtiden. Ved å lage Rapid Research Probes manifesterer oppgaven den sannsynlige fremtidens verdier i en håndterbar virkelighet, noe som gjorde det lettere å diskutere og reflektere med andre designere.

Deretter utforsker avhandlingen den foretrukne fremtiden; hva den innebærer, og hvordan vi kan komme dit. Basert på eksisterende designforskning ble den foretrukne fremtiden identifisert som 'inkluderende', og deretter utforsket gjennom en workshop om hvordan man kan designe for et inkluderende og fremtidsrettet samfunn. Basert på denne innsikten, undersøker avhandlingen muligheten rundt å bruke atferdsdesign for å fasilitere for inkludering. Gjennom å utforske sosiale medier for normer, holdninger og verdier oppdages det at rasisme er en stor utfordring.

Etter denne innsikten fulgte en designprosess for 'designe for aktiv anti-rasisme', der atferdsdesign brukes som et rammeverk for en reflekterende og transformativ tilnærming. Resultatet er en prosess med anvendelige metoder som førte til en provocatype for å provosere og oppmuntre til kritisk refleksjon. Som konklusjon blir funnene presentert i et visuelt hefte for designere, for å legge til rette for økt bevissthet om egen partiskhet og den mulige effekten av design uavhengig av intensjoner. Til slutt søker det siste kapittelet å presentere og diskutere bidragene i denne oppgaven og evaluere dens tilnærming, reflektere over fremtidens atferdsdesign, samt gjennomgå den implisitte makten og ansvaret som medfølger design.

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Part 1

Introduction

This section introduces the project description, how covid-19 affected the initial problem statement, and the new problem statement that emerged. Then, this section explains my motivation, the plethora of approaches and the process that followed as a result of this.

Project Description

Disclaimer: Revisions due to Covid-19

Due to the extraordinary circumstances following the outbreak of covid-19, I had to make certain revisions to my original plan in early March. Initially, the thesis' main focus was a case study that developed physical and digital prototypes of the same service, and analysed how the contrasting mediums affected user experience. This case study hypothesised that physical and digital services interact differently with us, and therefore would influence our opinions of these services differently.

However, due to the uncertainties surrounding covid-19, it seemed unlikely to develop the prototypes from home, as I had planned on utilising Bouvet's office for technical assistance and emotional support. Besides, due to ethical concerns, I wanted to work in collaboration with a psychologist, to ensure that the case study wouldn't create any new problems along the way. Finally, creating and handing out the physical prototypes also seemed unlikely; the case study was suddenly surrounded by multifarious uncertain factors, and I made the choice to go in a more explorative and speculative direction.

Masteroppgave for Idun Sarre Ramstad

Atferdsdesign

Behavioural Design

Stadig flere tjenester i dag digitaliseres i form av web- og app-baserte plattformer, og i virvaret av apper er det ofte de avhengighetsskapende og atferdsendrende appene som overlever. Ved å spille på psykologiske svakheter kan app-utviklere påvirke atferden vår til egen vinning, men hvordan påvirker dette oss i hverdagen?

Denne oppgaven vil ta for seg hvordan digitalisering påvirker oss, med fokus på hvordan konsepter som *gamification*, *priming* og *nudging* påvirker vår mentale helse og kognitive egenskaper. Videre vil oppgaven dokumentere utviklingen og brukertesting av både en fysisk og digital prototype av et selvhjelpsverktøy, med ulik interaksjon og brukeropplevelse, men med likt hovedinnhold. Det vil dermed gjennomføres en studie for å kartlegge effektene av disse prototypene. Til slutt vil oppgaven drøfte designerens rolle i et stadig digitaliserende samfunn, og definere retningslinjer for samfunnsforsvarlig atferdsdesign. Den endelige leveransen vil inneholde dokumentasjon av prosessen, funn fra studien, og retningslinjer for etisk atferdsdesign.

Masteroppgaven vil inneholde:

- Innsiktsfase med litteraturanalyse og brukerinnsikt
- Analysering av innsikt for å få oversikt og snevre inn prosjektomfanget
- Utviklingen av en digital og fysisk prototype av et selvhjelpsverktøy
- En studie for å kartlegge forskjellene mellom den digitale og fysiske tjenesten
- Retningslinjer for etisk atferdsdesign

Opgaven utføres etter "Retningslinjer for masteroppgaver i Industriell design".

Ansvarlig faglærer: Trond Are Øritsland, NTNU
Biveileder: Torbjørn Helland Solhaug, Bouvet

Utleveringsdato: 09.01.2020
Innleveringsfrist: 04.06.2020

Trondheim, NTNU, 09.01.2020

Trond Are Øritsland
Faglig veileder



Ole Andreas Alsos
Instituttleder



In hindsight, I'm grateful for this new approach. The new aim of this thesis is to explore the potential of behavioural design, what it means to design with a transformative aim, and how we can design with an increased awareness of the possible impact of our designs.

Section 2 seeks to define what behavioural design is and how it is used. Through research, interviews and a literature review, the thesis will first look into defining what behavioural design is, and explore some persuasive techniques and practical real world applications. Then, through a critical perspective, Section 3 will discuss the possible pitfalls of designers using persuasive techniques without an awareness of their long term impact, and how this design approach could influence society. Following this critique, the thesis will explore opportunities for correcting these pitfalls.

Through a speculative approach, Section 4 will demonstrate rapid research probes that manifest realistic and tangible future scenarios, as a provocatype (Bowles, 2018) to be discussed with other designers. Building on this insight, Section 5 will then seek a preferable future. This preferable future is rooted in the shortcomings and threats of our digital behaviour, and the threat this poses to our physical society. The preferable scenario is concluded with a new approach of conducting behavioural design, one that is rooted in a reflective, transformative approach.

Section 6 will explore the practical application of this new behavioural design approach. I will challenge, test and improve the dynamic implementation of it, by designing for Inclusivity through the more specific goal of designing for active anti-racism. Section 7 seeks to validate my approach through a reflective booklet that communicates and validates Section 6's developmental process; it is designed to inform, inspire and provoke designers through a visual and detailed approach. Finally, Section 8 concludes the thesis by discussing the results and reflecting upon the future of behaviour design, and our collective responsibility as designers to be aware of our power, privilege and impact on society.

Motivation

I have spent years studying a plethora of design approaches and different artefacts, but it wasn't until my D9 project that I realized something integral. Peter Glesaaen and I had been working on 'service design for crisis management and social inclusion in Nepal', but our brilliant design approach, that had worked well in earlier projects, simply wasn't applicable anymore. We tried numerous methods, developing a deep, qualitative knowledge about Nepali culture, traditions and values, but a design solution remained distant and, importantly, impractical. This realisation triggered an epiphany: our process wasn't really participatory. That's when we realized our mistakes weren't perceptible in earlier projects, as the user groups were perpetually Norwegian and shared our societal and cultural values, norms and attitudes.

This realization made me wonder; had I been designing for the intended user group or myself? Had the user group just become a resource for information and intuition-check? What happened to the Scandinavian model for participatory design, and why had our approaches always been so centered around the final artefact, rather than empowering the user group through a participatory approach? Regarding our Nepali-based project, we eventually realized we had to change the initial problem statement. It was beyond our scope and abilities as designers to implement a solution without ties to a local community, trust or the resources to do so. However, realizing our limitations was a valuable lesson, as we began to understand how problems start occurring when designers position themselves as the integral component of any process.

Concerned about the ethics of my previous approaches, I sought external research for further input. Critical books, such as “Ruined by design” (Monteiro, 2019) and “Future Ethics” (Bowles, 2018), confirmed my worries, and I realized how naive I had been about my role as a designer. I hadn’t realised the actual impact design could pose on society. This opened up some new questions - how does our design actually impact the user group, beyond meeting the basic requirements of value? Are there psychological impacts we are unaware of? Throughout our university projects, the process always ends when the artifact has been validated by the user group. This is standard, but arguably we never learn to validate the possible impact of this artefact, beyond its intended value, as that kind of awareness requires actual implementation, time and further user testing. This has always been beyond the scope of our projects, but this realization posed a possible problem: how come we’re in a position to influence behaviour, without a fundamental understanding of human psychology? Do we create new problems as we solve some problems?

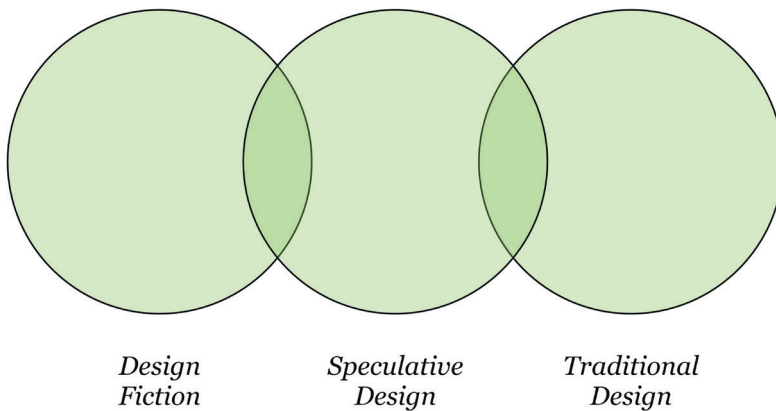
As a result of this, I wanted to use my thesis as an opportunity to;

- 1) Critically explore why and how designers currently use behavioural design, and the possible impact this poses on society
- 2) Investigate using behavioural design as a method for increasing awareness of design’s potential impact, creating a more reflective, sustainable and transformative approach

Approach

In an attempt to tackle the difficult problem statement of applying behavioural design to facilitate a transformative and reflective design approach, my approach has been discursive, critical and speculative.

I have looked broadly at behaviour design and the impact of persuasive technologies through a critical perspective, and speculated in how our current approach could impact our future society. Then, seeking a preferable future, I took a discursive approach and identified inclusive values that a transformative design process should center around. This combination of exploration, critical thinking and reflection differs from the traditional design process, as I didn't seek to solve a problem, but instead encourage a reflective mindset through a speculative approach.



“

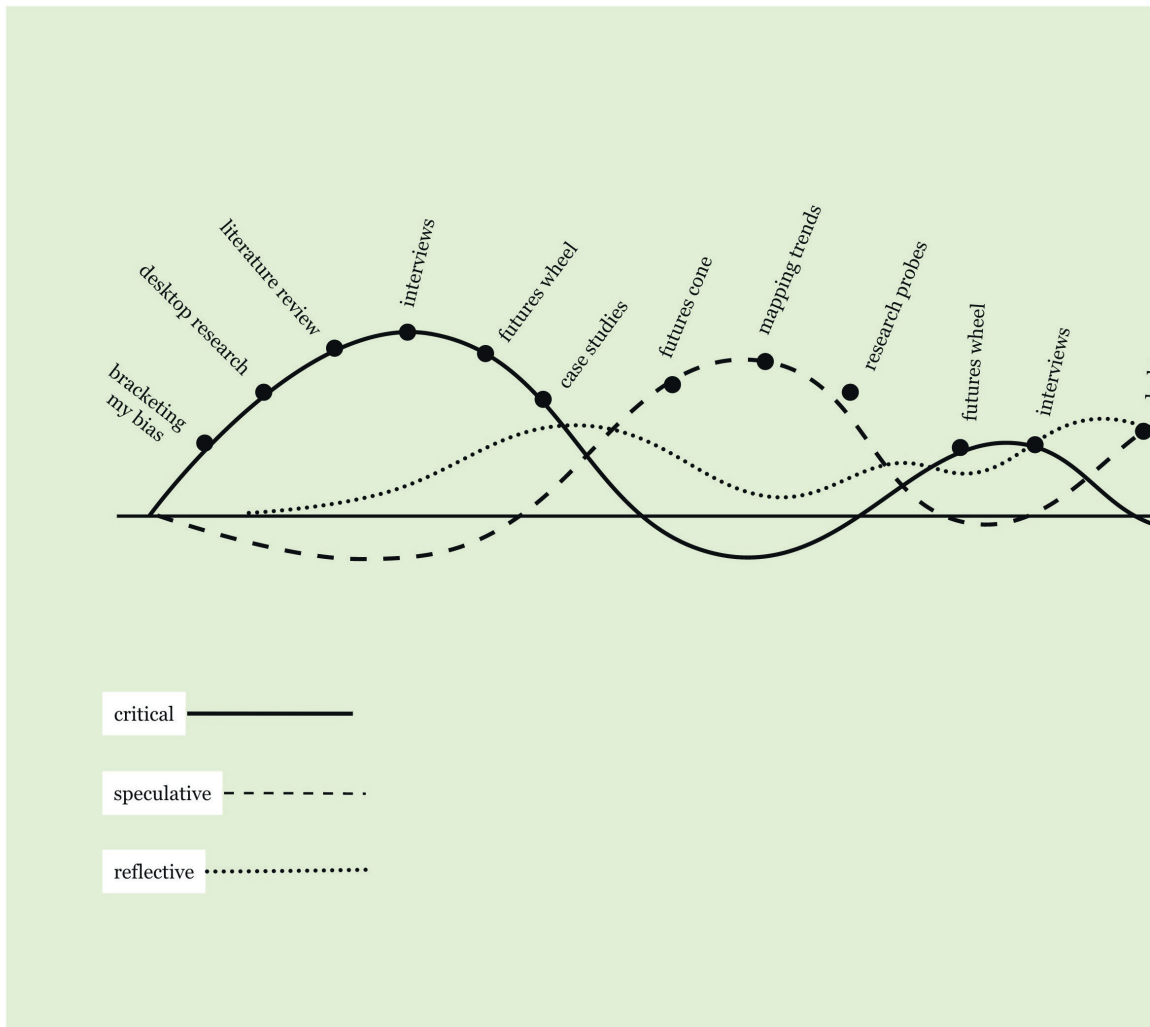
By moving upstream and exploring ideas before they become products or even technologies, designers can look into the possible consequences of technological applications before they happen. **We can use speculative designs to debate potential ethical, cultural, social, and political implications.** (Dunne & Raby, 2013)

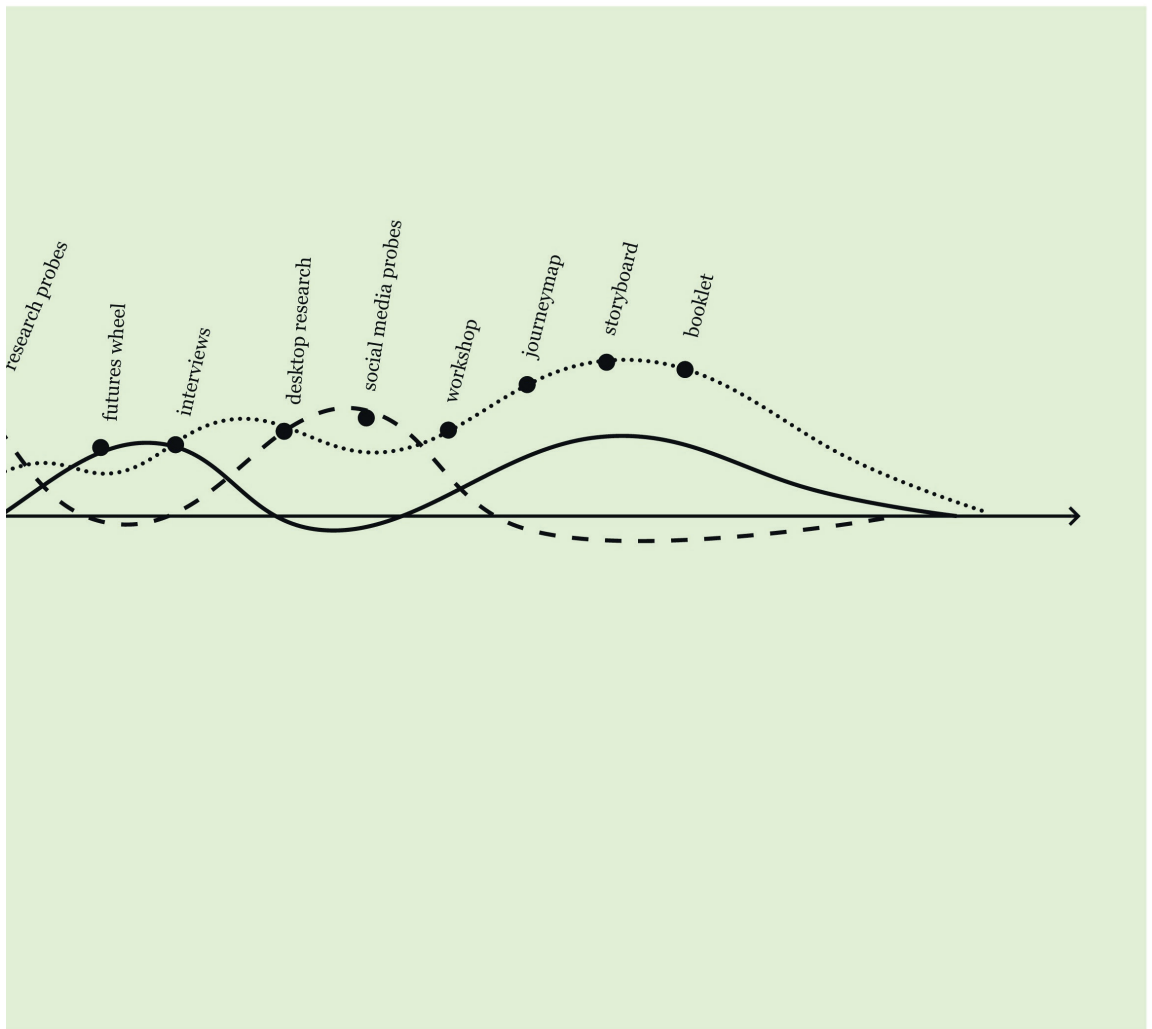
My curiosity led the process, as each chapter followed my exploration seeking answers to defining questions. My internal feelings were also crucial; if something made me feel uneasy, like something bad was lingering on the surface, I'd delve deeper and explore that instinct. In addition, giving myself time to digest all this reflection was essential, so each wave of exploration and critical reflection was followed by a wave of incubation and speculation.

Process

My process was discursive, explorative, critical, speculative and reflective, and focused on exploring the societal implications of behavioural design and fostering a critical and reflective mindset. My process can best be summarized by an eclectic array of different approaches, and the methods I chose were used to ensure depth, perspective and trustworthiness.

Starting the process, I mapped my bias, work experience and pre-existing information. This can be found in the Appendix.





Part 2

Introducing Behavioural Design

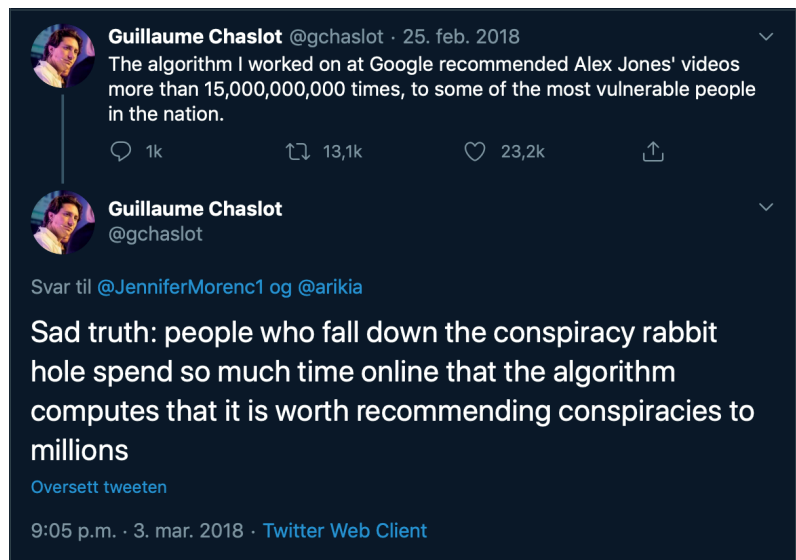
This section introduces implications of persuasive technologies, and seek to define what behavioural design is. Then, it explores some of the common techniques and how they are used, before looking at behavioural design from a bigger perspective by reviewing some it's real life applications. These insights have been discovered through research, literature review and interviews.

Human Downgrading

In the 18th century, the 1st Industrial Revolution brought us mechanization, steam and hydro power, allowing humanity to automate physical labour and increase productivity. Then, in the 19th century, the 2nd Industrial Revolution introduced electricity and mass production, kickstarting our consumer-oriented habits and elevating basic human welfare. Following the later half of the 20th century, the 3rd Industrial Revolution further influenced our lifestyles and productivity, via the introduction of electronics, telecommunication, automation and computers.

These waves of invention have had an encompassing and drastic impact on our lives, from our automated habits to our everyday life. Experts argue we are now in the middle of the 4th Industrial Revolution. The introduction of the internet, the fusion of the digital and physical world, the smartphone and the ubiquitous presence of technology and internet surrounding our lives.

For every wave of innovation, humans have adapted to the opportunities brought on by the technology, allowing for hyper-productive societies rooted around capitalistic values and the focus on individuality. However, there is one important difference separating this wave of innovation from its precursors; the ability to take advantage of our cognitive weaknesses.



Screenshot from Twitter/gchaslot, (Chaslot, 2018)

The Center for Humane Technology (2020) coined the term human downgrading as an “interconnected system of harms overpowering our human nature”. This impact includes tech addiction and social isolation, such as the Japanese hikikomoris; people who voluntarily isolate themselves in their room for years, spending more time in the digital than physical world (Riiser-Larsen, 2018). In addition, Humane Technology argues that technology has also elevated levels of depression and anxiety.

In this attention-focused economy, the algorithms steering our digital habits have learnt to suggest extreme content to keep our valuable attention. If you are watching a video about dieting, Youtube’s algorithm is likely to suggest videos promoting anorexia, potentially exacerbating teen depression, self-doubt and anxiety (Center for Humane Technology, 2020). If you then watch a video about the NASA moon landing, the algorithm would likely suggest a conspiracy video, promoting fake news and polarization.



Golden Retrievers and Husky Meeting Their Best Friends Newbo...

Viral Paws ✓

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Cat meeting the puppies for the first time.

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DANKEST DOGGO MEMES #2

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LABRADOR PUPPIES HAVE THEIR FIRST BATH EVER!

Life With Labradors

Sett 8 mill. ganger • for 8 måneder siden



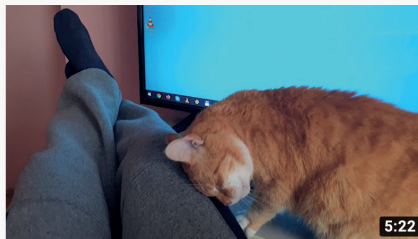
Saulmates



Stray Kitten Won't Let Traveling Couple Leave Her Behind | The Dod...

The Dodo

Sett 2,7 mill. ganger • for 10 måneder siden



Cat Demands Cuddles From His Dad Every Morning

MB vids

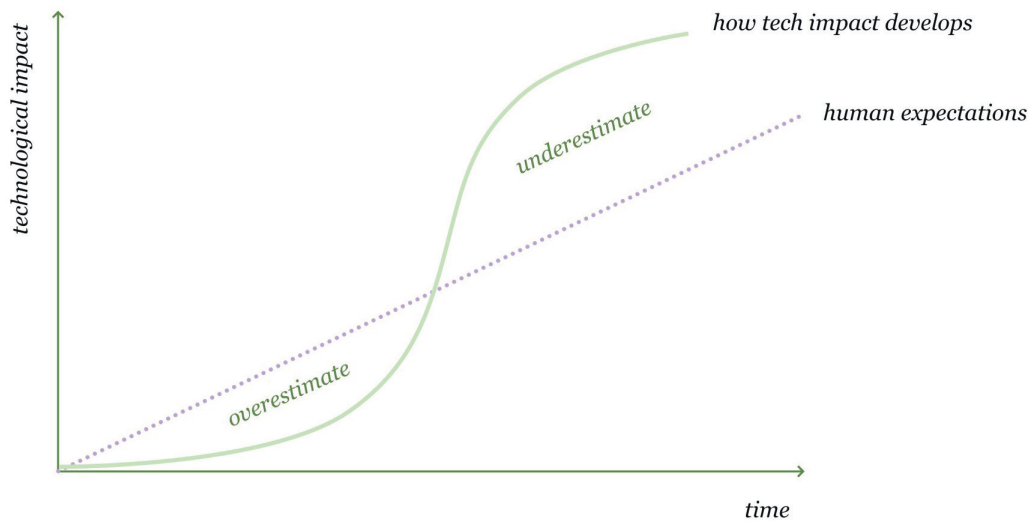
Sett 887k ganger • for 1 måned siden

Screenshots from Youtube's Front Page (Youtube, 2020)

The screenshots to the left depicts how Youtube's algorithm is consistently trying to draw me into the loop by suggesting animal content.

Here's another example; "*Adults watching sexual content were recommended videos that increasingly feature young women, then girls to then children playing in bathing suits*" (Fisher & Taub, 2019). Interpret this as you will. The list of human downgrading is endless, but the Center for Humane Technology (2020) correlates the cause of many societal issues with the competitive race for our attention. With more than two billion people using social platforms centered around exploiting our cognitive weaknesses, this is a global, systematic industry.

As individuals, technology has radically influenced our social behaviour, memory, attention span, emotions and well-being. But as a society, this persuasive technology is now exacerbating extremism and polarisation, and even influencing elections. *How did we get here?*



Technology impacts us as individuals and as a society, and the scale is larger than we've ever experienced before. As technology advances, it's becoming increasingly difficult for governmental institutions to regulate the industry and ensure ethical applications and fair use. *"Technology feels disempowering because we haven't built it around an honest view of human nature."* (Tristan Harris to Vox, 2018) Amara's Law, popularized by the American scientist Roy Amara, also plays a role. This model, depicted below, illustrates our failure to successfully estimate the impact of an emerging technology (Amara, 2006).

“

In technology, you don't have to overpower a human's strength. **You just have to overpower their weaknesses.**

(Tristan Harris, 2019)

To summarize, we're currently combating the unprecedented impact of a persuasive economy focused on influencing our digital habits. So, what's design got to do with this? Everything! Someone specifically designed these services to require an often insurmountable level of willpower to overcome their addictive, behavioural influences. However, not all persuasive technology is contributing to human downgrading.

Behavioural Design is to some degree persuasive, but it can also be a framework for positive innovation and societal upgrading, and is commonly used by designers for implementing positive change. According to Combs & Brown (2018), Behavioural Design as we know it today emerged as a new framework in the late 1990s and early 2000s. Combs & Brown further argue that Behavioural Design resulted from ubiquitous smartphones, advances in computational neuroscience, cloud computing and open-source artificial intelligence (Combs & Brown, 2018). As a result, we have a technology capable of influencing our behaviour.

Before we look at some common applications today, let's take a deeper look at what behavioural design really is >

Defining Behavioural Design

To explore and deeply understand this question, I used a combination of desktop research and literature review to get a triangulated perspective.

What is behavioural design? This question has many answers, depending on who you ask. Combs & Brown (2018) defines it as “*a framework for intentionally and systematically changing human behavior through persuasive modifications of the physical and digital environment.*”. By this definition, they imply it’s both a set of ideas explaining why people behave in a certain way, but also the methods used for driving this behavioural change. It is a set of persuasive techniques the designer can apply to change the environment in which a user makes a choice.

Global design agency Designit explains behavioural design as “*design practice using insights from behavioural science to modify the environment where a particular decision is made (...) to nudge people towards a certain goal.*” (Designit, 2020).

In essence, designers experiment with and test the user's habits until they make the 'desired' choice. At first, this can sound a little dystopian. Taking a step back, behavioural design can be described as an approach for more meaningful and responsible human-centered design. By understanding how humans work, designers can use behavioural design to solve behavioural problems related to norms, values, habits and attitudes. Instead of designing an artefact to spread awareness about global warming, behavioural design is about understanding why people have non-sustainable habits, and how these habits can be influenced. From this perspective, behavioural design is an opportunity for implementing meaningful change.

“Behavioral Design can be an extremely strong driving force in building that world when used within a strong ethical framework.”
(Combs & Brown, 2018)

Behavioural Design is a framework for influencing a user's behaviour. And with such great power, comes great responsibility. Through much debate, Combs & Brown have identified three criteria for ethical behavioural design; transparency, alignment with social good, and alignment with user desires (Combs & Brown, 2018). In short, this requires the designer to have transparent intentions about their design, use it as a means to achieve individual and social improvement, and facilitate for helping the user achieve a goal.

Before we take a look at how behavioural design is currently used in the world today, let's take a deeper look at some of the persuasive methods >

A Persuasive Toolkit

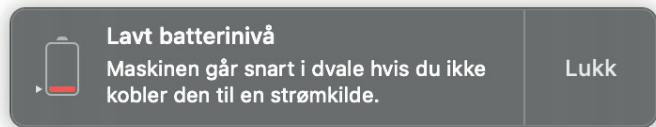
What are some behavioural design techniques?

I explored this question through desktop research, literature review (Digital behavioral design & Nudge) and active exploration through social media and apps.

The list of persuasive design techniques is long, and it is beyond the scope of this thesis to explore every single one of them. Instead, I recommend Digital Behavioural Design (Combs & Brown, 2018) and Richard Thaler's Nudge (2008). Other digital sources include coglobe.com and artefactgroup.com, who have both created applicable behavioural cards for business and design contexts. The following methods have been chosen for their relevance and application. Note that a persuasive technique seldom comes alone, and many of the below examples rely on multiple techniques.

Nudging

Richard Thaler, author of Nudge (2008), describes nudging as the act of attempting to move people in directions that will improve their lives. It's typically a small feature that attracts our attention, or presents an opportunity for change. An important consideration is that a nudge is easy to avoid, and only significantly changes someone's environment. And as Thaler argues, even humans unintentionally nudge other humans by our choices, such as teenage girls being more likely to become pregnant if they see other girls their age being pregnant (Thaler, 2008, p. 55).

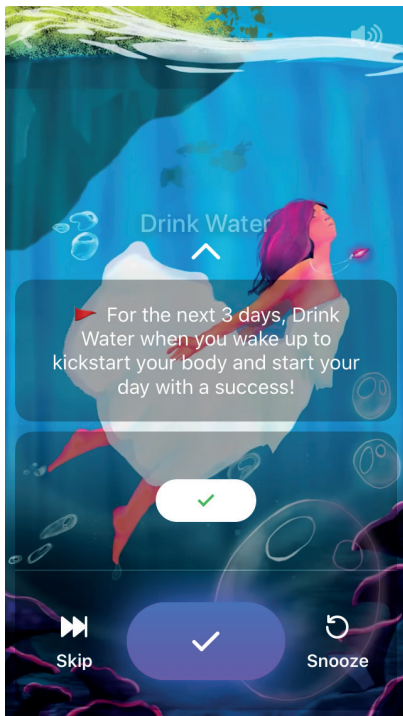


This notification from my MacBook nudges me to charge the battery of my macbook. It's a small part of my screen, but grabs my attention. And it doesn't force me, I can simply close the notification and continue on with my tasks.

Reinforcement Learning

Reinforcement Learning is a method that “increases the frequency that someone performs a behaviour” (Combs & Brown, 2018). This could be useful both for developing new habits, or reinforcing existing behaviour.

The app Fabulous, which intends on helping you establish healthy habits through a transparent step-by-step program, makes sure you follow their recommendations by nudging you through push notifications. Every morning, Fabulous nudges me to drink water and track my progress. This consistent nudging is useful for turning your healthy actions into habits, and through positive audio-visual feedback when you track your progress, the user is rewarded for its behaviour. This combination of nudging and positive reward serves as a means of reinforcement.



Screenshot: Fabulous app (Fabulous, 2020)

Priming

Priming is a result of our automated brain processes, where we are more likely to think of something if we've been recently exposed to it. Taking this one step further, you can influence someone's likelihood of performing a certain action, simply by asking them whether they intend on doing it (Thaler, 2008).

In this example, the car brand Audi persuades their target audience by nudging and priming them. By declaring their electric car as a "Norwegian favourite", and asking the rhetorical question "This many Norwegian sure can't be wrong?", Audi is using a social nudge by taking advantage of our human desire to conform and do as others. Then, by making the target audience choose between "electric car" or "Audi electric car", Audi first primes people to consider buying an electric car, and then primes them to consider their electric car.



Screenshot: Audi advertisement on Facebook (Audi, 2020)



Screenshot: Calm advertisement on Instagram (Calm, 2020)

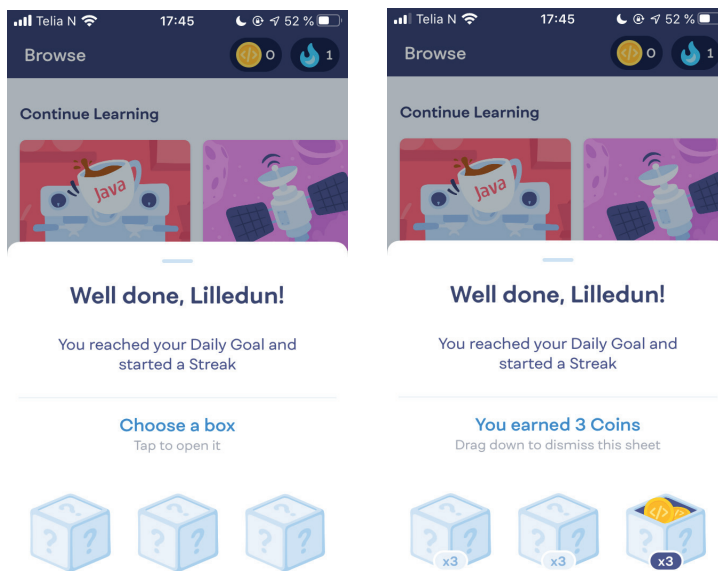
Triggers

Combs & Brown (2018) defines a trigger as a prompt to perform an action, by signaling our automatic brain response to perform a certain behaviour. The effect of using triggers depends upon their personal relevance.

In this case, the ad from Calm (a meditation-based app) automatically and subconsciously triggered a positive response in my brain, due to my personal interest in both cats and memes. Although this visual choice will affect Calm's target audience to varying degrees, the caption text is more likely to have a uniform effect. By stating their awards, Calm are socially nudging their target audience by grounding their brand with quality and social confirmation. This dual ad first targeted my automatic brain with the visual content, then my reflective brain through the literate content.

Rewards

A reward, expected or surprising, is a pleasurable experience following an action (Combs & Brown, 2018). There are essentially three kinds of rewards. Firstly, the Reward of the Self, for doing good and accomplishing our goals, often achieved through praise. Secondly, the Rewards of the Hunt, for conquest and competitive situations. And lastly, the Reward of the Tribe, satisfying our social needs; such as likes and engagement on social media.

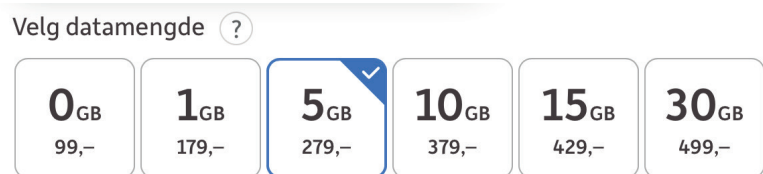


Screenshots: Reward system in Mimo (Mimo, 2020)

My coding app “Mimo” surprisingly rewarded me with a mystery gift. This unexpected reward triggered an automatic positive response in my brain, possibly motivating me to keep finishing courses to unlock yet another secret reward. This Reward of the Self rewarded me for accomplishing a goal, and also works as a reinforcement of good behaviour by encouraging me to continue the streak (for achieving more coins).

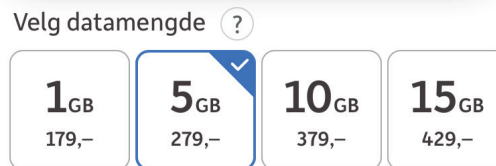
Choice Architecture

Combs & Brown (2018) defines choice architecture as altering the environment in which someone makes a choice, to steer them towards a certain behaviour, whilst Thaler (2008) defines it as organizing the context in which people make decisions. It's often used by services offering multiple subscription services, such as telecommunications and streaming services. Making a decision can be difficult, and being provided a certain sequence or a suggested option, minimizes our processing time.



Screenshot: Subscription interface at Onecall (Onecall.no, 2020)

In this screenshot for selecting a subscription service to Onecall, “5 GB” has been pre-selected as a choice. The presence of the more expensive alternatives, as well as the option for paying for 99 kr/month for 0 GB (!), makes the pre-selected option seem even more reasonable.



Edited version. Is the pre-defined choice still the obvious choice?

Applications

What is the current use of Behavioural Design?

This question was answered through interviews with Norwegian designers and behavioural specialists, as well as through desktop research. All physical interviews were carried out in early February; before the outbreak of covid-19.

The findings from these methods have been boiled down to three categories, depending on the design's intention and impact. The first category, The Good, shows examples of behavioural design where the designer had a transparent intention and aligned the impact with social good and the user's desires. The second category, The Bad, are typical Dark Patterns (Brignull, 2017). The intentions are hidden, and the use of behavioural design neither aligns with social good nor the user's desires. And finally, the third category The Ugly contains examples in which the designer had a transparent intention, but the design failed to align with social values, user values, or a combination of both.



The Good

In his Diploma “Designing behaviour – Using Behavior Theory in Designing for Welfare Technology” (Erlandsen, 2017), Hans-Martin used behavioural theory as an opportunity for welfare technology. With the help of a psychologist, he explored the application of different behavioural models, and together they ended up designing a new model to fit his design context; The Unified Behavioural Model (Erlandsen & Nordvik, 2017). This model, based on psychological models for behavioural change, helped his process by making it easier to ideate, evaluate the impact of a concept, and make decisions (Erlandsen, 2017).

I also interviewed Anders Matre, Service Designer and Behavioural Specialist, and Sara Rytterager, Behavioural Specialist, both working at Mindshift. Amongst other projects, they've helped reduce littering in Oslo through Ballot Pins. In an interview with NRK, Sara said that the Ballot Pins have reduced the littering from cigarette stumps and snus around Oslo (Ulstein, 2020). This form of behavioural change is done through modifying the environment in which someone litters, and encouraging action through a fun voting poll.

In addition, I talked to Mona Nilsen, Senior Advisor for Østfoldforskning. By collaborating with hotels, municipalities and other governmental institutions, she implements nudging to encourage sustainable behaviour. When I asked her about the applications of nudging, she mentioned the environment, food waste, recycling and transportation as the main focus areas. One example was how they managed to reduce the food waste at a local hotel by 28%, by simply reducing the size of the plates by 25%. Her process involved identifying the problem, diagnosing the behavioural cause, evaluating if nudging could provide the solution and, if so, testing and validating nudging's impact.

Through desktop research I uncovered other positive applications of using behavioural design, such as facilitating healthy hygiene habits in children through behaviour-changing water stations (Artefact, 2020). In England, scientists discovered that they can minimize harmful binge drinking behaviour by almost 10%, by reducing the glass size from 300 ml to 250 ml (Horton, 2020). And in the midst of the covid-19 outbreaks, EGG Design explored new opportunities for using behavioural design for healthy and pandemic-safe habits (Seviour, 2020). In his book *Nudge* (2008), Thaler also describes how behavioural change can facilitate happiness, health, sustainability, education, wealth and even better relationships. In short, the practical appliances of behavioural design seems to cover most behaviour-related issues today.



The Bad

In other words, there are plenty of good examples of unethical behavioural design used for personal gain or company profits. One example include Roach Motel (Brignull, 2020); ever wondered why it's so easy to sign up for Facebook and Amazon, but so difficult to leave the platforms? Have you ever visited hotels.com? They deliberately use a combination of *Misdirection* (Brignull, 2020) to distract your focus away from the price, and *FOMO* (Sapio, 2020) to give you an unprecedented feeling of high demand and low availability. As a result, hotels.com might cause you stress and anxiety, which reduces your logical reasoning and decision-making; potentially coercing you into booking right there and then. The list of unethical designs is long, and reddit.com/r/assholedesign/ sums it up perfectly.

Although these examples are part of the problem, they are not the problem with behavioural design. With every technology, there will always be someone who discovers an opportunity to increase their personal profit, and design is no exception. However, even designers with good intentions can create services with negative implications.

How could this be?



The Ugly

Lack of future envisioning

The Ugly; this is where it gets interesting. Why does some design fail to have a good impact, despite the designers good intention? One reason could be that as behavioural design becomes increasingly more popular, consumers develop a resistance to persuasion. After being shown interfaces from hotel booking sites that use persuasive techniques, such as scarcity and social proofing, only 16% believed the claims, 34% said the claims disgusted them, and 49% said the claims made them less likely to trust the booking site (Shaw, 2019). This resistance is likely caused by psychological reactance; when the intention is hidden and people feel like they are being influenced, they react negatively.

There are countless examples of behavioural design causing the opposite of the intended effect. Explicit signs stating what not to do, such as Do not litter here, usually create a sense of defiance as people hate being told what to do (or rather, what they can't do), and could instead lead to increased amounts of littering. Or campaigns advising youth against the use of drugs could lead to increased drug behaviour, as the campaign could cause adaptation to the wrong norms (Dalen, 2020). The list continues, but the main point remains; people don't like being told what they can or can't do.

Another factor is the unintended consequences of a certain medium. In an article about wearable fitness-trackers, Cox (2019) argues how they, despite their good intentions, have a tendency to cause or exacerbate obsession, anxiety, stress and shame for some people. Despite the designers transparent intentions and the artefact having been designed for social good and in alignment with the user's desires, the artefact still backfired.

“ **The interpretation of the complex world of human affairs in terms of an experimental analysis is no doubt often oversimplified.** Claims have been exaggerated and limitations neglected. But the really great oversimplification is the traditional appeal to states of mind, feelings, and other aspects of the autonomous man which a behavioural analysis is replacing. (Skinner, 1971, p. 157)

A patronizing mindset

Another problem with behavioural design is the patronizing, paternalistic mindset. In their article *Changing behaviour*, design agency Hike One constructs the example of “Overweight Billy” to illustrate how behavioural design could be applied to help with weight loss. Although their intention is transparent, and the design is for social good and aligned with Billy’s desire to lose weight, the approach still comes across as patronizing:

“When the wanted behaviour has happened, or the unwanted behaviour is successfully prevented, you need to reward your user. Rewards can be anything. For example: a financial reward, points, status or just by making the user feel good.” (Hike One, 2015)

Although this positive reinforcement has proved successful, the mere suggestion of rewarding an adult with artificial points seems shallow. Another example from this article; “*When he takes his bike instead of the car, we need to reward Billy with something that he likes, for example a good movie*” reinforces the patronizing tone. When does behavioural design become too paternalistic? Is showing an adult a good movie enough to make them develop healthy habits? This simplification of factors and solution seems like a potential threat to meaningful design, where it could foster a simplified and overly optimistic design approach: “*Why doesn’t it work? Did we not give the user enough points?*”

Although the intention might be good, the approach shows a lack of future envisioning; are they creating new problems as they’re solving another? Also, this mindset seems to reflect a bad trend of generalization users. People are different and respond differently to triggers, rewards and incentives. By applying a more participatory approach, including Billy in the process, their approach wouldn’t seem so paternalistic, and the impact would likely have a more favourable outcome. To some degree, behavioural design works on the population’s majority, but for solving complex behaviour-related issues such as obesity, generalization should be avoided. As Dalen (2020) argues, using design to influence behaviour requires more skills from the designer.

Following this, let’s delve deeper into the implications of behavioural design >

Part 3

Discovering a Design Opportunity

In this section, I explore to what extent all design is persuasive, and how we can use this reflection as a design opportunity. Through a critical perspective, I review some of the social implications caused by persuasive techniques, to better understand the impact of design. To explore the opportunity, I conduct several case studies to review the applicability of behavioural science. As a result, I discover that behavioural design can be used to elevate the traditional design process.

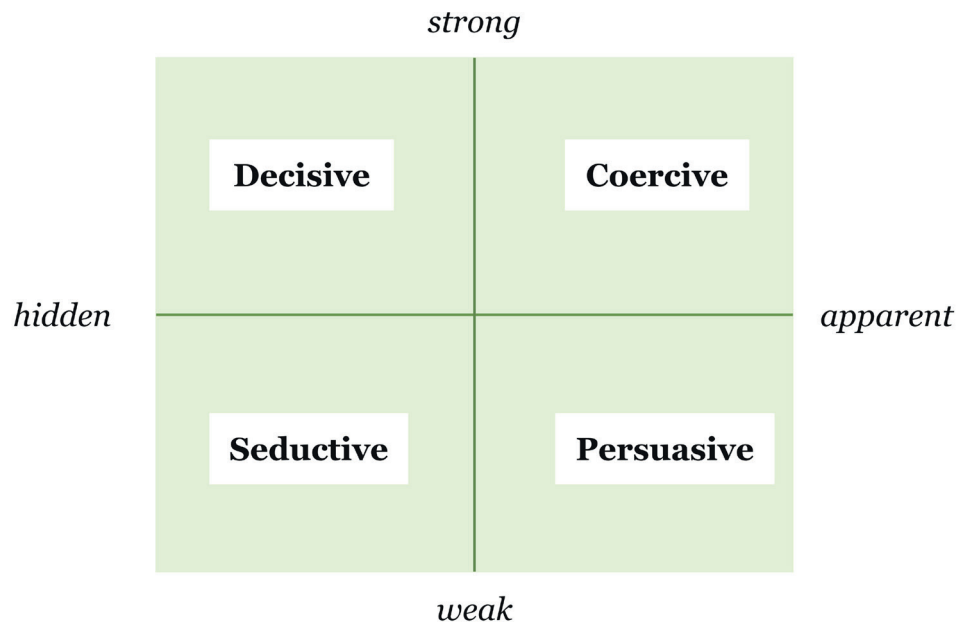
Is all design persuasive?

Is all design implicitly behavioural design? Is all design persuasive?

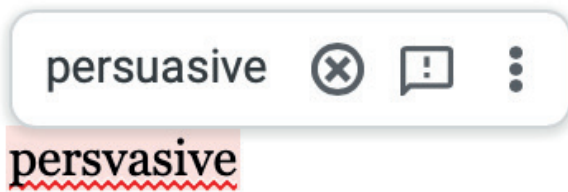
I sought answers to these questions through interviews, literature review and desktop research to achieve a broad and critical perspective.

The methods and techniques in Section 2.3 could be consciously used by designers to achieve a specific goal. However, exploring the implications of behavioural design, I wanted to dig deeper. Besides the explicit methods, what about traditional design? Are artefacts, services and experiences influencing our behaviour as well?

During the interviews with Norwegian designer and behaviour specialists, this was something we'd commonly discuss. Hans Martin Erlandsen, who wrote a diploma on using behavioural design for welfare technology, meant that "*design itself is behaviour change*" (Erlandsen, 2020). We can change behaviour through targeted use of methods, or simply, through our design. Anders Matre, Service Designer and Behavioural Specialist at Mindshift, seemed to agree with this outlook. "*Everyone who creates something are working with behaviour change*" (Matre, 2020)



Social scientists Tromp et al. identified two forces for influence: “A design can exert influence that can vary from weak to strong (force), and a design can exert influence that can vary from an implicit to a more explicit manner (salience).” (Tromp et al., 2011, p. 11) Based on this, they identified four types of influence an artefact or a service can exert on the user: a decisive, coercive, seductive and persuasive influence.



Your cooling system turning off when it's achieved the desired temperature, is a decisive influence. It doesn't ask you (hidden), and it changes your environment. A news article informing you on sustainable habits is apparent, but weak; it's still your choice whether you want to adopt these habits, and therefore a persuasive influence. A governmental regulation stating that you can't smoke indoors is both apparent and strong, and is thus a coercive influence.

Lastly, an example of a seductive influence could be a pleasant tea pot, seducing the user by it's nice and pleasant design, but it's ultimately the user's choice whether or not to use it. Marketing is usually a seductive force, due to its hidden ability to influence consumers into buying their product.



“ But the reality is, regardless of whether we label a piece of work as “persuasive design” or not, most of the things we design – from toothbrushes to tablets to road signs – are influencing people’s decisions and behaviors in some way.

We may not intend it to happen, and we may not be aware of it, but it’s happening.

(Artefactgroup, 2020)

An important aspect of this categorization, is that “(...) *a product can never be assigned to a category. Only the user who eventually experiences the design can categorize it as coercive, persuasive, seductive, or decisive.*” (Tromp et al., 2011, p. 12). This implies that once the user becomes aware of the seductive influence of a design, it becomes persuasive. And whereas some people can be strongly influenced by certain services, to others, the force might be weak.

Based on this insight, the question of whether behavioural design is manipulation, depends on the designers intention and the force and salience it exerts on the user. Furthermore, this analysis states that all design has a power to influence; and implicitly exerts behavioural change, if even through a decisive or seductive influence.

Societal Impact

What are the implications of persuasive design?

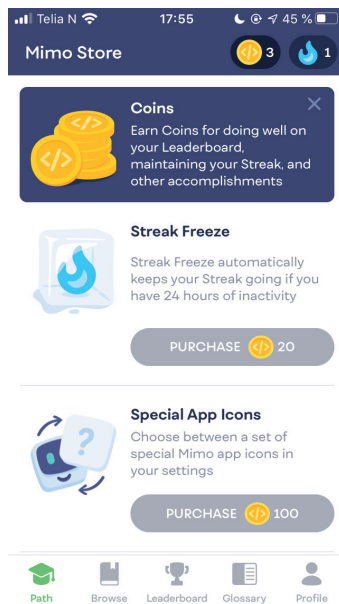
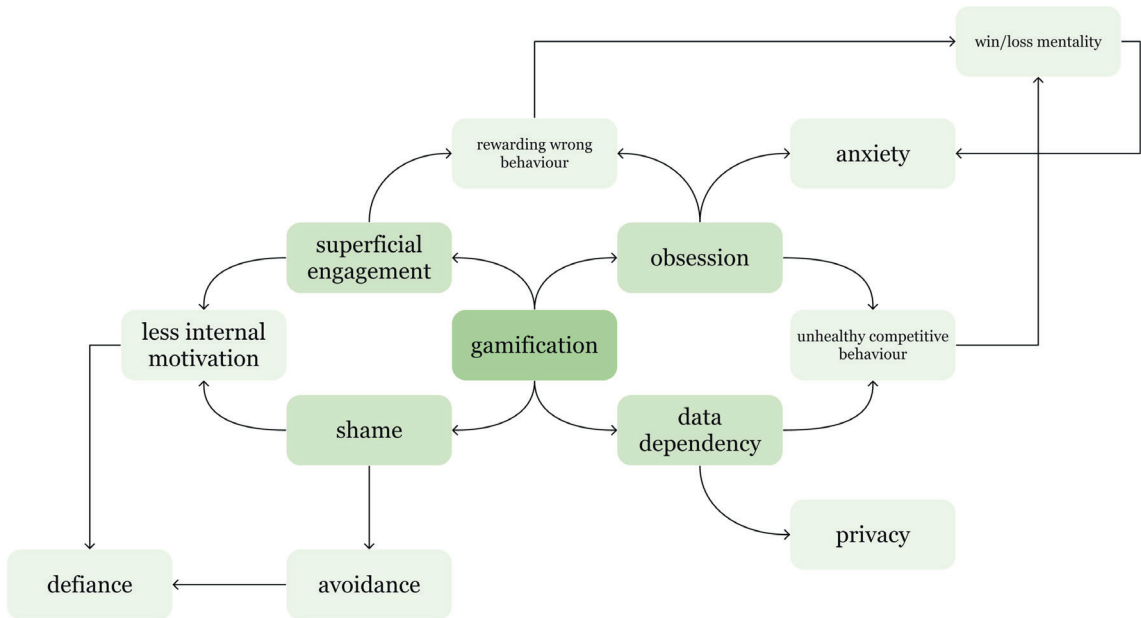
I explored this question through Jerome C. Glenn's Futures Wheel method (Glenn, 2020). Glenn describes The Futures Wheel as “(...) *a method for identifying and packaging primary, secondary, and tertiary consequences of trends, events, emerging issues, and future possible decisions*” (Glenn, 2020).

As I wanted to explore possible future implications of many of the coercive and decisive forces, I used his method to gain a deeper understanding. I started by placing the chosen technology in the middle, and mapped the potential consequences around it, using desktop research as a source.

Then, I mapped the consequences together, as the presence of one or several consequences can lead to other implications. I continued until I felt satisfied that I'd covered most of the possible consequences.

Gamification & Rewards

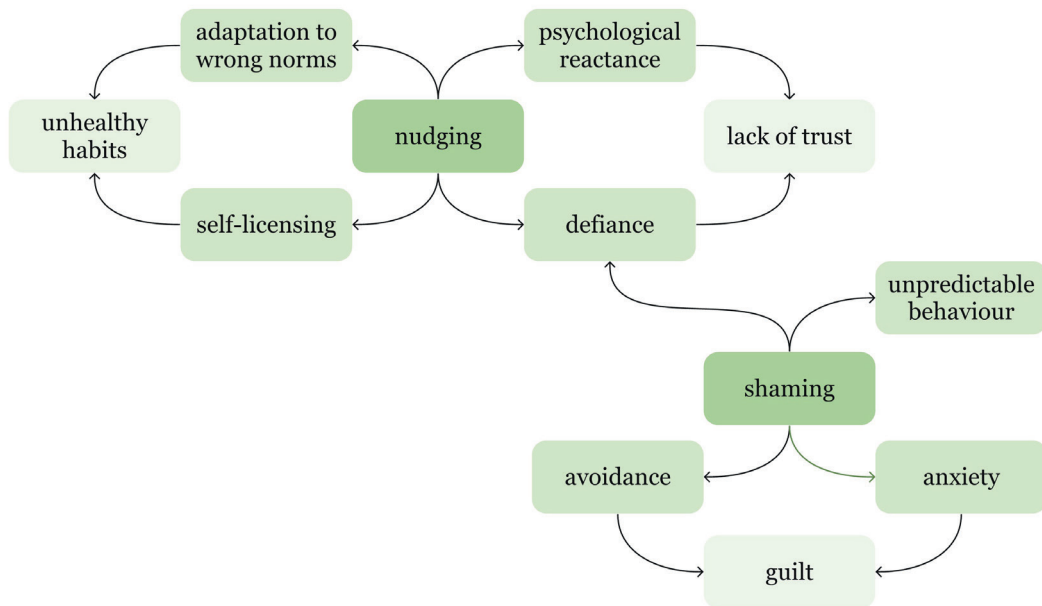
Based on a study from Toda et al. (2018).



In an example in Section 2.3, I mentioned a surprising reward from my coding app Mimo. However, upon realizing that the coins only could be used for maintaining in-app streaks, a function which serves no value to me, the reward suddenly felt shallow and superficial.

Nudging & Shaming

Based on a study by Zemack.Rugar et al. (2017). “Nudging is a powerful way to change behavior. But when you push people too hard, you may end up making them do the very opposite of what you intended.” (Zemack-Rugar et al., 2017)



Screenshots to the right: an example of adults reacting with defiance to governmental regulations. Due to covid-19, Norwegians who defy advice and travel to Sweden for cheaper goods, have been told they have to home-quarantine for 10 days. Many adults don't like being told what they can or can't do, and thus react in strong defiance towards their government.

Rune • 09:16

Hei jeg har bestandig foretrukket å bestemme selv hva jeg kjører, hvor jeg kjører, hva jeg spiser, hva jeg drikker og hva jeg gjør. Er jeg gammeldags? Har det blitt moderne å la andre bestemme over seg selv? Vil folk at staten skal bestemme middagen deres

Andreas Løf

VG

Nei det er ganske vanlig det, vil jeg si. Og det har du i stor grad fortsatt anledning til, dog noen flere restriksjoner enn vanlig på grunn av viruset. Det er imidlertid heldigvis midlertidig. Jeg tror ikke det er noe ønske om at staten skal bestemme folks middag, og jeg har heller ikke sett noe parti ta til orde for å innføre det.

Inge • 09:14

Det stemmer at nordmenn ikke har en grunnlovsfestet rett til å røyke sigaretter med smak. Men vi har en grunnlovsfestet rett til å leve livene våre i fred, uten at store stygge onkel stat stikker den stygge nesa si inn i det hele jævla tiden.

Andreas Løf

VG

Dette høres ikke ut som ordlyden i en grunnlovstekst.

Dere lider av proteinmangel - spis mer kjøtt!

• 12:50 i går

Nå har jeg spist en stor blodig biff og tatt meg en røyk. Bilen sto ute og gikk på tomgang hele tiden. Og alle her lever ennå. Alt gikk bra. Dere hippier er så lettskremte, dere hørte for mye på mødrene deres når dere var barn.

Andreas Løf

VG

Gratulerer med det. Og et levende bevis på at man ikke er avhengig av å kunne dra til Sverige for å røyke og spise kjøtt.

Kvalmende å bli behandlet som et barn • 09:06 i går

Jeg ser dere har problemer med å forstå rettigheter. Vi kan si det slik; voksne folk må ha retten til å selv bestemme hva de skal spise, drikke og røyke. Jeg er ikke et barn og det finnes ingen sjanse i helvete for at jeg lar noen bestemme det for meg.

Andreas Løf

VG

Så bra at ingen heller prøver å bestemme det for deg, da :) Som den tidligere folkehelseministeren sa en gang i tiden: Røyk, drikk og spis så mye rødt kjøtt du vil.

Arne Johan Semsterud • 16:33 i går

Hei!

Jeg vil reise til Sverige og handle for fæen. Svinepriser her i Noreg. Når kan man få gjøre detta uten å få denne karantena? Lei av disse unnskyldninga for at vi skal betale mer sukkeravgift for produkta så itte har noke sukker i seg engong!!!!!!

Yasmin Alida Sfrintzeris

VG

Vi vet dessverre ikke når det vil bli mulig igjen.

Snart nekter man folk å fise i sitt eget hjem • 09:04 i går

Dere sier snus og sigaretter er skadelig. Javel. Men poenget er at hvis jeg vil spise kjøtt tre ganger om dagen og avslutte hvert måltid med en hel pakke sigaretter, så er det mitt valg. Ingen har noe med det. Ingen har rett til å nekte meg det.

Andreas Løf

VG

Nei og det er det heller ingen som nekter deg, det er ikke forbud mot noen av de tingene du nevner.

Screenshots from direkte.vg.no (VG, 2020)

Priming

Smartphone-users have been primed to recognize this interface. In my case, this interface triggered an immediate and automatic response in which I subconsciously tapped the green button to accept the call. For sleazy marketers, using a primed interface is a surefire way to gather immediate attention and drive link-clicks. I, on the other hand, felt confused and annoyed.



Whereas the nudge and the gamified reward is apparent, priming works in the dark. Thus, its social implications are much harder to define and map out. In essence, the media's daily presence has primed our societal norms and beliefs; for example, the ideal woman is portrayed, and considered by the majority, as heterosexual, lean and sexual with fair skin and smooth, shaved legs. Depending on how easily seduced a person might be, they might react with disgust when they see a woman going against these stereotypes. For men, the norms are different, yet equally as harmful; muscular, successful, rich, heterosexual and often with smooth skin and a good hairline. These identities of power and privilege have permeated our social norms, and have changed throughout history depending on who's in power. As a result, societal priming could cause eating disorders, stress, self-doubt, anxiety and discrimination; the list goes on.

We'll delve deeper into some serious implications caused by priming in section 6.1. For now, let's take a step back and look deeper into behavioural science for a deeper understanding of understanding and influencing behaviour.

Developing a framework

How does behavioural change work?

This was answered through a literature review (Leech, 2016), desktop research and case studies for applying behavioural science in a design context.

Understanding the illogical fallacies of our human nature could help designers better understand a problem and create sustainable and empowering solutions. Joe Leech's *Psychology for Designers* (2016) provides an interesting and compelling read of human psychology seen from the perspective of a designer, and is a recommended read for anyone keen on delving deeper into the mysteries of our brain.

Leech presents two main theoretical approaches to psychology: “*Cognitive psychology, the science of mental processing; how people acquire, process and store information*” and “*Social psychology, how people exist within a social context: how thought, feeling and behaviour are influenced by those around us*” (Leech, 2016, p. 13-14) There are many psychological models for explaining behavioural change. For this process, I focus on the COM-B Model as it was developed “*for characterising interventions and linking them to an analysis of the targeted behaviour*” (Michie et al., 2011), and because this model was recommended by both Erlandsen (2020) and Matre (2020). If you are interested in reading about other models, I recommend *Digital Behaviour Design* (Combs & Brown, 2018) and Nir Eyal's *Hooked* (2013).

Can you use behavioural models to predict expected behaviour? Answering this, I built on the COM-B Model (Michie et al., 2011) for making an applicable framework, through several case studies.

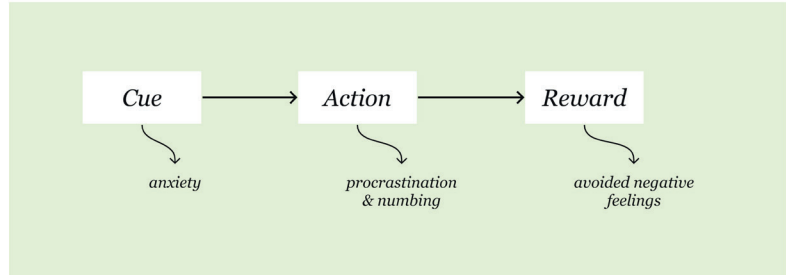
Initial Case Study

As an initial case study, I tried using the CAR Model on understanding why I sometimes have an anxiety-inducing behaviour.

“Together, the Cue and Action constitute the Habit pairing, and the Reward pattern induces a habit to form. A habit forms as a neurological association between a specific Cue and a specific Action is learned from Reinforcement. The more surprising the Reward is, the faster and more effectively the Habit is formed.”

(Combs & Brown, 2018, p. 32)

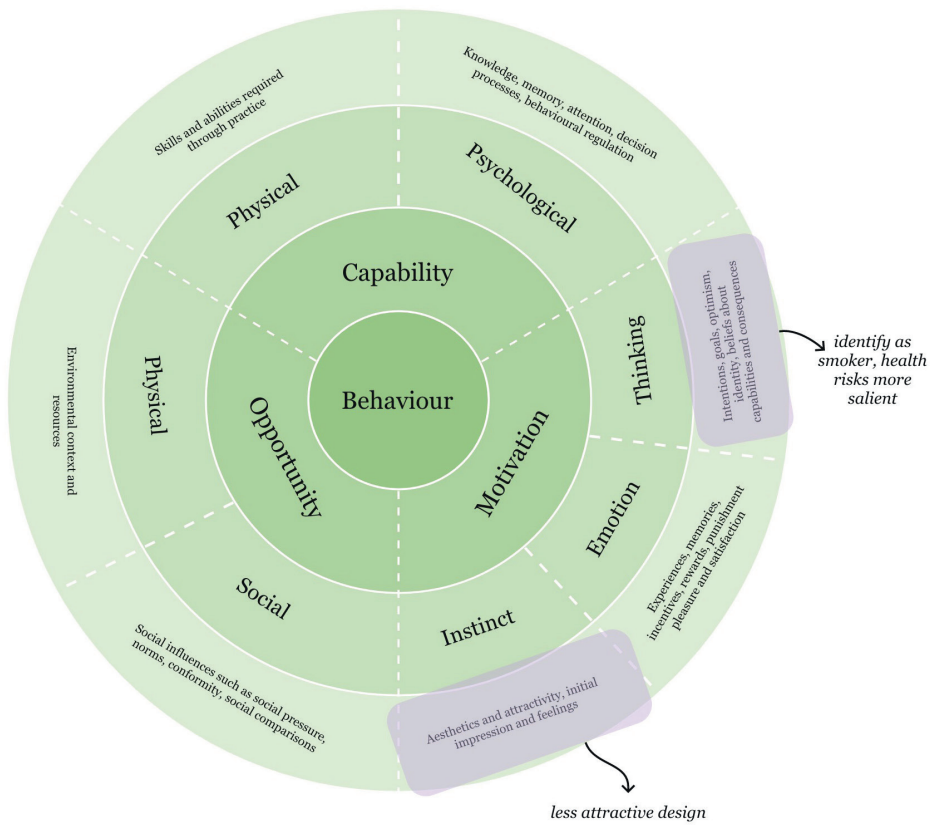
Following this, I created the following synthesis.



My internal cue of anxiety triggers a stress response, leading me to the unwanted behaviour of procrastination and numbing. As a reward, I’ve successfully avoided negative feelings (in the short time), and according to Combs & Brown (2018), I’ve hence formed a habit. However, this felt a bit too simplified. The CAR Model could be used as a means of achieving a habit, but it isn’t really applicable to a design context. For the next two case studies, I focused on using the COM-B Model for influencing the ‘unwanted’ behaviour of smoking, through two different solutions to review their potential impact.

Case study 1: Ugly Cigarette Branding

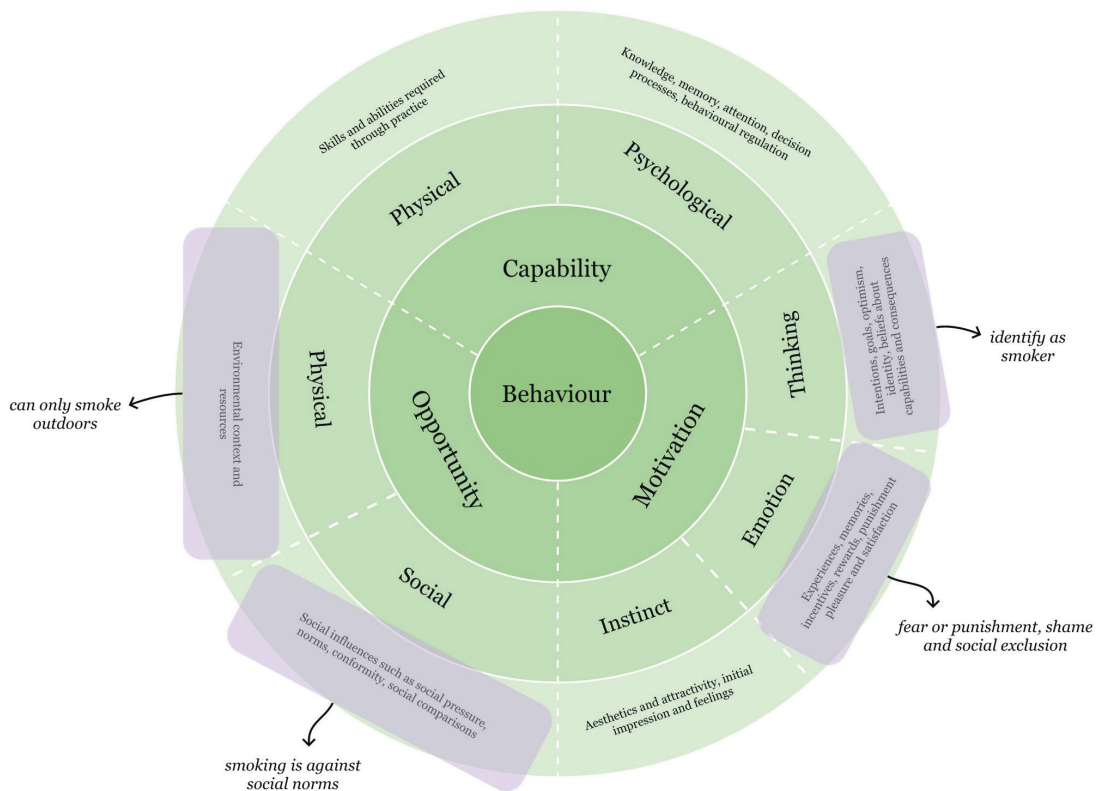
Through analysing the components of the COM-B Model, I made the assumptions (for the sake of this scope) that ugly branding essentially only influences people’s *Instinctive Motivation* (unappealing design) and *Reflective Motivation* (reminded of health risks). The expected result based on the COM-B Model is that a smoker is likely to continue smoking.



Case study 2: The effect of a smoking regulation

I made this analysis based on the implications of a smoking regulation banning all indoors smoking. The assumptions I made was that this regulation would impact people's *Emotional Motivation* (fear of shame and social exclusion), *Reflective Motivation* (made aware of health risks), *Physical Opportunity* (can only smoke outdoors) and *Social Opportunity* (smoking defies social norms). As a result, this solution is likely to have a stronger impact.

Results from the Norwegian "Røykeloven" shows that this ban on indoors smoking reduced the amount of adult Norwegians smoking on a daily basis from 27% to 15%, and young Norwegians from 25% to 7% (Brønmo, 2014). An assumption could be that this is because the *Emotional Motivation* and *Social Opportunity* could be a stronger influence on the youth.



Futuring

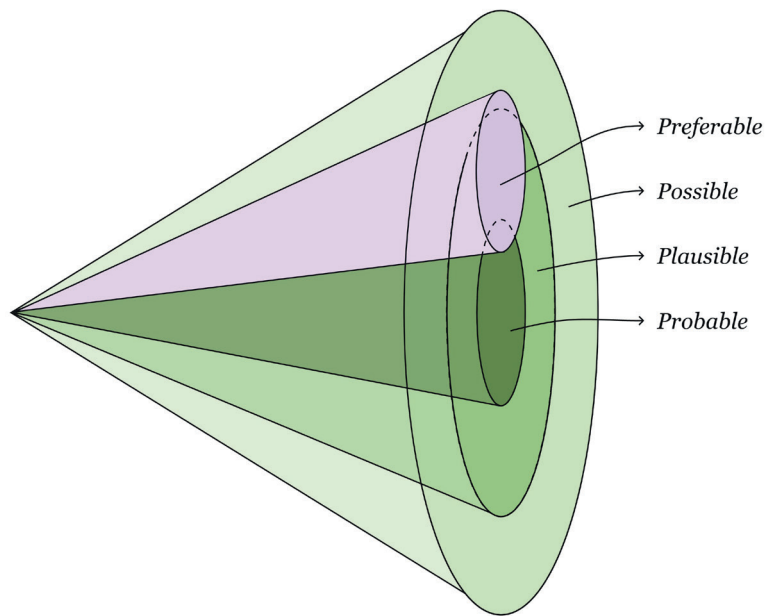
“

*The preferable future is a value judgement; **we have to consider the world we want and how we might get there.*** (Bowles, 2018, p. 21)

Like insects with flowers, we have co-developed our lifestyles and behaviour in accordance with our technological devices. As our technology keeps on advancing, we at some point failed to keep up, and the mutualistic relationship slowly turned parasitic. We lost control. Through our digital habits, we strive further away from our biological nature, with less use of our physical senses, and more time spent in the digital world. Where does that leave us? How did we get here? And is it too late to change the direction in which technology influences our societies?

Obviously, technology is here to stay. There is no avoiding that technological advances have made a significant impact, and despite the rise of digital detoxes and tech minimalism, ubiquitous technology has made its mark on our history. That leaves us with two choices;

1. Accepting our current trajectory of human downgrading, leading to a slow and painful death of implications we have not yet come to understand.
2. A technological revolution, through implementing a strong, ethical foundation and adopting a reflective, transformative approach for designing and developing empowering and humane technology.



History shows that humans never mastered the ability to successfully predict the future, and nor am I attempting to predict it. What I can do, however, is explore certain aspects of our current trajectory to glimpse where we could end up. So, to gain a deeper awareness of what happens if we do nothing but remain on the current path of parasitic and downgrading technology, the thesis will now explore the probable future to see *what's there* >

Part 4

Exploring a Probable Future

Section 4 explores what lies ahead of us if we don't change our current design approach, by speculating in trends and possible outcomes. To manifest this research and speculation into tangible talking points, I created Rapid Research Probes to facilitate discussions and reflections. Then, I analysed the possible impact of the probes, and reviewed this against the feedback from designers. This section concludes with the realization that the Probable future has many unforeseen implications, and is a mostly tech-oriented society of continued human downgrading.

Discovering a Probable Narrative

Where are we headed?

For exploring a probable future, I took a step back to analyse our current technological trends, clustering them, and asking “What might happen if these trends become successful?”.

It should also be noted that I had to limit the scope of this research, as there are many aspects which could go either way. One aspect I chose to ignore was the trend of Ubiquitous Computing (Weiser, 1991) vs Radical Atoms (Ishii et al., 2012). These discuss the presence of our technology, but it’s simply too speculative to explore the alternative realms of these directions. Besides, technology is already becoming pretty ubiquitous.

Trends - A 10 year speculation

I started out by exploring some current, technological trends, and mapping out how they influence each other. Initially, this map was much larger, but I narrowed it to the most probable trends, so as not to over extend the scope. Kevin Kelly, author and editor of Wired magazine, said; “*The greatest products of the next 20 years have not been invented yet*” (Kelly, 2016, 48:30 min). Therefore, I chose a 10-year speculation to avoid the area of design fiction, and instead aimed for the exploration to have roots in the probable future.

Then I analyzed some key trends that could result in some interesting opportunities and implications. The result of this mapping and synthesis is shown in the figure to the right.



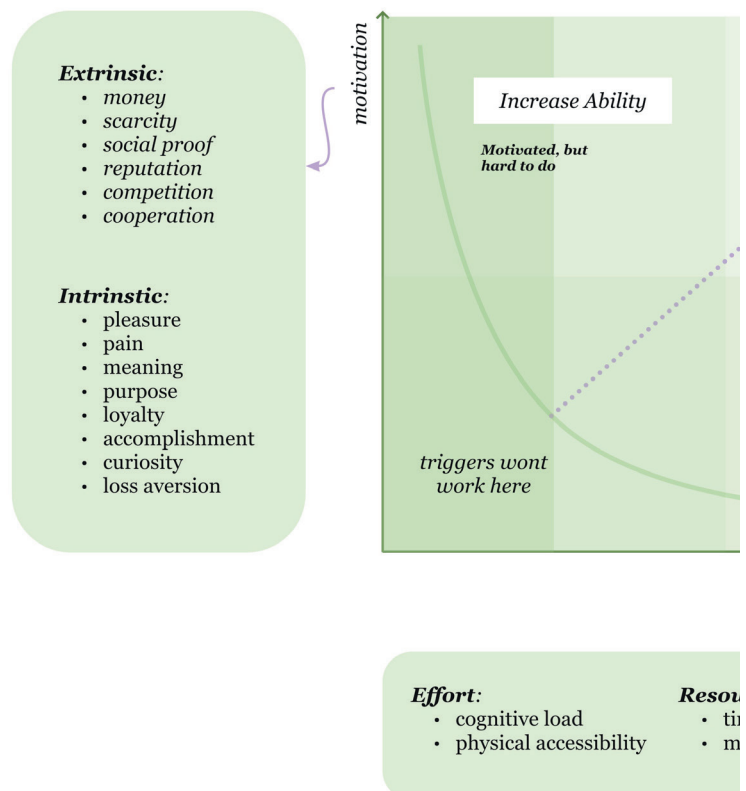
Rapid Research Probes

What might happen if these trends become successful?

Based on the mapping of possible trends, I wanted to create *Rapid Research Probes* to illustrate the opportunities and implications of these trends on society. The probes' goal is to demonstrate the trends within tangible concepts that relate to stories and experiences, to increase the effect on designers and incite discussion and reflection.

Initial exploration

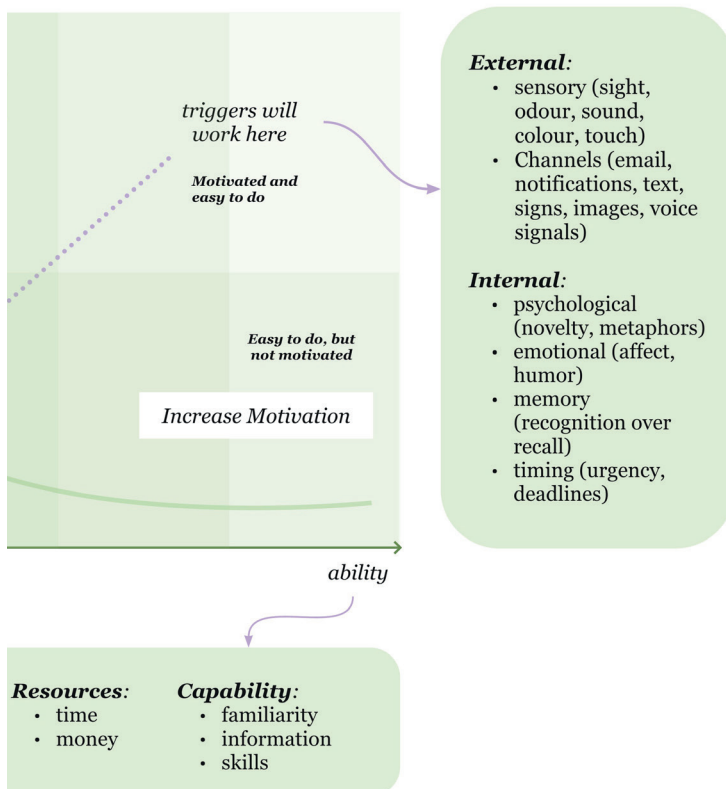
Initially, I started exploring concepts through creating utopian and dystopian examples (See Appendix D). However, this ideation was more centered around features, not stories and experiences, and I realized that they wouldn't provoke as intended. I therefore created some more specific requirements.



The Research Probes *must* be centered around behavioural change. They *must* provoke feelings, critical thinking and reflection. They *should* be futuristic, but yet realistic.

Creating the probes

The research probes were created by asking “How might ...” to different behaviour-related challenges, and exploring the trends for opportunities. Then, to explore a behaviour-related solution, I discovered that the B-MAT Model (Fogg, 2020) for behaviour change was applicable for concept exploration, whereas the COM-B Model was more applicable for understanding unwanted behaviour. Fogg (2020) defines behaviour as a result of Motivation, Ability and Triggers, and the model is depicted below. The concept exploration can be seen in Appendix E.



Probable Probes

The following design probes exist within a future reality rooted in trends and likely scenarios. Originally there were 6 probes, but based on the early feedback from designers, I limited this presentation to the three most thought-provoking concepts.

This reality consists of a tech-oriented “smart city” that reflects the values of its decision makers. The design probes embedded values reflect a capitalistic mindset: productivity, optimisation and individual performance. Some might find them enjoyable, and others repulsive and disgusting; both reactions are valid and understandable.

***you are now entering a
speculative dimension***

SmartMeals

SmartMeals help you eat healthy and efficiently by providing the optimal nutrient and calorie intake for any given day. By tracking your vitamins, hormones, stress and hunger levels, SmartMeals provides you with food at the right time and in the right amount. All meals provided by SmartMeals are, of course, sustainable and locally sourced.

Successful people use SmartMeals!



How does it work?

- Ingredients are adjusted to fuel your body with the necessary nutrients through weekly measurements of vitamins and hormones
- Calories personalized to your activity level
- Sustainable and locally produced
- Delivered on your doorstep before you even realize you're hungry

You 2.0

Through machine learning and a highly advanced prediction algorithm, the You 2.0-AI uses your biometric data to predict how your body would respond to different exercise and diet regimes. Through sophisticated and personal coaching, You 2.0 help you become the best version of yourself.

68% of people in your neighborhood use You 2.0.!



How does it work?

- Analyzes your biometric values to understand your current situation
- Through a 2 week adjustment period, the algorithm learns how you respond to different exercise and diet regimes, and creates a personalized plan fully optimized for you
- Shows a future render of how you could look and feel if you stick to the plan, to increase your motivation
- Nudges you when to exercise and when to eat, based on continuous tracking of your hormones and blood sugar

Cybert

Cybert is your child's favourite imaginary friend. The core functionality of Cybert is using advanced machine learning to adapt to your child's needs. By playing and interacting with Cybert, By subtle and non-obtrusive tracking of your child's hormone levels, happiness, anxiety and stress, Cybert is an interactive, digital representation of your child's mental health.

67% of parents working out-of-home reported that DigiKid improved their parent-child relationship



How does it work?

- Our highly advanced Imaginary Friend AI learns to recognize your child's emotions, feelings and needs.
- Through fun and interactive play, Cybert picks up signals on your child's well being
- Unobtrusive nudges will help you to interact with your child in a more meaningful way
- Daily reports of your child's mental health and cognitive capabilities

Feedback from the design community

Who? Three designers with varying degree of experience, ages, gender and nationalities

SmartMeals

In general, the designers had positive feedback on the opportunities regarding healthy and sustainable habits, and the concept seemed appealing to them.

You 2.0

The designers were also mostly positive to this concept. Seeing a future, healthier version of yourself seemed to especially resonate with and motivate them. However, one designer had the opposite reaction, and thought this concept would be demotivating to the present self.

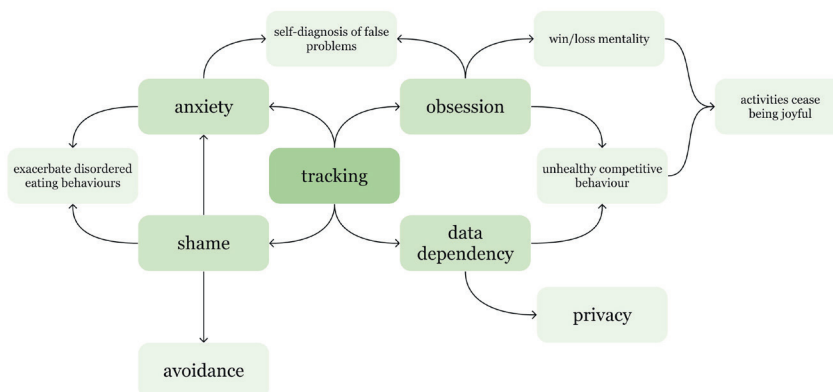
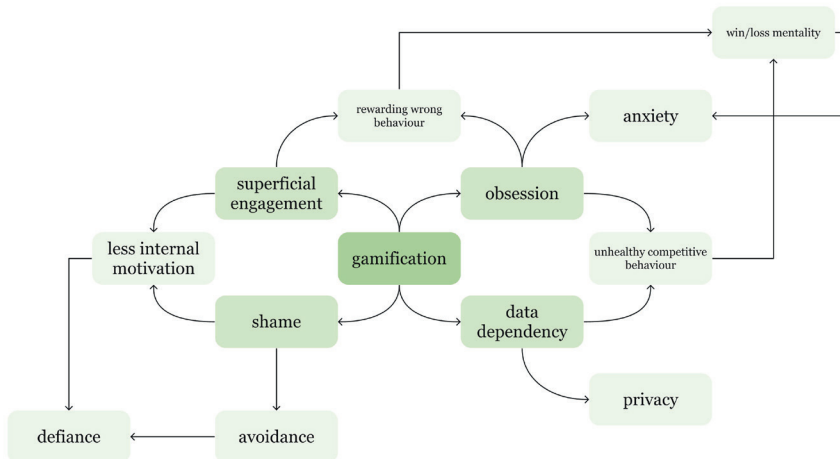
Cybert

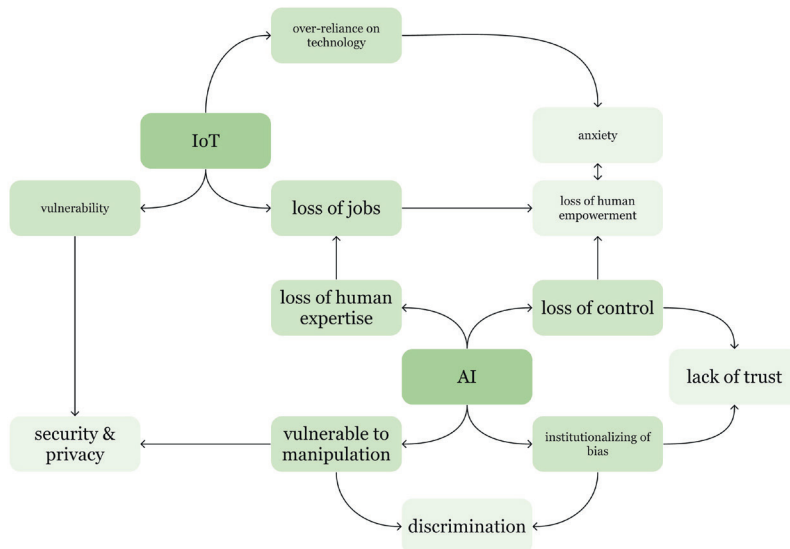
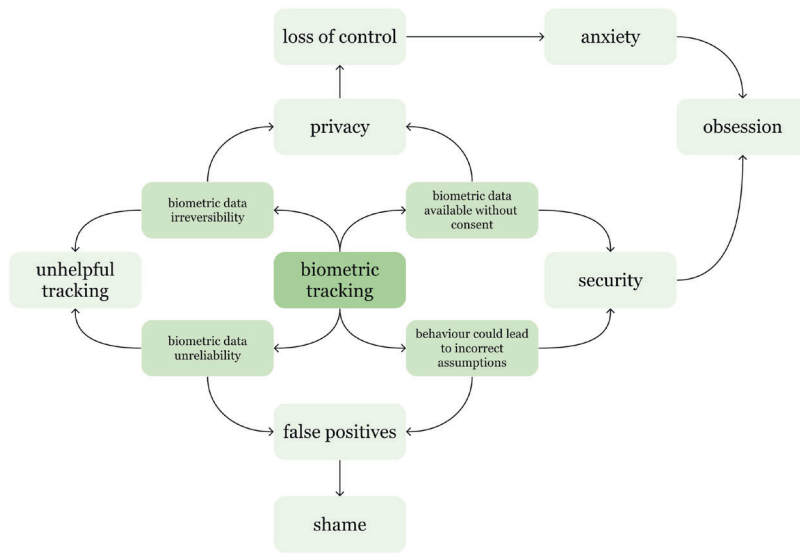
Lastly, this probe was the most provocative. Interestingly, one of the designers is a parent, and suggested the concept could be used for discovering mental health-related issues before they become a serious problem, as well as facilitating how the parent could ask their children difficult questions. The general reaction was that this concept could be useful depending on how it's designed. One designer also expressed strong, negative feelings towards being "introduced to digital stuff so early", and were wondering if the

Probe Impact

What are the possible implications from these probes?

I explored this through another iteration of the Futures Wheel method, to gain a deeper understanding of the potential impact of our seemingly, harmless services. This exploration was not meant to devalue the response from the designers, but to seek further reflection on where our society is headed. All three probes rely on all four of these trends, and could therefore cause a plethora of unwanted consequences. The gamification-wheel is based on findings from Dalen (2020), the tracking-wheel from Cox (2019), the biometric tracking-wheel from Keenan (2015) and the AI/IoT from Brahm (2018).





What do these future wheels show us? That seemingly positive experiences can have a negative impact on society. These factors are partially out of the designer’s control, but by being aware of the possible implications, the designer can refine their concept to minimize these risks. It’s time to seek a preferable future, but what even is it and how might we get there?

Part 5

Seeking a Preferable Future

This Section seeks to define what a Preferable future is, through existing design research, and concludes that it should be ‘inclusive’. The section then seeks to explore what it means to design for inclusivity, and takes a critical look at social media to review whether our current society is inclusive. Then, the section explores ‘designing for inclusivity’ through a workshop, and as a conclusion, reflects upon how we could use behavioural design for inclusivity.

Defining Preferable

What is a preferable future?

This is a complex question that doesn't have an objectively true answer. The definition of 'preferable' would vary greatly depending on whom you ask, depending on their personal values and societal influences. It was clear that I couldn't define this myself, as such a topic would require a great deal of reflection. Instead, I looked within the Norwegian design community for answers, to seek a definition that is a) relevant to Nordic designers in terms of values and approaches, and b) building on existing work.

As the Oslo School of Architecture and Design has an ongoing research project about Digital Urban Living (Martinussen, 2020), I explored their research for input. This research project, started in 2017 by Einar Martinussen, focuses on "(...) *what is at stake when the global digitalisation trends meets the nordic societal model, and how we might design for a digital shift built on societal participation, trust and civic rights.*" (Martinussen, 2020). Through the 2019 book 'Trust is work', a group of design students explore implications of the 'smart city' on society. "*Despite good intentions, our claim is that the "smart city" is mainly technology driven and often fails to embody societal values.*" (Olderbakk et al., 2019). Another project, called the 'Manifesto for an Inclusive Digital City' (Smejkalova, 2018) defined a set of principles for 'The Inclusive Digital City', including that it should give a sense of belonging, promote collective experiences and be built on citizen engagement. (Smejkalova, 2018)

Drawing from this research, I realized that the Probable Probes were exacerbating the notion of a 'smart city' through being driven by technology, and that they were designed for capitalistic values such as productivity, efficiency and individual performance. In addition, the Municipality of Oslo is working on reducing the social differences and facilitating for a more inclusive city, through social entrepreneurship (Oxlo, 2020). Drawing from this incentive, and the research regarding the Digital Urban Living project, I defined the preferable future as inclusive.

Exploring Inclusivity

Humans have evolved over thousands of years to be social creatures that live in groups. Our social habits influenced our evolutionary features, and those without social intelligence or acceptance of social norms would be left out and less likely to survive. However, our technological devices have opened up new opportunities for social interaction, but without the evolutionary aspect of common, social decency as a mandatory baseline. As a result, our digital social habits are centered around tools without punishment for those going against the social norms. Social media was never built around the concept of inclusivity, but rather on breaking things fast and evaluating the results as they'd pile up.

As our digital society is increasingly influencing our physical society, I wanted to explore whether technology has facilitated inclusivity. In chapter 2.1 Background, I briefly introduced some implications of persuasive technologies, such as elevated depression, tech-addiction and the polarization of political viewpoints.

Let's take this one step further, and explore how our digital habits are affecting us as a society.



Is this preferable behaviour? These are sadly real screenshots from the Instagram profile 'omgjustdont'. How did we get here?



 omgjusjdont ...

 **Carl I. Hagen**
Saturday at 21:21 · 🌐

Den 16-årige jentungen Greta Thunberg blir nå lyttet på som en fremragende klimaforsker! Helt utrolig og burde få enhver oppegående voksen person til å tenke seg om. Samtidig er det stadig fler forskere og professorer som påpeker at det ikke er noen klimakrise. Kun som i «Keiserens nye klær» hvor alle jublet over de fine klær der han gikk naken gjennom den jublendebefolkning!

På Breitbart er det en historie om 41 gamle påstander fra 80 og 90 tallet om hva som vil skje i 2015 til 2020 som ALLE har slått feil! Og vår regjering vil fortsette å kaste titalls milliarder ut av vinduet som kunne løst problemene og utfordringene på helsevesenet og eldreomsorgen.

Det er til å grine av!

 omgjusjdont ...

Barnevernet vil vi ha helt fjernet
5 timer · 🌐

Dette er svært svært viktig. Skolene er stengt for at 5G kan installeres i hemmelighet. Målet er å installere 5G i alle skoler før midten av april, for å drepe barna. Når de viser tegn til strålingsskader (som de da vil omtale som "corona virus") vil de påtvinge barna dødelige vaksiner, som inneholder viruset - så de dør fra både strålingen OG viruset, som de først får fra vaksinerne.

 omgjusjdont ...

 **Mannegruppa Ottar**
2 t · 🌐

Kor mye pæng treng man ha me sæ t Thailand for å spise ute 2 gang om dagen, drikke sæ full hver dag og ha sæ me ei ny kjærring hver dag. Planlegge en 2 ukers ferie. Aldri vært, så usikker på ka me gryn æ træng 🙄

    20

64 kommentarer

 omgjusjdont ...

En dame med ryggsekk har banket på døra min for å tigge penger for hennes kirke. Hun var tilsynelatende norsk. Jeg er ikke sikkert om hun hadde noen våpen med. Heldigvis var jeg hjemme, da sa jeg takk og ha det bra. hadde det skje med noen av dere? Bestefar min pleide å fortelle historier om kristen hvite folk med blå øyer som drepte eller slaver indianer, muslimer og svart folk (og jeg kan si, mange gjør det fremdeles). Så var jeg redd...vet ikke, det er så mye som skjer der ut...
Husk å låse døra!

 1

1 kommentar

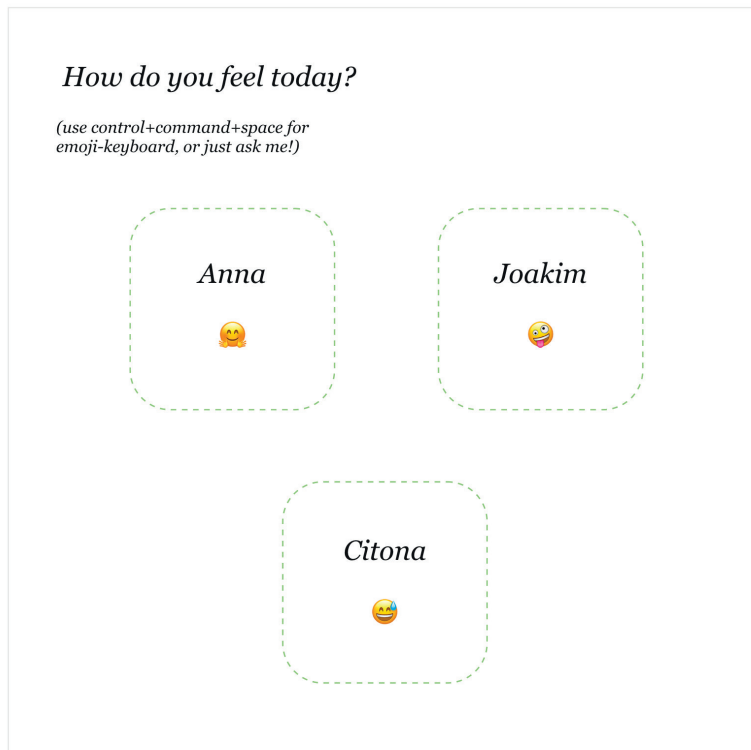
Workshop for an Inclusive Future

What does it mean to design for an inclusive future?

As inclusive implicitly relies on welcoming diversity and different opinions, I invited three designers to a digital workshop. Anna and Joakim are 5th year students at the Oslo School of Architecture and Design, whilst Citona is a 5th year student from the University of Oslo.

To facilitate a creative atmosphere, I prepared the workshop using Miro. See Appendix for Workshop Plan and Miro board.

Intro 3



First, a little icebreaker to lift the mood and introduce the participants to the software.

Part 1: Future Trends

Each participant brainstormed future trends, and were then asked to collectively cluster them.



“(...) and then you have augmented and virtual reality, i feel like there is a lot of potential for what could be done. You could immerse yourself in stories in relation to education, bringing the reality closer to you.” - Joakim

Part 2 - Societal values

Then, each participant brainstormed societal values, and were once again asked to cluster their collective values. Values included “Equality, Inclusivity, trust, sustainability, mental health/empathy/understanding.

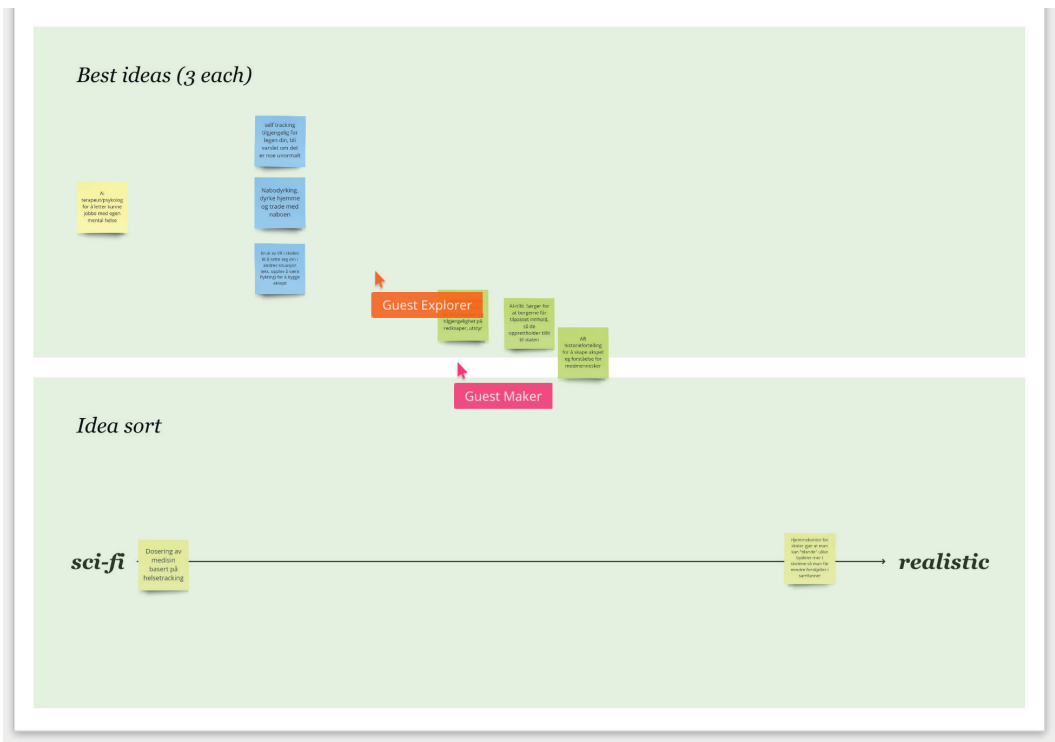


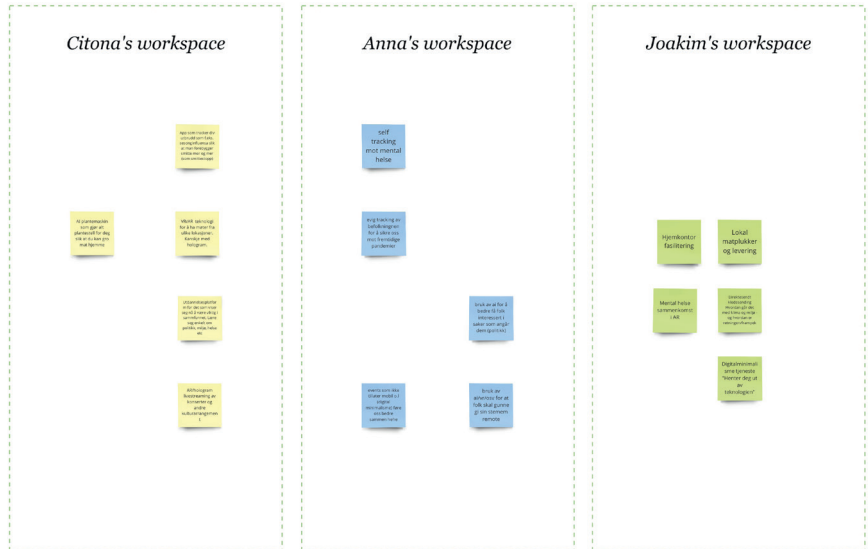
Part 3 - Future society

For the last part, they were tasked to ideate concepts for a future society, relying on the trends and values they previously identified, through a ‘crazy 8’ session. Then, they were tasked to choose their three best ideas and present them, and then vote on the three best ideas (including their own).

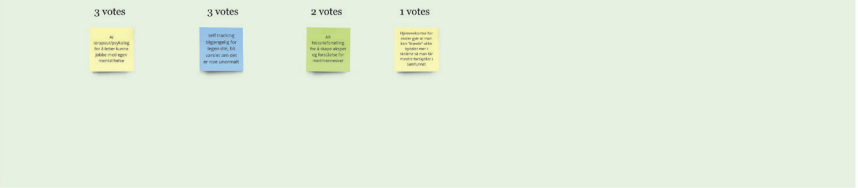
“I think that human values, despite things becoming more technological, are really important to maintain. We humans have bodies, and need to be seen, heard and that someone cares about you.” - Joakim

“Trust in the government, trust in each other, and trust trust trust. Those are values you’d like to maintain, those are values driving society and creating a specific kind of service in a society with high trust.” - Anna

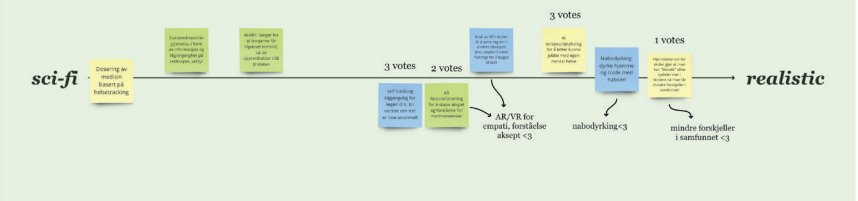




Best ideas (3 each)



Idea sort



Despite the workshop being digital, it worked out quite well thanks to the prepared boards and the interactive digital post it-notes. As a result, they created some interesting futuristic design concepts based on societal values, including ‘storytelling through VR/AR as a means to foster empathy, understanding and acceptance’.

Rethinking Behavioural Design

How can behavioural design be an opportunity for inclusive behaviour?

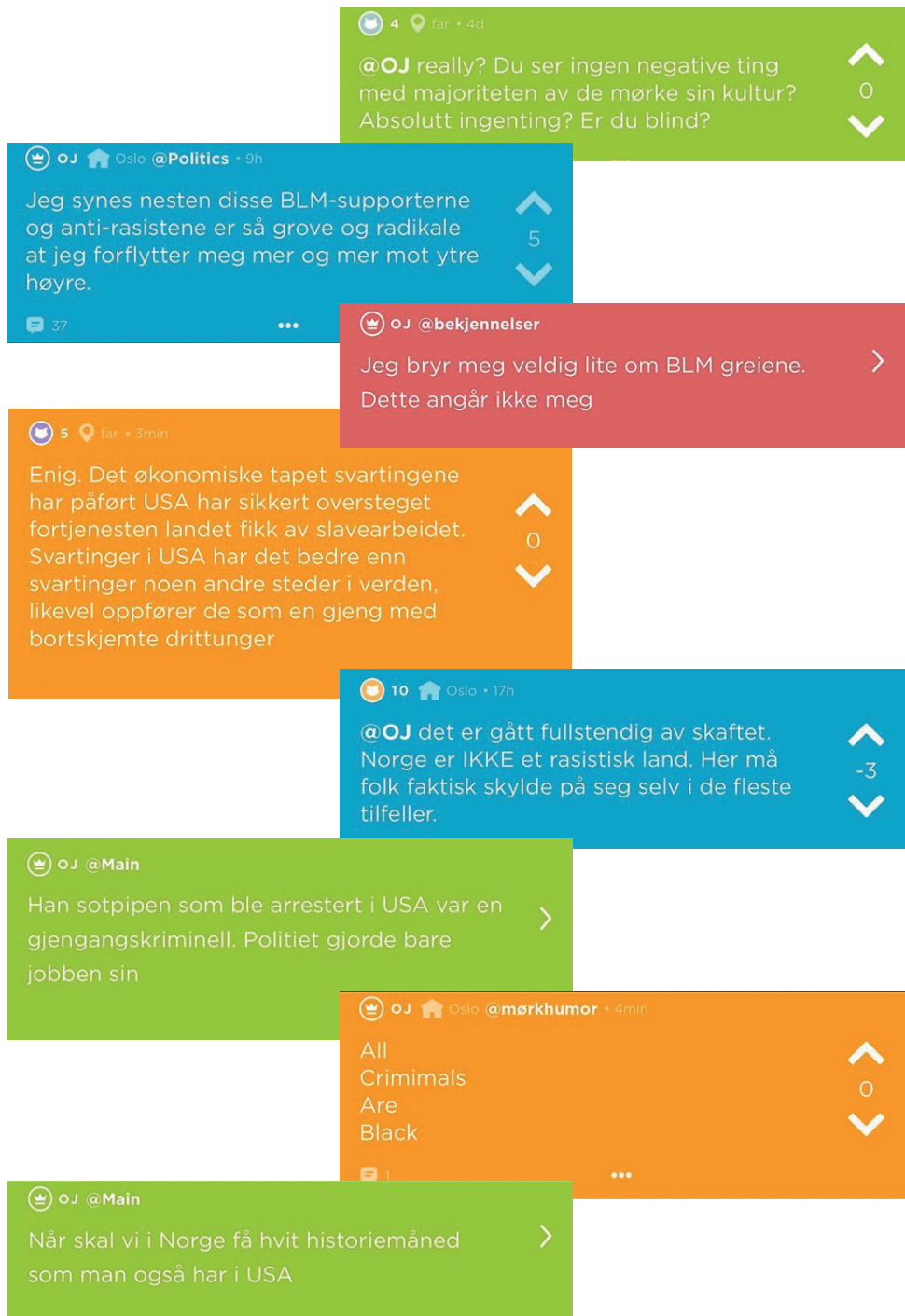
Threats to an inclusive society include our own human biases, such as racism, sexism, xenophobia and so on. Our persuasive technology is exacerbating these biases by the implications of the attention economy, as discussed in section 2.1. As our opinions become more extreme and polarized, social media has become a playground for spreading harmful misinformation, and encouraging anti-social and extremist attitudes. Can behavioural design, through its persuasive, coercive, decisive and seductive forces, influence people's behaviour and attitude towards others?

Social media is a powerful influence on collective societal values. Did the creators of Jodel realize it could be used to share and encourage racist attitudes?

These attitudes, if spoken publicly in the city, would likely foster negative reactions, as they strive against social norms and common decency. Why not use the persuasive influence of behavioural design to nudge these people towards awareness and empathy?

What if we used behaviour design for inclusivity?

Screenshots from Instagram profile 'ikke.rasist.men'



Part 6

*Designing for
Active
Anti-Racism*

In section 7, the thesis seeks a more reflective approach through applying behavioural science methodology as a means to understand ‘unwanted’ behaviour, such as racism and passivity. Through an explorative and critical approach, the section presents a concept for using behavioural design for active anti-racism. As a result, this chapter proves how and to what extent behaviour design can be used to achieve a transformative and reflective design approach.

Primed for Racism

“

Race does not biologically exist, yet how we identify with race is so powerful, it influences our experiences and shapes our lives. In a society that privileges white people and whiteness, racist ideas are considered normal throughout our media, culture, social systems, and institutions. (...) **To create an equal society, we must commit to making unbiased choices and being antiracist in all aspects of our lives.**

(National Museum of African American History and Culture, 2020)

As I'm writing these words, the global civil rights movement Black Lives Matter is fighting for change. What started in America has quickly spread to the rest of the world, largely thanks to social media's ability to share content and information at great speed. Technology brought us opportunities for gaining awareness and empathy through stories, experiences and networks. Racism is more documented than ever and we, as a society, are just beginning to understand the vast, ugly extent of it and, scarily, how culturally embedded systemic racism is.

Societal improvement requires change, and change requires action. Systematic change requires those in power to be aware of their privilege and influential power, and be willing to use it for good. Speaking of power, design has a strong influential force. Design is a privilege, and is also very political (disagree? Cennydd Bowles' Future Ethics (2018) might be an interesting read for you). The impact we create on society says something about our stance as designers, and it's our collective responsibility to make sure we're utilising our power to drive societal improvement and social innovation.

As mentioned in Section 3.2, systematic priming can influence collective values and social norms. Lack of diversity exacerbates the problem of systemic racism, as people tend to hire or work with people similar to themselves. As a result, we have been white-primed (a term I just coined, also referred to as unconscious racism). Systematic exposure to media and marketing display white people as the norm, has persuaded our subconsciousness to think of white skin as the norm.

As an example, it wasn't until recently I became aware of how I automatically and subconsciously envision people in books as white, unless their skin colour is explicitly mentioned. Further, if a crowd is massively white, I wouldn't bat an eyelash, but if the crowd mostly consisted of POC (urban dictionary defines this as "people of colour, as in everybody except caucasians"), I'd notice. Why? Because I've been white-primed.

And so have you.

Let's explore two starting points for social inclusion through design.

Problem 1: Active Racism

All humans are biased; it's an implicit and unavoidable part of our nature. Racism, however, is a taught set of discriminatory and hateful attitudes, norms and values. And as people's social circle usually reflects their own, personal values, they're likely to reinforce their opinions through social proofing and conformity. Therefore, you can't just nudge someone out of racism; which as illustrated in Section 3.2 could result in defiance, avoidance and unexpected behaviour. It requires awareness, empathy, an increased understanding, sympathy, critical thinking and the introduction to a new social circle. These are just my assumptions, and I know it is much more complex. However, I can conclude that racism is complex; it is taught, abused, proliferated without remorse, inconsistent, hypocritical, messy and ugly.

Problem 2: Passive Anti-Racism

Passivity or apathy to racism, on the other hand, is often the result of a cognitive bias called the Bystander Effect; "Individuals are less likely to offer help to a victim when there are other people present; the greater the number of bystanders, the less likely it is that one of them will help." (Psychology Today, 2020). Reasons for this are often ambiguity, group cohesiveness and diffusion of responsibility. This unconscious behaviour is often unwanted in the people experiencing it, and passivity to racism goes against social good.

According to Combs & Brown criteria for ethical behavioural design; transparency, alignment with social good and alignment with user desires (Combs & Brown, 2018), using behavioural design for understanding passivity (unwanted behaviour) and influencing it towards active anti-racism (wanted behaviour) is an ethical application.

Goal

As design is a powerful and influential privilege, it should be used for societal innovation and social improvement, tackling social issues as racism through better awareness of the end-impact of our design. The purpose of this exploration on ‘designing for active anti-racism’ is to explore how, and to what extent, behaviour design can be used to understand unwanted behaviour and influence it towards a more preferable direction. To work with human-related issues, we need to understand the basic, cognitive psychology of how humans work.

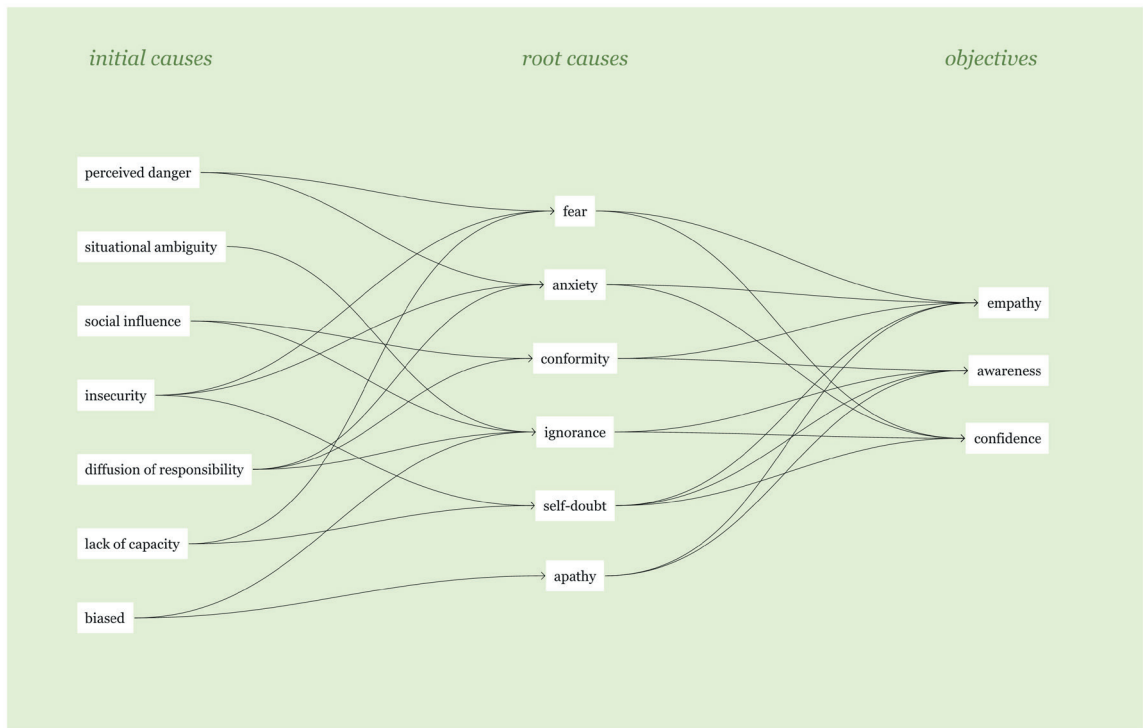
The goal is to shine light on behavioural design as an opportunity for achieving a reflective and transformative design approach.



Fighting Passivity

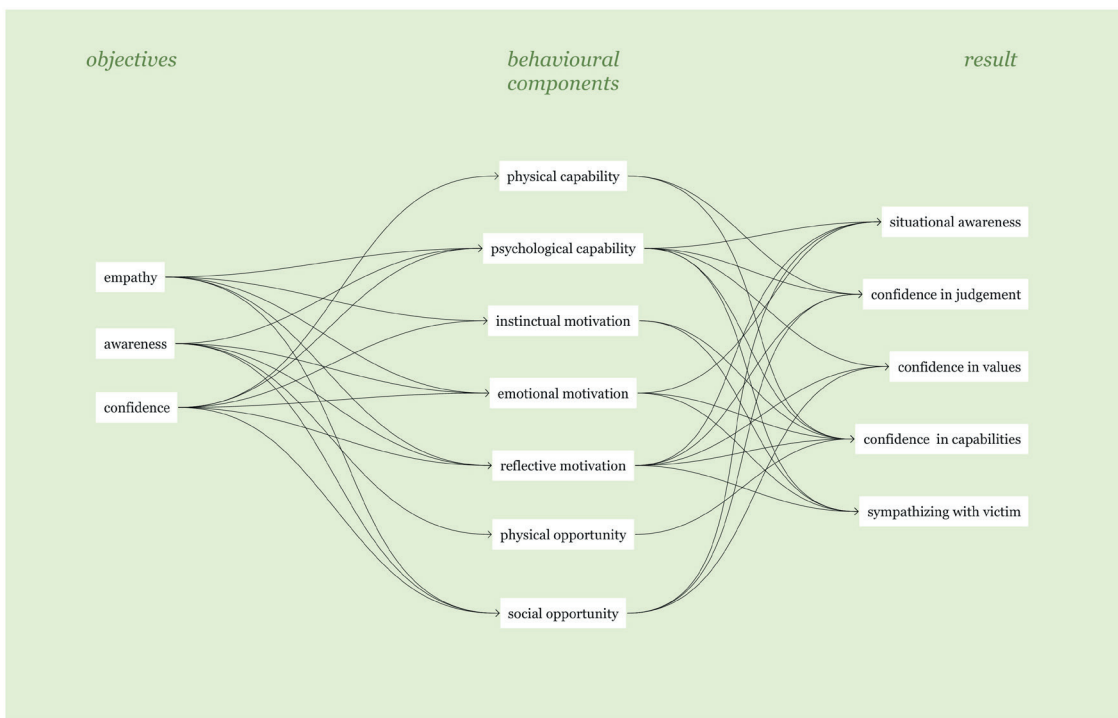
Part 1 - Understanding the problem

One of the causes of the Bystander Effect is that “(...) *the presence of others discourages an individual from intervening in an emergency situation, against a bully, or during an assault or other crime.*” (Psychology Today, 2020). Building on the research on the topic, I identified initial causes leading to passivity, such as insecurity and diffusion of responsibility.



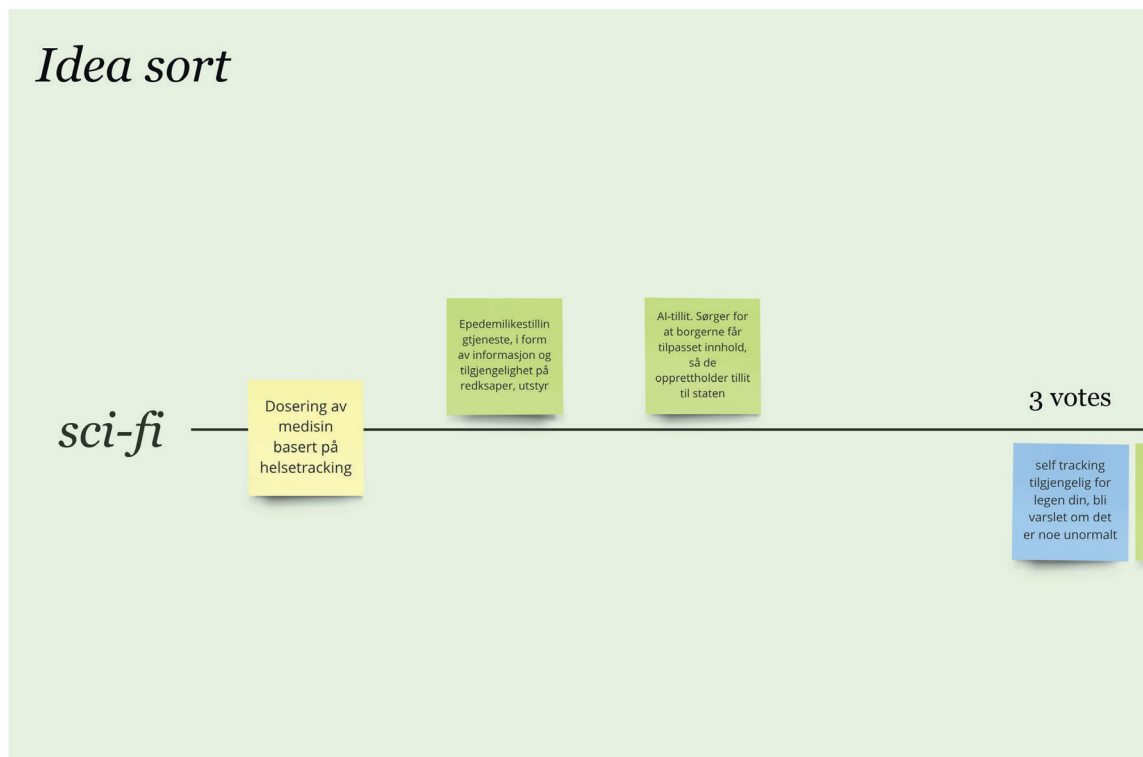
Part 2 - Identifying opportunities

As the bystander effect is a cognitive bias, it can be overcome in several ways. One is to bring attention to the bias, making the individual aware of their implicit bias through awareness. If the individual better understands that no one is intervening because everyone shares the same ambiguity and fear, the individual might be more prone to intervene. In addition, empathy helps the bystander focus more on the potential victory for the victim by getting help, than the bystander's potential risks by intervening. Therefore, empathy helps overcome self-doubt and conformity, as the bystander would better understand and sympathise with the victim's pain, and be quicker to help. Lastly, confidence could help improve situational awareness, reduce fear and anxiety and increase the bystander's confidence in their ability to make a difference.



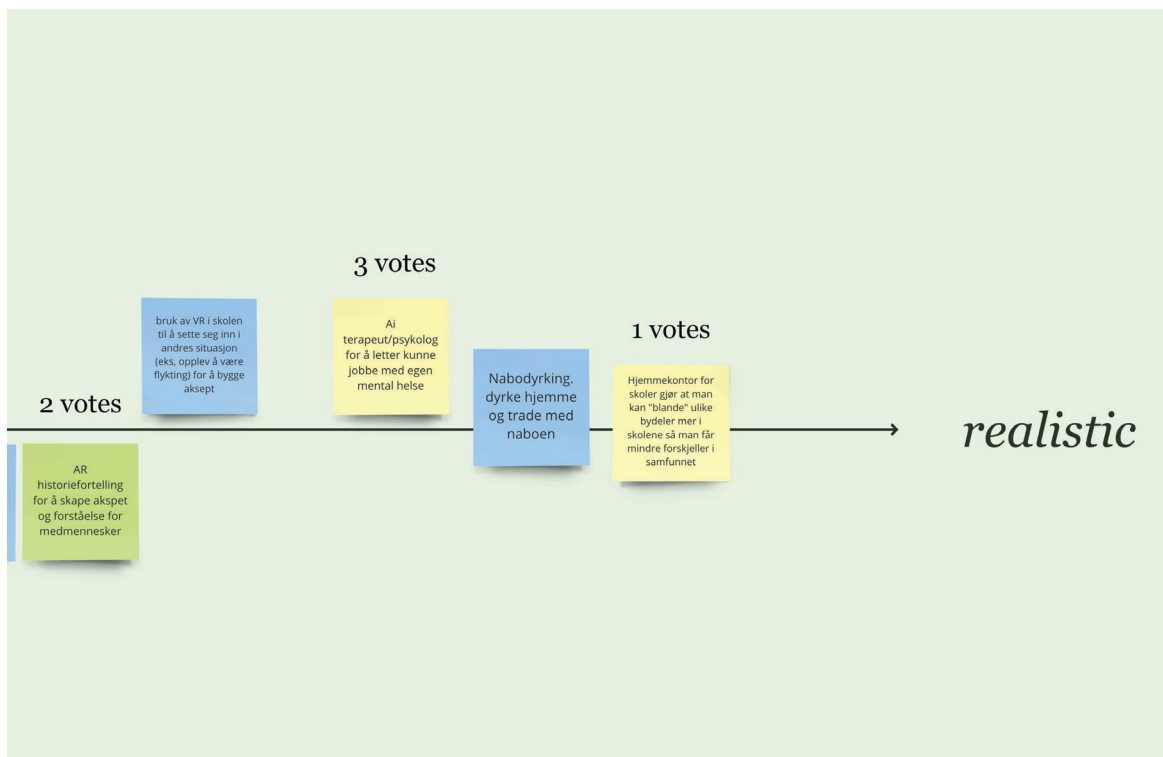
Part 3 - Drawing on workshop findings

Two of the probes from the workshop on an inclusive future (Section 5.3) were centered around using XR (AR & VR) for story-driven educational awareness and empathy. Besides, a study discovered that “*Priming individuals by eliciting examples of situations when they had overcome their own behavioral inhibitions also has the effect of increasing helping behavior*” (van den Bos et al., 2009). And having discovered the expected, positive impact of empathy, awareness and confidence, it was necessary to further investigate this opportunity space.



“(…) and then you have augmented and virtual reality, i feel like there is a lot of potential for what could be done. You could immerse yourself in stories in relation to education, bring the reality closer to you.” - Joakim

“you could use VR in school to place yourself into other’s situation, for openness, accept and counteract racism and stuff. and you could learn to be in a different situation than the one you’re in, as a small educational program.” - Anna



Creating a Provocatype

Concept: Immersive VR for active anti-racism

Why:

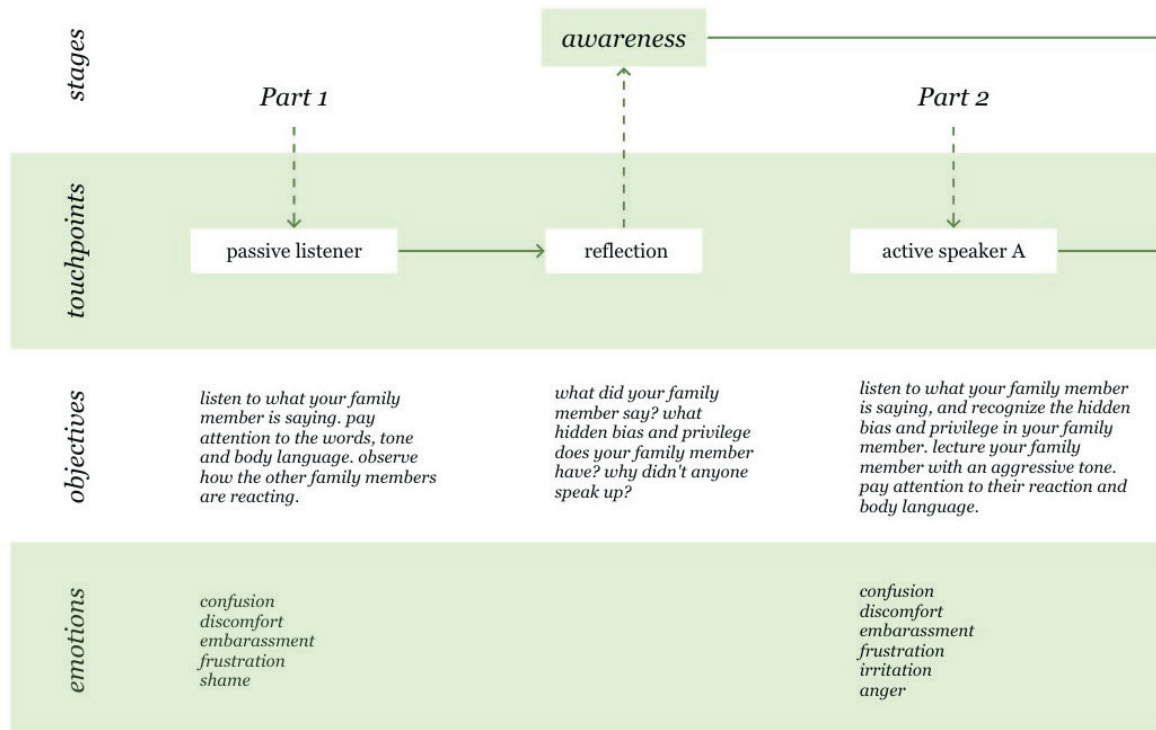
- facilitate for awareness about the bystander effect and empathy for the victim, so the person will be more likely to intervene

How:

- immersive storytelling via VR
- priming to identify racism through words and microaggressive body language
- priming to recognize bystander effect in self and others
- coercing to intervene
- positive reinforcement by sympathizing with the victim and intervening

What:

- immersive, fictional story in first-person VR

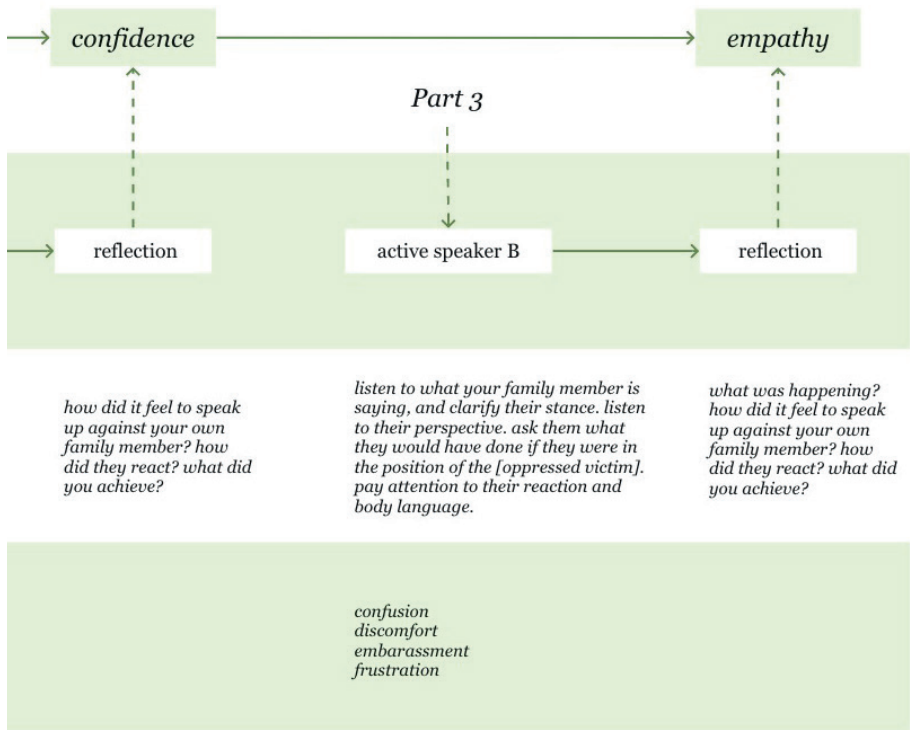


Scenario 1: Public bus ride

Introducing the Racism on Public Transportation™ experience, the immersive VR experience! How would you react? Test your own ability to identify racist remarks and sympathise with the victim!

Now featuring! Play as the victim, and experience what it feels like when everyone stands around quiet and watches as you're being harassed for your skin colour!

Depicted on the Journeymap below.

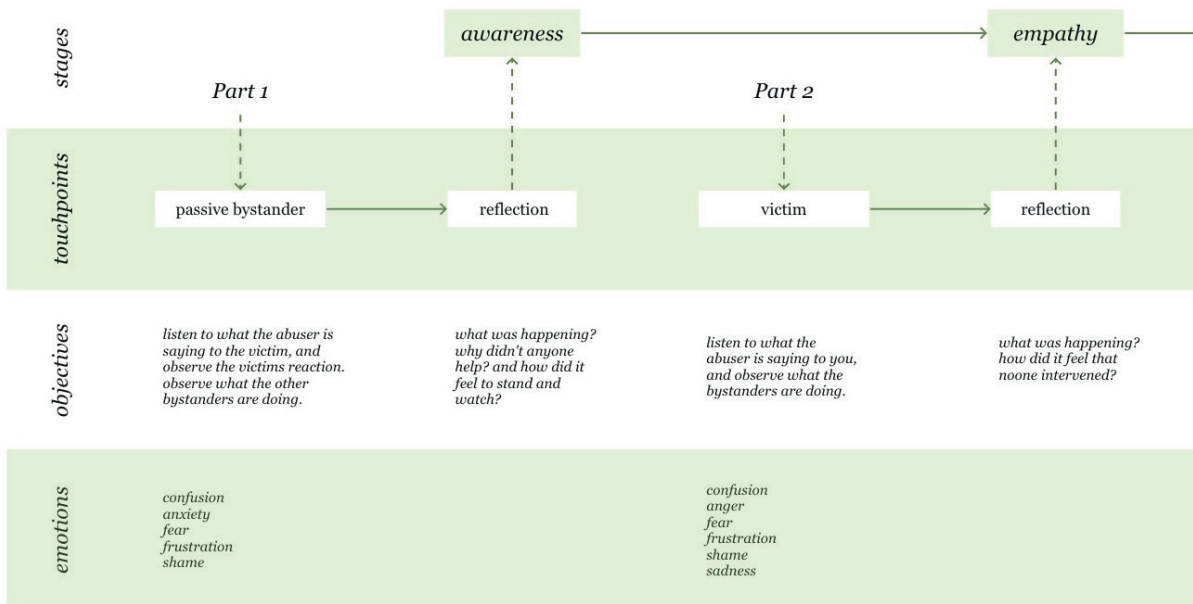


Scenario 2: Family dinner

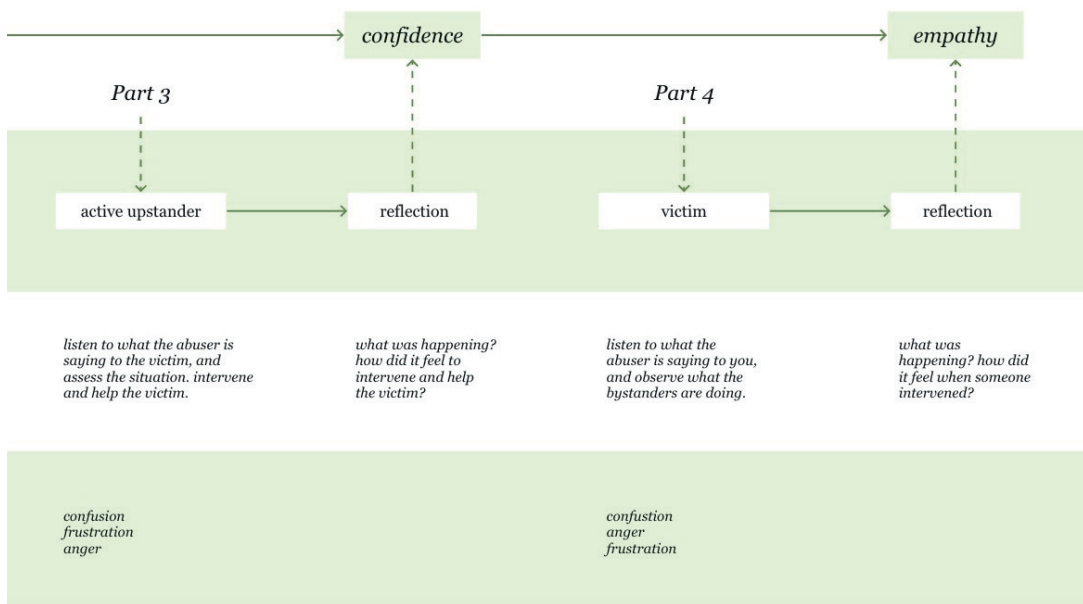
Introducing the Racist family dinner™, the immersive VR experience! Real deep fakes of your very own family members! Want to learn how to tell your racist uncle to stop being a racist? This is your chance!

Now featuring! Track the microaggressions in your voice and body language, so you'll learn how NOT to talk to racist family members! Based on our advanced Fragile Racist AI™

Depicted in the journeymap below.



As seen in Section 4.4, shaming might lead to avoidance, anxiety, defiance and guilt. An article by Gillian for Amnesty International also highlights that the way you speak up to racism is crucial to whether that person is likely to learn from the situation or not (Gillian, 2020). “When we encounter interpersonal racism, whether obvious or covert, there are ways to respond and interrupt it. Asking questions is a powerful tool to seek clarity or offer a new perspective.” (National Museum of African American History and Culture, 2020)



Early feedback

I shared these scenarios with 11 designer friends of different genders, ages, nationalities and design backgrounds, asking them which concept they found more provocative and interesting, and why. The general response was that the second concept was more relatable.

“Both are equally disgusting, but at least with public transportation you have the opportunity of never meeting the racist again.”

“if you don’t have racist family members, it might be hard to understand the concept”

“Second one is interesting because you can try learn how to deal with racists, basically it lets you do something about the problem”

“The second one is scarier, but therefore also more interesting and challenging to get insight in how I’m acting”

“Personally I find no. 2 the most provocative as it is a situation I have found myself in often!”

“I think the family situation might be more relatable”

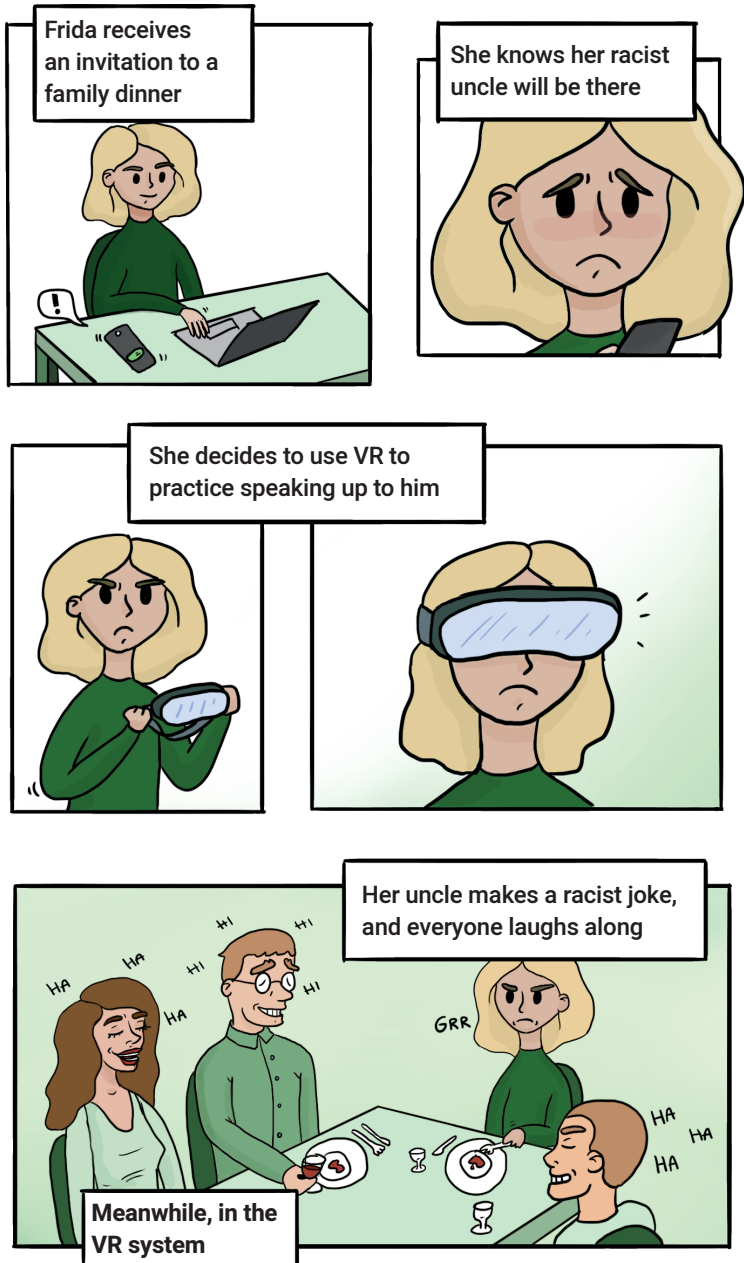
I therefore concluded that the 2nd scenario; The Racist Family Dinner, would have a stronger effect on provoking and inspiring designers.

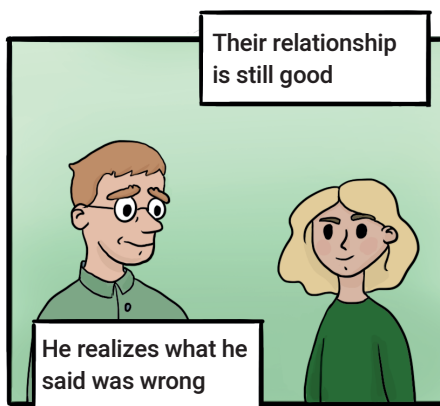
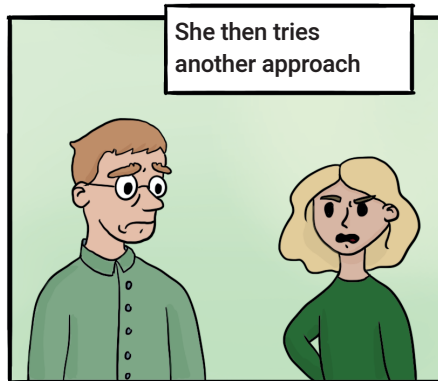
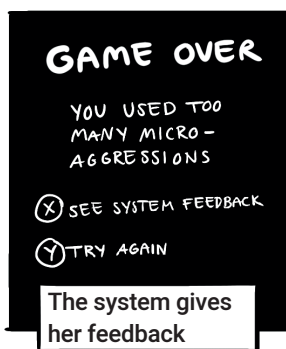
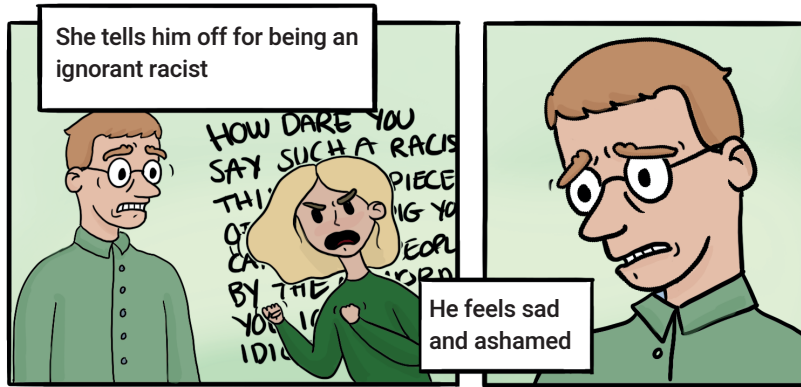
Storyboard

I wanted to visualize the concept through a storyboard, as the emphasis is on their feelings, thoughts and actions. Besides, it's difficult to visualize a conceptual service without tangible features. The iterations were made through feedback from designers; this defined how the emotions should be expressed, and that it shouldn't 'end' with the uncle being sad, as this defined the initial goal of informing, rather than shaming. The plan for developing the storyboard can be found in the Appendix.



Immersive VR for active anti-racism





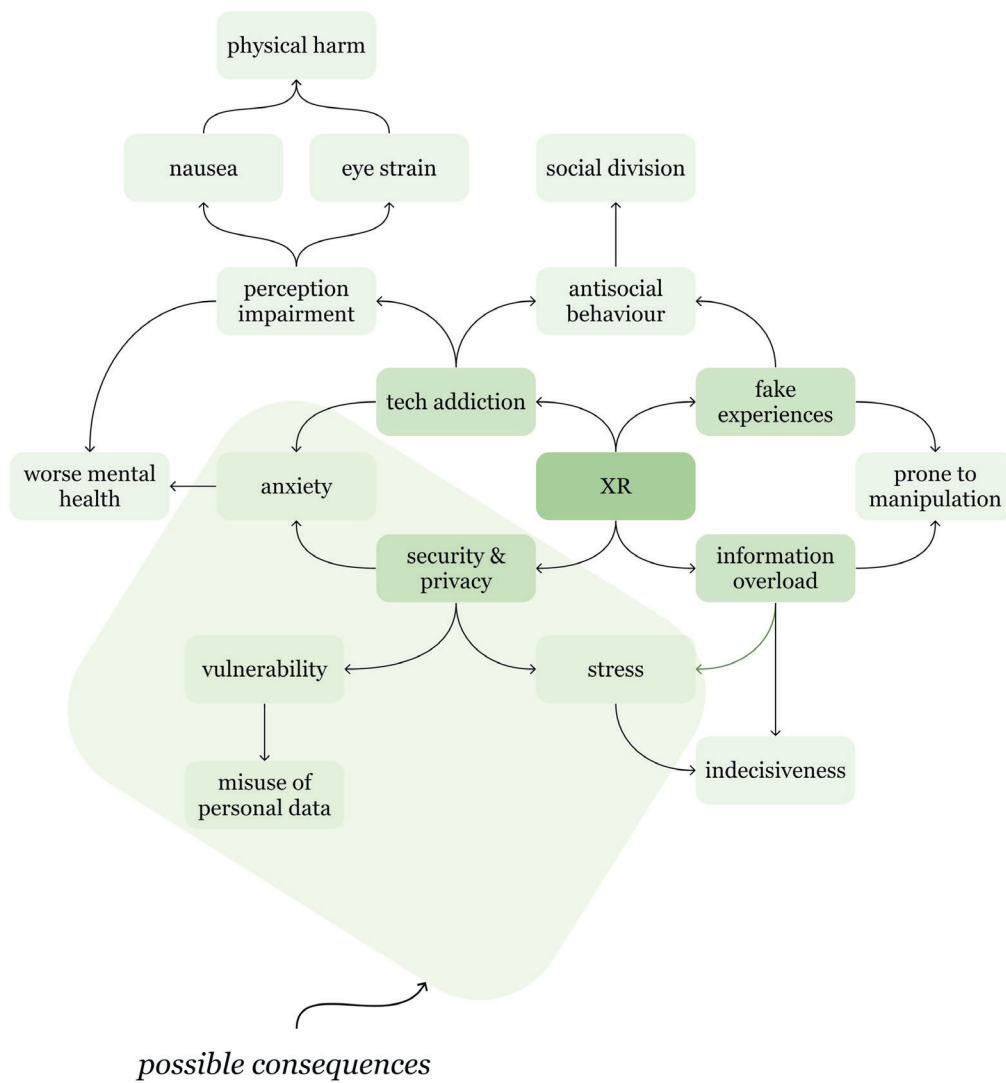
Evaluation

To evaluate the possible implications of my concept, I conducted another Futures Wheel (Glenn, 2020) on the immersive technologies XR (including both VR and AR). Then, analyzed in regards to the features of the concept, I mapped the possible consequences.

As a result, the concept could cause stress and anxiety, in addition to challenges regarding security and privacy. If the concept was to be further evaluated, developed and implemented, these factors could play an integral part in deciding how it should be developed.

Provocatypes (Bowles, 2018) are meant to provoke, inspire and kickstart reflection, rather than solving a problem. As a result of this process, I've demonstrated how behavioural design could be used for influencing inclusive behaviour.

Next, let's communicate this message and validate the approach.



Part 7

Delivering the Message

In this section, the thesis seeks to communicate the findings and reflections of this thesis to other designers. Due to covid-19 restrictions, the scope is limited, as the concept needs to be easily distributed and discussed through digital platforms. As a result, a booklet is chosen due to its opportunity for provocation through storytelling, and presenting a visual approach for dynamic implementation. Finally, the booklet is evaluated, and this section concludes that the booklet reached its purpose.

Why Communicate?

Some problems are beyond our capabilities as designers, such as designing for global warming, resource scarcity, political instability and the increase of climate refugees. On the other hand, some problems are part of our collective responsibility, such as ensuring we are contributing to a preferable future for as many people as possible. This includes designing for social good through a transformative approach and awareness of the impact of our designs. We can't shrug our shoulders and rely on governmental regulations to fix social issues, ensuring an inclusive society requires a collective effort.

Therefore, I wanted to communicate my reflections to other designers, both to validate my findings and to spread the message. The purpose of the medium will be to make designers:

1. Aware of their implicit bias through facilitating active reflection
2. Adopt a critical mindset to be aware of the possible implications of their design through awareness, reflection and applicable methods
3. Aware of their privilege and power so they reflect on why and how they should use their influential power for social good

Choosing a Medium

How do I achieve this? Firstly, Speculative Design often takes the form of a medium capable of communicating a story, such as a diegetic prototype or a graphic novel. However, due to the limitations caused by covid-19, I didn't have as many options to choose from, as an important requirement was that the concept should be easily distributed amongst designers, and easy to discuss and refine through digital interviews. As I wanted storytelling to be a crucial part of the concept, I realized that a booklet would fit these criteria being easily accessible online and capable of communicating the message through text and visuals.

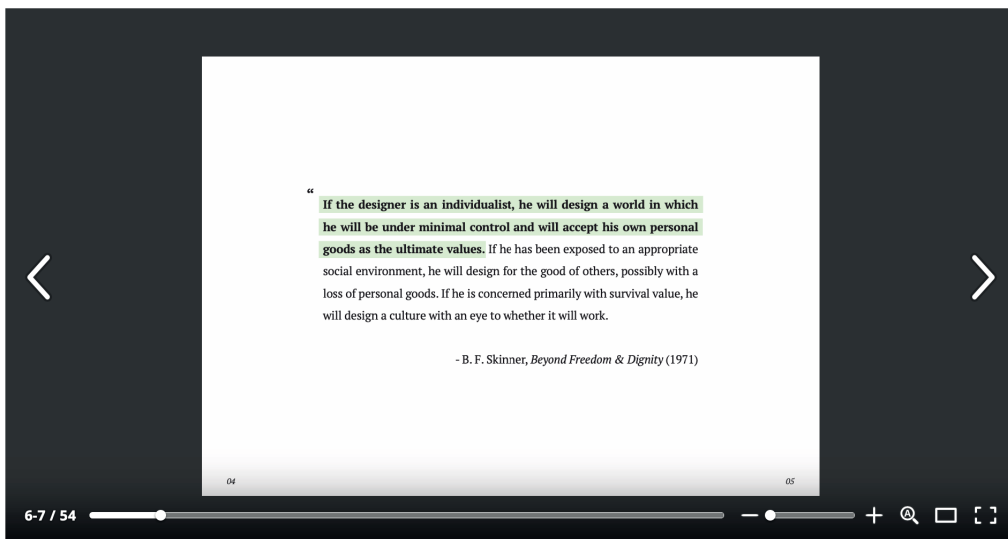
In addition to the purpose stated above, I also created some more narrow definitions in relation to the dynamic application and practical implementation of the process and methods. After reading the booklet, the designers should be aware of how to:

- i. explore their implicit bias, prejudice and attitudes
- ii. discover the underlying causes of unwanted behaviour
- iii. define objectives that could influence the wanted behaviour
- iv. dynamically implement the objectives into a concept
- v. analyse the potential impact of their design

The Booklet

In short, the booklet was refined iteratively through interview feedback, for a) provoking stronger emotions, b) enhancing the dynamic and practical implementation, and c) facilitating active reflection and critical thinking.

The feedback and iterations can be found in the Appendix.



The booklet is available online at Issuu [here](#):

**Method 3:
Influencing Behaviour**

When: Concept Development Phase

Why: Overview of how behaviour can be influenced by objectives

How: Explore objectives in relation to the behavioural components

What: Analysing expected behavioural impact of objectives

All behaviour begins by a prompt, a trigger. In the case of the bystander effect - it may begin by hearing or seeing discrimination, violence, abuse or similar. The behaviour that then follows, is based on the person's capabilities, opportunities and motivation. These components are based on the COM-B Model for behaviour change (Michie et al., 2011), one of the most popular models used by psychologists today.

Depending on the behaviour, the person then experiences a positive or negative outcome. A person experiencing the bystander effect as they fail to intervene might experience a negative outcome such as shame, anxiety and self-doubt, which might lead to the person behaving differently the next time.

I began easy - by visualizing behaviour A as the current, problematic behaviour, and behaviour B as the wanted, inclusive behaviour. This visualization can be seen in the graph to the left. However, let's use this to delve deeper and see how we can bridge the gap between behaviour A

20 21

22-23 / 54

Although these methods were presented in a sequence, I suggest they be used iteratively, depending on need. As an example, following Method 5 - Impact Analysis, could be paired with a new iteration of Method 1 - Bracketing your bias, so the designer is continuously practicing their ability to identify when and if their personal values might influence the process.

Another example is to continuously update the Method 5 - Influencing Behaviour as the designer gathers more insight. As seen below, this graph showing the summary of Method 2 - Understanding Behaviour and Method 3 - Influencing Behaviour, is thought of to be iterated continuously as the designer (and team) gets a broader perspective, and to be used as a communication tool for interdisciplinary teams.

40 41

Concept Evaluation

First, reflections from the design community:

“I liked that [the booklet] identifies our blind spots, it’s a nice confrontation” - Henrik

“I worked a lot in wearable technology for medical device companies and we often found that the behaviour of our user was not as we had intended. Most of the time I knew this already but found it difficult to communicate my concerns to “engineers” and marketing. I think what you created could have the **most potential value in interdisciplinary teams as a communication tool.**” - Maureen

“I haven’t really designed since my bachelor, so I feel like it freshened my knowledge and I learnt how to design on a deeper level than just “if the user understands it, it’s good enough” - Hannah

“**What’s really provoking is the state of the world.** How did we get here, and how do we solve it? A preferable future requires a lot of nudging in the right direction.” - Torbjørn

“The five steps method makes it nice and bite size to read and remember, as well as the when, why, how, what.” - Bram

“[The booklet] definitely provoked hope as **ethical design often can feel so overwhelming that we just block it out.** But your taxonomy broke it down into manageable pieces that seemed tangible and realistic for designers.” - Maureen

Refining the booklet made me more aware of the usability of the concept. It was an effective tool that initiated interesting discussions with other designers, as we had explicit examples and methods to talk around. Based on the designer's feedback, the booklet succeeded in making them aware of their implicit bias; it helped them adopt a critical mindset towards the impact of their design, and be more aware of their influential power on people and society. It would have been nice to create a more interactive medium; if it was suitable for printing, blank spaces could be added for reflections and thoughts from the designers. However, this would have been difficult to user test due to the restrictions of covid-19. As a medium, it succeeds in communicating the message, but it could have had a stronger effect and been a more positive experience for the designer if it had more physical and tangible elements.

Through this medium, I have communicated my message for achieving a well-behaved design approach; a reflective and transformative approach making sure the design behaves as intended, i.e. doesn't cause any unwanted implications that pushes us further from the preferable future. As a result of this process, the focus changed from artefact to impact, creating new, progressive possibilities for using design for social good.



Part 8

Shaping the Future

In this last chapter, the thesis takes a more critical and reflective approach. Firstly, the contributions of this thesis are discussed. Then, the thesis presents fields and problem statements for further research, to ensure a mutualistic development of the technology-human relationship. Following this, the section reflects on the future of behavioural design and our collective responsibility. Finally, this section will discuss and reflect on our privilege, power and responsibility as designers, and conclude the thesis with a critical, but hopeful message.

Contributions

I have looked at behavioural design and persuasive technologies through a critical mindset, reflecting on the many pitfalls and implications on society. Using a speculative approach, I discovered new ways of using behavioural design, and explored how this could elevate the traditional design process to become more meaningful. I have drawn on research from psychology, design and technological fields and combined this with a methodological approach, alternating the approach and mindset for a deeper and more reflective outlook. As a final delivery, I created a booklet meant to provoke, inspire and influence designers towards a reflective and transformative approach.

My co-supervisor Torbjørn said that “the booklet challenges us designers more than we are prepared for”, which is a nice result; designers need to be nudged away from their comfort zone. Henrik (27) said that the book “encourages active reflection by identifying our blind spots and confronting the reader”.

Based on these discussions and my reflection throughout the process, I have contributed to the design field by critiquing the traditional design process, and by proposing a new approach for ensuring preferable societal development. I have dissected and analysed what makes Behavioural Design so interesting and compelling, and then revamped the individual components, creating a new and improved framework. This discursive approach helped me see our role, power and privilege as designers in a new perspective, and delicately integrate ethical and philosophical considerations into an applicable dimension.

Further Research

Throughout this thesis, I might have opened a Pandora's box of design by making designers aware of their power, privilege and influence. The realization that design is, by nature, influential and persuasive might push certain designers to realise the potential of their field, continue to evolve and increase their value to the field and society. Therefore, I strongly recommend a stronger focus on awareness-training for young designers, as self-awareness is an important skill that should be practiced over time.

For further research, I recommend that the design field should explore specific and applicable methods for identifying their implicit bias and privilege, as this is often something one is not aware of until it's been explicitly spotlighted. For example, the Trolley problem could prove an enlightening starting point. In this thought experiment, you have the choice of doing nothing and letting the trolley kill 4 innocent people, or pulling a lever and making it kill 1. Would ethnicity, gender, age, sexuality, nationality or skin colour make any difference for the reasoning? If so, the designer has discovered an implicit bias.

Another area of research I strongly recommend, is a deeper study in what it means to design for impact. Throughout my studies, the focus has always been on creating an artefact, whose features are thought to solve the user's initial problems. It would contribute to the design field if designers were made more aware of the impact they're designing, an aspect which extends far beyond the artefact. Only then we can truly understand the value of our design.

The Future of Behavioural Design

As concluded in Section 2.4, not all behavioural design is bad. It can be extremely helpful, and is a useful framework for influencing unwanted behaviour. However, if used wrong (i.e. without self-awareness of own biases and societal implications), behavioural design could also be a pitfall. The efficiency of the explicit techniques revolve about their current use. If used sparsely and in the right context, they'll continue being helpful. If used against social good or the user's desires, our resistance to persuasion will increase, and new services will be developed to block out persuasive forces. Therefore, how we use it is our own choice, and if it will continue being helpful for social good.

However, we are only beginning to see the opportunities of Behavioural Design. What happens when AIs get more advanced, and personalization becomes an integral part of digital services? What happens when 5G allows for new ways of communication and more sophisticated digital platforms? Is this the start of the end of free thinking, or will technologists finally understand their power and acknowledge their responsibility? The persuasive techniques I described in Section 2.3, might only be the beginning. We know technology is getting more advanced, and that we'll continue to underestimate its impact. Behavioural Science will get more sophisticated and applicable. What's the sum of this equation? Behavioural Design 2.0 is likely getting stronger and more hidden than ever before, but who's there to make sure its a preferable development?

Us.

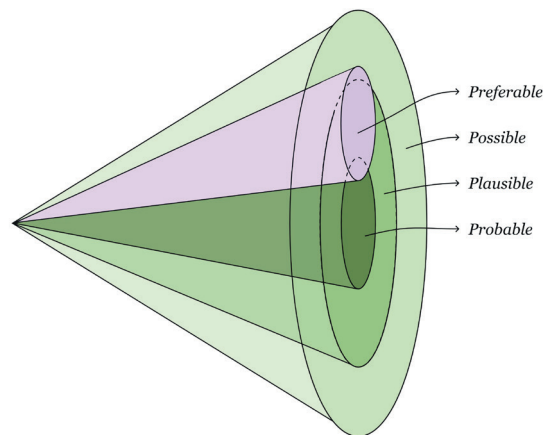
“We are the gatekeepers. This job isn't about helping Nike sell shoes. It's about making sure everyone has shoes.” (Monteiro, 2019, p. 208)



The Power of Design

“

If the designer is an individualist, he will design a world in which he will be under minimal control and will accept his own personal goods as the ultimate values. If he has been exposed to an appropriate social environment, he will design for the good of others, possibly with a loss of personal goods. If he is concerned primarily with survival value, he will design a culture with an eye to whether it will work. (Skinner, 1971, p. 149)



Our original intention doesn't matter when the impact is bad. Acknowledging our power is the first step in the right direction. Realizing the impact of our designs is another. Together, we can influence the current trajectory of the world and nudge it closer to a preferable, inclusive future. The real question isn't what the future looks like, but what we can do now to ensure we're pushing good impact.

We can begin with ourselves, and recognize how who we are shapes what we create, implying both the features and impact of our designs. Then, we can seek awareness. I highly recommend Monteiro's *Ruined by Design* (2019) and Bowles' *Future Ethics* (2018) for all designers seeking to know better, do better and get better. Alternatively, you could also read these articles; [A Designer's Code of Ethics](#) (Monteiro, 2017), and [The Hidden Privilege in Design](#) (Mannan, 2018).

In addition, I suggest bridging the gap between influencing people and understanding people, through Leech's [Psychology for Designers](#) (2016) and Combs & Browns' [Digital Behaviour Design](#) (2018). Every designer seeking to have a more meaningful and sustainable impact should have a basic understanding of human psychology, as this knowledge could help us evaluate the potential impact of our designs.

Lastly, I recommend combining this knowledge and awareness with a structural approach, seeking to understand the user from their actions and attitudes, and in the light of their social influences. This will help the designer empathize with the user, and possibly facilitate a more empowering and participatory approach.

“

We're late to the party. **The world is working exactly as we designed it to be, and that's the problem.** We're here because we've abdicated our responsibility as gatekeepers. We're here because we forgot how much strength we have. It's time to remember. (Monteiro, 2019, p. 209)

By reading this thesis, you have already gained a deeper understanding of the implications of our design, and the necessity that we adopt a critical mindset. You are leaving this book with an increased awareness of your privilege, power and responsibility, and have thus already made the world a better place. Share these insights and reflections with your other design friends, and we're well on the way towards a Preferable future.

(See what I did there? That's called *positive reinforcement* through the use of a variable reward. I just persuaded you into feeling good about yourself, and proved how easy it is to use Behavioural Design for social good. Now you try the same!)



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Appendix

Bracketing my bias

Every medium is biased and political, as the author's implicit cultural biases and societal values inform their design, subsequently influencing thought processes and perspectives. As design is so implicitly political, by addressing human affairs and collective responsibility, I wanted to bracket my implicit bias as a starting point for reflective approaches, and to make my intentions transparent to you as a reader. Additionally, this bracketing could hopefully foster some healthy and much-needed discussion, as I'd love to hear what designers with different political standpoints, values and attitudes might think on the subject. Therefore, this chapter is an introduction to my personal experience, research and hypothesis on the subject of behavioural design.

Personal experience:

Besides university, I spent one year working full-time as an interaction designer, in addition to a summer internship as a ux-designer. A reflection I made throughout this work experience is the focus on economic efficiency, quick results, and a design culture where qualitative user insight is sparse, often too late and too little. A typical scenario was to be told what to design, without the opportunity of validating the concept, and then being left to design it the right way (i.e. iterations through user testing).

Furthermore, my tasks as an interaction designer were often centered around very narrow and specific user goals, with no time to stop, evaluate the impact, and possibly reconsider. I learnt to design interfaces and features by addressing specific user values, but the actual user group was rarely involved. The focus on efficiency and economic growth also made it difficult to apply ethical considerations, which placed me, as a designer, in a difficult position. I lacked awareness of how my design might influence the user, and I lacked the time and resources to do anything about it. I imagine this is a relatable situation to

A - Bracketing my Bias

Previous research theories:

As mentioned in 1.1 Motivation, our Nepali-based service design project led to an increased understanding of our responsibilities and limitations as designers.

In order for the artefact to have a sustainable impact, it was essential that we gained empathy and a deep cultural understanding of Nepal, as well as awareness about our own ethnocentric bias as designers. Our traditional design process fell short as we failed to establish a participatory and empowering process early on; due to past experiences, we thought we could control the narrative and the design decisions. We realized our traditional design process was based on designing for a privileged society. We shared the same societal values and cultural background as our user group, and our flaw was a lack of self-awareness and reflection towards our own cultural ethnocentricity, bias and privilege. I therefore wanted to further explore implicit design bias and how our artefacts influence society, and develop a way to minimize designer's bias for a more inclusive and meaningful approach.

Biases:

As a Norwegian, I believe in democracy, trust, equality and inclusivity. These cultural values have shaped my approach, and are why I believe designers have a collective responsibility to ensure how society is influenced. As of my friends, we often discuss politics, sustainability, issues related to misogyny and discrimination, and other society-related challenges. Most of my friends are female and Norwegian, and share the same values as me, which might have influenced me to form stronger opinions about design and politics. Then, growing up in a socialist-democratic family, I have been taught inclusivity, creativity and sustainability as important family values through discussions around the dinner table. Based on these influences, I have formed strong opinions on such topics and the necessity of good design. Apart from this, being female has taught me to identify hidden, systematic discrimination, often without bad intentions, from people lacking awareness of their privilege and bias. This perspective also justified my belief that designers could easily carry these unconscious biases into their services.

A - Bracketing my Bias

As the gap between theoretic design and applicable design is vast and ever-expanding, I created a null and research hypothesis to identify how the gap is influencing our design approaches.

Null hypothesis: designers impact society positively

Research hypothesis: designers ultimately reflect their own implicit bias and cultural beliefs. Thus, design often adopts bias.

In theory, design is utopian; it improves people's lives through methodological research, empathy and logical reasoning. In reality, design doesn't reach these meaningful heights due to lack of self-awareness about our implicit bias and the impact of our designs. Through behavioural design, I aim to elevate design to a more meaningful level.

B - Consent form, Interview

Informasjon om og samtykke til deltakelse for masteroppgaven

Atferdsdesign

Formål

Intervjuet er del av en masteroppgave som skrives av Idun Ramstad ved Institutt for Design, NTNU. Hensikten med intervjuet er å utforske hvordan designere kan anvende atferdsdesign. Dette undersøkes blant annet ved å samle perspektiver og erfaringer fra både praktiserende designere og andre spesialister.

Om informasjonen du gir fra deg

Innholdet fra intervjuet vil kunne publiseres i studentens masteroppgave. Dersom innhold kobles til personinformasjon, som navn eller stilling, vil direkte sitater fra intervjuet sendes til deg for sitatsjekk.

Frivillig deltakelse

Det er frivillig å delta i undersøkelsen og du kan når som helst trekke ditt samtykke uten å oppgi grunn.

Dersom du har noen spørsmål om masteroppgaven, kontakt Idun Ramstad på idunt@stud.ntnu.no eller 988 73 288.

Jeg har mottatt informasjon om undersøkelsen og samtykker til å delta:

Dato/Sted

Signatur

C - Interview Plan

Expert Interviews

Intro

1. Check-in: How are you doing?
2. Introduce thesis and problem statement, thank in contributing
3. Ready!

Part 1

1. What do you mean by behavioural change and behavioural design?
2. What does it mean to be a behavioural specialist?
3. What psychological models do you use to define behavioural change?
4. Has behavioural design as a concept changed these last few years?
5. Do you think behavioural design is implicit in design, or do you see this as a set of explicit techniques?

Part 2

1. How do you (Anders) use behavioural design in your design process?
2. How do you combine this with technology?
3. How do you (Sara) differentiate between behavioural change on an individual and societal level?
4. Are you using gamification, nudging, priming or other techniques to achieve behavioural change?

Part 3

1. How do you map the potential behavioural change with the user group?
2. Does behavioural design have any possible, negative implications one should be aware of?

Final

Thank the participants for contributing to the thesis.

D - Initial Exploration

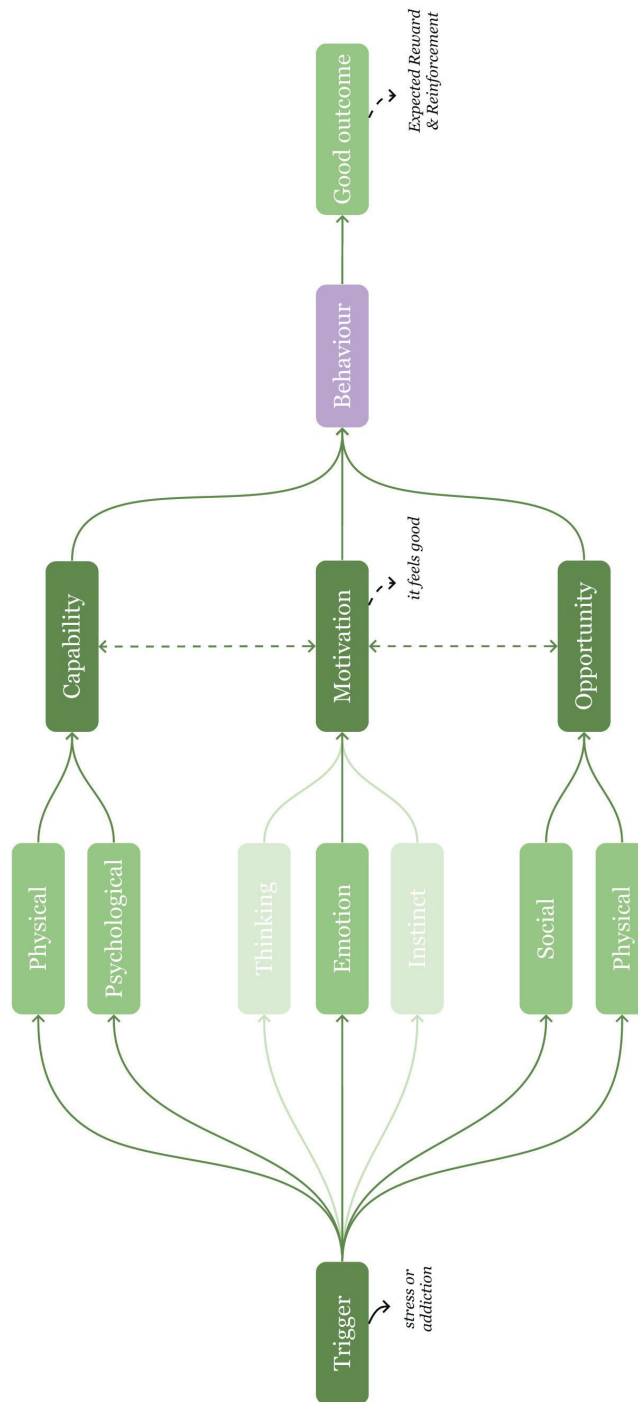
Dystopian scenarios

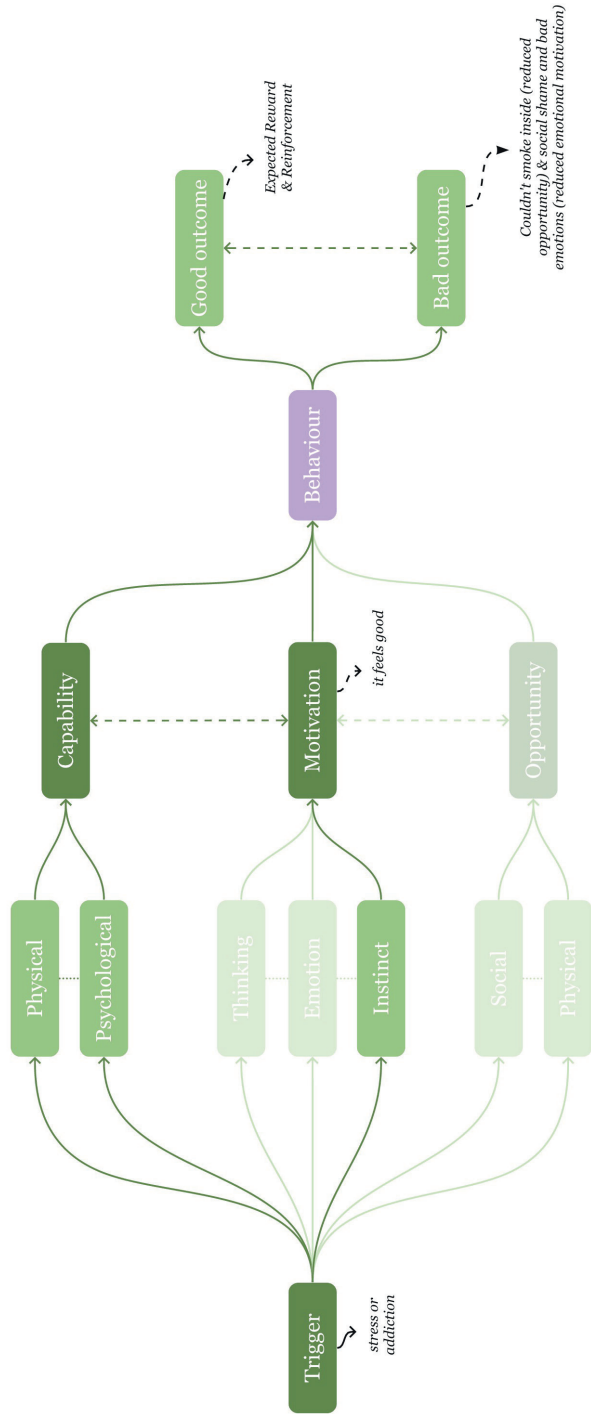
- *now*: kids born after 2000 having low digital resilience, use their smartphones more than other generations
future: 2000-generation are parents, their children doesn't get enough attention because the parents are distracted
- *now*: use as much data etc as we pay for
future: CO2-emission per email etc and data usage online, so its limited. global warming + government restrictions on data usage -> fit our digital behaviour to suit environmental needs
- *now*: few but massive conglomerates compete
future: like china, because of global needs, global warming, the government takes over apps etc and create more restrictions. *apps filtered through government*

Utopian scenarios

- *now*: digital design is 2-dimensional. emojis and memojies does not include disabilities etc.
future: 3-dimensional (ar/vr), universally designed, and more physical (how?!).
- *now*:
future: building *digital resilience* in young children to avoid addiction and negative effects, to empower them (they are *smart* enough to avoid being addicted and negatively affected!) instead of undermining
- *now*:
future: digital sibling for children growing up in a digital age, help with socializing and coping with stress and emotions. + overpopulation
- *now*: americanization of european companies, fewer restrictions
future: americanization on steroids?
- *now*: individual tracking for self-optimization
future: collective tracking combined with nudging for society tracking for *good*
- *now*: apps for mental health, or talking to psychologists
future: digital twin helping you with mental health, as tech-minimalism, need for bigger capacity, collective welfare runs low, using personalized ai bots to help cope with daily life
- > to pair with tracking: when heart rate goes up, friendly bot appears and asks if you are okay and need to talk etc.
- > personalized tracking next level: shows your mood, heart rate, psychical and mental health paired with what you were doing & lifestyle. if you are feeling sad/anxious/etc, it facilitates for you to get back into your healthy habits etc

E - Case Studies





F - Probe Concept Development

How might parents improve their parenting?

Solution:

the future of parenting

family, friendship, health & well-being

AR lenses

Imaginary Friend

Cybert is your child's favourite imaginary friend. The core functionality of Cybert is using advanced machine learning to adapt to your child's needs. By playing and interacting with Cybert, By subtle and non-obtrusive tracking of your child's hormone levels, happiness, anxiety and stress, DigiKid is an interactive, digital representation of your child's mental health.

The aim is to ease the anxiety of parents. Worried your child is feeling lonely? DigiKid will interact with your child through playful activities, and the sophisticated algorithm will learn how to detect your child's current mood. This way, the parent-child bond can remain the same, by letting DigiKid adapt to your child's preferences on interaction.

The result is a digital twin of your kid's mental health, in such a way that the parents can adjust their own parenting by how their child really feel.

If kids feel unsafe and have increased levels of stress and anxiety, external family members will be contacted.

How does Cybert work?

- Our highly advanced Imaginary Friend AI learns to recognize your child's emotions, feelings and needs.
- Through fun and interactive play, Cybert picks up signals on your child's well being
- Unobtrusive nudges will help you to interact with your child in a more meaningful way
- Daily reports of your child's mental health and cognitive capabilities

- *future: digital sibling for children growing up in a digital age, help with socializing and coping with stress and emotions. + overpopulation*
- *67% of parents working out-of-home reported that DigiKid improved their parent-child relationship*
- *families who use DigiKid are statistically more functional and have closer bonds*
- *DigiKid is a safe and non-obtrusive tool for all types of families, as a supplement to traditional parenting*

Tech trends

- *AI + machine learning*
- *personalization + optimization*
- *biometric tracking*
- *surveillance*
- *voice + AR*

the future of food delivery kits

health, optimization,
sustainability

website

How might people eat healthy and sustainable?

Solution: (B=MAT), reduce ability needed to eat healthy by automating the food process and personalising for increased motivation and habit forming

SmartKasse

SmartKasse helps you eat healthy and efficient, by providing you with just the enough nutrients and calories you need throughout the day.

By tracking your vitamins, hormones, stress and hunger levels throughout the day, SmartKasse provides you with food at the right time and in the right amount.

All meals provided by SmartKasse are, of course, sustainable and locally sourced.

How does SmartKasse work?

- måler dine vitamin- og blodverdier, samt aktivitetsnivå og hormoner
- middag tilpasset hva du trenger av næring og kalorier
- bærekraftig og lokalt optimalisert
- måler nivået ditt av blodsukker og når du burde spise
- så du får maten ferdig på døra før du tenker at du er sulten
- slipper å ha kjøkken og kjøleskap - sparer miljøet

• + hook model: reward making people feel good about themselves for choosing the sust kasse

- 87% of people in your community stay fit and healthy by using SmartKasse
- Your favourite celebrity use SmartKasse to avoid planning meals and eating too many calories
- We know you care about the environment. That's why SmartKasse only use local produce!

Tech trends

- AI + machine learning
- personalisation + optimization
- biometric tracking + surveillance
- government regulations

Behaviour Design

- triggers, rewards, unfixed rewards, environmental change,

F - Probe Concept Development

How might students work efficient and motivated?

Solution: (B=MAT), reduce ability needed to work efficient and prioritize optimized, by automating the task management process and personalising the work/break-interval for increased motivation and habit forming

the future of productivity services

productivity, optimization

website

StudBud

StudBud helps you become the best student you can be. By tracking your levels of stress, hormones, blood sugar and other relevant biometric measures, the StudBud-AI proposes tasks to keep you working motivated and efficient.

Nudges you to take a break before you even realize you're tired and unmotivated and likely to get irritated.

How does StudBud work?

- personal AI study assistant
- knows your to-do list and suggest tasks based on importance, time required and your current concentration and focus level
- machine learning: knows how you work your most efficient. optimized task list to 1. boost confidence, 2. avoid frustration and 3. keep you working efficient for the necessary needed time.
- optimized for intervals that work best for you: 25 mins deep work + 5 min break? when you've worked for 25 mins, the system nudges you to take a break by removing the ability to work, instead a 5 min nature sounds and breathing program
- night modus on websites so you can only work during normal "business hours" and not affecting your sleep quality
- biometric tracking: measures your blood sugar, hormone levels, stress levels etc

- Future: government restrictions; websites/apps only open from 5am-23am to help social health and as an aid against addiction and screen-induced insomnia.

- 4 of your closest friends use StudBud every day
- The top scorers in your university use StudBud
- Developed by psychologists and behavioural scientist from NTNU

Tech trends

- AI + machine learning
- personalization + optimization
- biometric tracking + surveillance
- voice interface
- social media nudge: loading facebook -> taking 3 seconds so you can reflect whether or not to actually go there
- "you've just spent 10 minutes scrolling through instagram. if you keep scrolling, that increases your chance of feeling sad and anxious (based on tracking your mood). Are you sure you'd like to continue, or do you want me to suggest activities that generally make you feel happy?"

How might people sleep better?

Solution: (B=COM), change physical environment in accordance to physical needs. Changing the physical Opportunity to improve Capability (physical+psychological) needed to fall deep asleep.

the future of sleep trackers

health, well-being,
optimization

smart house

SoSleepy

SoSleepy helps you have the best sleep of your life, every single night. No more feeling restless in bed!

By tracking your mood and hormone levels (stress, happiness and sleepiness), SoSleepy automatically adjust the room temperature, humidity levels and light hues based on your natural body clock.

Before you even know you are tired, your room will be adjusted to accomodate ewactly what your body needs to curate the perfect sleeping environment - in exactly the speed your body needs to get naturally tired.

How does SoSleepy work?

- biometric tracking: monitoring the hormone levels relevant for sleep, and stress levels
- measures room temperature, light levels and hue, humidity and air quality.
- measures environmental light levels and sun rhythm
- advanced machine learning and AI learns what room conditions is optimal for your sleep, by measuring your sleep quality in relation to room
- During the day, the room will be adjust to optimize your happiness and productivity levels
- When you have set your morning alarm, SoSleepy adjusts to a gradually colder hue and increased brightness, and slightly warmer room to make sure your transition from deep asleep to wide awake is as smooth and possible

• Family-friendly

- nudges you not to do unhealthy habits that might affect sleep

• coffee at 5 pm? suggests non-caffeine tea (choice architecture)

F - Probe Concept Development

How might people be their best selves?

Solution: Advanced self-prediction technology to increase motivation by proposing personalised and automated exercise and eating habits. 100% customizable. Let you become aware of different versions of yourself, and help you become the version you want to be.

the future of self tracking

health, optimization

smart mirror

TwinTech

TwinTech is a digital twin of yourself. By seeing a digital avatar of your own physical and psychological representation, you will become more aware of your own health and how you can become a better self.

TwinTech also uses advanced prediction technology to show you different versions of yourself. For example, advanced biometric tracking can show that if you exercise HIIT 20 minutes a day, you will experience 20% elevated levels of focus and motivation, reduce body mass by 1.2% etc. TwinTech also lets you carry out different actions in different timelines.

Feeling unmotivated? TwinTech will show a quantitative analysis of your current physical and psychological status in the past, to show that your improvements to increase your self confidence.

How does TwinTech work?

- tracking your emotional response, levels of happiness and stress
- machine learning to optimize what techniques work on changing your current mood to the preferred mood
- subtle nudging
- *priming through visualization*
- *what will you do? when? how? to reach your goals*
- *future self is happy and smiling*

- *quantified self*

- *"Very successful"*

analyse own habits and personality traits, lets you become aware of your "self". works as a coach to let you improve i.e. anger management

Tech trends

- *AI + machine learning*
- *personalization + optimization*
- *digital twin tech*
- *biometric tracking*
- *voice + AR*
- *explicit behaviour change through self-awareness and tracking*

How might people perform better in everyday situations?

Solution:

the future of mood tracking

health, well-being,
social relations

smart watch

Moody

Moody is an advanced mood tracker algorithm that measures your current mood, and can predict how your mood will be affected by external factors. By highly sophisticated machine learning, Moody learns to identify your mood and what techniques work on optimizing your mood in relation to your current situation.

Feeling frustrated during a difficult work task? Moody will help you through with breathing exercises and changing the environmental settings (reduced brightness, nature sounds, cat purrs etc).

Being harassed at work, but not having the confidence to speak up? Moody will play high-beat music to increase your adrenalin response, to get you on just the right level of confident and aggressive.

How does Moody work?

- tracking your emotional response, levels of happiness and stress
- machine learning to optimize what techniques work on changing your current mood to the preferred mood
- subtle nudging

*now: apps for mental health, or talking to psychologists
future: digital twin helping you with mental health, as tech-minimalism, need for bigger capacity, collective welfare runs low, using personalized ai bots to help cope with daily life*

-> to pair with tracking: when heart rate goes up, friendly bot appears and asks if you are okay and need to talk etc.

-> personalized tracking next level: shows your mood, heart rate, psychical and mental health paired with what you were doing & lifestyle. if you are feeling sad/anxious/etc, it facilitates for you to get back into your healthy habits etc

Tech trends

- AI + machine learning
- personalization + optimization
- biometric tracking
- voice

G - Workshop Draft

Workshop for an Inclusive Future

07.05.2020

Intro 18:00-18:10

1. Introduce workshop, thank in advance for participating
2. Let participants read workshop goals & get accustomed to Miro
3. Emoji check-in
4. Ready!

Part 1: Future trends 18:10-18:20

1. **Individually**: Brainstorm trends that will influence the future - 2 min
2. **Group**: Discuss what the future might look like - 6 min (2min*3)

Compliment participants!

Part 2: Societal values 18:20-18:30

1. **Individually**: Brainstorm societal values - 2 min
2. **Group**: Discuss societal values - 3 min (1*3)
3. **Group**: Vote on 4 most important values - 3 min (1*3)

Compliment participants & propose 5 min break if necessary

Part 3: Designing for an Inclusive society 18:35-18:50

- **Individually**: Crazy 8 - 8 min
 - 1 min on an idea, then move on to the next one
- Group: Present ideas -
- Group: Vote on ideas
- Group: sort ideas from “sci fi” to “realistic” -

Compliment participants!

Final 18:50-19:00

“Thank you, this has been super helpful!”

H - Workshop Consent Form

Informasjon om og samtykke til deltakelse for masteroppgaven

Atferdsdesign

Formål

Workshopen er en del av en masteroppgave som skrives av Idun Ramstad ved Institutt for Design, NTNU. Hensikten med denne workshopen er å utforske fremtidige trender, samfunnsrelevante verdier og idégenerere konsepter for et inkluderende, fremtidig samfunn.

Om informasjonen du gir fra deg

Innholdet fra workshopen vil kunne publiseres i studentens masteroppgave. Dersom innhold kobles til personinformasjon, som navn eller stilling, vil direkte sitater fra intervjuet sendes til deg for sitatsjekk.

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I - Workshop Miro Board

The workspace area is divided into three columns, each enclosed in a dashed green border. Each column contains a 2x3 grid of sticky notes. The sticky notes in the first column are yellow, in the second are blue, and in the third are green. Each sticky note has the word 'idea' written on it.

<i>Citona's workspace</i>	<i>Anna's workspace</i>	<i>Joakim's workspace</i>
idea	idea	idea
idea	idea	idea
idea	idea	idea
idea	idea	idea

A large, solid light green rectangular area occupies the bottom third of the page. The text *Grouping trends* is positioned in the top-left corner of this area.

Grouping trends

Citona's workspace

idea idea idea

idea idea idea

Anna's workspace

idea idea idea

idea idea idea

Joakim's workspace

idea idea idea

idea idea idea

Grouping values

I - Workshop Miro Board

<i>Citona's workspace</i>	<i>Anna's workspace</i>	<i>Joakim's workspace</i>
idea	idea	idea
idea	idea	idea
idea	idea	idea
idea	idea	idea

Best ideas (3 each)

Idea sort

sci-fi —————→ *realistic*

J - Storyboard Plan

Journey Map plan: Racist Family Dinner

Frida is relaxing in her room, when she gets invited to a family dinner



Frida is immediately feeling anxious. Is her uncle going to be there? Last time she said some pretty racist things, and Frida is feeling guilty and shameful she didn't stand up to her uncle. She was afraid it might ruin their relationship.



Frida gets an idea. She gets her VR gear and upload the faces of who is going to be attending the dinner, to the VR experience.



In the VR experience, she practices speaking up to her uncle in various ways. Frida is angry at her aunt for saying such racist things, and being so ignorant. Frida shouts, but the augmented version of her uncle only gets sad.



The micro aggression tracking suggests she tries being more calm, and change her approach. Frida tries one more time, only this time by asking questions on the uncle's perspective.



This time, the AI representation of her uncle responds positively. Frida feels confident she can do this in real life too - without ruining the relationship with her uncle.



K - Booklet Interview

Booklet Interview

Intro

1. Check-in: How are you doing?
2. Introduce booklet, thank in advance for reading and contributing to my thesis
3. Short intro to thesis
4. Ready!

Part 1: Initial reactions

1. What are your initial thoughts about the booklet? (length, layout, etc)
2. What feelings did it provoke?
3. Which feelings did the storyboard provoke?
4. What parts were good?
5. What parts could be better?
6. Which quotes did you like?

Part 2: Mindset and reflection

1. Did you learn anything new?
2. What do you think about the behavioural model?
3. Does this process seem applicable to you?
4. What do you think about the shift in focus, from artefact to impact?
5. How useful is this booklet for you?

Part 3: Other input

1. Is there anything you think it should have had, like a progress overview at the top?
2. Do you have any other feedback on the booklet?

Final

Thank you for taking the time to read my booklet and give me feedback!

L - Booklet Feedback

Booklet Feedback

Henrik (27) and Mina (24).

Feedback from the first iteration showed that the booklet was thought provoking, but the designers didn't really see how to apply the process and methods into their own process. The stories and quotes worked out quite good, but the process was confusing and hard to follow. But the visualization of the methods made the booklet appear more serious, and they really liked the "Bracketing your bias". "I've never reflected on the values I've been taught across the dinner table"

Good: stories, examples, quotes

Bad: application and usability

Maureen (34).

For the next iteration, I implemented a "when, why, how and what" section to each method, to make it easier for designers to relate to the process and possibly use the booklet as a starting point for their own projects. Further, the concept and storyboard should be introduced sooner, so the designer could follow the process knowing the end result. "Shouldn't the steps be iterative?"

Good: digestible, aesthetic layout

Bad: missing a link between persuasive technology and racism, and process should end with the impact analysis rather than the storyboard. Also confusing sequences in the process.

Hannah (24)

Implemented feedback from the previous user testing. The "futures cone" was a bit confusing; why wasn't it in the middle? Why did it go across two parts?

Good: the methods were applicable, and she could envision how to use them in her own process. It was more inspirational than probable.

Bad: some graphics were confusing

M - Miro Dashboard



