

# DIGITAL INTROSPECTION

Exploring alternate ways of contextualising  
screen usage, disconnecting and preserve  
introspective thinking



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Do you get enough coherent time to process your thoughts and emotions?



# Summary

Digital introspection is an explorative interaction design project searching for new ways of contextualizing screen usage, disconnecting, and preserve introspective mind-states such as mind-wandering and daydreaming, in the context of the smartphone. I approached these areas by exploring prompts related to digital wellbeing, and developed them into designs by showing them to users and experts to facilitate discussion.

The project consists of three main scenarios: *My screen time doesn't understand me*, *Taming your device* and *Quantified self for introspection*. The scenarios are intended as concepts to show a breadth of possibilities and new opportunities for how we define our relationship to our devices.

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# INTRODUCTION

## Motivation

The motivation behind this diploma stems from my own struggles of balancing my screen usage, and dissatisfaction with the available tools. Having tried everything from using a minimalist phone to imposing strict screen time limits, I always end up going back to the default. While I know that it is good for me to “spend time with my own thoughts”, it seems that my devices always have something more exciting to offer. Why is that? Is it my personality type? A lack of discipline? Or is there something bigger at play? While I do not expect my design experiments to solve the problem entirely, perhaps I can find ways to make enjoying the solitude of my own thoughts easier.

## Goal of this diploma

The goal of this diploma is to explore alternatives to today's existing solutions, and demonstrate that there are numerous ways the technology can be shaped. The solutions presented are not meant as high-definition prototypes for anyone with a smart-phone, but tools to facilitate a discussion on what values the technology should support.

## Approach

My approach to tackling the problem has been to open up for multiple explorations rather than focusing on a single solution. This is due to the wide range of individual preferences and use cases. Making several smaller scenarios therefore seemed to be the most effective direction, as it would allow for multiple angles and alternatives.

## Studying myself

As I am designing for a problem I experience myself, I am aware of the risk of having my own biases and views affect the objectivity of my research. However, my journey into studying interaction design stems from a desire to understand humans, technology and their relationship. It is not by accident that I have chosen this theme, as it is one that interests and fascinates me.

With this in mind, it is hard to not project my own experiences and values into the project, pretending that they don't exist. Therefore, I have deliberately relied on personal experiences and reflections as part of the process and to let them guide my explorations.

## Scope

For this project, I have chosen to not focus on what users do while on their phone, only their patterns of usage. Most existing solutions focus on screen-time as problematic as it derails your focus and productivity, but productivity can have so many forms and is something you have to define for yourself. Focus is absolutely important for our self-realization, but so is social connectivity and creativity. I therefore leave it to the user to decide what meaningful usage is, given that their brain receives the rest it requires. As a result, I am not focusing on the topics of social media and algorithms, only the mobile devices they are accessed on and the related behavior.

## Why rest?

My project focuses on the importance of getting enough breaks for your brain to process your thoughts and emotions. Doing nothing and letting our mind rest contributes to important cognitive functions such as memory codifying, regulating our emotions, attentional restitution and enhancing creativity.



# APPROACH & METHODS

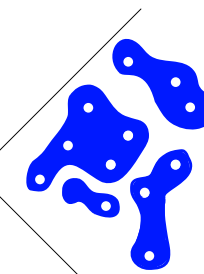
*How do I know?*

## Approach

My approach to address the problems was to create a list of prompts that I wanted to explore. The prompts were based on concepts and themes uncovered in my initial research, which I believed had potential. My plan was to develop them and find a common context or theme for them as they took form.

Interventions to promote digital wellbeing

*Explorations*



- (i) phone barrier
- (ii) daydreaming facilitator
- (iii) white-spots mode for maps
- (iv) information de-acceleration
- (v) digital vacation
- (vi) risk calculator for intangible effects
- (vii) attention account
- (viii) home screen adapter
- (ix) boredom tool
- (x) screen size reducer
- (xi) custom launcher
- (xii) personal detox coach / consultant
- (xiii) feed swap - curated feeds

# Methods

## Desktop research

The majority of my research was conducted through my laptop, reading an abundance of articles, research papers and watching videos of experts.

## Books

During the course of the semester, I read *Stolen Focus* by Johan Hair<sup>1</sup> as well as summaries of numerous books related to digital disconnection, such as *Dopamine Nation*<sup>2</sup> by Dr. Anna Lembke. Before the project, I read *Digital Minimalism* by Cal Newport, shaping my view of technology and *Tyranny Of The Moment*<sup>3</sup> by Thomas Hylland Eriksen—a meditation on communication technology that remains highly relevant 22 years after its publication.

## Interviews

I conducted 14 interviews with both users and experts related to screen usage. Getting hold of users to interview for the project was not challenging as every person I came in contact with had an opinion on their smartphone that they wished to share.

## Expert interviews

I contacted media professors, writers and psychologists to discuss my project as well as participants in the Digital Detox project at UiO. The interviews followed a loose structure where I would ask prepared questions, and then allow for the experts to elaborate on their knowledge.

## Informal interviews & semi-structured

I conducted informal and semi-structured interviews with people I met or got in contact with during the course of the project. My interviews started with discussing the general theme of screen usage and disconnection. I then followed the reflections of the interview objects by asking them questions to uncover their unique quirks and perspective on their usage and devices.

## Auto-ethnography

### *Mind-wandering*

I spent a lot of time during my workday having breaks where I would let my mind drift freely with only a notebook in hand. I would go for walks, find a nice bench or just sit at my desk and wait for something to appear in my mind, or for a train of thought to start.

Many of my most interesting reflections were made during these pauses, and also served as a way for me to synthesize all the complex material I was taking in.

## Ideation & sketching

I used methods such as brainstorming to map out low-fi ideas. The pomodoro technique\* became a staple tool for me as I learned about the benefits of monotasking.

## Affinity mapping

I mapped out all the underlying themes of my ideas to get a broader picture of the categories they represented.

## Comprehension & desirability testing

I presented sketches and ideas to people I came in contact with during the project to see if they held value and were understandable.

## Research by design

I presented sketches and ideas to people I came in contact with during the project to facilitate discussion, get new perspectives and to uncover new information.

\*Pomodoro technique  
A time management method for separating work into intervals, typically 25 minutes in length

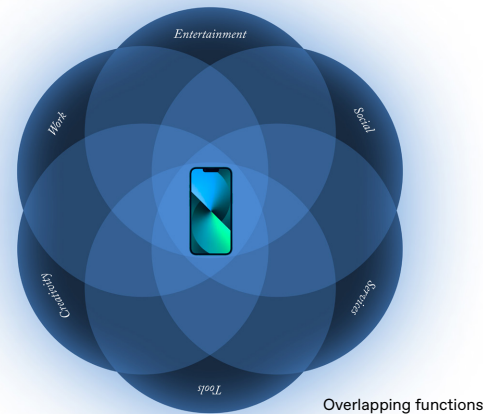


# BACKGROUND & CONTEXT

## Everything in one device

At the beginning of my research, I conducted a semi-structured interview with a gen Z friend of mine, he described his usage as following:

*"I use instagram to see what friends are doing, get inspiration for my projects and chat with people, but also just scrolling. It is sort a mental fight to avoid using it."*



I find this a pretty accurate description of the problem, as one of the main issues with the smartphone is all the overlapping functions. We use it for entertainment, social, work, time keeping, creativity, services, tools, and it all blurs into one single device, making you very dependent on it to function in everyday life. Leaving your home without it seems unthinkable for most of us, and if you do by accident, there is a good chance you will experience nomophobia\*.

\* **Nomophobia**  
Fear of going without your phone

fig. 1

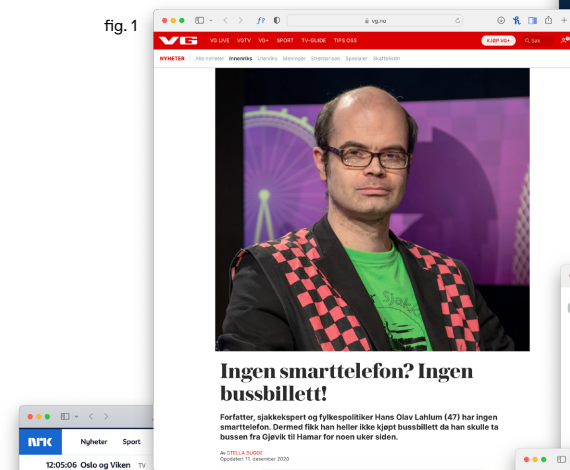


fig. 5

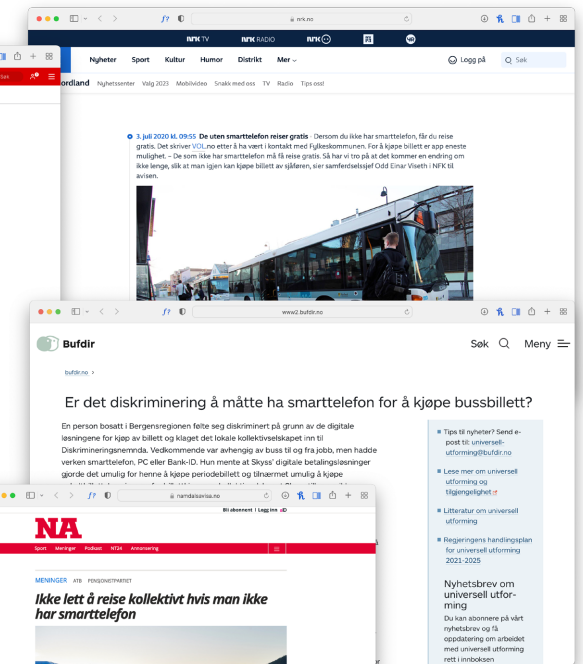


fig. 2

fig. 3

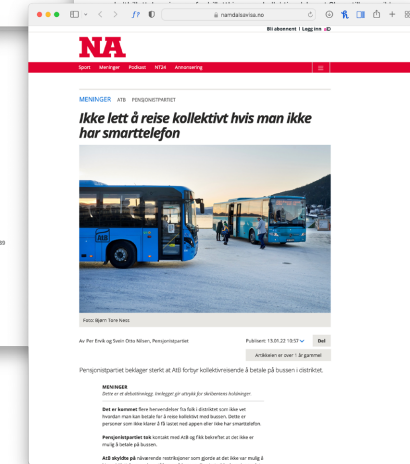


fig. 4

## Platformization

The smartphone is a young technology from a historical perspective, and we are still adapting to it. Over the past 15 years, numerous public services in Norway have undergone digitisation, making them available through your personal device. While this has been celebrated as a major leap in accessibility, certain groups struggle with the adaptation, such as elderly and those without a smartphone. Everyday tasks such as buying a ticket for the bus has become a frustrating experience for some, highlighting the growing pains of adapting to the new technology.

The way society is structured at this point makes it hard to go without a smartphone, and even harder to avoid using it. To better understand why this is, we need to look at the mechanisms behind social media and how digital products are developed.

fig. 1

Screenshot from VG

fig. 2

Screenshot from NRK

fig. 3

Screenshot from Bufdir

fig. 4

Screenshot from Namdalsavisen

fig. 5

Screenshot from NRK

# THE ATTENTION ECONOMY



## Intro

Carrying a super-computer in your pocket at all times does not come without drawbacks of its own. It leaves you vulnerable to dark patterns and distractions as machine learning algorithms are becoming increasingly adept at finding what captures your attention.

In the attention economy, your free moments of leisure have become opportunities for monetisation on digital platforms, as tech companies capitalize on your usage data to target you with relevant ads.<sup>4</sup> In order to better understand how the attention economy works, I will spend the next chapter outlining some of the underlying cognitive effects that occur when we use our phones, and the toll it takes on our cognition.



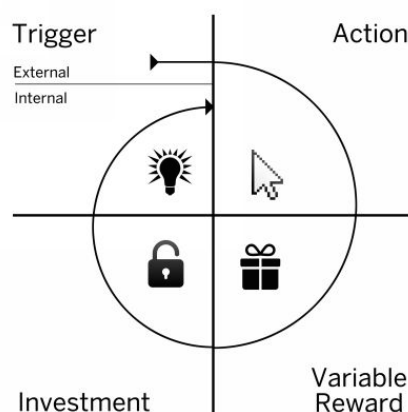
## The slot machine effect

I met with Koen Vervaeke, leader of the Laboratory for Neural Computation at UiO to get a better understanding of the cognitive aspects of smart-phone usage. He explained to me that one of the patterns used by social media companies is the slot-machine effect. You pull a metaphorical lever that sometimes rewards your behavior, training you to perform the action. He explained that we observe this habit in not only humans, but animals too, especially rats.

*The most effective way to get a rat to push a button, is to give them a random reward of random size. It drives them crazy, and it is the same effect that is applied in many smart-phone apps. You scroll trough a lot of noise, but suddenly there is something interesting that captures your attention and your brain rewards you."*

- Koen Vervaeke

This is referred to as "The Hook Model" in Silicon Valley, a model for product development that encourages users to return to your platform by applying the concept of variable reward. The variable rewards can be anything from the content itself, to notifications, likes, comments, loot boxes, discount codes or loyalty programs.



The Hook Model  
img - Farnam Street

## Wired to check your phone

The reason the "slot machine effect" or "hook model" is so effective, is because the brain's release a chemical known as dopamine when you "win". Thus activating the brain's reward pathway, making you feel a sense of wellbeing and pleasure for a short while.<sup>5</sup>

The thing about dopamine, is that the effect wears off pretty quickly, and we then seek a new fix. This is known as *homeostasis*<sup>6</sup>, our bodies ability to self regulate in order to keep in balance. According to Dr. Lembke, professor at Stanford University and author of *Dopamine Nation*, after we experience a dopamine peak, we get a comedown where we feel uncomfortable and try to recreate the pleasure. Yet, if you wait, the craving eventually passes, meaning that boredom can be a simple yet effective way to combat the dopamine comedown—something I will get back to later.<sup>2</sup>

*"Living in this modern age is very challenging. ... We're now having to cope with: How do I live in a world in which everything is provided? And if I consume too much of it — which my reflexes compel me to do — I'm going to be even more unhappy."*

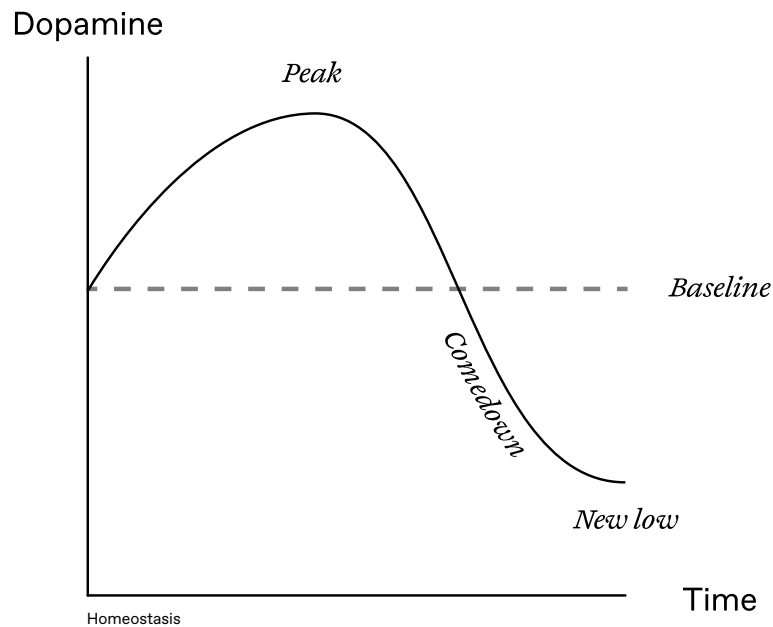
— Dr. Lembke

The problem then, is that most of us have a remarkably low threshold for picking up and unlocking our phones, making it nearly impossible to rely on sheer willpower to avoid this behavior.

## Relative, not linear

Another problem with dopamine, is that it's relative to your previous levels—it is not on a fixed linear scale. What gives you pleasure today may not have the same effect tomorrow. This means that in order to maintain our dopamine levels, we crave more stimulating content, thus creating a dopamine inflation in our brain.<sup>7</sup> Our brains are wired to seek instant gratification, it is one of the reasons the phenomenon of *nexting*<sup>8</sup> is so prevalent when browsing social media, as we keep searching in the hope of something better, rather than engaging.

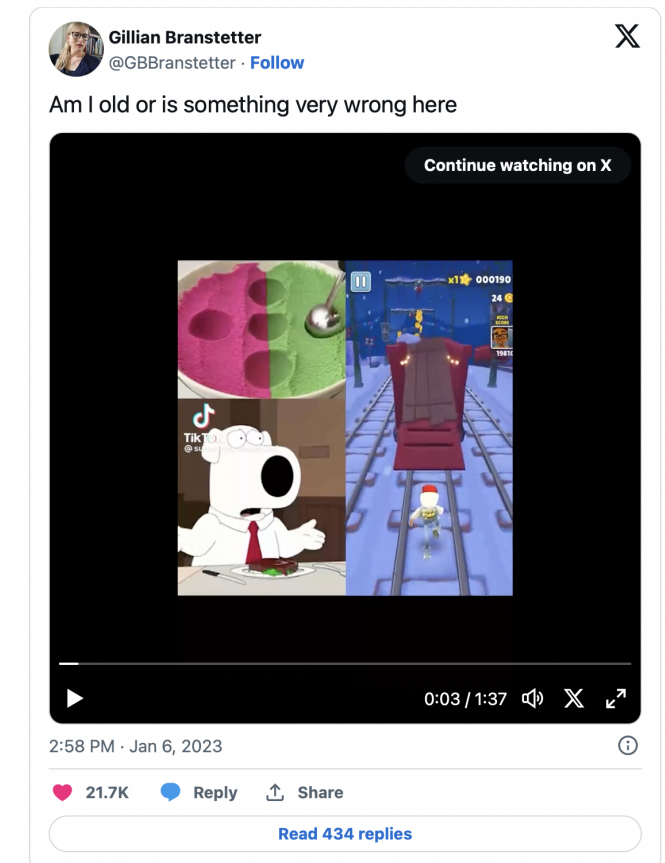
\* **Nexting**  
The continual process of predicting what is likely to happen next, based on external stimuli.



## The algorithm and you

One can argue that *nexting* isn't a new phenomena, and that we were already engaging in that sort of behavior when zapping through channels on cable TV, but this is different. The algorithms applied by social media companies such as Instagram and TikTok probe for the content that will keep you most engaged, paying close attention to what you look at, and for how long.

While the algorithms do an excellent job at finding content that is relevant for your interests, the problem for the user is the tendency to show you more stimulating content. Examples of this is *split-screen videos* or *sludge-content*, where two unrelated videos are combined into one, leaving no room for dull moments.<sup>9</sup>



Tweet from Gillian Branstetter on split-screen videos



## Do many things well... do many things

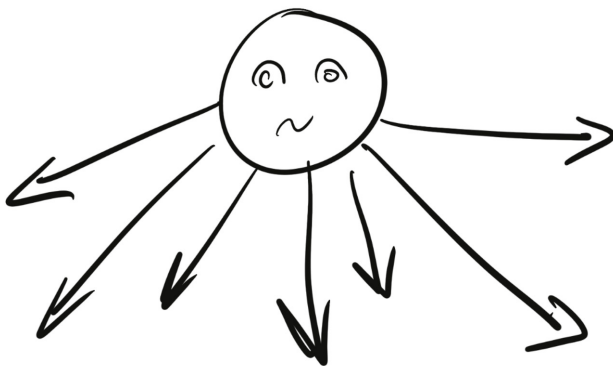
One of the distinct features of the smart-phone is the nearly unlimited capabilities in the variety of tasks you can perform. Getting a loan from your bank or organizing a vacation with friends is possible from anywhere. A challenge however, is that a tool performing many tasks well, enables multi-tasking—an activity where our attention is divided between tasks.

One might think that multi-tasking makes us more efficient, but research indicates otherwise, stating it contributes to reduced productivity, comprehension and accuracy. When we engage in multitasking, we are not performing two tasks simultaneously, we are shifting our focus rapidly and reloading the context of the task every time we switch. This constant switching is more taxing on our brain than focusing on one context at the time and drains the brain of its energy reserves. While the brain uses energy for any task, it uses more when switching tasks, thus the name *switching cost*.<sup>10</sup>

Another aspect of multi-tasking is the *attention residue*\* we experience, where a previous unfinished task will stick in our mind, leaving us unable to completely focus on the task at hand.<sup>11</sup>

### \*Attention residue

When part of our attention is focused on another task instead of being fully devoted to the current task that needs to be performed<sup>12</sup>



Multi-tasking

## Focus and flow

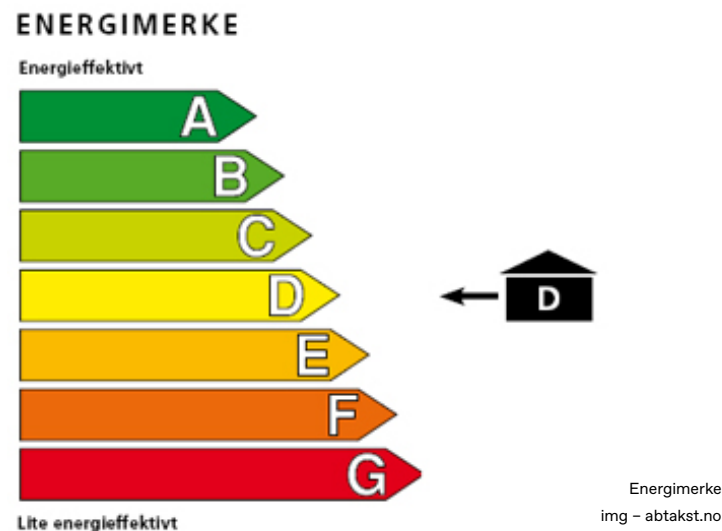
While it is important to be able to focus and retain our attention in order to complete the everyday tasks of work and life, another aspect of the importance of focus is the concept of *flow*—the experience of being so captivated by the task at hand that you don't notice the passing of time and external surroundings.<sup>13</sup> Being often in a flow state has been linked with increased happiness as it relates to deep enjoyment, but in order to reach the flow state, one has to focus on the task at hand for 10-15 minutes without interruptions, something the smartphone makes hard.

## Sleep

Screen usage also affects our sleep quality, as the blue light emitted from the screen suppresses our bodies natural production of melatonin, a hormone that helps us fall asleep.<sup>14</sup> Johan Hari, author of the book "Stolen Focus" highlights the importance of sleep for maintaining a stable diet, as sleep deprivation is linked with consuming more calorie dense food.<sup>16</sup> Further, he theorises that the same effect could apply to our focus, making us more prone to seek easily consumed content when sleep deprived. <sup>2, p. 65</sup>

## Lack of context

Until this point, I have been going through some abstract concepts that can be hard to grasp, which ultimately is part of the problematique. One study<sup>17</sup> argues that smartphone addiction should not be categorized as an addiction, as it does not fulfill the medical criteria. Instead they concluded that there is a lack of language to talk about the effects of excessive smartphone usage, as excessive usage has an effect on our cognition that is hard to address. We do seem to contextualize other abstract concepts, such as power consumption of electrical appliances and nutrition in food, to make the effect more tangible. It could be beneficial to do the same with the smartphone, but in order to do so, we need to come to terms with what healthy usage is.



# Summary

In this chapter I have outlined the attention economy and the effect it has on our cognition. Key-takeaways from this chapter are:

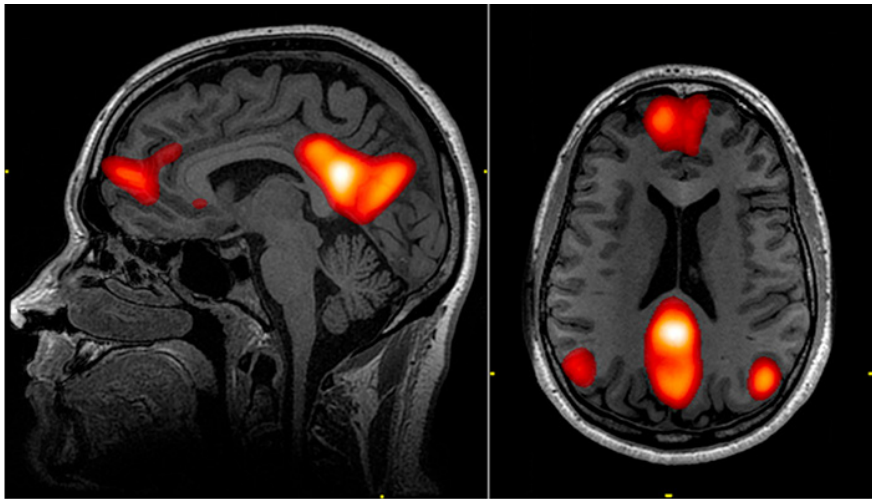
- Tech companies employ algorithms and exploit psychological vulnerabilities, such as variable reward patterns to make us engage with their platforms.
- Dopamine addiction makes you crave more stimulating content, causing us to seek our devices involuntarily.
- It is hard to rely on willpower alone to control your usage.
- The smartphone is a device that highly enables multi-tasking as it performs many tasks and has overlapping usage areas.
- Multi-tasking drain our brains energy reserves faster than focusing on a single task at the time.
- The effect of excessive usage is abstract, and there is a lack of consensus on what healthy usage us.
- Using our phones close to bedtime affects sleep quality.

# INTROSPECTION, INATTENTION, BOREDOM & DAYDREAMING

The phone distracts us, and we seemingly distract ourselves. While loss of focus is problematic, I feel there is an area that has been overlooked when discussing the challenges of screen usage; what our brain does when doing nothing at all.







The default mode network  
img: Wikipedia

### Default mode network

The *default mode network* is a network of brain regions that activate when a person's mind is at rest and not focused on the outside world. The default mode is a state of mind that often involves introspection, as it activates when focusing on your internal mental state, such as thinking about personal experiences, the past, imagining the future, or about another person's perspective. It can also be active when performing activities that demand little cognitive energy, such as walking, cleaning or repetitive tasks. It de-activates once we actively try to solve a problem or direct your focus outwards.

The network is vital for codifying learning, memory making, creativity, regulating our emotions and generally our mental wellbeing.<sup>18</sup> It is the reason why you seem to have the “Aha” experiences when you are not actively trying to solve a problem. Your brain is doing a lot of work behind the scenes, trying to find ways to make sense of information you are processing. It is why taking breaks is so important when you are working, as your brain needs time to process and digest the information you are working with—it is also why it is crucial for learning to let your mind rest between study sessions.<sup>19</sup>

The neuroscientist Nancy C. Andreasen has semi-ironically coined the term “R.E.S.T”, meaning “random, episodic, silent, thought”. She describes it as moments of nothingness where our brain is free to wander and reflect over past experiences, and highlight its importance in creativity—referring to her studies of artists and creatives.<sup>20</sup>

### Lost in thought

Another aspect of the default mode network is daydreaming and mind-wandering. The experience of being lost in one's thoughts and not paying attention to the external environment, as your mind drifts to unrelated topics. Daydreaming and mind-wandering serve important functions in our brain as they help us imagine the future, lower stress and facilitate creative incubation.<sup>21 22</sup>



Daydreaming gentleman in 1912  
img: Wikipedia

Mind-wandering has had negative associations for a long time in psychology, as it has been measured against the value of productivity. While it can be problematic to not be able to focus when you have work to do, mind-wandering and daydreaming serve as a valuable tool for creative problem solving, making it an under-appreciated method of processing information in the era of productivity. The default mode network also continues to be active when we sleep, and is believed to be related to dreaming and mental imagery, meaning that “sleeping on a problem” could have some merit to it.<sup>23</sup>

## Making memories

I was lucky enough to get ahold of Koen Vervaeke, a memory researcher and leader of the Vervaeke lab at UiO. We had a talk about memory forming in the human brain, and why doing nothing triggers daydreaming. He explained that different neurons will activate when we experience something, the same neurons will then activate again later, and strengthen the pathways, thus creating a memory and storing the information. It is the reason why you have these short spurs of flashing images in your mind, of things that happened recently—your mind is re-experiencing the event in order to remember it. He exemplified that if you are on your phone while on the tram on the way home, you are suppressing your brain's ability to re-play and shape the memories. If this is negative for you from a mental health perspective, he could not say.

*"If you disrupt the neurons in forming a memory, you will not remember it very well."*

- Koen

I also asked him why we see the default mode network in both humans and animals, surely it must have an important evolutionary role? He offered the explanation that it might be due to its importance in memory forming. It would help our ancestors remember where food and dangers were located to help them survive. Further, he theorized that it might be one of the reasons we see animals sit and seemingly do nothing for long periods of time.

Quora

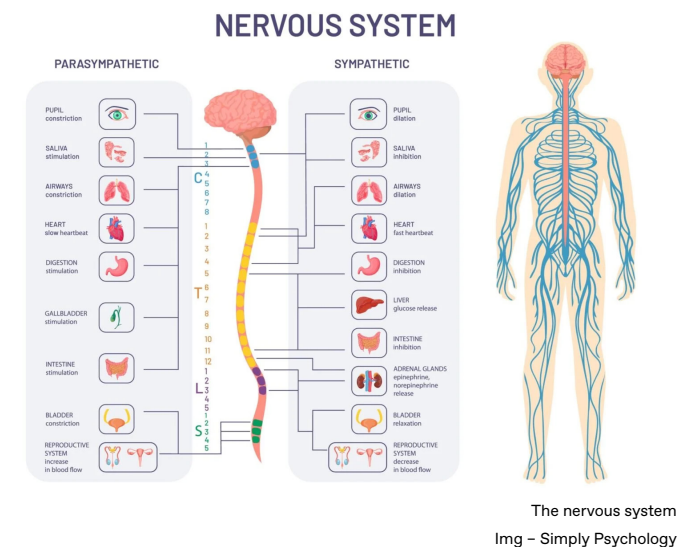
Search for questions, people, and topics

**How can animals just sit there and chill, whereas I can't even be doing nothing for a minute? I have to be on my phone or something.**

Screenshot from Quora.com

## Is it possible to track introspection?

As I learned about the self-tracking technology and the nervous system, I wanted to know if it was possible to track activity in the default mode network, or even daydreaming. While activity in the default mode network is best detected through fMRI, it can also be detected with the use of EEG (electroencephalography). As I read about tracking technology I learned that the nervous system has two major parts, the sympathetic- and the parasympathetic-system.<sup>24</sup> The sympathetic system is your body's response system to threats and stimuli, while the parasympathetic system, known as the rest and digest system, activates when you are relaxing, causing your heart-rate to lower.



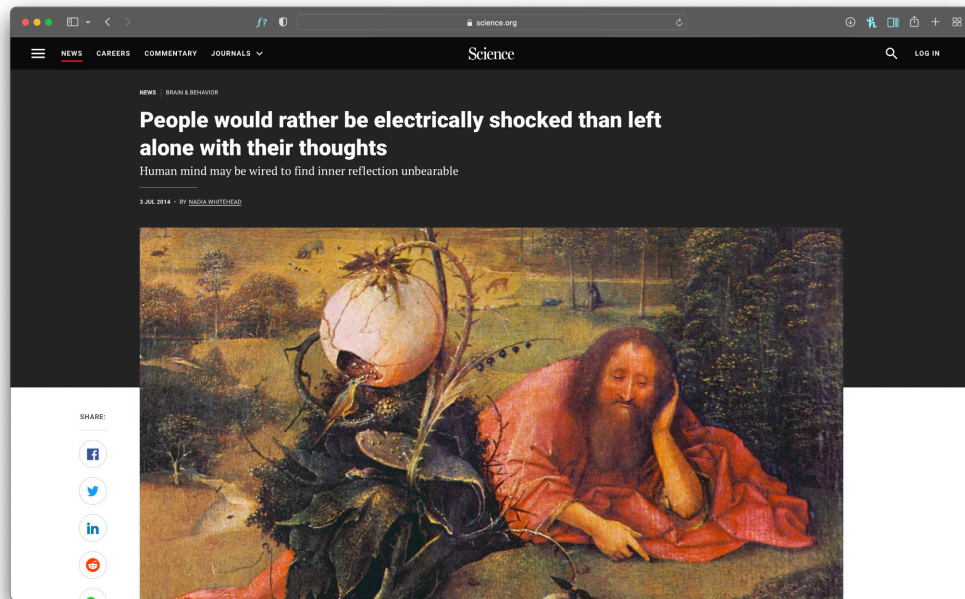
According to Koen Vervaeke, the two systems can be viewed as opposites working together. He also states that the sympathetic nervous system will definitely not be active during daydreaming, meaning that tracking skin-respiration can be an indicator of when you are not engaging in introspection. I further interviewed Cato Bjørkli, Associate Professor in Psychology, to enquire if it would be plausible to track or predict daydreaming. He replied that it is definitely plausible as there are many related vital signs that can be tracked, such as brain activity, heart rate and skin-conductivity.

## A note on nothingness

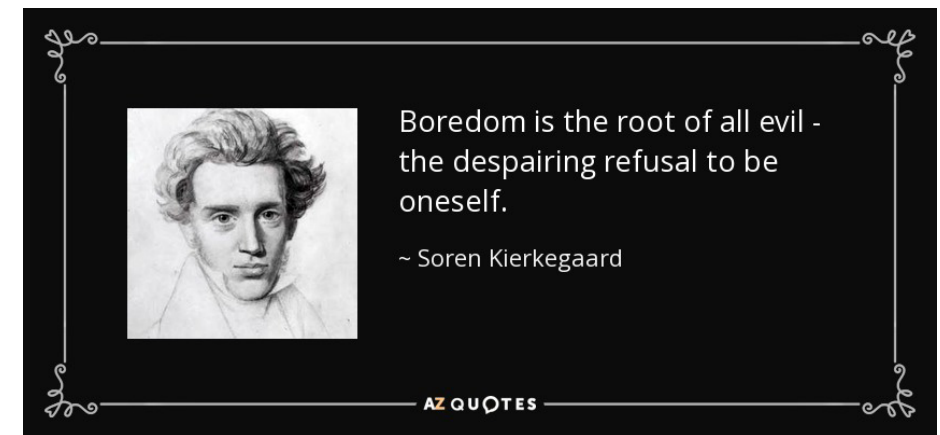
For this project, I am referring to nothingness as the act of not engaging your mind with stimuli or solving tasks, but simply letting it rest.

## Aversion to nothingness

As outlined, there are multitude of benefits with letting your mind roam freely, and simply allowing yourself to be bored. The problem is that most of us have an aversion to boredom, with research indicating that people would rather shock themselves than sit alone with their thoughts.<sup>25</sup> As we have the smartphone available to provide entertainment or comfort, being bored has become a rarity in our modern fast-paced lives. One study suggests that people underestimate how much they would enjoy just sitting and thinking. Most would rather favor a task to keep them occupied while waiting, despite the two experiences being statistically rated equally. Another study suggests that thinking can be equally, if not more enjoyable than a video game, but requires more effort.<sup>26</sup> Mildly ironic, is it that smart-phone usage has been shown to not alleviate boredom. On the contrary, it worsens the feeling, as well as making us more fatigued afterwards.<sup>27 28</sup>



science.org/content/article/people-would-rather-be-electrically-shocked-left-alone-their-thoughts



Img - AZ quotes

## Discomfort & pain

The state of boredom is closely related to the ones of dissatisfaction, discomfort and pain, concepts that many philosophers have spent a great amount of time pondering upon. I read Heidegger's take on boredom "langeweile", where he views it as the precursor to insight, but also a state of being painfully aware of your existence. Kierkegaard championed his concept of *rotation of crops*\* as a way of alleviating boredom, while Schopenhauer argued that boredom is proof of the vanity of human existence. As I read these takes on boredom dating back hundreds of years, I could not help to think that boredom and discomfort are unavoidable parts of our lives, as our brains will keep adapting to new stimuli. We can increase our standard of living and change our surroundings, but the quality of life will inherently be determined by your perspective.

### \*Rotation of crops

A hedonistic method of avoiding boredom by constantly changing your surroundings and activities, similar to changing the cultivation method or crops of a field.



### Self-disruption

Not only does the phone disrupt our mind-wandering, but we also disrupt it ourselves. A study conducted by danish researchers propose the idea that we have a tendency to direct our attention towards our smartphone, unpreceded by external prompts such as notifications or alerts.<sup>29</sup> Another study suggest that it is a bodily habit that makes us reach for it, the same way you may find yourself opening an unrelated website by habit when working or studying.<sup>30</sup>

### Maladaptive daydreaming

While I have highlighted the positive sides of introspection, it is important to note that not all sides of daydreaming and mind-wandering are pleasant. Psychologists differ between positive constructive and maladaptive daydreaming, where the latter is associated with negative thought spirals and ruminating.<sup>31</sup>

### Meaningful screen-time and unpleasant thoughts

I conducted a semi-structured interview with a friend of mine to get feedback on my sketches. Harald explained to me that he often experiences maladaptive daydreaming, where he will ruminate on negative thoughts for long periods of time. When asked about his phone usage and screen time, he replied that he knows he has a high screen time, but time spent on his devices is time well spent, and he doesn't need to be guilt tripped about it.

Until this point, I had mainly been focusing on the negative aspects of smart-phone usage. While there are multiple challenges with excessive usage, I learned from my interviews that time spent on screens can be meaningful as it relates to people's interests and social network. Going without your phone is simply not an alternative. My conversation with Harald strengthened my assumption that the effects of usage are abstract and that there is a need for more individual ways of disconnecting.

At this point I started reflecting on whether the smartphone can support boredom? Until now, the phone and social media have been developed with the goal of making a profit. What if we designed it based on other values, such as introspection or cohesive thinking time?



*La Siesta*, Ramon Marti Alsina  
img- Wikipedia

### Nothingness in culture

As I delved deeper into the concepts of boredom and nothingness, I kept discovering it in new forms across cultures. The Siesta in warmer countries, the Dutch concept of “niksen” (do nothing), the lord's day in christianity, but most notably the Italian saying of “ll dolce far niente”, meaning “sweet nothing”. Being fascinated with this concept, I sought out an Italian friend of mine to learn more.



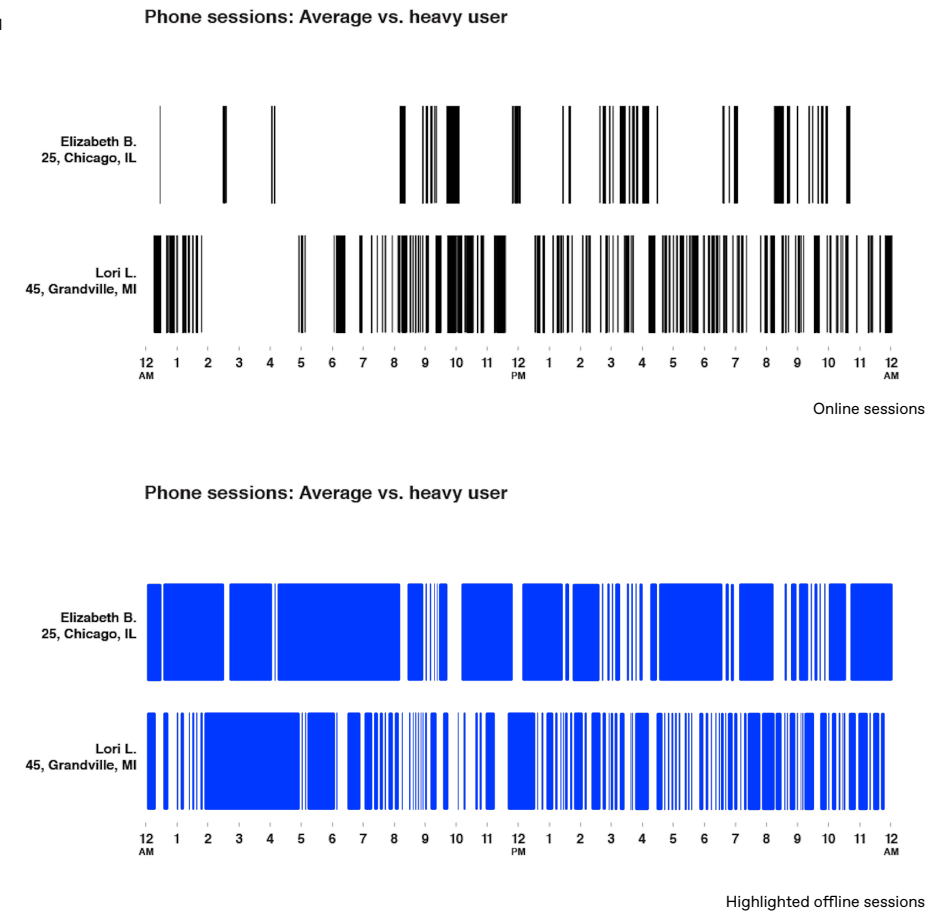
Dolce Far Niente by John William Godward, 1897  
img - Wikipedia

## A conversation on leisure

I conducted a semi-structured interview with my friend Gianni for a philosophical conversation on the concept of nothingness. According to him, his forefathers would call it *Otium*, further he explained that it only exists if you have other stuff to do; putting duty and responsibility on pause for a short moment to enjoy your solitude. Such small moments can be getting a coffee and drinking it by the machine rather than bringing it back to your desk, or sitting outside your house and simply watching the world pass by.

Our conversation showed me that doing nothing certainly is a core value in Italian culture, leading me to wonder if this way of being could be ingrained as a value in design? How many times a day do I get these moments? And how many of them are ruined by checking my phone? Can we design to support these small breaks of disconnected leisure? Or would it be another case of technological solutionism?<sup>32</sup>

fig. 1



## Patterns & fragmentation

I sought out data on phone usage to see if I could reverse-engineer it and study the amount of breaks in-between sessions. I found a small data-set from Dscout, an American company specializing in customer insight software. Their data highlighted the pattern of an average user and a heavy user.<sup>33</sup> I was mildly stunned when I saw that the average user only had 8 phone-breaks that were longer than 20 minutes during their day, and the heavy user only had 4.

So far, none of the tools I had been looking at studied your breaks, some of them gave you average break length, but none seemed to contextualize the information and highlight time away from your device. What does it mean for your average time away from your device to be 13 minutes?

fig. 1  
<https://dscout.com/people-nerds/mobile-touches>



# Summary

In this chapter I have outlined what our brain does when not presented with stimuli, and the effect our smartphone can have on those processes. Key-takeaways from this chapter are:

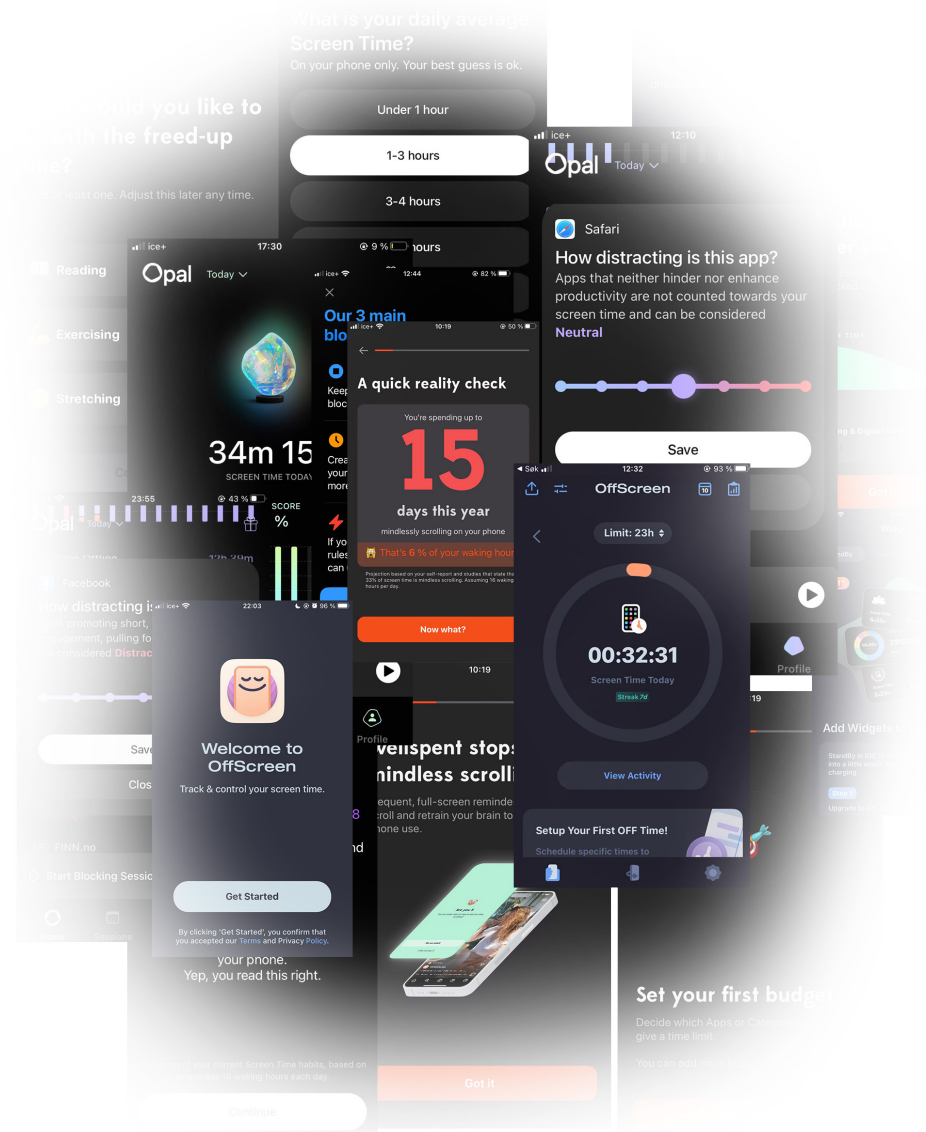
- The default mode network is important for our mental wellbeing, and activates when we do nothing, tasks of low complexion or sleep.
- Daydreaming can be a positive experience and contribute to stress reduction and enhanced creativity. However, we have a tendency to interrupt our free-thinking.
- Memories are formed when our brain is not occupied with processing information or solving problems.
- It is plausible to track introspection and daydreaming as it has physiological responses.
- Boredom can be healthy, but many have an aversion to being bored and would rather occupy their mind.
- Screen usage is related to meaningful activities for many.
- Fragmented smart-phone usage affect our available time to process our emotions and thoughts.

# TOOLS, TRENDS, AND HEALTHY USAGE

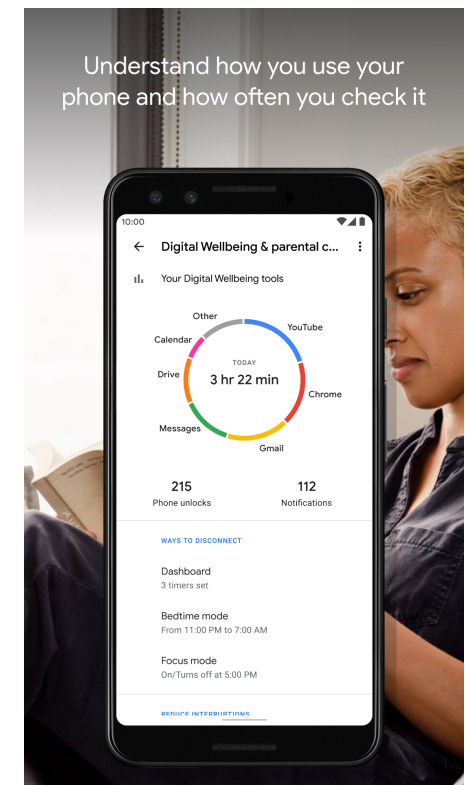
## Screen time tools

Apple released their screen time tool in 2018, 10 years after their first iPhone, and Google their own variant *Digital Wellbeing* the same year. Both tools give you a measurement of time and to some degree show what you spent it on. While it has some usefulness, it does not really say anything about what you are doing on the screen, and if you are getting enough breaks—only how long the display has been on.

I interviewed several people about their phone usage, and not one of them seemed to have positive experiences related to their screen-time tools. Many have it turned on, but rarely check it as it only reminds them of their inability to control their usage.



Apple Screen-time  
img – Macrumors



Google digital wellbeing  
img – Google

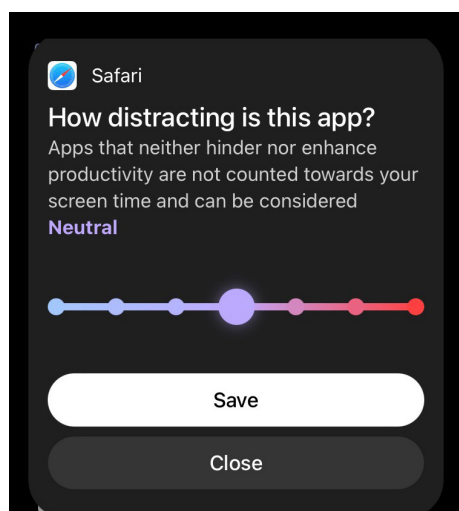
Left:  
Screenshots from Wellspend, Opal and Off-screen



## Reducing your screen time

There is an abundance of apps related to reducing your screen time, but most of them focus on abstaining from using your phone, framing it as a distraction from productivity. When I started working with the theme of fragmentation and use patterns, I realized that none of the apps took into account what sort of usage I was engaging in.

Rather than focusing on abstinence, wouldn't it be more productive to focus on desired usage patterns? A good example of highlighting desired usage is the Norwegian Wine monopoly. Rather than promoting abstinence from alcohol, they focus on how they want you to consume it by focusing on food pairings, the culture and the craft. Could this way of approaching the problem be translated to a digital context?



Screenshot from Opal



Vinbladet  
img - Vinmonopolet

Opal appeared to be an outlier, as it gave me the option of categorizing apps and websites as productive or unproductive in order to better measure my focus and productivity. While it is a step in the right direction to have users define what meaningful usage is, it still reflects an ideal of productivity and work morale. Apart from productivity and focus, what other metrics could we use to define our usage?

## Not what; how

Another aspect of contextualizing your usage is looking at not *what you are consuming*, but *how you are consuming*. Watching a slow movie on your device without interruptions has a different effect on your cognition than picking up your phone several times throughout the day—scrolling fast paced content vigorously. Your screen time may remain unchanged, yet having vastly different effects on our cognition.

From my own experience during the course of the project, I learned to take longer breaks and to avoid checking my phone frequently. While my frequency went down, my screen-time remained the same. It felt like it didn't matter how well balanced my sessions were. If I had used my device, it would be counted towards my overall screen time, no exceptions. Reflecting upon the changes in my own usage led me to believe that there has to be a better indicator for healthy or balanced usage, than merely counting hours and minutes.

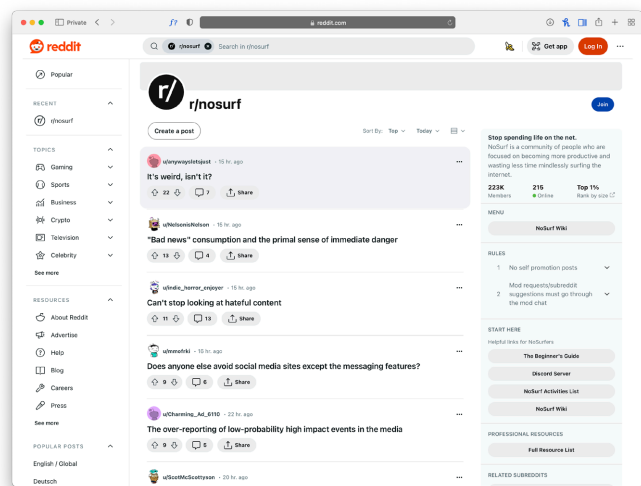
## "Healthy" usage

A question at the core of my project has been "what is healthy usage?", as it seems that users are unsure, and the experts disagree. For this project, I have defined healthy usage as getting enough breaks in between sessions of screen usage, as this allows for your mind to regulate and process your emotions. I am not defining it in relation to the mechanisms of social media, as it is not the focus area of my project.

## Cultural probes

During my research I looked at digital communities on the social media platform Reddit, focused on digital minimalism. One of them, “no-surf”, is Reddit community focusing on “how to stop wasting time online”, with many users advocating for deleting your social media accounts. Several posts encompass users contemplating deleting their accounts, but having fears about the implications for their social lives. One of the most popular posts is a user sharing how they curbed their internet addiction, highlighting the importance of normalizing discomfort and FOMO\*.

\*Fear of missing out



Screenshot from reddit.com/r/nosurf



- Step 1: I moved to the smallest phone hardware**
- My previous smartphone I turned off and dropped in a drawer. This had all of the apps I felt I needed, but didn't want to carry around with me (Banking, password manager, email, weather, etc.). I thought of these a bit like a vacuum cleaner or any other household tool - I'm happy to own one and turn it on when I need it, but I don't want to carry it around with me 24x7
  - I bought an iPhone SE 2016 - they're under \$50 used, and having a small screen makes the phone way less immersive and addictive
  - Factory reset the phone - I started from scratch and didn't restore from a backup
- Step 2: Restricting apps**
- I first decided exactly what I wanted the phone to do (for me, that was manage todo list/short notes, message friends/family, telephone, get directions, pay for things, snap a quick photo) and installed only those apps I was certain I needed
  - Uninstalled all of the system apps I possibly could (e.g. Calculator, Compass, Contacts, Voice Memos, etc.)
  - Disabled Safari, plus other apps (like Health) that can't be uninstalled in Settings > Screen Time > Content & Privacy Restrictions > Allowed Apps
  - Block installing any new apps at Settings > Screen Time > Content & Privacy Restrictions > iTunes & App Store Purchases > Installing Apps > Don't Allow
  - Add a screen time password at Settings > Screen Time > Use Screen Time Passcode and write it down, keeping it somewhere hard-to-get-to - this effectively prevented me from adding new apps or unblocking safari
- Step 3: Cutting down notifications**
- Disabled notifications for all apps where I didn't need them at Settings > Notifications > (app) > Allow Notifications
  - For apps where notifications aren't time-critical, turn off Settings > Notifications > (app) > Alerts > Lock Screen / Notification Centre / Banners (just keep the badges on the app itself so I can see it next time I open the phone)
- Step 4: Making the phone boring**
- The theory here was to change the settings to make the phone about as fun to use as a washing machine or ATM
- Turned on Settings > Accessibility > Display & Text Size > Colour Filters > Greyscale
  - Settings > Accessibility > Display & Text Size > Increase Contrast
  - Settings > Accessibility > Motion > Reduce Motion
  - Settings > Display & Brightness > Dark and turn off Settings > Display & Brightness > Automatic
  - Settings > Siri & Search > Don't listen for "Hey Siri"
  - Settings > Siri & Search > Don't allow Siri when locked
  - Settings > Siri & Search > Turn off all suggestions
  - Disable Settings > Display & Brightness > Raise to Wake
  - Remove all widgets on any of the screens
  - Set the most boring home screen / lock screen background possible (I used dark grey)
  - Turn off iCloud photo sync (I occasionally would copy all the photos off this phone and delete them all)
- Other stuff**
- For getting set up initially and logging into apps etc, I found I needed both Safari and Email, but once the setup was done I then uninstalled/disabled these
  - QR codes don't work after disabling safari - I got an app called QR Scanner which allows you to scan QR codes and has an inbuilt browser (for buying parking, restaurant menus, etc.). In the end I removed this as I felt I could live without QR codes, but it might be useful for you.

Screenshot from reddit.com/r/dumbphones

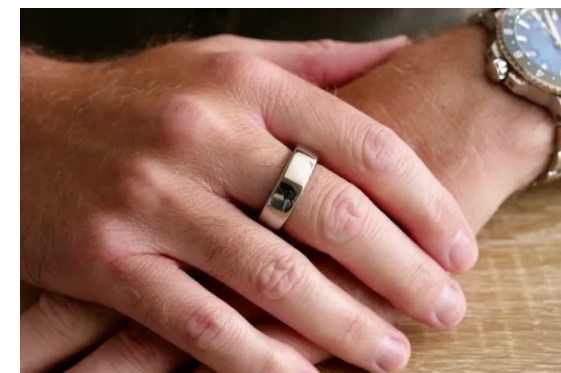
A subreddit dedicated to dumbphones has 26.000 users, where people review and share experiences with low-tech devices. One user even made a dedicated website to help you find what dumbphone-models would work for you, as choosing a device that fits your lifestyle can be a daunting task. Another popular post described how they adapted an old iPhone to be less addictive by altering numerous system settings.

## Quantified-self

Self-tracking through technology has become a major trend with the introduction of the smartphone. Tracking your morning run, sleep patterns, stress levels or heart rate has become an everyday way of making sense of your body. I tried an Apple Watch to see what the hype was about and was surprised to learn the data it was able to extract from one device. It was able to measure my heart rate, sleep quality, movement, respiratory rate, temperature and blood oxygen. Another device, the Oura ring even tracks what part of your nervous system is active by measuring skin-conductivity (perspiration) and uses it as an indicator for stress.



Screenshot of respiratory data from the Apple Watch



Oura Ring  
img - Digital Trends



Apple Watch  
img - apple.com

## Detox trends

Further, we see that there are many ways people approach the problem of constant connection. Trends such as “low dopamine morning” on TikTok or the concept of *Monk-mode\**, has risen in popularity the last year, as well as an enormous amount of self-development books related to screen usage and digital minimalism.

\*A trend of isolation one-self to reduce distractions in order to focus on a single task.



Punkt MP-02  
img: Punkt



Mudita products  
Screenshot from mudita.com

There has also been a huge influx of minimalist tech in recent years. Companies such as Punkt, Mudita and re-Markable make simple distraction-free digital products, but come with the same price-tag as an iPhone or an iPad, making it hard for certain demographics to justify the expense. One can argue that minimalist technology can be viewed as a specialized tool and will cost accordingly, but if distraction free technology comes at a premium, who is it really for?

# Summary

In this chapter I have outlined the current state of tools to disconnect and contextualize usage, detailing how they approach excessive screen usage. It is hard to go without a smartphone as we are highly dependent on it for everyday tasks. There is an abundance of apps, self-help literature and detox trends to help you disconnect, yet many struggle with defining their relationship to their devices.

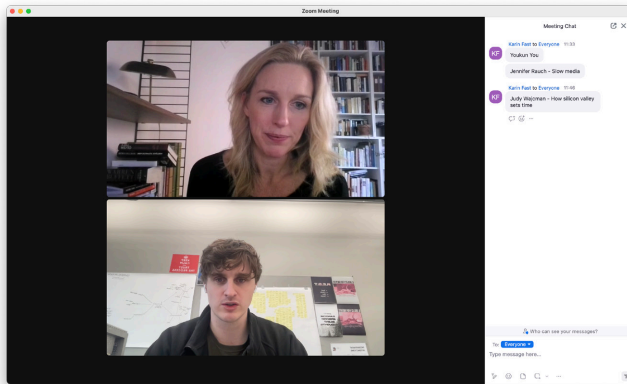
Key-takeaways from this chapter are:

- Most solutions focus on the temporal dimension of screen usage, while few look at your use patterns and how you engage with your device.
- There is a lack of consensus on what healthy usage is.
- Detox culture shows that many wish to disconnect, but struggle with finding the right way.
- Self-tracking is increasing in popularity and the technology is becoming more advanced.
- Many minimalist tech products come at a premium, making disconnecting a luxury.

# INTERVIEWS

## Detox, for who?

I conducted a semi-structured interview with Associate Professor in Media and Communication Karin Fast, about the challenges of disconnecting. Karin told me her research found that it is the cultural middle class that express the most dissatisfaction in managing digital stress—explaining that this could be as they consist mostly of knowledge workers that work in offices. She theorized that disconnection can almost be viewed as a social distinction\* and an ideal within this group. Karin also conducted research on screen usage as a political problem, finding that politicians are highly aware of the problems, but are hesitant to intervene as screen usage relates to personal freedom.<sup>34</sup>



The conversation made me reflect upon my own perspective and cultural standing, as a white man in higher education. What values and social codes I am expressing through my designs? Who am I designing for, and why?

### \*Social distinction

A term coined by the French sociologist Pierre Bourdieu to describe something that gives cultural status, influencing how individuals are perceived within a group.

## Interview with Trine Syvertsen, leader of the Digital Detox research project at UiO

I interviewed media professor Trine Syvertsen in early August. At this point, I was convinced that failure to control your phone usage was due to personal short-comings. She managed to convince me otherwise, stating that we have been forced upon a highly addictive technology that is difficult to avoid due to platformization. When you need a smart-phone to function in society and remain connected, it is simply not an option for many to abstain from it. She further states the responsibility of managing your usage can't be put on the user alone.

Our conversation made me realize that the discourse on screen usage bears resemblance to the ones on substance abuse and overweight. We accept that the individual can affect these problems to a certain degree, but there are a multitude of other factors that affect how usage is shaped, such as genetics and environment. As it dawned on me that excessive screen usage is in part a systematic issue, I realized that users don't lack motivation, they lack tools, and that raises the question of who should provide them?

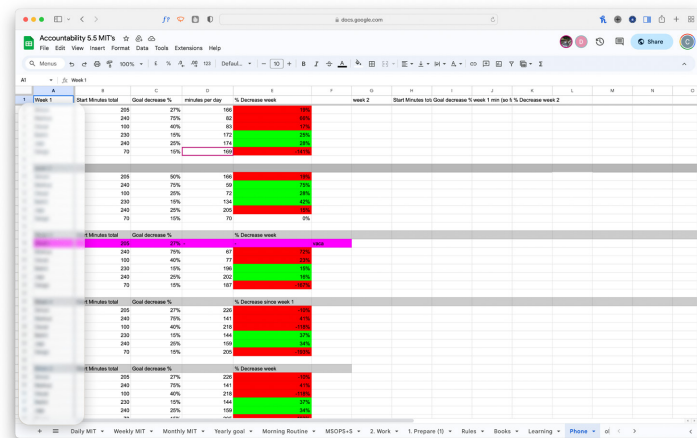


## Discipline and willpower

As I researched tools and techniques for balancing screen usage, I encountered Markus Nordgaard, a Danish self-employed consultant and company founder. Markus explained in detail how he struggled with controlling his media usage, but has now taken control of it through strict self-imposed rules. He only watches TV in social settings and daily tracks all his habits in a detailed excel sheet. I was immensely impressed by Markus' nearly ascetic discipline, where he follows clear rules of living to achieve finely crafted life-goals. As we spoke, I could not help thinking that he must be the most disciplined person I have ever encountered. Yet, he explained that he is painfully aware of how fickle his focus is, if he slips up, he will spiral into a dark hole of doom-scrolling for several hours a day.

*"The only exception is when someone sends me a meme or a news article as I consider that a social interaction. Still I prefer not to open the links since it's a risk of falling down the rabbit hole."*

Our conversation further strengthened my view that it is not a personal failing to be unable to balance your usage. If Markus, the most disciplined person I have met struggles to manage his usage, what is the hope for the rest of us? If this level of discipline is needed to maintain a healthy relationship with technology, it can't be due to a lack of willpower.



Markus's excel sheet

## Marie – Nokia user

I met Marie through a mutual friend, we talked about my diploma and she promptly showed me her Nokia phone. I interviewed her as I wanted to learn more about her experiences of living with such a limited device.

Marie explained that she had an iPhone two years ago that broke and rather than getting a new one, she got a Nokia in order to calm her out of control social media usage. Family and friends have come to accept that she is only to be contacted through her phone if they need a prompt answer. She is available through messenger, but then it can then take several days for her to reply. According to her, this has so far caused her no major inconveniences. While she longs for an option to buy bus tickets and a way to get directions, her friends usually help her out and to her surprise, BankID works on the Nokia.



Marie's Nokia

I steered our conversation onto the theme of mind-wandering and introspection, something she replied to be particularly enjoying in her everyday life. According to her, the ideal amount of time is 10-20 minutes, if it goes on for longer you may start spiraling—so perfect for a bus-ride or walk to or from work.

After speaking to Marie, I could not help but think that there has to be a better option for her. What would the ideal phone or OS look like for her? Would she be more happy with a music player, maps, ticket apps and possibly better texting? Or would I be trying to fix something that is not broken? Is it the very clumsiness and limitations of the device that makes it ideal for her?

After our conversation, Marie texts me to tell me that she thinks “dumb-phone” is a stigmatizing word and would rather prefer it to be called “tastetelefon” (button-phone).

# Summary

In this chapter I have outlined how experts view the problem and how users are dealing with the digital overload.

Key-takeaways from this chapter are:

- The cultural middle class is the group whom expresses most dissatisfaction with managing their digital life, as they mostly consist of office worker
- Politicians are aware of the problems, but are reluctant to intervene as it infringes on personal freedom
- It is not an option to go without a smartphone for some, as they need it to function in society
- Self-tracking is increasing in popularity and the technology is becoming more advanced
- Relying on willpower alone to manage digital stress is not a sustainable solution

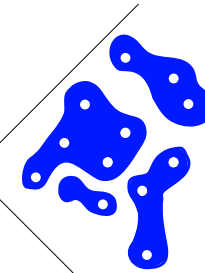
# EXPLORATION

To address the problematique of digital wellbeing, I set out to conduct multiple explorations. I made a list of prompts based on research, trends and themes I had uncovered in my initial research. Thereafter, my plan was to find common themes or context for the concepts I developed.



Interventions to promote digital wellbeing

Explorations



- (i) phone barrier
- (ii) daydreaming facilitator
- (iii) white-spots mode for maps
- (iv) information de-acceleration
- (v) digital vacation
- (vi) risk calculator for intangible effects
- (vii) attention account
- (viii) home screen adapter
- (ix) boredom tool
- (x) screen size reducer
- (xi) custom launcher
- (xii) personal detox coach / consultant
- (xiii) feed swap - curated feeds

The initial list of prompts was quite long, and it kept growing as I conducted my research alongside my explorations. I narrowed the list down by choosing themes that would work in the context of interaction design, but also those that interested me, despite ambiguousness.

## Sketching

I made numerous sketches on the prompts to see if I could generate something of interest. I used the pomodoro technique, limiting myself to 22 minutes of ideation per session in order to avoid fatigue.



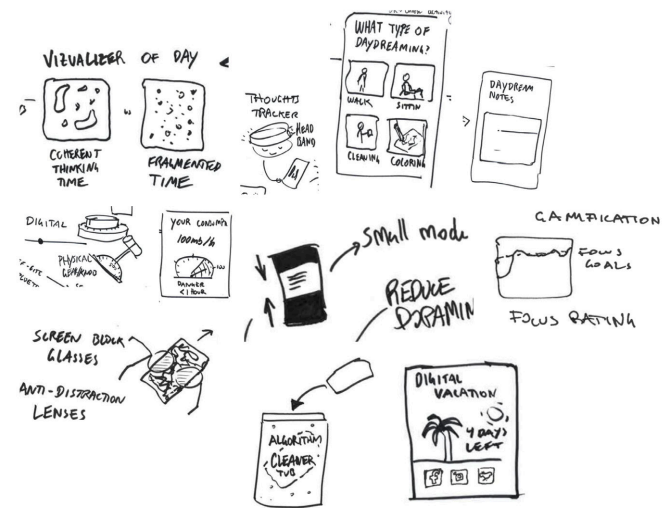
Initial sketches

## Affinity mapping

After sketching for a week, I had an abundance of sketches to review, leaving me with the daunting task of making sense of them and choosing what to work on next. Rather than going through them one by one and picking out a few selected, I analyzed them through the method of affinity mapping, where I tagged each sketch with the theme it related to.



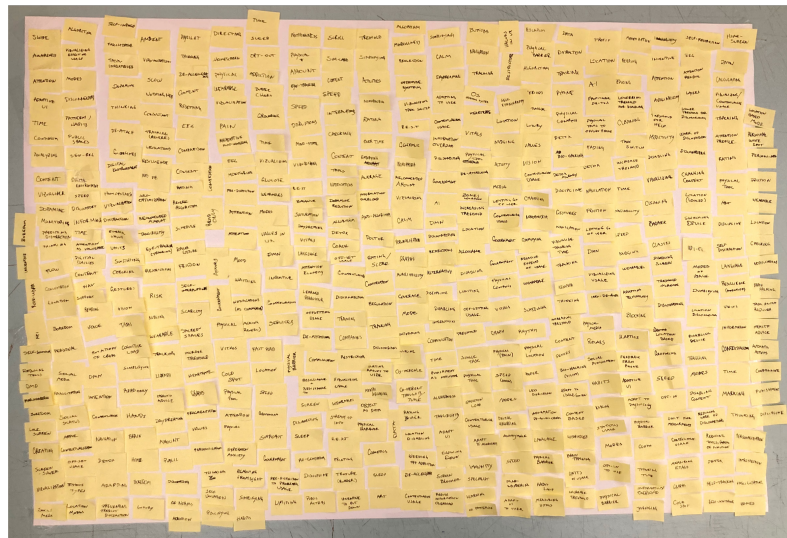
Tagged sketches



Some selected sketches



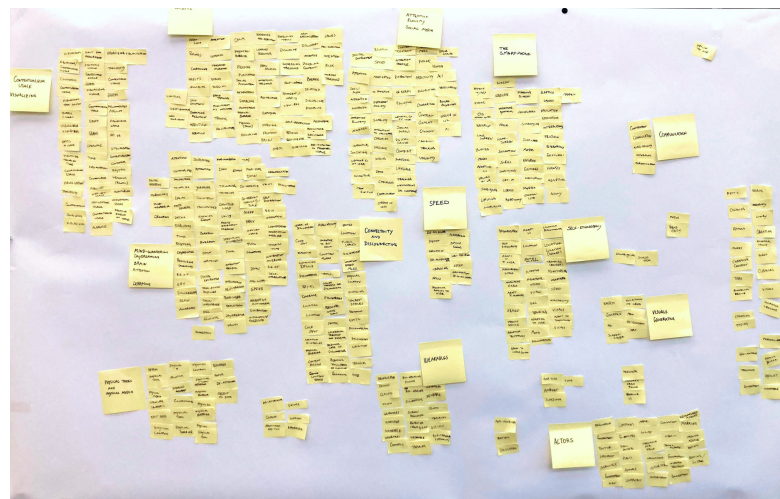
I then gathered all the notes, totalling at 450. I now had what resembled a data set and started working through it by putting the notes on a wall and sorting them into categories and major themes.



All notes

## Themes

The major themes I found were "contextualizing usage", "mind-wandering and daydreaming", "disconnecting", "speed", "wearables" and "the attention economy".



Categorized

## Data

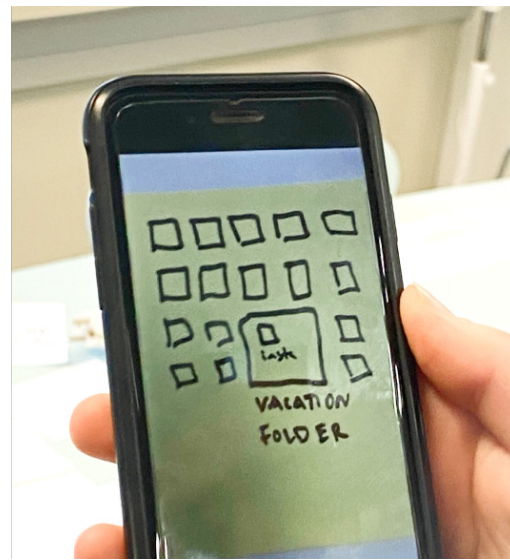
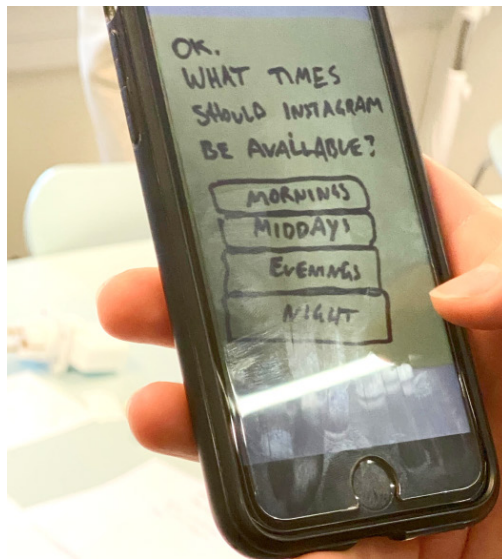
I manually typed in every note to create a data-set, to see if I could learn something from it by processing it digitally. I fed the data into chat GPT as well as a word-cloud generator to see if the AI could detect something I had missed.

I found that the AI provided a more neutral perspective and that I showed some bias towards preferred categories such as "the brain", "contextualisation" and "mind-wandering and daydreaming". The AI did however not suggest "social media", "attention economy" or "the smartphone" as possible categories which surprised me as they appeared obvious to me. While the AI did not provide any groundbreaking new categories, it helped me view the data from a different perspective.

Table 1	
1	location based mode
2	personal while sport
3	personalisation
4	fiction
5	wearable
6	location
7	checking
8	notification
9	brain tracking
10	lean switch reduce
11	health advice
12	automatic actions
13	conditioning
14	punishment
15	discipline
16	home screen
17	default mode network
18	reducing
19	reading usage
20	contextualising
21	tracking
22	attention profile
23	usage
24	physical tool
25	self
26	discipline
27	self-distraction
28	language
29	relevance
30	attention
31	verbs
32	information
33	contextualising
34	time
35	making
36	thinking
37	personalisation
38	introduction
39	facilitating
40	zones
41	self-noticeous
42	veg
43	attention residue
44	light
45	learning feedback
46	disconnecting
47	work of disconnecting
48	disconnecting
49	changing context
50	location based
51	building device
52	we-4
53	mode of usage
54	disconnecting
55	location disconnecting
56	building device
57	building
58	mode
59	building content
60	reducing both
61	area of function
62	data
63	self-tracking
64	

Data-set





Sketch in the Marvel app

### Sprint session

I conducted a one-day sprint workshop with my fellow diploma student where I created a mock-up of the *digital vacation* concept by drawing on post-it notes and taking pictures of them with the Marvel app.

I found out that the concept needed fine-tuning as it was unclear what the exact purpose of it was. The wording *vacation* was also confusing to some, prompting me to re-name it as *app breaks*.

### Potential directions

As I learned about the concept of mind-wandering towards your device<sup>26</sup>, I began speculating whether this could be an opportunity. Ideally, one would only pick up your phone when intending to do so. Yet, if you are already holding it in your hand, perhaps I could nudge users in an alternate direction, away from the grasp of the algorithms?

### Scenarios

My first digital sketches did not provide the breakthrough I had hoped for, but I kept going and decided to make sense of my explorations through scenarios at the suggestion of my supervisor. Expanding on my themes again, I created 15 scenarios and made lo-fi sketches to address each one of them. Some low hanging quick wins, and some more complicated concepts.

The scenarios are outlined on the next page.

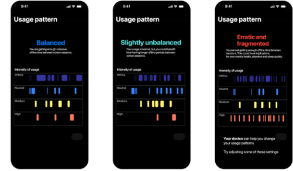


# Initial scenarios

**Scenario 1**  
My screen-time don't understand me



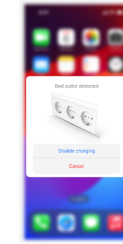
And what is "healthy" usage?



**Scenario 5**  
Change in use pattern  
Am I consuming more content faster?



**Scenario 9**  
Knowing you should not be using your phone in bed



**Scenario 13**  
Introspection settings  
What if your phone could learn when you are processing your emotions or mind-wandering?



**Scenario 2**  
Taming your device



Lowering the threshold for personalising your device by grouping relevant settings.



**Scenario 6**  
Taking a break



Had enough of Instagram, but deleting it is too drastic.



**Scenario 10**  
When one device is not enough



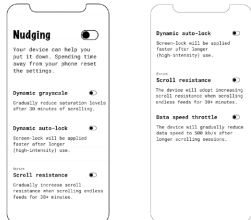
**Scenario 14**  
Digital daydreaming  
Smartphone as extended mind-wandering



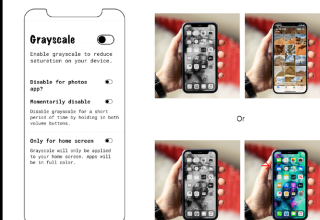
**Scenario 3**  
The UX of letting go  
Making it easier to put the phone down



(Screen time limit too easy to ignore)



**Scenario 7**  
Grayscale mode, but I want to show someone a picture



**Scenario 11**  
Nomophobia  
"Fear of going without your phone"



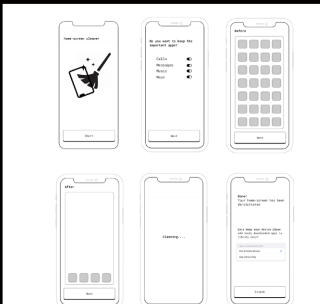
**Scenario 15**  
Picking up your phone because you are bored (or uncomfortable)



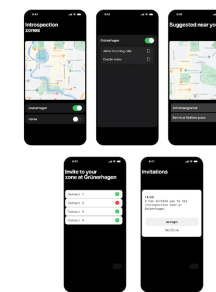
**Scenario 4**  
When your brain don't want to go to bed



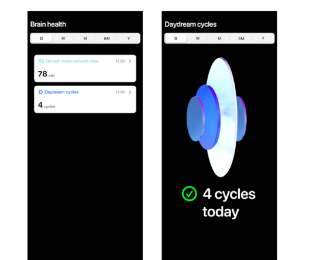
**Scenario 8**  
Leaky interactions  
Setting an alarm and ending up on youtube.



**Scenario 12**  
Disconnecting as a social activity  
Introspection zone, simple zone, nokia zone, void zone, abyss zone, off-zone.



**Scenario 16**  
The quantified brain  
Do you get enough time to process your emotions? Introducing brain wearables

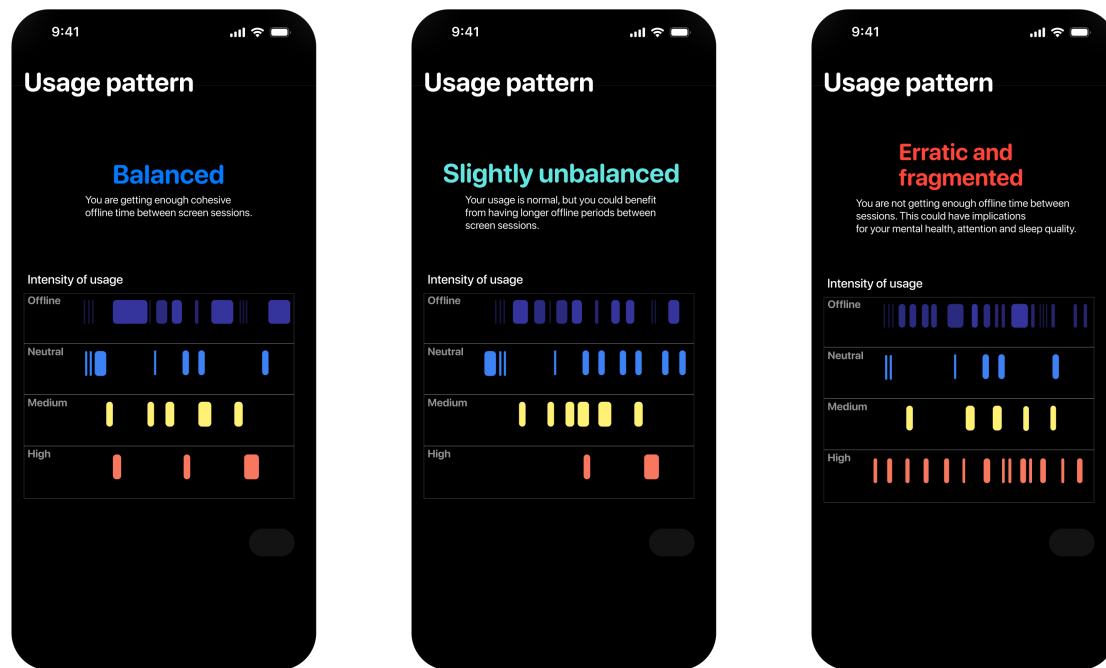




## Feedback

After finalizing my sketching and getting feedback from users, I started to see some coherence in what resonated and made sense. Contextualising screen usage seemed to be an interesting concept to many, as well as the idea of tracking your daydreaming.

Looking at screen usage in relation to intensity did not make a lot of sense to people, but visualizing the fragmentation was interesting. Feedback also prompted me to make it less of a diagnosis and more of a prompt you can act on.



Sketch for *My screentime doesn't understand me*

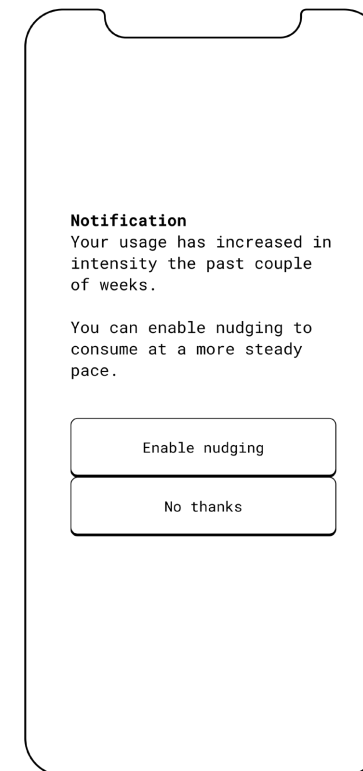


Photo: Private

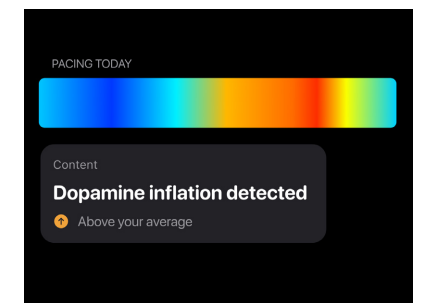
## Conversation with Agata Cypriak vel Czupryniak

I met with Agata, an interaction and service designer at PwC, to get her input on my concepts, given that her diploma "Z Futures" (2021) touches upon many of the themes in my work. Our conversation drifted from the general issues of screen usage to the specific scenarios within my project. Agata mentioned that she listens to numerous podcasts throughout the day, asking how that would be measured within the context of my scenarios. This made me consider touches and interactions as units, alongside with the intensity of the content on the screen.

She also emphasized that most people dislike being confronted with notifications prompting them to take actions, making me re-evaluate how information is presented to you in the scenario of change in usage patterns. Should it be pushed onto you, or do you actively seek it? Lastly, we discussed the importance of considering who the sender of these tools is, as it will impact how they are perceived.



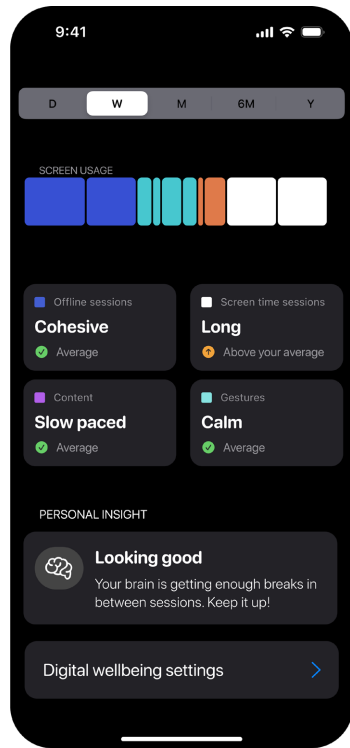
Confronting notification



New iteration

## New sketches

After receiving feedback from Agata, I redesigned some of the screens to make them more detailed and expand on different types of data.



New iteration



Alternate ways of visualizing usage

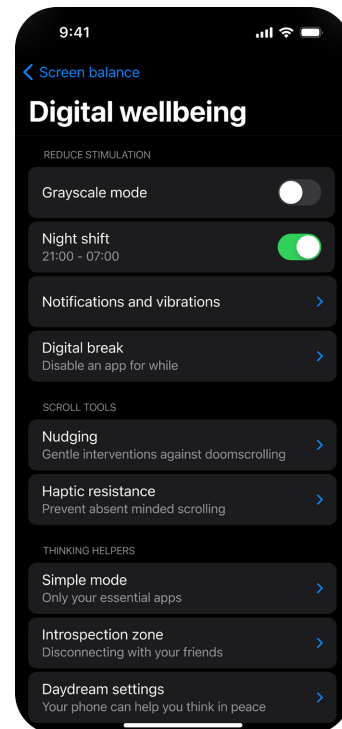
## New settings

The scenario of *Taming your device* seemed like a good scenario to keep, as it could function as a bigger category for other concepts to exist within. I made a new iteration and got feedback that it was too much text, and that settings should be grouped.

*Feedback:*

*That is a lot of text*

*It seems like work to get trough*



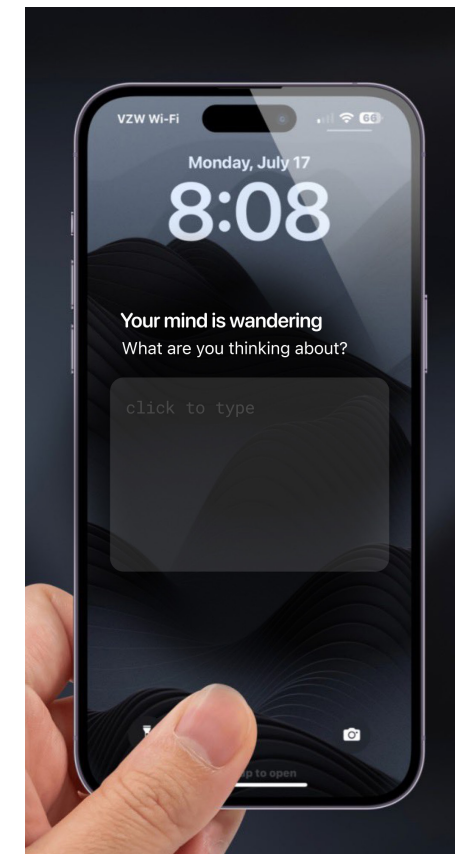
## Daydream concepts

At this stage, I was intrigued by the concept of tracking your daydreaming. My friend Harald whom I interviewed, noted his negative experiences with daydreaming when presented with the concepts. He expressed however that he would absolutely like to write down his positive reflections, as this is something he had been contemplating for a long time.

Our conversation prompted me to look into ways of grouping the daydream concepts that focused on calming down when experiencing unpleasant thoughts.



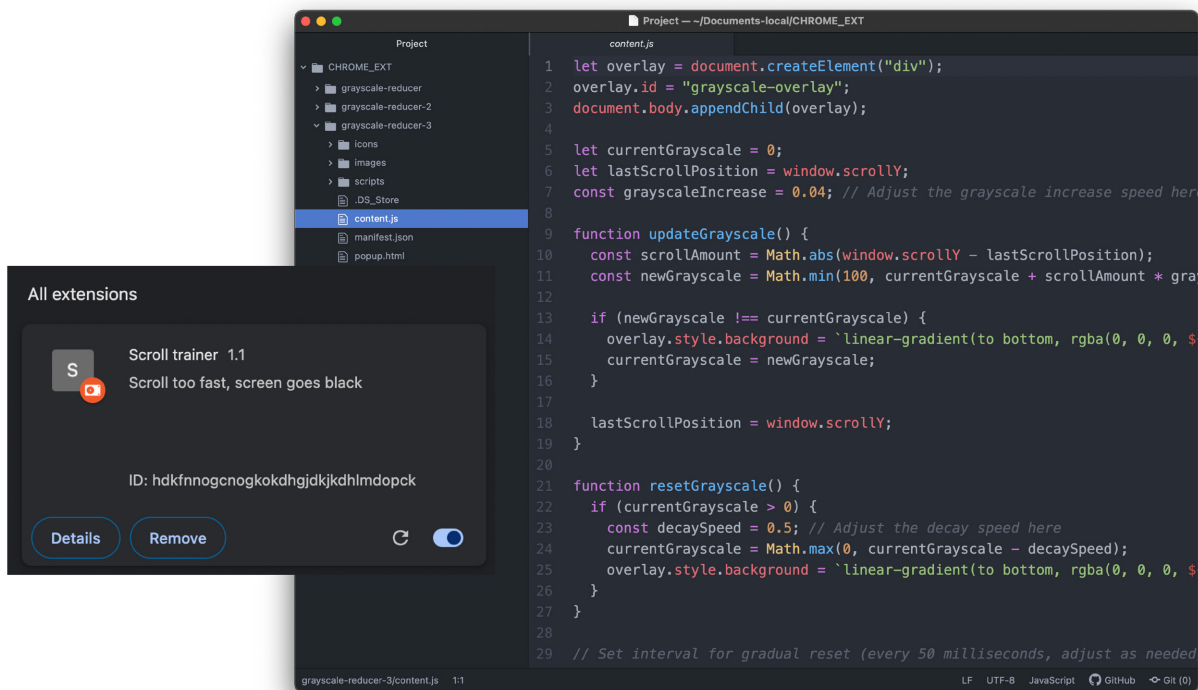
Picking up your phone because you are bored



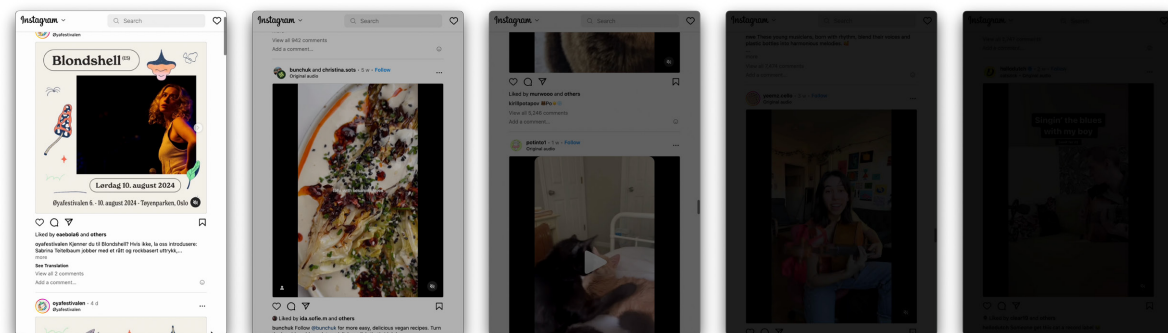
Extended mind-wandering concept

## Testing *taming your device*

To test some of the concepts from the *Taming your device* scenario, I prototyped a plugin for Google Chrome to learn if it would have value to users. I coded the plugin with help from ChatGPT, instructing it to fade the screen to black when scrolling fast and reverting to the default state when slowing down. After 10 iterations, the plugin worked as intended. I also tested the scroll resistance tool by using a plugin to gradually change the scroll speed as users scrolled Instagram.



Scroll trainer plugin



Scroll trainer in action

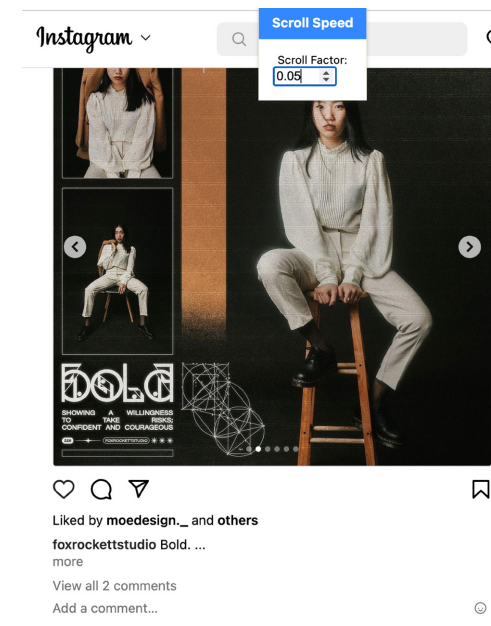
I had anticipated mixed responses to the scroll trainer tool, but was surprised by the positive response from users:

A: *This is so cool, I love it! It makes me stop and read and be more mindful*

B: *This is very interesting, it forces you to slow down in a good way.*

C: *Makes me realize "ok, shit", I am scrolling fast now. I often catch myself scrolling without paying attention, this would make me pause on the content*

Testing of the scroll resistance plugin did not elicit the same response. Users stated the intervention was annoying and some even asked if the testing-device was broken.



Plugin that changes scroll speed

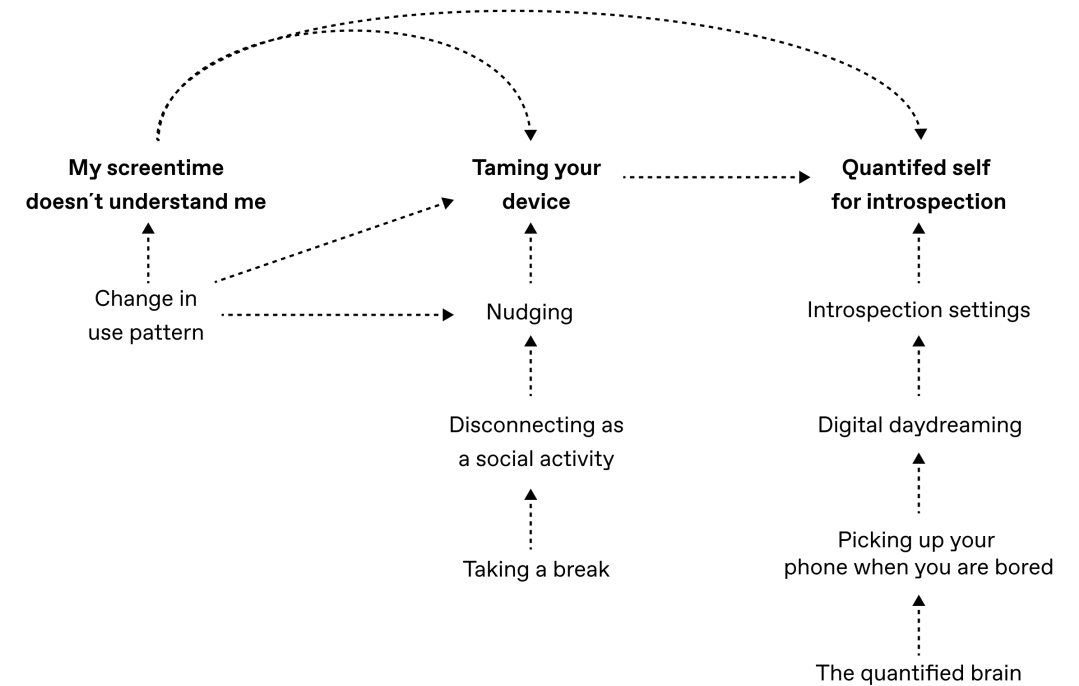
A: *This is just annoying. Its like when my phone doesn't work and you want to throw it away*

B: *Is it broken? No? ok, it is frustrating I don't like this one*



## Thoughts on testing

I was surprised to hear the reactions of users, as I expected the scroll resistance tool to be of interest, but it seemed that it was the scroll trainer that made users reflect on their patterns. While I think it is more effective to avoid entering addictive platforms than adjusting the experience, showing the plugin to people reminded me that there are so many preferences and ways of managing your digital life. The testing experience strengthened my assumption that making several tools for different use cases is the right approach, rather than one single tool.



## Grouping

As I developed the concepts, connections started to appear. My screen time doesn't understand me, worked well as an overarching concept when paired with change in use pattern as they both addressed behavior on your device. *Introspection settings*, *digital daydreaming* and *self-soothing* were three separate scenarios. Grouping them together as one made it possible to work with them as they shared the premise of tracking your state of mind. *Taming your device* paired nicely with *The UX of letting go* and *disconnecting as a social activity*.

I discarded the scenarios that I did not feel were interesting enough to develop further, or that would fit in a larger context, such as the *pacifier device*, *outlet blocker* and *grayscale mode*, but I want to show someone a picture.

My plan for the project was to conduct explorations and see if I could group them together, it was motivating to start seeing potential overarching scenarios where the other smaller concepts could be placed.

### **Final reflection on iterations**

As I finished the scenarios, it became evident that it has not been a 1:1 process of iterating on each concept. Working with several concepts at the same time proved to be more challenging than anticipated as there were many parts to keep track of. Some of the concepts have overlapping iterations where they bleed into each other, meaning that some concepts have been more refined in order to work as overarching concepts for the others to exist within. The reason for this variance is to make them work as a whole and display richness and variety.

# FINAL SCENARIOS

## Intro

The final scenarios are the final outputs of my diploma, but not the end of the discourse. They are broad concepts meant to show the possibilities in managing your digital life. They are not finely tuned sketches meant as *the* definite solution for tackling the problem, but concepts to facilitate discussion on the solutions we have today, and alternatives to what they could look like. I have therefore gone for breath and variation, rather finely tuned sketches for production.

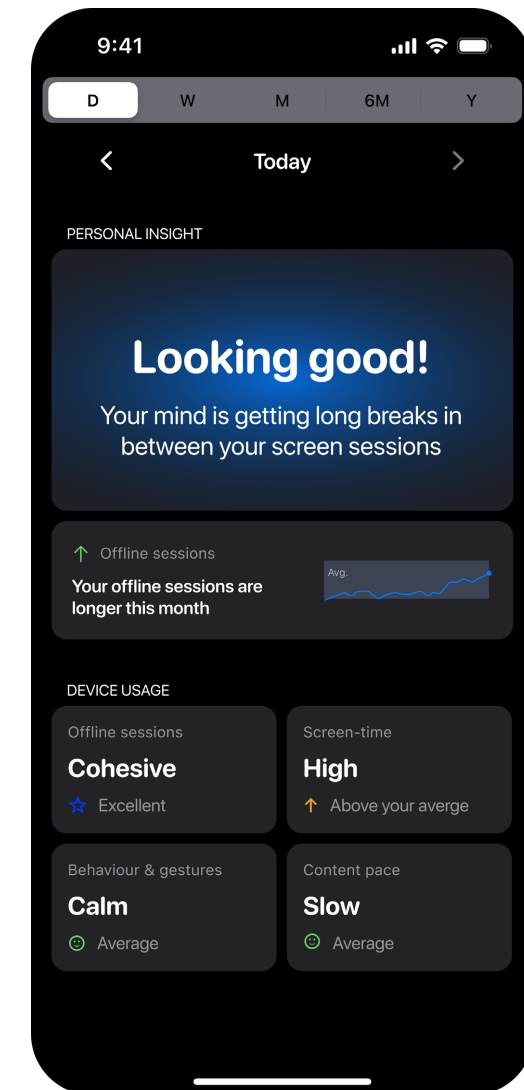
It is also important to note that there is such a vastness of preferences in how people use their smartphones, what appeals to some, may not appeal to others. I therefore do not expect all concepts to be of relevance for everyone, but hope that those who view this project can find at least one scenario they find interesting.



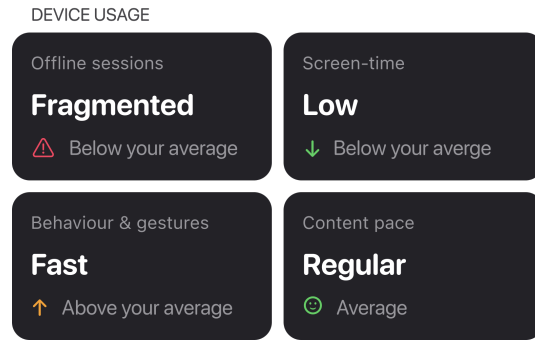


# My screen time doesn't understand me

*My screen time doesn't understand me*, is a concept for contextualizing screen usage in a meaningful way, looking at your overall behavior on your device.

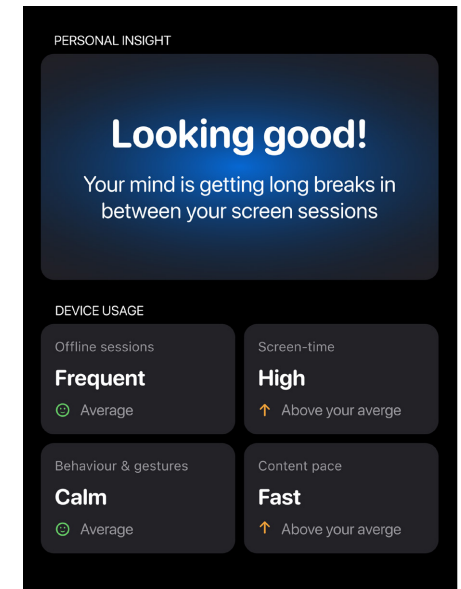


The concept analyzes not *what* you look at, but *how* you look at it. Are your offline breaks coherent? Or are they fragmented and spread thin during your day. Are you watching slow paced content, or scrolling vigorously through split-screen videos? The concept looks at your usage patterns as a whole, and provides feedback accordingly.



Device usage data

On the contrary, high screen time may be fine, if you have long breaks in between session.

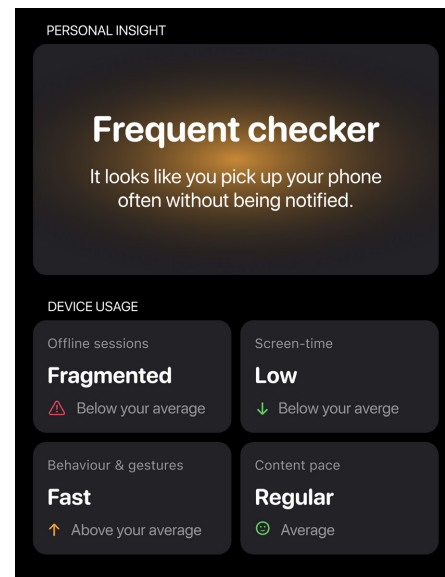


Cohesive usage

### Types of usage

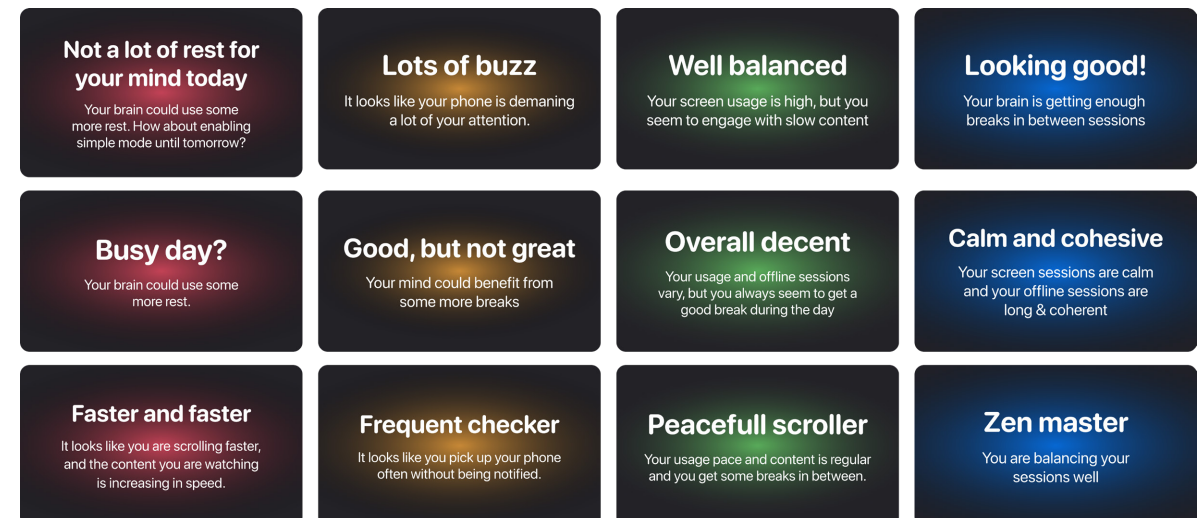
The concept addresses different types of usage, making it a more nuanced affair of deciphering your relationship with your device. Maybe you had a long session in the morning, but went for a long walk afterwards? Or maybe you listened to pod-casts all day, but did not even touch your phone.

Your overall screen time may be low, but fragmented offline sessions leaves little room for coherent thinking time.



Fragmented usage

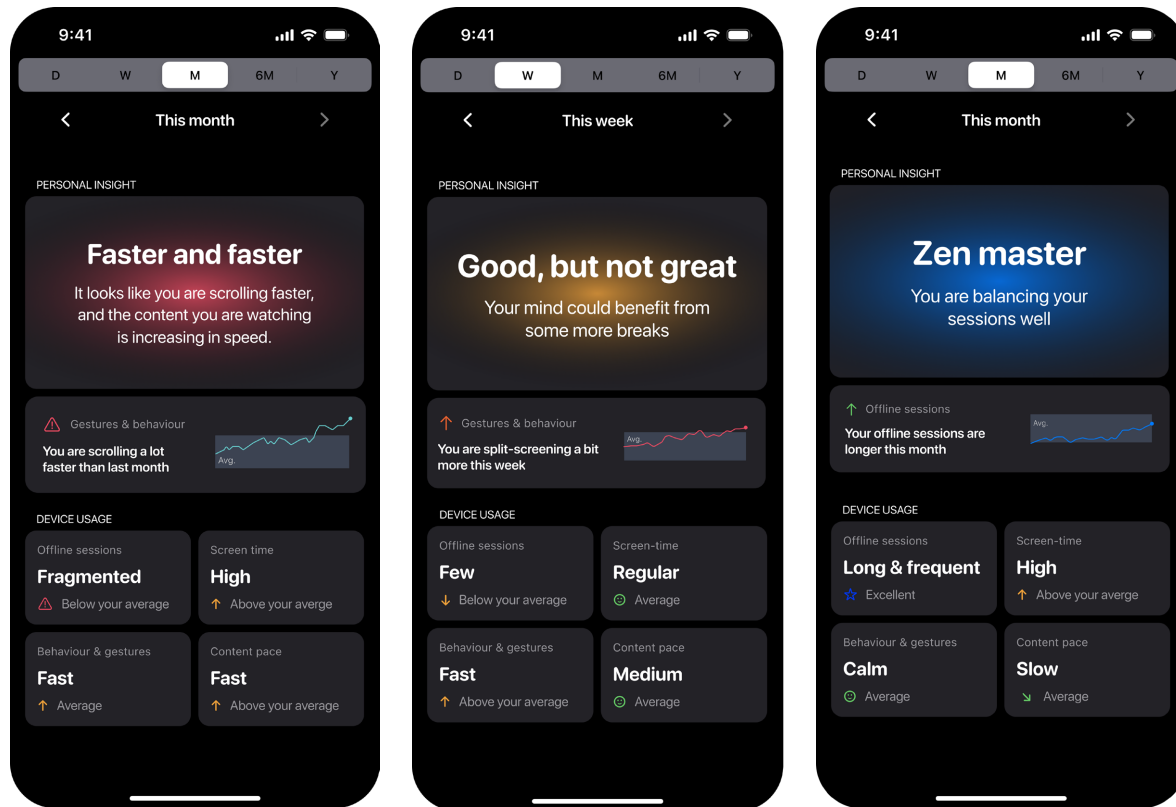
Feedback screens change according to your usage and can have many variations.



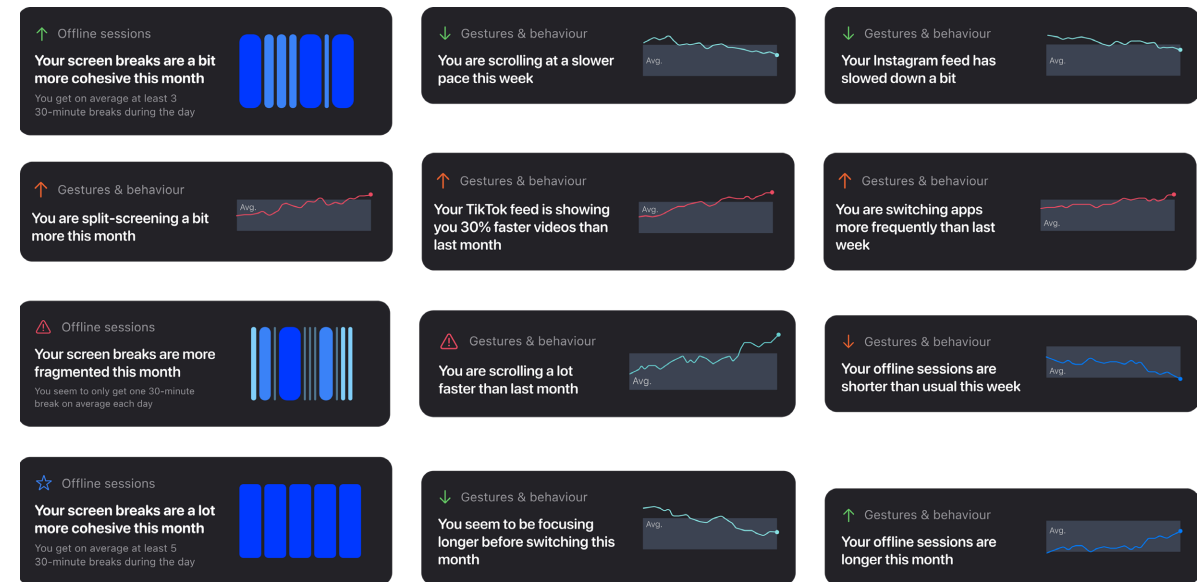
Feedback alternatives

## Change in use pattern

The app can notify you if your habits are changing over time. Perhaps you are scrolling faster, or your feed is starting to show you more fast paced content. The concept makes abstract changes over time tangible, making it easier to understand your habits.



Change in use pattern examples

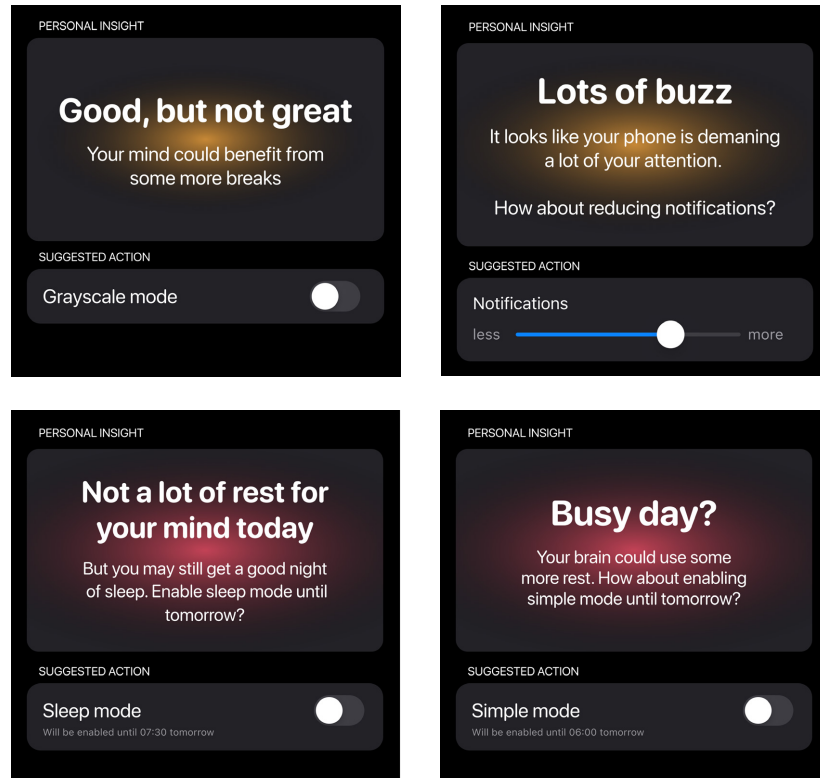


More examples



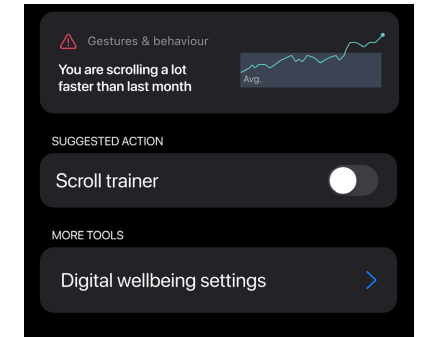
## Suggested actions

The concept can make suggestions based on your usage. It gives options for how to tackle and make changes to your patterns. Maybe this week was busy, but the next one can be different. Perhaps you had a hectic day, but that doesn't mean you can't get a good night of sleep.



Suggestions

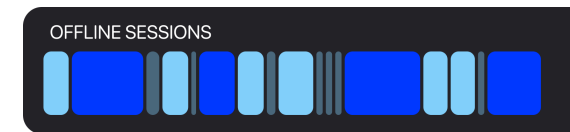
Suggestions do not have to be one single tool, it can also direct you to other tools



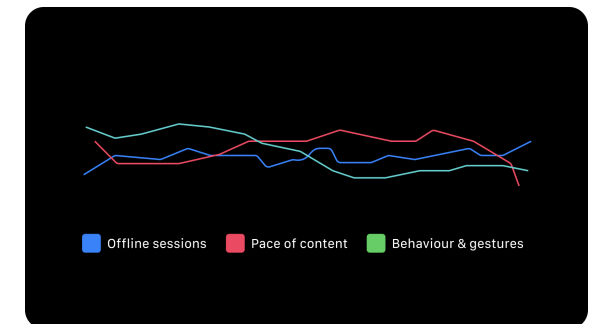
Suggestion and more tools

## Information visualization alternatives

Graphs can be collected into a single overview, or for the offline sessions to be highlighted.

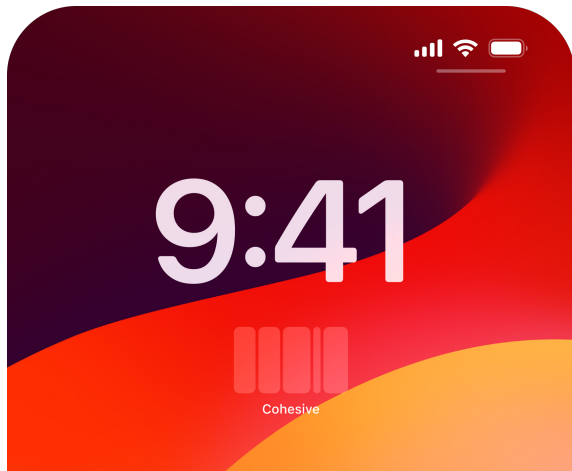


Offline sessions visualization

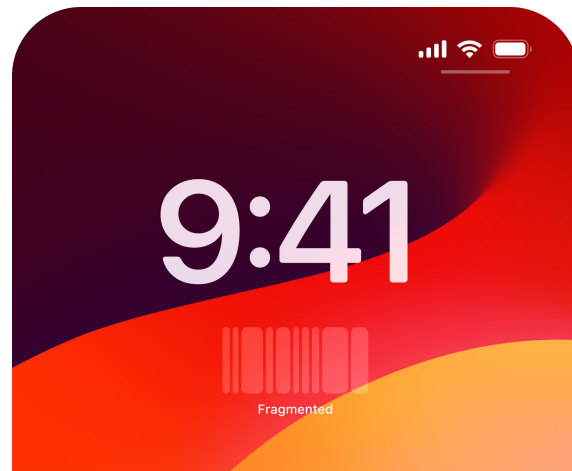


Alternate graph

Graphs could also be presented on the lock-screen as widgets



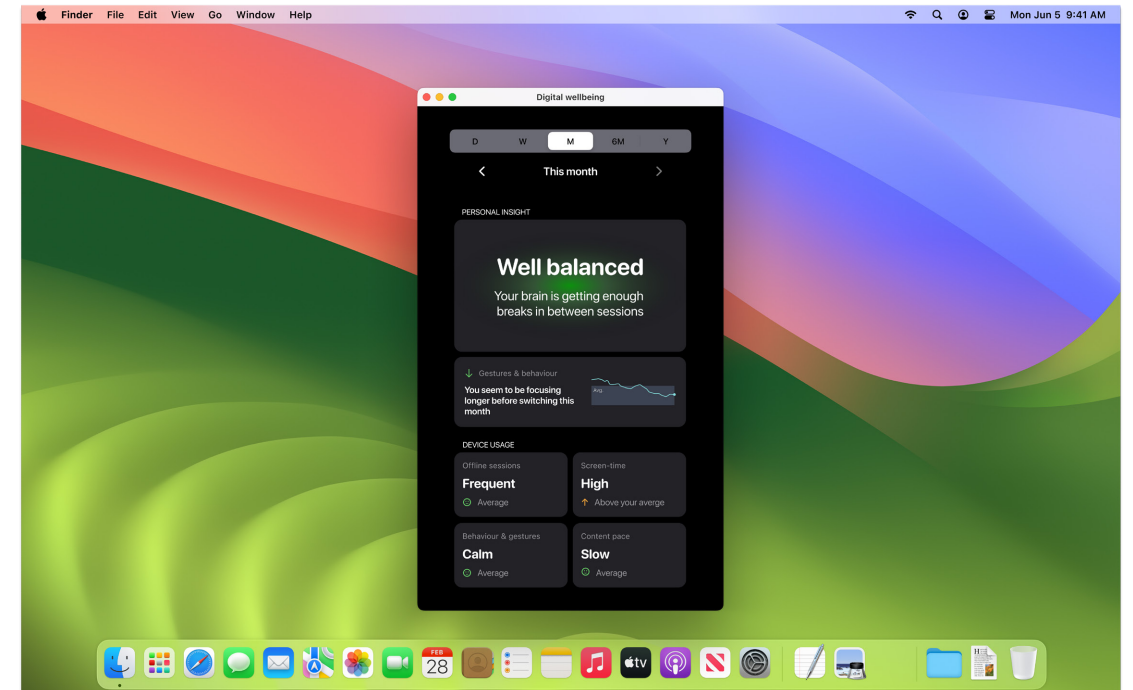
Widget example: cohesive offline time



Widget example: Fragmented offline time

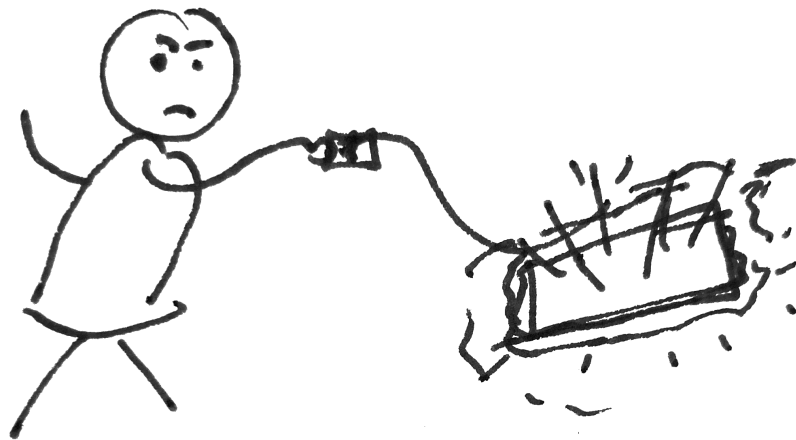
### Exclusive to your phone?

Screen usage does not limit itself to the smartphone only, many spend hours of their day on the computer working or enjoying their hobbies. Your usage should be viewed in context of what you engage with during the day. The concept could live on your desktop and track usage across devices.

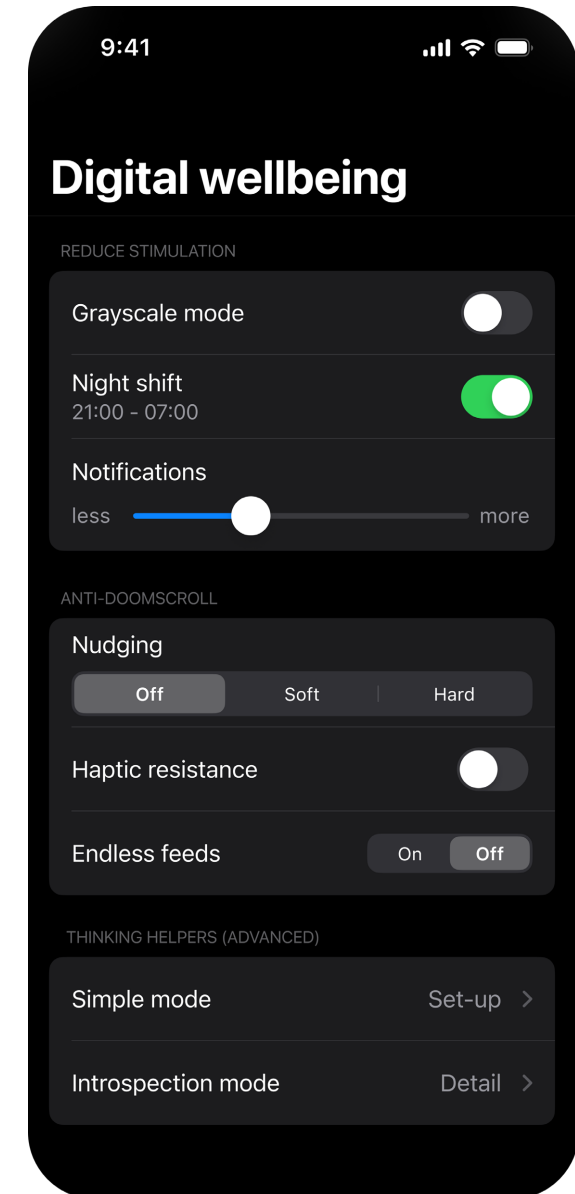


Desktop mockup

# Taming your device



*Taming your device* is a concept placing all tools related to digital wellbeing in one place. Tools can include system settings, but also more advanced tools such as anti-doom scroll tools or thinking helpers. The concept addresses the need for more variety in tools to manage your device and usage, seeking to lower the threshold for adjusting your device to fit your needs.

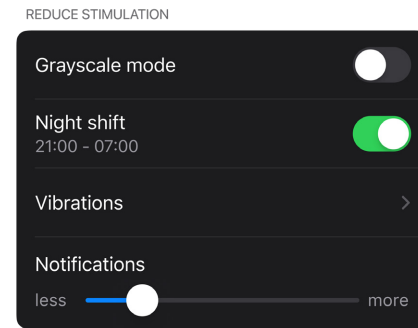


Digital wellbeing settings

# The tools

## System settings to reduce stimulation

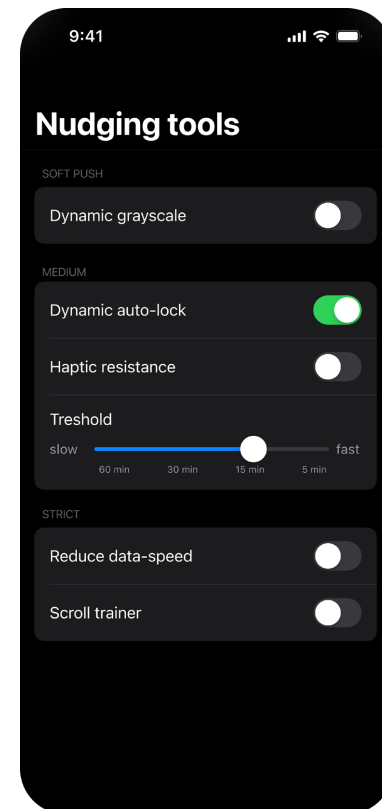
Grouping all settings related to your digital wellbeing, such as notifications, the popular grayscale mode and night-shift in one place to make your device less distracting.



Grouped system settings

## Nudging tools

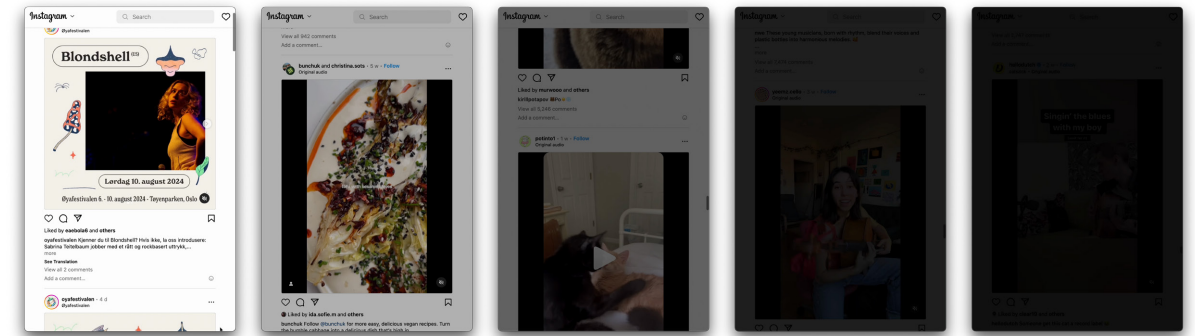
Allowing the user to disable endless feeds, but also nudge tools help you put the device down after longer sessions, as well as combatting absent minded scrolling.



Overview

## Scroll trainer

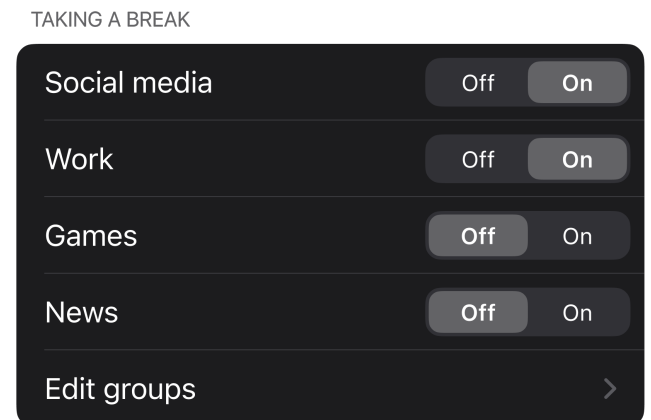
The scroll trainer gradually turns the screen black if the user is scrolling too fast. However, it gradually reverts to the default state if you reduce your speed, nudging users to be more mindful in their consumption.



Scroll trainer example

## Taking a break

App breaks make it possible to disable groups of apps without uninstalling them, lowering the threshold for taking a break from news, social media or work.

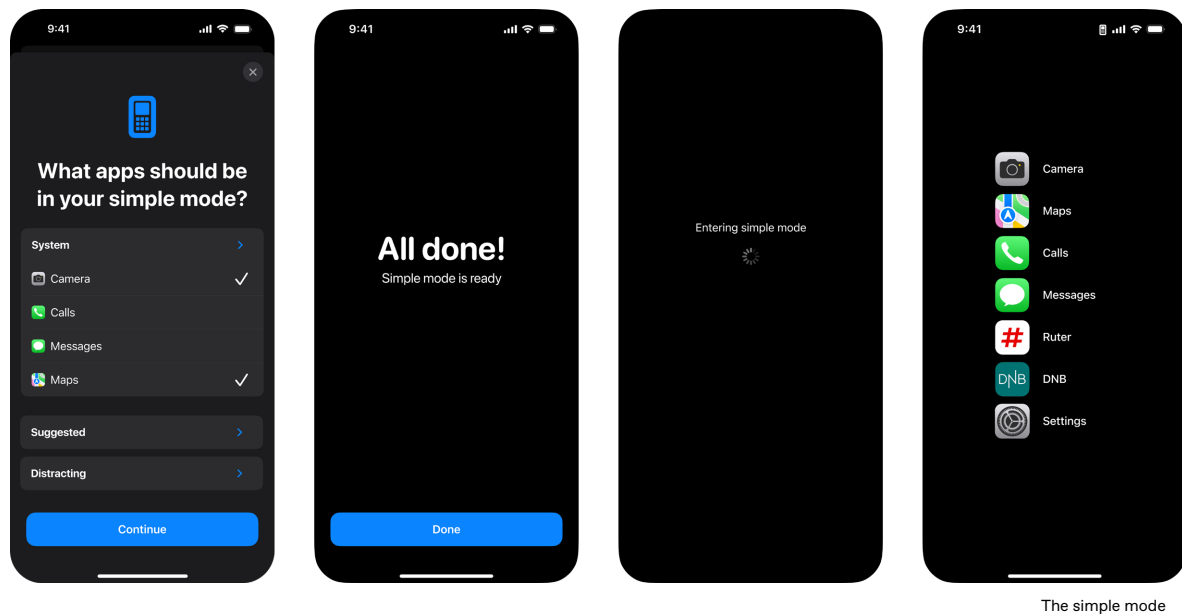


Suggested categories



## Simple mode

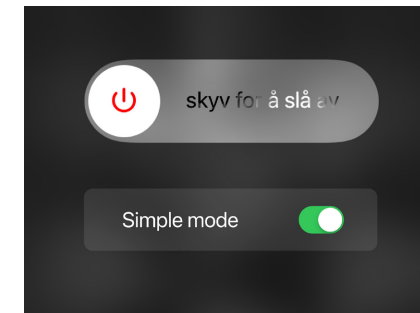
The simple mode is an alternate mode for your device, limiting the number of apps to only the ones you have chosen. The concept addresses the need for your phone to behave differently when you want it to. Maybe you wish to disconnect, but still need to buy bus-tickets or to have your banking app available. Rather than spending time fighting against your device and undoing the damage later, the phone operates on two separate modes.



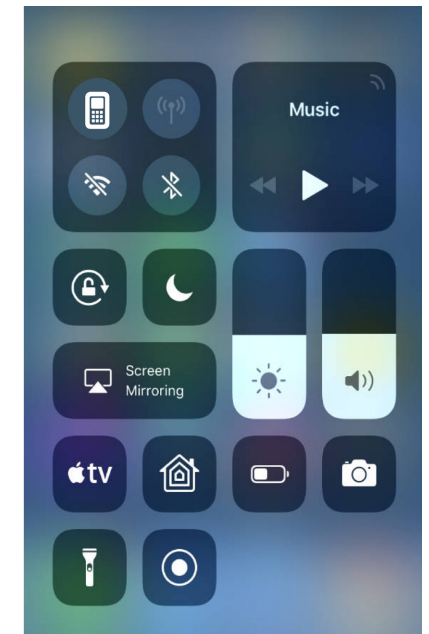
It is not an entirely new concept, as custom launchers already exist for Android devices, but they are premium products and something the users have to seek out for themselves.

What if this was a native component of your smartphone, adding a new norm for how the device can operate?

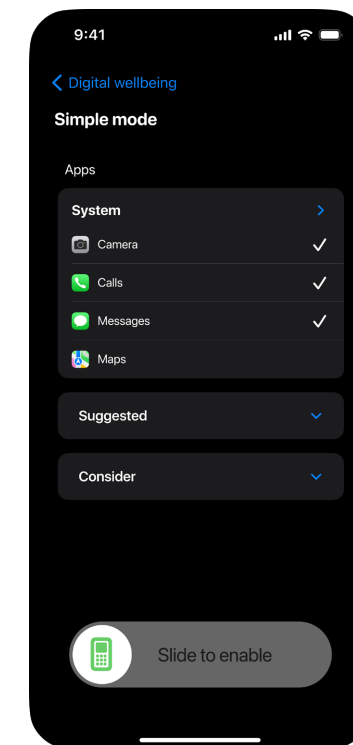
## Ways to enable the simple mode



From the power down screen



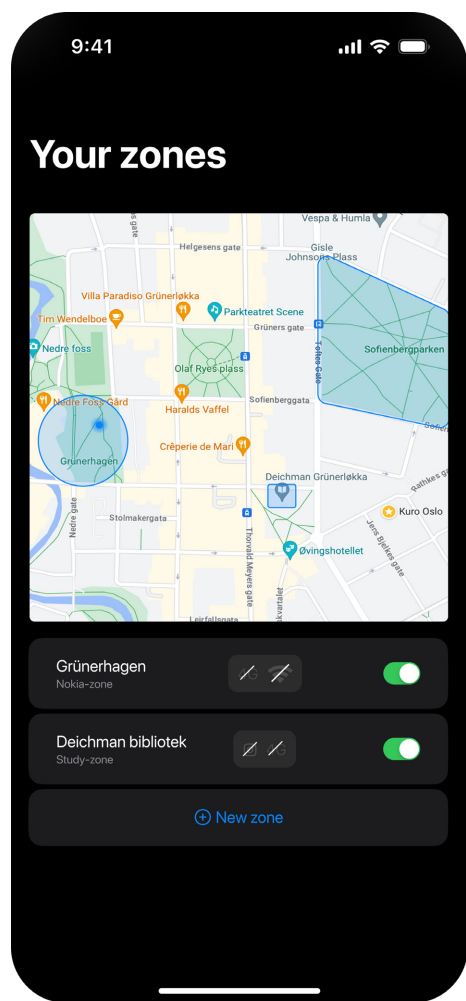
From the settings panel



From Wellbeing tools

## The zone tool

The zone tool is a location-based tool for disconnecting. It allows you to set up a geographical zone, and decide how your device should behave within it. Maybe you set up a Nokia-zone, disabling wifi and mobile data, a study-zone, disabling social media, a grayscale zone making your device black and white, or a void zone completely disabling your phone. The concept opens for inviting friends to your zone, making disconnecting a social experience.

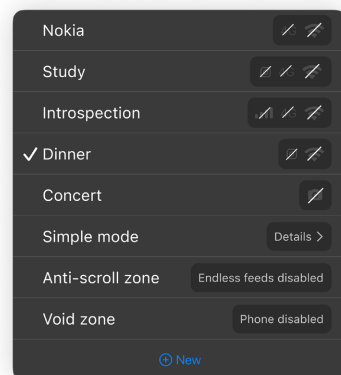


Zone tool overview

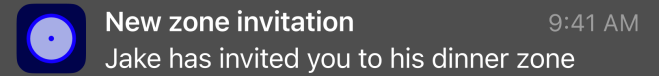
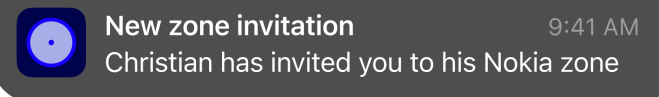


Visualisation

original image by @robertbye on unsplash.com



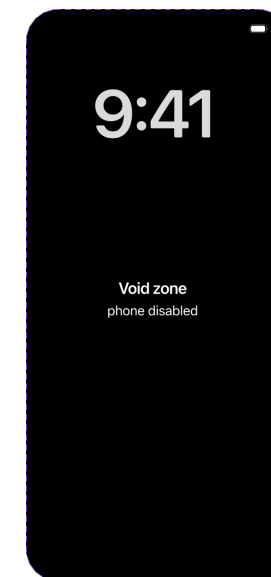
Zone examples



Zone invitation notifications

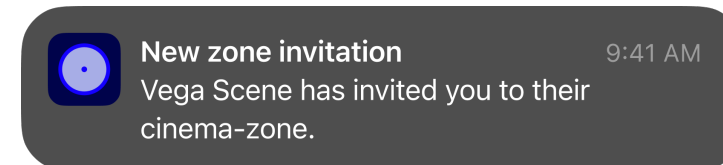


Zones enabled



Inside a void zone

The concept could also include public actors. What if cinemas invite you to their cinema-zone, putting your device in flight-mode, or for a classroom to have a shared study-zone as an alternative to locking your phone away. A way to create new norms around digital behavior.



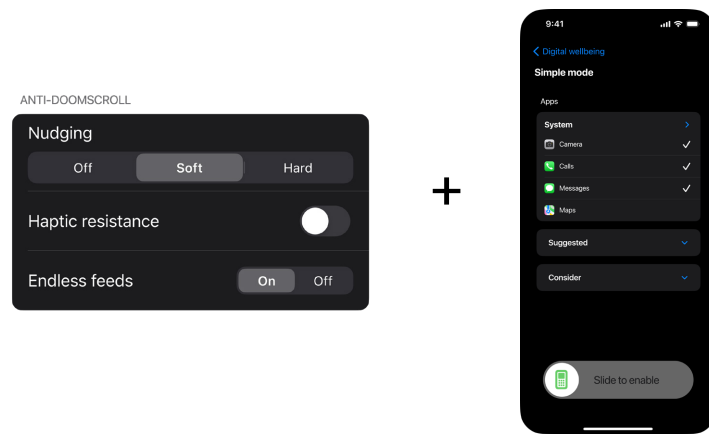
Invitation from public actor

## Preferences

There is no specific way the concept should be used, people have different preferences and your device should be able to accommodate them. I have highlighted some different ways the tools can be combined below.

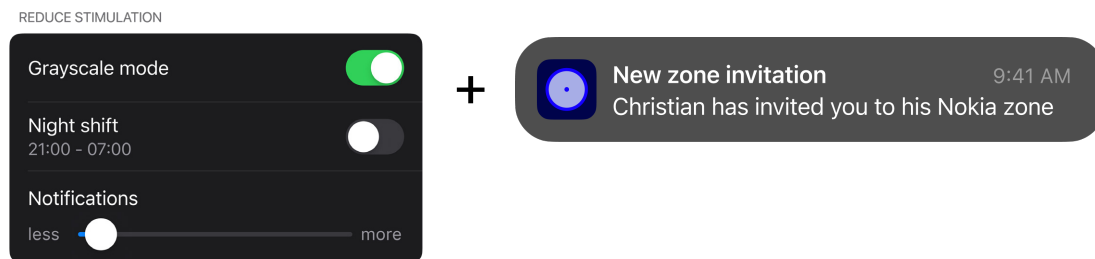
### The everyday disconnecter

Uses the simple mode to occasionally disconnect and enables soft nudging when feeling the need to tame their social media usage.



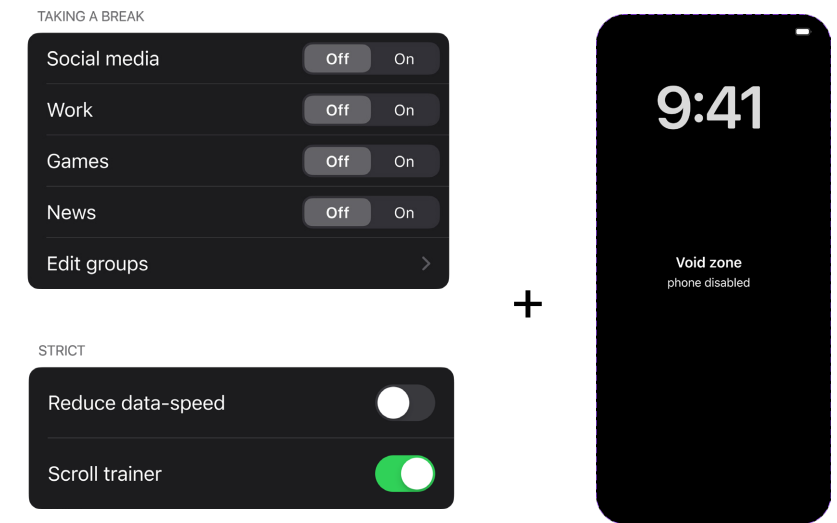
### The social disconnecter

Invites friends to disconnect when hanging out in the park, going for a walk or catching a movie. Enables the grayscale mode when wanting to reduce stimulation.

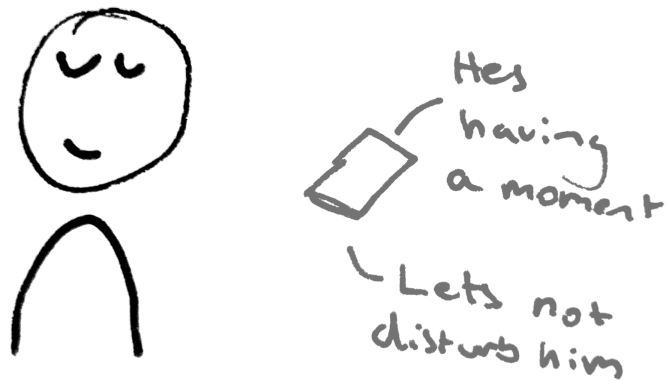


### Military discipline

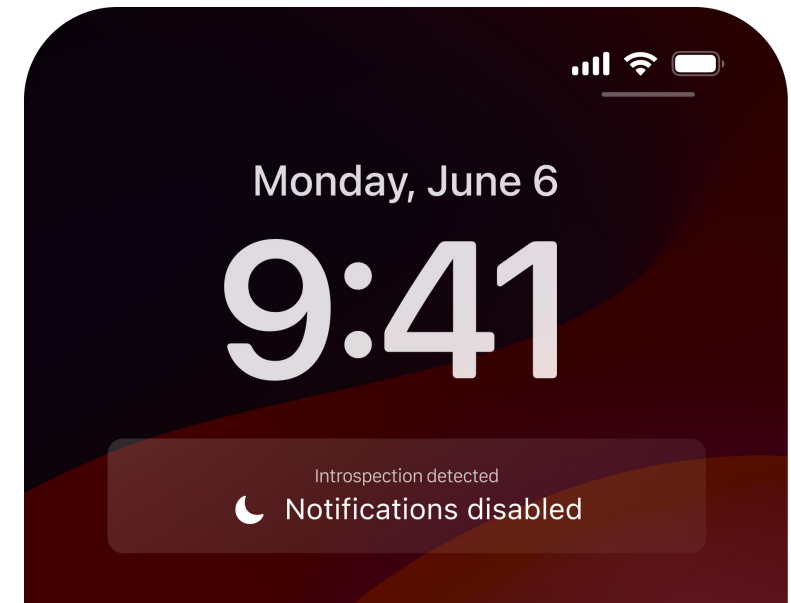
Users that want more strict measurements against their habits can disable social media, apply the scroll trainer, or even use the zone tool to disable their device when wanting to focus.



# Quantified self for introspection



*Quantified self for introspection* is a concept for tracking your introspective thinking time, looking at how your phone can adapt to support it.





## A note on tracking-technology

As highlighted in my research, it is theoretically possible to track introspection and daydreaming. Wearables are becoming smaller and more precise, gathering increasingly more precise data on vitals such as skin perspiration, respiration, movement and heart-rate. We might even have portable EEGs in a few years time. I am not engaging with the ethical implications of tracking your state of mind, or how it would be to live with the tracking technology over time, but speculating on what it could be used for.

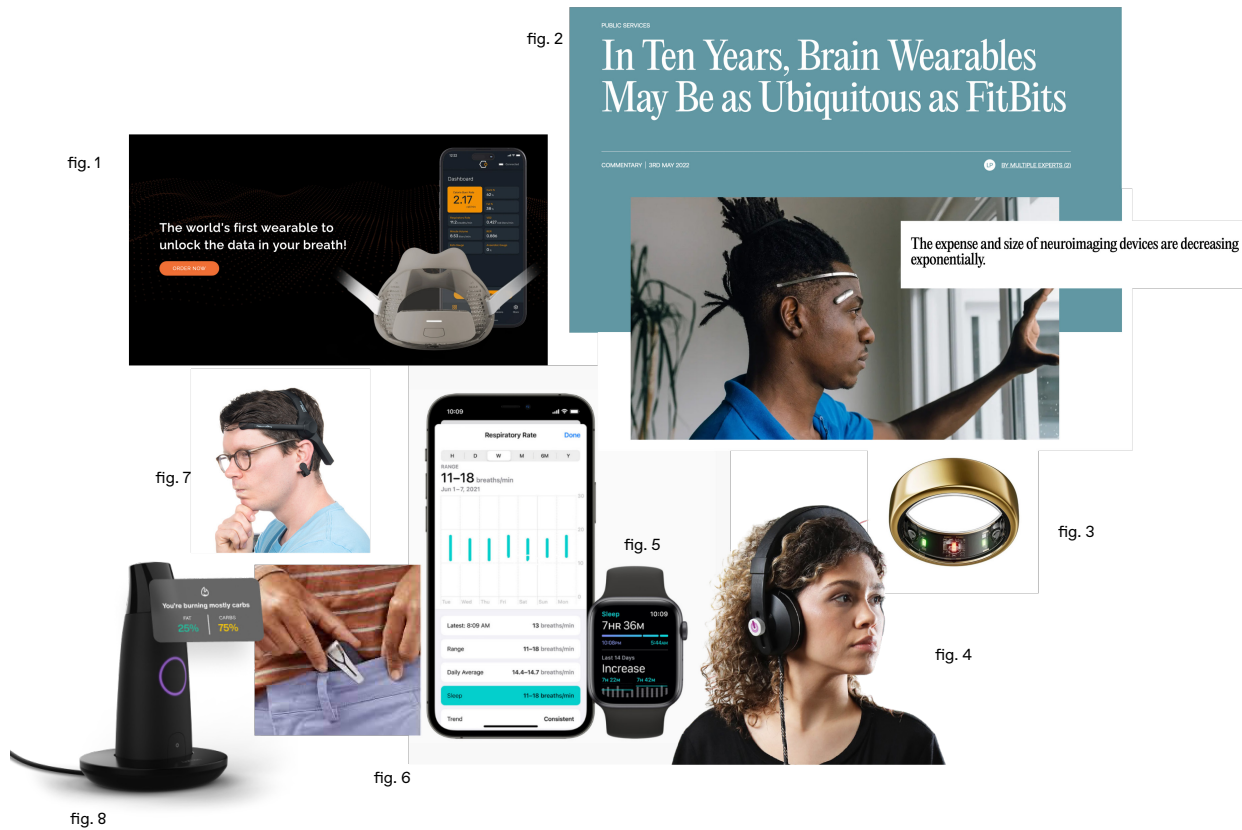


fig. 1 Lumen metabolism tracker, lumen.com  
 fig. 2 Screenshot from Tony Blair Institute  
 fig. 3 The Oura ring, goodhousekeeping.com  
 fig. 4 Soterix smartphones EEG, Soterix.com  
 fig. 5 Apple watch, Apple.com  
 fig. 6 Spire Breath tracker, Spire.com  
 fig. 7 NeuroSky Mobile EEG, Neurosky.com  
 fig. 8 Lumen metabolism tracker, lumen.com



Calibrating data points

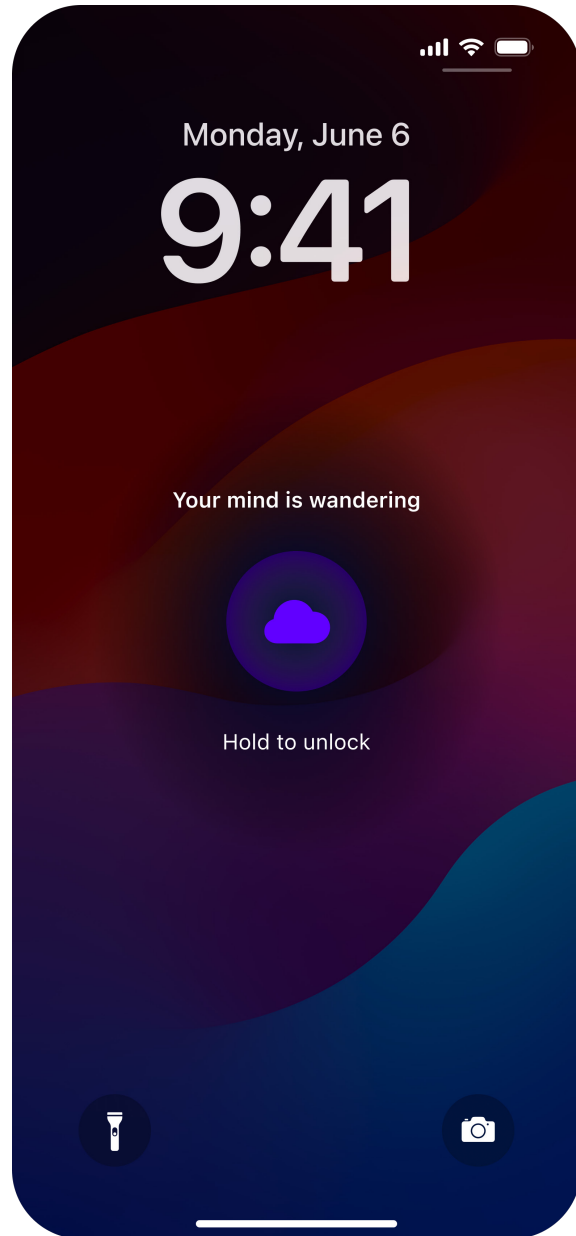
## Calibrating the data

Data is not always an accurate representation of what is going on. Adding a second layer to the data by having the user calibrate it for a few weeks can help increase the accuracy of the readings. Your Apple watch could for instance ask you to confirm if you are engaging in introspection, and ask you to elaborate on your state of mind, as the system is being trained.

After a few weeks, presuming that your phone now can identify when you are engaging in introspective thoughts, how should it behave?

### A small barrier

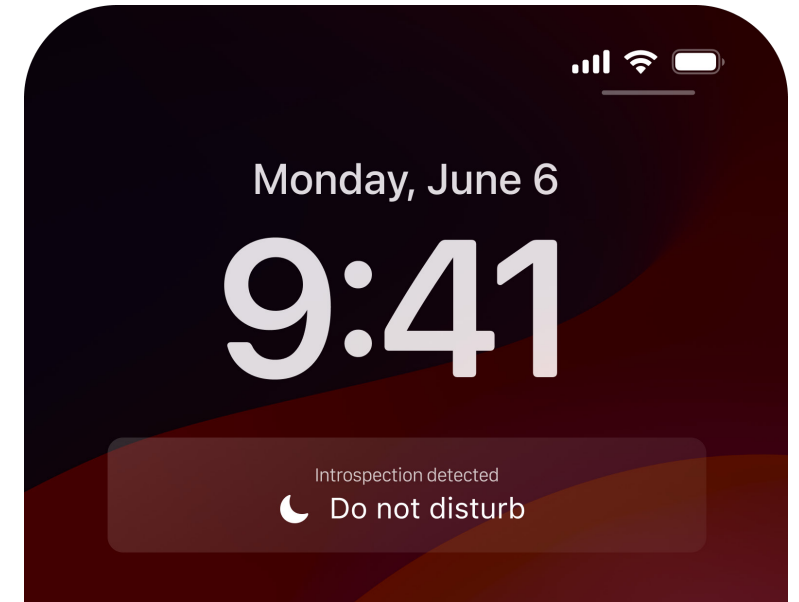
Many of us have developed the habit of picking up and unlocking our phone with seemingly no task in mind. One way of employing the concept could be to add an extra barrier to avoid unintended unlocks.



Barrier example

### Adapting to your state of mind

Further, what if your phone adapted to your state of mind, engaging silent mode to avoid unwanted interruptions?



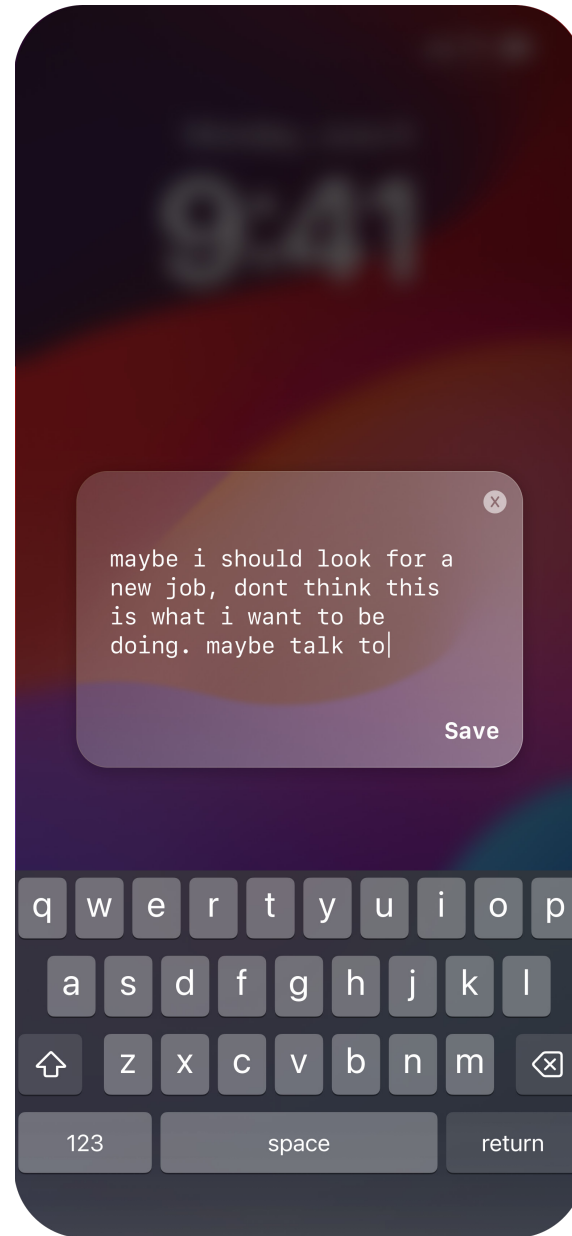
Silent mode example

## Facilitate for reflection (or reminders)

Ideally, one would only pick up your phone when intending to do so. Yet, if you are already holding it in your hand, this could be an opportunity to facilitate for reflection. Maybe you are having some interesting thoughts you would like to remember?



Reflection prompt



Writing a note

## The daydream archive

The phone can prompt you to reflect from your home-screen, and store the reflections in a daydream archive, avoiding that you unlock your device and get caught up in other activities.



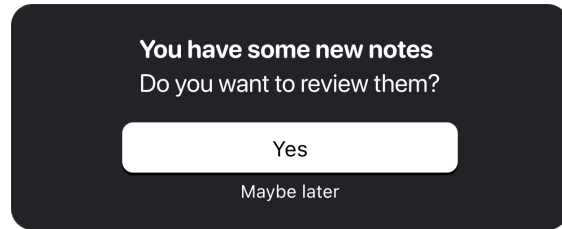
Daydream archive 1



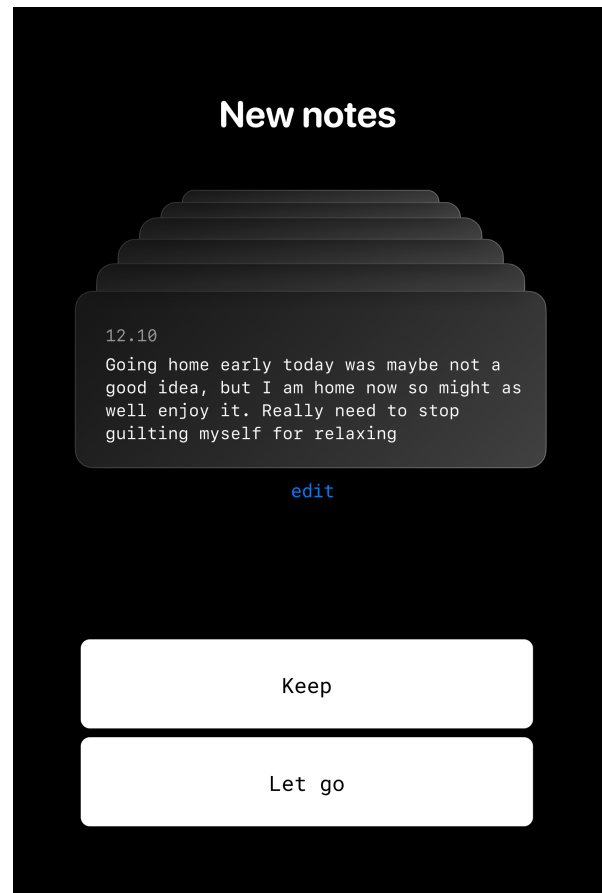
Daydream archive 2

## Sort your thoughts

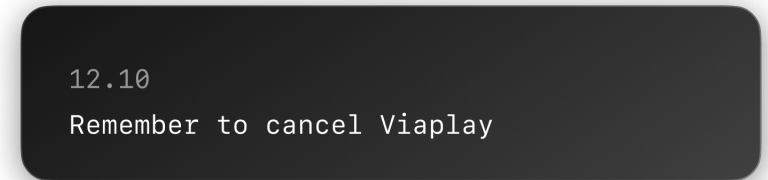
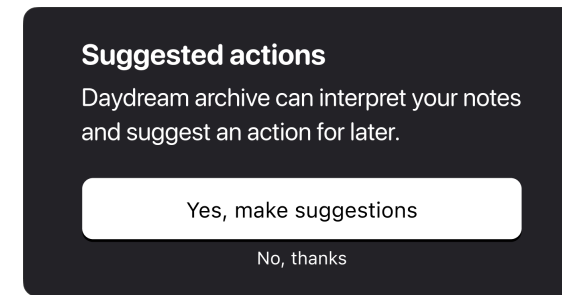
Your device could also help you sort your thoughts, even coming up with suggested actions on certain items.



Sort prompt



Sorting notes



Suggestion



Suggested actions



Widget example

The notes can also be viewed as a widget



## Design for self-soothing

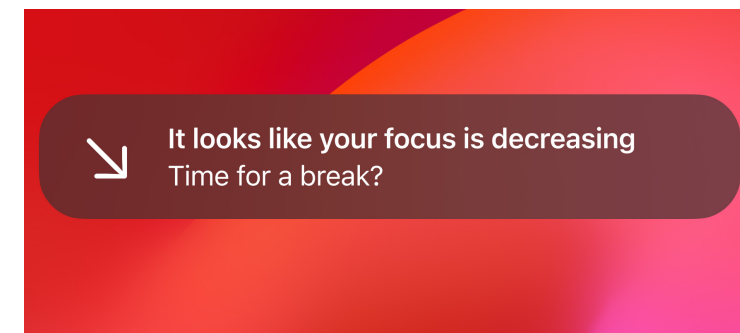
Mind-wandering and daydreaming is not pleasant for everyone, and many use their phone as a way to escape uncomfortable thoughts. As an alternative to unlocking your device, the phone can be set up to provide alternatives such as meditation apps or wind-down activities.



Wind down activities

## When you do not want to daydream

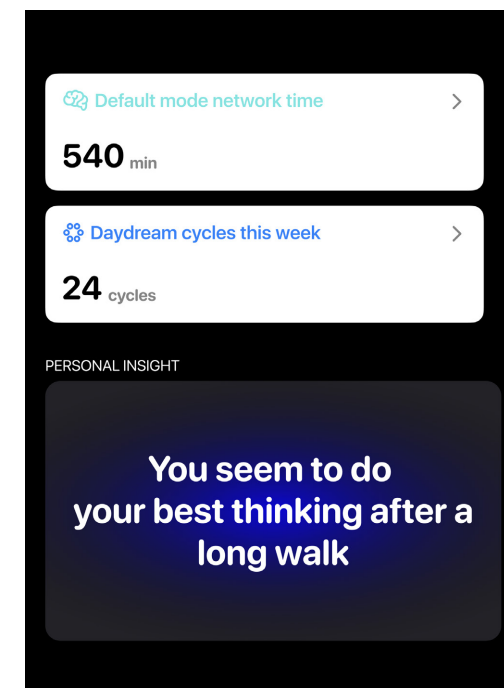
There are also instances when you do not want to daydream, such as when driving. What if your phone could let you know that it is time for a break?



Anti-daydream notification

## Thinking tracking

What if your device could track your thinking patterns, and contextualize them for you? Perhaps your best thinking is done after a long walk, or after your after-noon cup of tea.



Thinking tracker

## Combinations

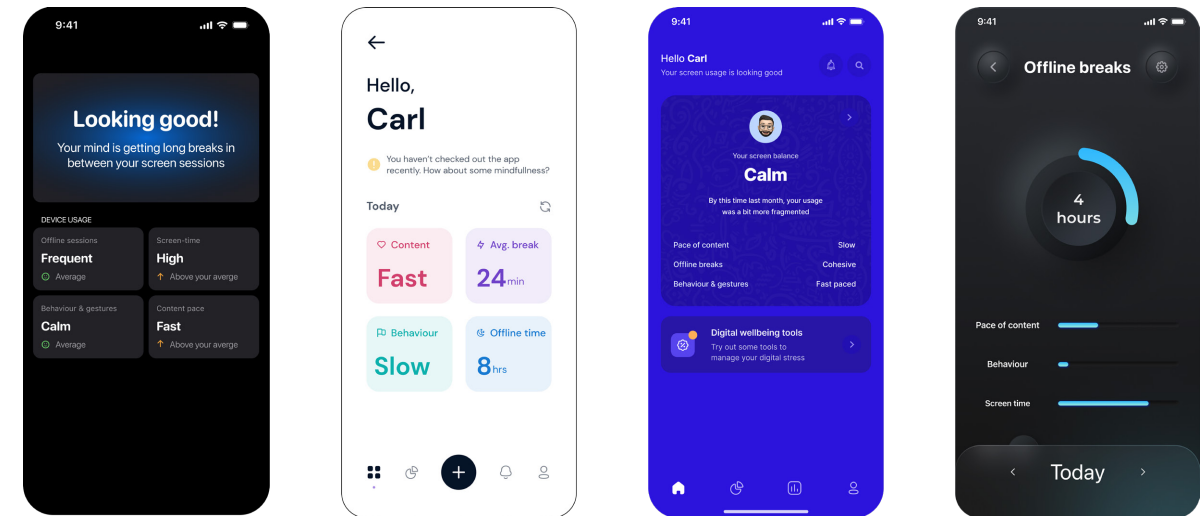
The daydream tracking tool could be combined with any settings on your device. Perhaps engaging grayscale mode when thinking, or transitioning into the simple mode when you are lost in thought. Maybe even engage nudging if you have not had enough time to process your thoughts during the day.



Combinations

## A final note on the concepts

I have outlined several concepts showing multiple ways of addressing digital disconnection. The concepts share a common aesthetic quality and feel, but an important point to make is that they do not necessarily have to look like this. I have therefore included some sketches below with different expressions to showcase that there are multiple ways these concepts can take form.



Alternate designs

sketches based on UX kits by Tanvir Ahassan, Collins Donye and @sourany

# EVALUATION & REFLECTION



Given that my project is explorative and remains at a conceptual stage, it is hard to evaluate if it is successful or not. I have therefore received feedback from experts to evaluate my scenarios and their potential impact.

## Cato Bjørkli

Associate Professor in psychology

*“The project is highly interesting from a psychological perspective. It has a clinical and practical implication as it gives the ability to study screen usage in a way that has been lacking so far. It is interesting because, not only do you track behavior on a meta-analytical perspective, but you contextualize it and give options in response.”*

– Cato Bjørkli

He further refers to the self-efficacy theory, stating that having agency, autonomy and an experience of mastery is important for maintaining a behavior. He also noted that I have an interesting meta-analytical perspective on scrolling, and added that it potentially can be viewed as an expression for internal states of stress. If we have data on changes in behavior, it can be used clinically and might discover symptoms of declining mental health, such as pre-depression.

On my daydream-tracking concepts he commented that it was interesting to highlight daydreaming and make it a tangible and accessible concept. He underlined the importance of contextualisation, stating that someone driving will absolutely not want to daydream and someone with PTSD will also find it uncomfortable. However, if you can track it, you can use it as a therapeutical alternative. I showed him one of my sketches on self-soothing, where he commented that it carried resemblance with a treatment form of PTSD, where the patient will recall a traumatic event and have their eyes fixated on a moving object.

## Mehri S. Agai

Research fellow — Digital disconnection and social inequalities among adolescents

I presented my project to Mehri S. Agai, research fellow in digital disconnection and social inequality among youths, with a background in psychology, to get her thoughts on my project:

*“This master project invites us to contemplate the gradual disappearance of “in-between” spaces. Upon deeper examination, the project’s real purpose is to inspire thought and discussion about our relationship with digital connectivity. By highlighting how daydreaming serves as our brain’s “default mode,” it prompts us to reconsider our acceptance of the naturalization of digital media and its impacts on our pace of life.*

*The project’s innovative and thought-provoking design inspires us to introspect on our daily routines and rhythms and consider constructive modifications through “hard scrolling work” and “veiling vision,” making our abstract self-awareness tangible.*

*Emphasizing the value of stillness and reflection, this project challenges the societal drive for constant self-optimization and productivity, which echoes neoliberal ideals. It advocates for engaging in activities that benefit the individual rather than the market. This project deserves recognition for contributing to the discourse on self-awareness and the human experience. It inspires us to take a step back, reflect, and reconsider the impact of digital media on our lives. It encourages us to strive for a more balanced and fulfilling existence, fostering a society that values stillness, reflection, and self-awareness.”*

– Mehri S. Agai



## Koen Gerard Alois Vervaeck

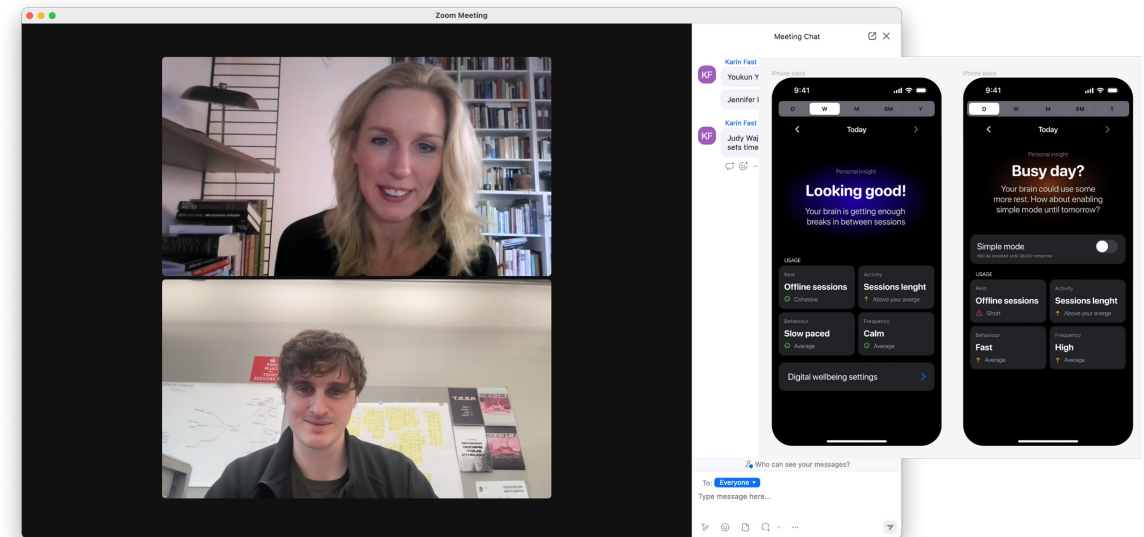
Associate Professor, leader of Laboratory for Neural Computation at UiO

*"I engaged in discussing Carl Magnus's project, and I greatly admire his commitment to harnessing scientifically validated principles of human behavior and psychology. He demonstrates a keen understanding of fundamental reward and punishment mechanisms, and how the human brain's reward system can lead to maladaptive behavior in today's society. For instance, the rampant excessive screen usage and the impulsive and, in some instances, obsessive scrolling on social media platforms should, in my opinion, be addressed with these principles in mind. Additionally, the potential benefits of resolving these issues would have a profound economic and societal impact. For these reasons, I believe that Carl Magnus's project represents a significant step in the right direction."*

## Karin Fast

Researcher at the Department of Media and Communication at UiO and part of the Digital detox project.

**"It looks like you have found a new perspective that is missing and needed"**



# FINAL REFLECTIONS

I set out to explore the theme of digital wellbeing in order to come up with alternate solutions to the ones we have today, but also to better understand my own behavior and the underlying mechanisms that trigger my habits. As I learned more about the brain and other perspectives on screen usage, I came to change my view on what healthy screen usage is. Rather than focusing on abstaining from using your phone, I am now viewing it on a more holistic level, where my pattern of usage is equally important as the quality of my time spent with just my thoughts and emotions. I am however still not in control of my usage, despite being more aware of the effects. I still end up scrolling feeds without intending to, and pick up my phone by nature of habit. This realization has however strengthened my point of view that it is not about a lack of willpower, it is a systemic issue.

If I were to do parts of the project over again, I would have worked more actively with discussing the concepts with users that do not feel the need to disconnect. How would they view my solutions? Would they view them as more digital noise or see the value in a new perspective?

My project focuses on opening up the discourse and finding other alternatives, meaning that my concepts have not been tested over time. I do not know how they would fare on a day-to-day basis, or to live with them. Could they be an important addition to someone's arsenal of ways to manage digital overload, or would the novelty wear off after a while, making them another case of cruel optimism\*?

I have done my best to understand these complex topics and realize that I am barely scratching the surface on most of them—especially that of psychology and neuroscience. If I were to dig even deeper, I would not be surprised if I found research contradicting some of my findings, as I have learned that even experts and researchers disagree. But after all, a diploma is among other things a project to display your ability to work with methods and your ability to adapt to new knowledge, something I believe I have shown. While it is hard for me to say if the concepts would work as intended out in the real world, I feel confident that I have found a new perspective on screen usage that can enrich the discourse.

**\*Cruel optimism**

When someone offers a simple solution, but in effect, distracts you from the reality, and the complexity of the problem.

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