PAUSITIVE
Designing for downtime and reflection in the homespace

THESIS REPORT
As we emerge into an age of hyperconnectivity, technology becomes increasingly pervasive in our daily lives. And with this change, our behavior and values progressively shift towards instant access, constant availability and multi-tasking. Recent research studies in cognitive psychology have indicated a change in the wiring of our brain due to these behavior shifts.

In this thesis project, technology’s role in our lives was explored, particularly within the context of home, a traditionally restorative environment. By identifying key problem areas from user research and drawing inspirations from slow technology and other relevant fields of expertise, key concepts were conceptualized. The result is a collection of computer-mediated objects designed to support downtime and reflective behavior, as well as, integrate into our everyday living.
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Digital technology has brought wonders to our lives. We have instant access to a wealth of information we have never had before and connections with people from vast distances. It also fosters a sense of curiosity and open doors to previously unknown territories. But as technology becomes increasingly pervasive, we find our daily lives often revolving around it: routine Facebook status updates, Twitter feeds, Google searches and wayfinding on our smartphones. And often when we lookup a particular thing on the web, one thing led to another, and we forgot our initial intent after dozen of tabs. Even as we unwind and pause, we are vigilant with our notifications that alert us on all our devices.

Essentially, we are consuming information like never before. According to an academic study by the University of California, San Diego, current data levels are the equivalent of each US citizen consuming 12 hours of information - or media - each day. And with the rise of Quantified Self movement, people are increasingly logging data about themselves with sensors and camera. This data can tell a lot about our daily living. But data overload will become an increasing challenge for users, and for designers to mediate the experience.

Nicholas Carr in his book “The Shallows” illustrates how being constantly wired changes our brains. Abundant real-time data and tools encourage the consumption of rapid snippets of information from multiple sources. As a result, we become more attuned to this process and addicted as our brains become hungry for these short and frequent bursts of information. What we are losing in the process is our ability to deep think and reflect.

In Amber Case’s Ted Talk, “We are Cyborg now” in 2010, she speaks of her concern on lack of mental pause and reflection. “It’s important to have “digital down-time” - time which one can focus on processing all of the information gathered throughout the days, weeks and years. Self-reflection is key to the formation of self and for long-term planning.” If self-reflection is so essential to a healthy lifestyle, how might we design for interactions to encourage and support it?
“We have become such experts at being always in touch, informed, connected. Now we must relearn how to be silent, disconnected, alone.”

— ALAIN DE BOTTON
Problem Area

We are more wired than ever before, and as a result, we are experiencing negative effects to our well-being that we might be unaware of. I would like to explore the notion of designing interventions to encourage downtime and meaningful reflections.

Intent

My impetus to this thesis topic stemmed from my reflection on my lifestyle with technology. As a graduate student, I had a lot of freedom in structuring how I work and my day to day routine. I was happy with what I was doing, and I enjoyed the dynamic and creative environment fostered by my school. But despite the freedom and creativity, I often found myself restless and drained. My train of thought was regularly interrupted and I grew impatient with my lack of ability to focus. Sometimes, I had to go with extreme measures of unplugging and isolating myself. At the same time, I was mesmerized by how most of my good ideas came from moments of being removed from my devices. I then realized much of the lost attention was related to how I used technology and the way I chose to be connected.

This bit of self-observation led me to question the current information ecology we live with. Is it adaptive enough in supporting healthy and meaningful interactions? How is our current culture of technology use affecting our behavior and cognition? Why is downtime and reflection important? And finally, how does one design for downtime and reflection?

Goal

The goal of the project is to design an experience with an intent to encourage reflective behavior within the home environment. For my personal development, I would like to learn more about cognitive psychology and incorporate my learning in my research. And secondly, I would like to look into critical design as an approach to my project.
Objective and Plan

I aimed to use research as a way to both inform and inspire me in my process. Instead of striving for empirical research and findings, I used research as a mean to contextualize myself, in order to design for existing technology users and speculate for future scenarios. My research was divided between investigating the problem area through user research, and literature and expert interviews to understand the broader implications for the future. There are many underlying effects of technology that unfold through a long duration, therefore experts and thorough in-depth research studies from the fields of informatics, psychology and sociology were leveraged to complement my user research.

In deciding how to structure my research, I first referenced Liz Sanders’ evolving map of design research practice to gain a better understanding of the current design research landscape. The map helped me position my research relative to other research methods. As one of my goals for the project was to be critical with technology adoption and design, I wanted to explore critical design which lies in the top left quadrant of the map. I did not believe one has to constrain themselves to a particular method, but it helped me find clarity in the way I communicate my research plan with my tutor and experts that I interviewed.

This map indicates that critical design and user-centered design are two separate entities, but I believe one can inform the other. It’s important to understand the present context, fundamental values and drivers with ethnography in order to set the groundwork to challenge the status quo and speculate what the future would be like.

In determining the target group of my project, I kept it relatively broad as reflection is a mental process experienced by people across different demographics. My only limitation was that the subjects had to be digital immigrants, approximately 21 years of age and above. These are people who are adept to digital technology, and have experienced downtime and reflection before technology became pervasive. In user research, I looked for average, as well as, extreme users that might show
amplified behaviors. I believe technophiles and heavy users on one end of the curve tend to be early adopters that can indicate forthcoming technologies and behaviors. On the other end, conscientious users might reveal alternative ways to cope with the current information culture and provide interesting inspirations for design.

**Scope of Investigation**

As for my research content, I focused on four main areas of investigations:

**Brain and Cognition**
What are the costs and benefits of technology use in terms of cognition?

**User behavior and perception**
How do people use technology? How do they perceive their usage?

**The notion of home**
How do users perceive home? What are the core values that define a good home?

**Reflection**
Why is reflection important? Why do people reflect? What supports it?

The diagram on the left sums up the different areas I researched into.
Research Findings

Technology and cognition

A matter of tradeoffs
As a primer to my project, I read the book: The Shallows, What the Internet Is Doing to Our Brains by Nicholas Carr. He argues that abundant real-time data encourage the rapid consumption of snippets of information. As a result, our brains become addicted and hungry for these short and frequent bursts of information. And in turn, we loose our ability to deep think and reflect.

“…every medium develops some cognitive skills at the expense of others. ...our “new strengths in visual-spatial intelligence” go hand in hand with a weakening of our capacities for the kind of “deep processing” that underpins “mindful knowledge acquisition, inductive analysis, critical thinking, imagination, and reflection.”

What I got most out of the book is that every medium has its tradeoffs, for better or worse. If we look back at the industrial revolution, machine reduced our reliance on our physical strength. And in turn, our muscles weakened. Ironically, we produced recreational tools to exercise our muscles and maintain fitness. But if as we are relenting our mental power in this digital age, memory and processing, do we need other external tools (or drugs) to counter that?

On the subject of tradeoffs, I found a similar insight from the interview I conducted with Timo Mäntylä, a cognitive psychology professor at Umeå University. He said societal demands on multitasking have increased and there are costs and benefits to multitasking.

“We are changing our behavior, we are keeping things open [devices and windows]. We are less focused, closer to kind of ADHD symptomatic behavior, mostly because of difficulty to inhibit. Increased media multitasking use and technology actually reduces our cognitive control ability. We are not good at focusing our attention, we are easily distracted and we don’t have patience anymore.”

More multitasking does not equate to better multitasking
Timo Mäntylä pointed me towards a study on media multitaskers conducted by Stanford University, in which they compared the cognitive abilities between light and heavy media multitaskers. One would think that heavy multitaskers would be
good at switching and dividing their attention. But surprisingly, the study found that they performed worse, likely due to reduced ability to filter out interference from the irrelevant stimulants.

Reflecting on my own technology use, I often have multiple tabs open on my browser, jumping from one to another, whilst music streams in the background. Sometimes, I have memory lapses on what I was doing. This might be related to my lack of control to retain pieces of information in my working memory.

**Attention is a valuable resource that can be exercised**

Recently, mindfulness seems to be a common theme in self-help. Much of it has stemmed from the rise of yoga. The book, *Mastermind: How to Think Like Sherlock Holmes* by Maria Konnikova uses scientific studies and the fictional hero, Sherlock Holmes, as a medium to explain the psychology of mindfulness.

Sherlock Holmes is a character with keen observation and incisive reasoning. “He is the quintessential unitasker in a multitasking world.” She argues that there is no such thing as multitasking. Short-lived focus on many things consecutively isn’t the same as being present and mindful. Similar to exercising, we can train our mind to be more mindful and harness our natural attentional abilities by being selective, objective, inclusive, and engaged. After reading this book, I was inspired to explore experiences that can engage users by providing means for them to be selective in their information consumption.

“*The most powerful mind is the quiet mind. It is the mind that is present, reflective, mindful of its thoughts and its state.*”

“*It’s not information overload. It’s filter failure.*”

Technologist Clay Shirky put forth a well-argued point that information overload isn’t the problem: it is a failure of information filters. Shirky said that the internet has made it easier to broadcast information—so now the burden is on the consumer to filter out the noise. What kind of filters are needed to keep people from feeling overloaded?

**Reflection**

**What is Reflection?**

After reviewing literature on reflection, ranging from philosophy to learning science, I felt a need to define what reflection is in the scope of this project. I decided on Pheobe Senger’s definition of critical reflection from her paper: Reflection Design.

“*bringing unconscious aspects of experience to conscious awareness, thereby making them available for conscious choice.*”
This definition is the most pertinent to my project as my user research revealed that a lot of technology’s impact are unconscious, and many facets of our daily living are determined by economical and political forces that many users are not aware of.

**Why reflect?**

There are as many reasons that lead us to reflect. Some are rooted in Western philosophies of critical theory, and some in Eastern philosophies stemmed from Buddhism. Fundamentally, it’s important for our identity, the formation of self, for the sake of practicality and future plans, for our spirituality and emotional health, and also for enlightenment through our personal reasoning.

**How to design for reflection?**

To find out about how to design for reflective behavior in technology use, I interviewed Eva Svedmark, a doctoral candidate in the informatics department at Umeå University. She studies technology’s effects in people’s everyday lives, particularly from on-line sharing.

Our talk ranged from design ethics to technology design’s progressive shift from military to corporations to consumer lifestyle. She pointed out technology’s focus on productivity and efficiency, and what striked me as very relevant to my project was her stress on designing frictions.

> “Many design ideals are about that it should be intuitive, it should be fast and it should be without friction. And that doesn’t create reflection. The opposite: that creates action without reflection.”

She gave an example about online sharing, and talked about how fast and easy it is to take a picture and post on Facebook, and the lack of awareness of going public.

> “It doesn’t have to go through my brain, it can just go through my thumb. I am carrying my cellphone as some sort of extension to my own body and there’s nothing in the design that helps me get the feeling that I am going public, because it’s frictionless.”

**User Research**

**User Perception**

A survey was carried out to investigate people’s perception on their technology usage. There were forty participants from different occupations and geographic regions. The majority of the participants were between the age of 21 to 35, and used technology for communication, work and entertainment on a regular basis.

Out of all the survey results, I was most drawn to the fact that 63% of participants felt they often found themselves stay online longer than intended.
And 76% of participants felt the need to detach themselves from their digital devices to concentrate or relax. These statistics, though not entirely quantitative, reaffirmed my hypothesis that alternatives can be designed to help people navigate daily living with technology. The second insightful finding came from a question about where the most aha moments occur. The four most common answers were in showers, walks, exercise, and during commute. Though the answers varied across different activities, the majority of the aha moments were conceived when the participants were not actively using any forms of screens or devices.

Lastly, I inquired about the participant’s ideal home to help me better understand the notion of home for different people. As expected, most participants responded with descriptive words like cozy, relaxing and comfortable.

User behaviors

Contextual Interviews

Due to the difficulty to conduct observations on technology use in a home setting for an extensive time, I chose to conduct contextual interviews instead. These interviews were carried out virtually via Skype, in order to have a mix of participants with different demographics outside of school. The interview included a house tour of the interviewee’s home to help me gain a better understanding of the living environment. In retrospect, I believe the virtuality acted in my benefit. I was able to expose to more homes within a short period of time. Secondly, people were more willing to show their house virtually than a physical house visit.

Average technology users

My interviews with self-claimed average technology users revealed interesting behaviors around social media and communication.

“Everyone can be a Facebook friend these days. It almost feels forced, or unfriendly to turn down Facebook invites. You end up with a lot of noise on your wall from updates from people you don’t really know or care about. There’s really no social etiquette on how to use Facebook.”
"By just taking 1 millisecond away, it's disturbing you."

"Sometimes I sense the phone is blinking but it's not."

"I feel these alerts, sounds, blinking things are subtle, but they go under your skin."
The interviewee felt being on Facebook gives the sense that she is connected, but she often spend hours wandering on Facebook and “feeling bored”, when she felt she could be productive or meet people and have meaningful conversations.

“I started in the business thirty years ago, so I have seen the changes [on technology and how we work] over the years. There is more and more demand to be always connected. ...I felt I wasn’t doing my job if I didn’t get back to my client within an hour. Eventhough I am complaining now, I would feel the same way if someone didn’t respond to me within a day. I feel like all this communication is making us lose our privacy.”

The fast-paced lifestyle and lose of privacy were some of the common responses I received from interviewees when asked about negative tradeoffs with technology. The need to be always available during hours at home also signifies the blurring of work and home boundary.

**Heavy Technology Users**

The interviews with heavy tech users and their family revealed interesting insights around behaviors induced by heavy tech use. The three heavy tech users all spend extensive time online per day for different purposes: gaming, social media and work. It was really beneficial to get both sides of the picture to see the effects on the individual and the people around them. Some of these behaviors were also mentioned in interviews with regular tech users, but were amplified. After being inspired by the Curious Rituals project, I wanted to document these behaviors and visualize them. I believe it would be interesting to carry out more thorough observations and develop them further, as they can be key information and inspiration for design. But as time limits, these will serve as inspirations for my project.

**Blinking Illusion**

This occurs when one sees a blinking screen or tab for incoming messages. But it turned out to be false.

**Lost in Incoherence**

This occurs when one looses his/her train of thought when browsing online.
Multi-tasking
This involves diverging one’s attention to two or more activities in both physical and virtual spaces.

Partial presence = partial memory
This occurs when one has inconsistent memories of their activities or thoughts after multitasking.

Dropped Conversations
This occurs when one drop off in the middle of a conversation unconsciously to check their phone.

Time disorientation
This occurs when one looses the sense of time, or natural rhythm of living due to extensive hours online.
Conscientious Tech users

After the interview with three conscientious technology users, some commonalities became clear on how they manage their lifestyle. They all value their downtime from technology and do not view prolonged technology use as productive. One of the interviewees strongly believes small beeps can raise our stress level.

On the stress brought by sound alerts from smartphone:

“It goes under our skin, and we are often unaware of its effects on us.”

The most apparent commonality is the setting of clear boundaries, both in their temporal and spatial arrangements. Below is a list of interesting traits that could inform design for reflective interactions.

- Clear boundaries for space and time
- House rules
- Routine to disconnect
- Strong external temporal structures
- Curates and filters information
- Plan ahead

Inspiration

There were a number of themes and design projects from academia and research that became strong influences for my research and subsequent concept design. These projects explored different approaches to designing for reflection and pointed out important factors to consider.

Slow Technology

Slow technology advocates the idea that thoughtfully-designed devices can integrate into our environment and shape our relationships to time and the device itself. The movement has its origins in an article by Lars Hallnas and Johan Redstrom in 2001, which described it as “a design agenda for technology aimed at reflection and moments of mental rest rather than efficiency in performance.” It focuses on time as a central design variable by amplifying its presence.

Materiality and the Everyday

More recent projects from Microsoft Research have showcased how slow technology can be designed within the domestic environment. Photobox is a device intended to be used over many years, which occasionally prints a randomly selected photo from the owner’s Flickr collection inside of a wooden chest. The photobox was designed to integrate into a home environment over time, engender slow consumption of photos and spur recollection and reflections. The domestic and everyday aspect of the device and its materiality stood out for me as something that can gain meaning over time.

Boundaries

Protein, an inspiration platform featured an article on the Slow Tech exhibition at the London Design Festival in 2011. The article mentioned Matt Ward’s talk and
his view on the future of computational things, and I was particularly drawn to
his observation of our liking of things.

“I am skeptical about how these things disappear into our environment - I don’t
want my wallpaper to tell me what time it is. We like things. We like the boundar-
ies that objects give us.”

The boundary he mentioned echoes some of the
research insights I found in my contextual interviews. Conscientious tech users have mentioned the impor-
tance of establishing boundaries with technology, in
terms of time and space arrangement, to support a
healthy lifestyle at home. And I believe boundary can
be interpreted in two ways. It can be a boundary that
provides the user the control to switch on and offline.
It can also be a boundary that limits the amount of
information one is exposed to. I am keen to take this
further, and explore tangibility in my concepts and
design to help users create a boundary for downtime
and reflection.

Designing for solitude
In the paper Designing for solitude, Ben Fullerton talks about the power of soli-
tude and the ability to access our maximum creative energy with all mental space
when we have zero distractions. It is during these moments that we find time to
mentally rest, reflect, and find new perspectives.

He emphasizes on the importance of designing for interactions that allow
people to reestablish boundaries and signal a wish to switch off whilst making sure
the community respects the wish. He also speaks of the significance in designing single
modal devices to support focus and to promote unexpected meaningful interactions.

Design for living
Microsoft Research’s Social-digital living group explores computer-mediated
interactions for domestic environments. One of their projects, Photo Bowl, gave
me new ideas on how objects can be designed to integrate into typical home sce-
narios. Unlike a digital frame that displays photos, this bowl allows a user to sort
through their digital photo collections. The researchers were drawn to the idea
by a series of bowls holding a collection of miscellany in a household they were
studying. These bowls were used as containers for sorting our different clutter. To
simulate an object with the same purpose for digital photos, the researchers used
projectors to display the photos on the touch surface, and users can sort through
photos by using touch gestures.

What I found interesting in this project was the physical materialization
of digital content. It provides the user with a spatial sense of the quantity, and le-
erages on a common ritual of sorting. With ubiquitous computing coming in our
foresseeable future, objects can be designed to integrate into our everyday living.
As I wrapped up my research and filtered through my findings, I recognized a need to refine my pitch and narrow down my scope to proceed with a concise and coherent design direction. The different perspectives that came out of research were able to inform me in this process.

**Hypothesis**

My hypothesis is that virtual presence is rapidly growing and inevitable. To make sense of it, we need to reflect on both our physical and digital lifestyle. And in order to properly understand and reflect on our digital activities, we need technology mediation. By focusing on home, a common environment for downtime and recuperation, I decided to tackle how digital information can support reflective experiences within this space.

**Market landscape**

After defining my focus area, I mapped out the different tools and services providing awareness and reflection in the current marketplace. There are two main categories of products that could be summarized in this two-axis diagram.
The first group includes digital mindfulness tools rooted in yoga and meditation, such as Buddhify and Headspace, which aims to rest the mind and support general reflection and meditation. The second group of tools are focused on time management, such as self-monitoring tools like RescueTime, and distraction management tools like Concentrate, SelfControl and Freedom. This group of tools aims to increase productivity, instead of supporting downtime and reflection. In the same vein as slow technology, there’s a need for a new category of products that support downtime and critical reflection on technology use, which lies in the bottom right corner of the diagram. Therefore, I positioned my concept in this quadrant.

**Five defining insights**

By pairing different sets of research findings together and completing an affinity diagram exercise, clusters of insights became apparent. These insights highlight underlying problems with current technology usage, and also point towards possible solutions in the near future.

1. **Web browsing can be incoherent, and sometimes, we get lost.**

   As I found from my contextual interviews, the current way we interact with the web do not necessarily bring clarity, nor encourage knowledge building. As I observed, we often jump from one page to another, and open multiple tabs in wishful thinking that we would one day return to it. And sometimes, after searching for hours, we forgot what we were looking for in the first place. The experience is non-linear and most often times, distracting. It also makes it difficult to make meaningful connections from all the information we consume.

   There’s a need to bring about coherence and clarity with the information we consume. This could be done through an interface providing an alternative way of summarizing and presenting information, or through a change of habit in the way we consume.

2. **We live in an information-rich and attention-poor economy. Hence, we need better filters.**

   The abundance of information and limitless storage have led us to an information-rich but attention-poor culture. Moreover, the current way we connect through social network or search for information require us to filter through a lot of noise and distractions to accomplish our intentions.

   This diagram goes along with the concept of providing boundary with an object that I was exploring. Our dedicated attention drops as the amount of content per object increases.
3. Boundaries are disappearing
With the development of ultra portable devices and hyperconnectivity, we can work anywhere we like. For some people, this also means there is no difference between working in the office and from home. Moreover, the culture of busyness and fast turnaround also means we live with more pressure to work after hours. In my user research, I heard interviewees commented negatively on the blurring of the boundary between work and home, which affects the restorative nature of home.

4. Sense-making becomes harder
As we move to unlimited cloud storage, the activity of sorting and filtering our digital archive becomes more and more rare. Without the ability to visualize the things we own digitally, we often loose awareness of what we own and loose sense of what digital things are important to us. This includes what content is located within each folder, or what particular digital photo is more important than another.

5. Being fast is not always the answer
The rate at which we are digesting information means we are failing to get sufficient quality our experience and hence, poor encoding of our memories. This can also be described as mental fragmentation, a phrase used by Amber Case to describe the mental state of someone who has memories written into their brain from multiple sources over time, especially those who are heavy multitaskers. When multitasking, the brain does not store related memories in one place, but in small pieces. This causes performance and recall to suffer. Can we encourage slow consumption and gain better memories?
Design Principles

The insights gained from analysis led to these principles that would guide me through the following concept development phase. They will help strategize on what key elements are important to include within the final concept.

Friction
It is frictional, and brings unconscious behavior to conscious awareness and enables the user to make conscious choice.

Everyday
It embeds in the user’s everyday living.

Balance
It strives for a balance. It should be simple yet engaging, frictional yet meaningful, immersive yet directed and coherent.

Clarity
It brings clarity to the user’s interactions with technology.

Engaging
It engages the user to partake in the reflective experience.

Personalized control
It is democratic and offers the user room for choice. It is flexible enough to allow the user to improvise his or her own ways of using it.
Draw and evolve the object with pen and paper. You are welcome to change the form and function to fit its purpose. Please feel free to also also slice or combine it with another object.
Three core aspects of digital living

System of objects, each focusing on one digital activity

Ideation

Workshop

To kick off the concept development phase, I carried out an ideation workshop with ten designers. As I spent much of research and synthesis in an abstract state of mind, the workshop helped me ground the questions I wanted to tackle. Despite the need to be grounded, I also realize it is important to open up to wide-ranging ideas, which can span from low hanging fruits to wild speculations.

In the workshop, I used speculative design techniques to involve participants to imagine future scenarios and repurpose everyday objects. The workshop was fairly successful with some compelling ideas that could be incorporated in the final concept. In particular, I was interested in the idea of externalization through a physical newsletter to make sense of our virtual behavior. Another interesting idea is a photo frame that uses peer pressure to remind us to find digital downtime.

HMW questions and ideas

After the workshop, I formulated a list of questions to brainstorm for more ideas. These questions led to many interesting ideas that I could have pursued. Although the design principles and insights were useful in selecting the most relevant twelve concepts to develop. I needed a high-level concept structure, in order to proceed.

How might we offer comprehensive yet directed interaction to support meaningful reflections?
How might we help users create a boundary to signal the user’s wish to switch off physically and digitally?
How might we materialize digital information into physical forms to help us make sense and reflect?
How might we provide alternative means to stay connected whilst engaging in downtime?
How might we elicit memories through an object, media or ritual to spur reflection?
How might we design for experiences that filters and highlights the meaningful connections and information?
Design

A System of objects

As I was determining my design principles, I realized the importance of balance, especially in having comprehensive information, yet bounded to engage users in focused reflections and to avoid wandering and becoming overwhelmed. Hence, my final concept is a system of things. Each object will focus on one specific aspect of the digital lifestyle, but belong together as a collection. They will be different, yet complementary to provide for a holistic experience. The concept suggests a plausible scenario of the future by considering upcoming technologies such as internet of things. The core goal of the design of the system is to envision an alternative lifestyle that brings about awareness of technology use and facilitate alternative ways of engagement.

Three core aspects of digital living

My concept is a collection of five objects that aims to encourage reflective behavior to three common activities we use digital technology for.

CONNECTION: How we connect with people digitally

CONSUME: How we consume information online

STORE AND RECOLLECT: How we store our digital artifacts, and revisit them for recollection
Touchpoints

Four stages of engagement
There are four main stages to the user experience. There’s the initial discovery and learning stages where users become interested and come on board. These could be experienced online, or in physical shops. In the third stage, the user will find out more and personalize the objects. Ideally, this would be done on a web platform. The last stage would be where the objects would be used day to day within the home environment. As the objects are the key to the entire experience, and as time limits, the main focus of my final design would be placed on the last stage.

Shelf-life
In the contextual interviews, many interviewees pointed towards the shelf as a place where they kept most of the things that elicit reflection. These things were photo frames, children’s handicraft, music collection and objects collected through travels. This sparked the idea to design a collection of objects that can live on our shelves, much like our physical mementos.

The Initial Objects

Connect: Downtime switch
Downtime switch is a simple control that helps the user find downtime by switching off social media, email, SMS and alerts from the user’s devices. The switch allows the user to openly choose what applications and devices to switch off. It also has a function to manage the user’s incoming communication by responding with a friendly message.

Connect: Homie Talkie
Homie talkie is an object that provides a designated channel to connect with the people the user cares most about. The product comes in two parts: the homie box, which serves as an ambient display with a person’s direction, and distance from...
the user. This information is fed from that person’s social media check-ins. The user can have a collection of homie boxes, one for each person. When the person leaves a message for the user, the homie box lights up. The second part, the talkie box, works when a homie box with a message is placed next to it. By pressing the play button, the user can playback the message, and by pressing record, the user can record a response for the person.

This concept came from an experience I had with WeChat. WeChat is a popular walkie-talkie app in China, which offers the ability to chat with voice clips. My mother likes to use it to leave me messages. As I switch off all my alerts and the app being buried in dozens within my iphone, I often miss her messages. This sparked the idea of designing a designated channel for important family and friends.

**Consume: Book of Clarity**

The book of clarity is an object that aims to bring clarity to information we consume online. We often bookmark things without a good way to gain a high-level understanding of the sites we have looked at. They end up becoming a list of disconnected links. The book pulls all the open tabs or bookmarks the user has bookmarked in a week, and summarize them by showing relevant connections.

The display on the spine of the book shows high-level summary. As the user opens the book, the user will see the top topics and how the pages are connected to each other on an e-ink display. The user can explore the pages through connected topics or time or source, and dive deeper.

**Consume: Reflective Mirror**

This object is the most abstract and frictional out of the five. It supports for reflection on the way we consume online. Checking ourselves in the mirror in the morning is a common everyday ritual. It reflects our physical appearance and keeps us in check. From my interview with heavy technology users, they sometimes become restless and disorientated with the physical world after having spent extensive time in virtuality.

By playing with the meaning of reflection, I wanted to explore one’s relationship with the amount of virtuality. The more glitchy and covered up the mirror, the less one can see their physical reflection. I applied the user’s digital footprint as raw material for the abstract glitch. The object utilizes a two-way mirror with rear projection to reflect and illustrate the glitch.

**Recollect: Photo frame**

This concept came from an observation of the way we use digital archives. Before digital photos became commonplace, a family or a couple living together would sort their physical photos and decide what to put up in their photo frame. It represents the family’s identity and serves as an anchor to the family’s collective memory. Nowadays, each individual within the household would have their own archive on their own hard drives or cloud. This concept would like to bring back the sharing aspect from this old ritual to support for collective recollection and reflection within the home environment.
The user can setup the frame on the dashboard on the web platform, and the frame will automatically pull photos from dedicated folders, Flickr or Instagram.

Development and Testing

Lo-Fi Prototyping

The five objects were prototyped with foamcore and paper to quickly encapsulate the concept within a physical form. In the process, careful attention were paid towards what type of information to include to provide the adequate feedback, and what sort of tangible interactions (ie. twist, press, pull) to use, in order to facilitate for the right sets of actions.

Different options were explored to find the user experience that would best exemplify the concepts, and include the properties that are aesthetically pleasing and intuitive. The technologies needed to facilitate for the intended interactions were also considered, in terms of practicality and physical dimensions. In addition, the placement and relationship of the objects within the home environment were given careful attention. They should give the feeling that it belongs in a home environment. This meant that there are times when the objects should live ambiently in the background, but become active tangible interfaces when needed.

User Tests

The lo-fi prototypes were crucial in the user tests and the latter refinement stage. The user test itself also went through iterations of design. In my first iteration, I focused on the functions of the concepts, in order to find out what’s intuitive and easy to use. Participants tend to quickly focus solely on the practicality and form. Though important, I also wanted to test people’s emotional response and more contemplative aspect that are less apparent. In my second iteration, I provided a mini scenario to contextualize the participants in a relaxed situation that encourages reflection. This time around, they were able to give much more insightful feedback on how the objects can be altered to better suit the situation for them. In particular, the users felt the distances on the homie boxes were more significant than the direction, which led to the final design of having the display for the distance bigger than the compass. Out of all the feedback I received from the user tests, my biggest finding was that different people appeal to different objects. They tend to pick out the ones they appeal to, then mix and match to fit their lifestyle.

This reaffirms the facts that we all have very different lifestyles and needs, and find different way to apply technologies and objects in our lives. It was important to maintain that openness within the objects, as well as, the collection to allow users to build on it and adapt to their needs and wishes.
Evaluation of Concepts

Upon weighing the five prototypes against the design principles, I found them to evenly distribute across the six principles. There were strengths and weaknesses in each, but they complemented each other well.

Visual Identity

My process started with a tentative name of “on pause”. I favored its simplicity and actionable nature, which gives the feeling of everyday and ease of access. When it came to finalizing the name, I swung between the two keywords: objective and pause. I was keen to use a new and unique name to represent my concept. Then an idea came to me to form the word Pausitive by playing with the similar sounds of pause and positive. The slogan “pause of positivity” was used to bring attention to the idea that pausing (and reflecting) can lead to a positive lifestyle.
For the typography, I searched for a serif and sans-serif that would pair together nicely and complement each other. The sans-serif typeface, Avenir, has a strong presence. Yet, it is friendly and clear. The serif typeface, Sabon, represents the past and the aspect of looking back in the reflective process.

For the logo, I decided to use a literal translation of using the pause and positive signs together. Again, the purpose was to be clear and accessible.

**Form development**

Upon finalization of the objects for my collection, I realized the form language will be an important component of the user experience. Because of my lack of experience in product design, I needed to be tactful in designing the form. From my design principles and brand values, I knew the form should be simple, clear, and warm. I found inspirations from simple patterns and geometries in modernist designs of the 1950s, particularly Dieter Rams and Enzo Mari, and from the everyday and non-brand simplicity of MUJI products.

A series of lo-fi laser-cut and foam models were built and iterated as means to reach the right form language for the collection. Special emphasis was placed on proportion, patterns and material. I inclined to use primary colors, inspired from Enzo Mari’s design. The forms were designed with the intention to give the feeling that they are part of the same family, yet unique for their purpose.

**Hi-Fi prototyping**

Simultaneous to form development, electronic prototypes were being developed with simple hardware and coding. The goal was not to have a fully-functional prototype, but to prototype enough to simulate the proposed experience that I can use with storytelling. Similar to “Wizard of Oz”, interactions with the objects will be simulated by an external button control or on the object itself. To give an example, the photo frame listens in, and changes to photos when it picks up the corresponding hashtag. This interaction is simulated by button control on the back of the frame. It is possible to prototype with voice recognition libraries and Processing, but I decided to focus my energy on refining the user experience instead of coding.

In the midst of sourcing for materials, I was met with the problem of finding the right type of two-way mirror acrylic to work with the projector. With the amount of time already lost in sourcing, I decided to remove the reflective mirror concept in favor of investing more time on the other objects.
User Experience

Tangible Interaction

Homie talkie

The size of the homie and talkie boxes were deliberately designed to be similar in height to 4x6 photo frames. In a similar manner, it serves as a reminder of loved ones, with the added benefit of real-time information that digital technology offers. The decision to make it relatively large was mainly due to the fact that I wanted to keep them frictional, and reflective when the user is selecting the people to be connected to, and hence the amount of homie boxes to have.

The display on the homie box indicates the person, and the distance and direction from the user. It is updated based on Facebook and Foursquare check-ins. The message feature was designed with the feature of WeChat voice chats in mind. But instead of the instant chat that usually takes place on mobile, this is meant to be slow and exclusive for the particular connection. The display also changes when a message is received. To play the message, the user has to place the homie box next to the talkie box. The buttons on the talkie box, which include play, record and volume, will work in sync with the display on the homie box to indicate instructions and feedback.

Book of clarity

The book of clarity provides an alternative way for users to gain clarity on the information they consume online. The book collects bookmarks and open tabs of the last seven days to find correlations and suggests summarized topics. As knowledge mapping tools such as Google’s knowledge graph used by its search engine become more sophisticated, correlation and knowledge seeking would become easier and the way we view information would become different.
Downtime Switch

SWITCH
switches off digital communication, social media and devices

KNOB
specify the amount of downtime

Urban Farming
42 links
4 related topics

Dinosaurs
8 links
2 related topics

Sweden
3 links
1 related topic

Gardening
11 links
1 related topic

Stock market
20 links
3 related topics

Book of clarity
Collective photo frame
The book aims to allow users to gain a high-level overview and navigate through the content in a directed manner. The user can choose to review the bookmarks and open tabs by summarized topic, tag/folder, data or source. There are many bookmark services on browsers that can serve as the input for this device. They provide the ability to tag and categorize bookmarks. The spine of the book indicates the top topic of the last seven days and the amount of time the user put into consuming information related to that topic. Similar to the glanceable titles of books on a bookshelf, this information on the spine provides a high-level overview that allows users to identify its content.

It was a deliberate decision to only include bookmarks or saved tabs, as reviewing all the websites consumed might bring up sites of regular use like banks and bus schedules that do not bring about clarity on new information consumed. The content was also deliberately capped at the last seven days because I believe it is more relevant to reflect on information recently consumed. I also find it to be important to limit the amount of content, as more would deviate from the focused consumption and reflection I am aiming for.

**Downtime switch**

The downtime switch provides the personalized control for the user to switch off digital services and devices, including social media and phones, and refind space for personal time. Downtime is turned on with a simple rocker switch, and the knob allows the user to specify the amount of time away and when the switch would turn off. When time is up, the switch will automatically turn off and the digital services and devices will come back on. As it helps the user establish the boundary, it also manages incoming messages and calls on social media and phone by responding with a friendly message.

**Collective photo frame**

The collective photo frame aims to bring back collective sharing exclusively for the members of the household. The source knob on the side controls whose photo stream to show. This can be from user A, user B, or both. This can be tailor made when the user purchase the frame. The time slider on the top allows for the users to explore photos chronologically by sliding back and forth. The frame can also listen in, and slide to photos with relevant hash tags. For example, the frame picks up the word hiking from the users’ discussion on an upcoming hiking trip. The frame would then slide to the photos taken from last time the couple went hiking. This provides an alternative way for users to revisit photos and spur recollection. There is also a button at the back to toggle on and off information such as location and time of the photos on display.
User scenario

Persona
During evaluation of the five concepts, it became apparent that there were two distinctive characteristics in the collection. The Collective Photo Frame and Homie Talkie were more connected to emotions, whilst the Downtime Switch and Book of Clarity were more practical. As I saw from the user tests, different people have different needs and appealed to different objects. I used this observation to create two personas, a couple, and a story to illustrate the user experience of each object within a home setting. One of the personas tends toward emotions, and appeal to the Photo Frame and Homie Talkie. The second persona is more practical and will use the Downtime Switch and Book of Clarity to find downtime and clarity.

Narrative
The story sets its stage on a Sunday morning, a day traditionally used for rest, recuperation, and family time. The viewers will then receive a glimpse of the objects, showcased through different times of the day. To bring the story to life, a concept film was created which depicts the user experience of the objects, and in which contexts they become valuable. Although I would like to show all the features of the objects, I deliberately selected only a few, in order to preserve the storyline and to keep the film engaging. To see this film, please go to: https://vimeo.com/67821205
Reflections

This was a meaningful project for me. Due to my topic on reflection, I became more aware of my habits and decisions, and also found new ways to filter distractions and be conscious of my technology use. But it was hard to advocate for mindfulness, whilst I was working on my laptop restlessly during the final weeks.

I changed to this topic the first week after kick-off. I had a strong interest in food economy and urban cities for the past year before the degree project. But the very thing I wanted to tackle was too large, which I wasn’t able to wrap my head around to provide a realistic scope for a thesis project. And through my internships, I realize some problems are better solved in a multi-disciplinary team.

As I looked back at my statement of motivation for my Master’s application, I wanted to recapture my original intent for studying interaction design. I wrote I wanted to “define future interactions”. I had the ambition but did not know how. After a year and a half of Master’s education and a year of internships, I had observed and learned from other designers, and had honed my design skills and gained a personal perspective. In addition, the user-centered design approach taught at UID had equipped me with strong analytical skills to tackle design problems. As the final project of my Master’s education, I wanted to challenge myself to be out of my comfort zone, and be critical and conceptual. The degree project has proven to be a good learning experience, and a major challenge. In particular, working individually has given me the opportunity to learn to be more decisive, and apply methods to make informed decisions in a timely way.

Designing for four objects was definitely a challenge. It was not easy to balance the right amount of objects to include so that it gives the sense of a collection and communicate the alternative lifestyle I am striving for, whilst maintaining the schedule to deliver the end results with the right level of fidelity for storytelling and exhibition. Yet, I felt strongly about each object, and felt I need all of them to provide a complete story. Originally, I intended to spend more time prototyping with hardware, but decided against it as it would consume a lot of time, and would not add significant value to the end result. In hindsight, I wish I have dedicated more time to storytelling than prototyping.

There are definitely many things the could be improved in the final outcome. But I have tried my best with the time given, and have made my best attempt with the missteps I made during the process. I am pleased with the result, and I hope others would appreciate it as well.
References


Appendix

Timeplan
PAUSTIVE

Project Plan

JAN

23rd Kickoff

FEB

20th Research Presentation

MAR

15th Half-way Presentation

APR

12th Swks before Presentation

MAY

3rd Report

JUN

17th Exam

17th Exhibit

TASKS

User Research
Expert Interviews
Provocations
User Research
Analogous Research
Literature Review
Analysis
Ideation
Workshop
Lo-fi Prototype
User Test 1
Hi-fi Prototype
User Test 2
Refinement
Storytelling