Sivert Berge

Designing Keepworthy Products

Master's thesis in Industrial Design
Supervisor: Trond Are Øritsland
August 2023

NTNU
Norwegian University of
Science and Technology

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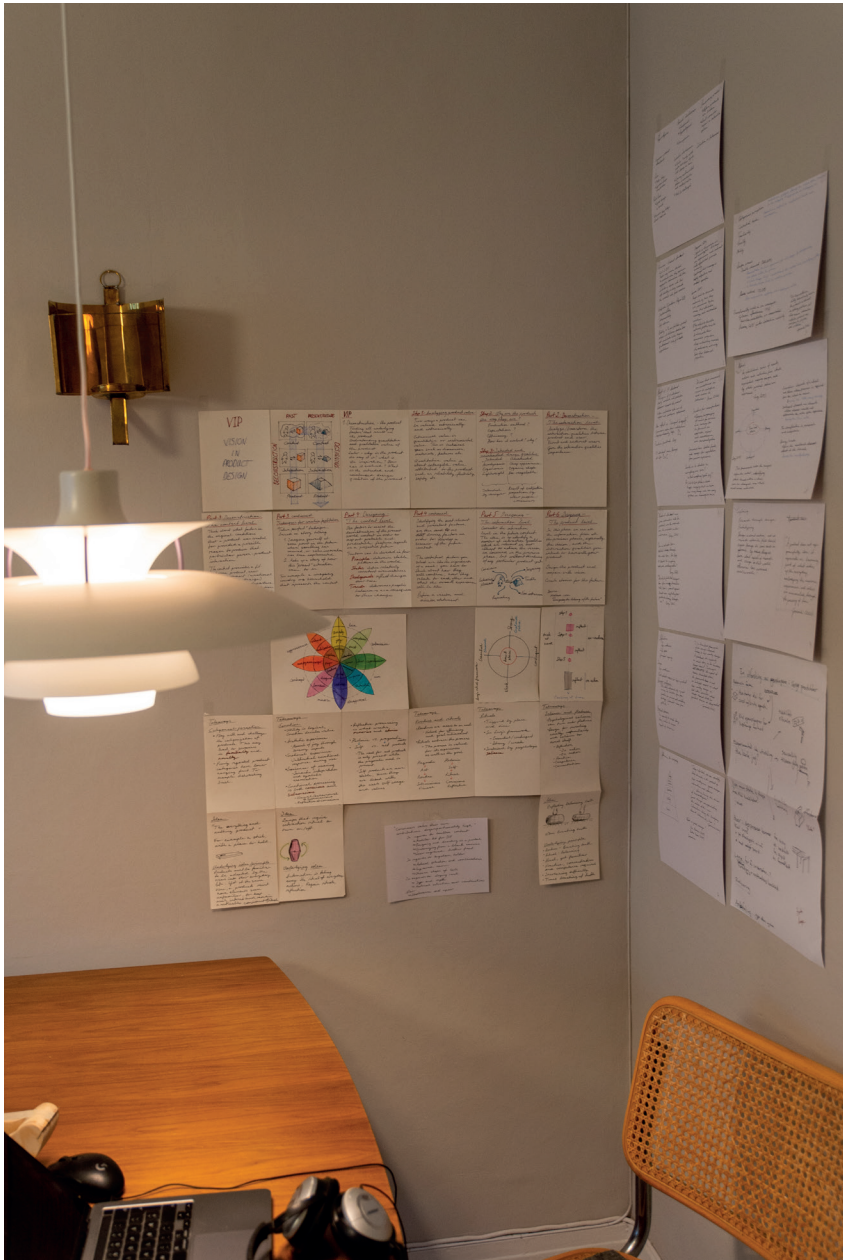

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Abstract

The aim for this thesis is to explore how principles of keep-worthiness can be applied to design products. There are many theoretical studies and frameworks that describe aspects of keepworthy products, but little research is done through design practice. The first phase of this thesis is literary review, focusing on pointing out key insights that can inform design. These insights are subsequently used to create design briefs as starting off points for idea-generation and prototyping. This resulted in four different products that in different ways demonstrate principles of keep-worthiness. The insights gained in how to design for keep-worthiness can be applied to any product design process, and is of relevance to designers who wish to create keep-worthy products.

Contents

Motivation

In my specialisation project the previous semester, I explored materials' pertinence to products' life span. This specialisation project revealed to me the intricacies in designing a product with the intention of creating a lasting relationship between user and product. I found that the literature on the subject describes aspects of keepworthy products, but not how to design for these qualities.

This motivated me to explore these qualities in the context of designing new keepworthy products. I wanted to see how the principles of keep-worthiness could be used to create and evaluate products.

Masteroppgave for student Sivert Berge

Design av varer vi bevarer
Designing keepworthy products

Every product is eventually discarded. Some products are used only once, a select few are kept for generations. Today, consumers have more products at their disposal than ever before, but the quantity of products has detrimental effects on the quality of consumer-product relationships. Many consumers discard sound products with remaining utility and fail to follow through on their intent to purchase durable, quality products.

Modern societies have become dependent on consumption for economic growth, leading manufacturing companies to employ planned obsolescence strategies to shorten the life span of products. In this consumeristic society, designers are too often preoccupied with what pertains to selling a product and neglect how products will change through time and use.

Fundamentally, keepworthy design is good design. Key factors include product utility, interaction, emotional attachment, graceful ageing and repairability. It is sustainable and increases the satisfaction of consumers. This thesis aims to discover what makes products keepworthy, and what product categories have most to gain by designing for keepworthyness. With insight into qualities that make a product keepworthy, this thesis will prototype and test selected products that aim to fulfil these qualities.

Proposed activities
- Generate insight on keepworthyness through experiment and theory
- Identify product categories that lend themselves to keepworthyness
- Conduct user evaluations with selected products
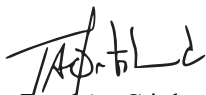- Distilling insights into recommendations for designing keepworthy products

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

Hovedveileder: Trond Are Øritsland

Utleveringsdato: 9. januar 2023   Innleveringsfrist: 29. mai 2023

NTNU, Trondheim, 10.01.2023

Trond Are Øritsland   Sara Brinch
Veileder   Instituttleder

Scope and delimitations

Limiting the scope of the project was crucial as not to be paralyzed by all the possible avenues to pursue. Although literary review has been foundational for the process, it was decided to primarily expend the limited time and effort in practical exploration. Consequently, the theoretical overview is aimed to capture the generalised learnings relevant for its practical application in this project. The theoretical groundwork was laid in the specialisation project last semester, but has been supplemented in many areas throughout this semester.

This thesis makes the distinction between the physical and psychological life span of a product. Broken products can be deemed keep-worthy, and still functioning products can be deemed not. This thesis concerns itself with the psychological life span, what makes a product worth keeping.

Approach and method

The driving approach used in this thesis is research through design. In the field of keep-worthiness, there are many theoretical studies and frameworks. However, these studies lack in the practical realisation of theory through design activities. Research through design is an approach that champions insights and knowledge gained through design activities such as prototyping, evaluating and iterating. By doing research through design, the end goal is not necessarily to design complete products, but to gain knowledge about the field in which one practices.

In order to gain meaningful insights through design, it is still imperative to ground the design activities in theory. The first phase of this thesis was therefore literary review, focusing on pointing out key insights that can inform design. These insights were subsequently used to create design briefs as starting off points for idea-generation and prototyping.

During the idea-generating phase, several methods lending themselves to exploring possibilities were employed. Creating mindmaps were especially helpful to quickly map out possibilities, and narrow down promising ideas. Sketching out ideas and evaluating them continually against the design brief and theory afforded a broad, yet efficient exploration.

> 'ViP is a context-driven and interaction-centred approach that offers you a way to come up with products that give people meaning or value'
> (Hekkert & Dijk, 2017)

The design process is derived from the vision in product design (ViP) method (Hekkert & Dijk, 2017). The ViP approach aims to uncover new possibilities for the future, rather than solving current problems. The approach first deconstructs a products' features, interaction qualities, and the context it was designed in. Then it envisions a product in a future context, and designs desired interactions and product features around the desired vision. This enables the user to create products with meaning and value to the user. One cannot design keep-worthy products without designing for the future, which makes this approach especially applicable.
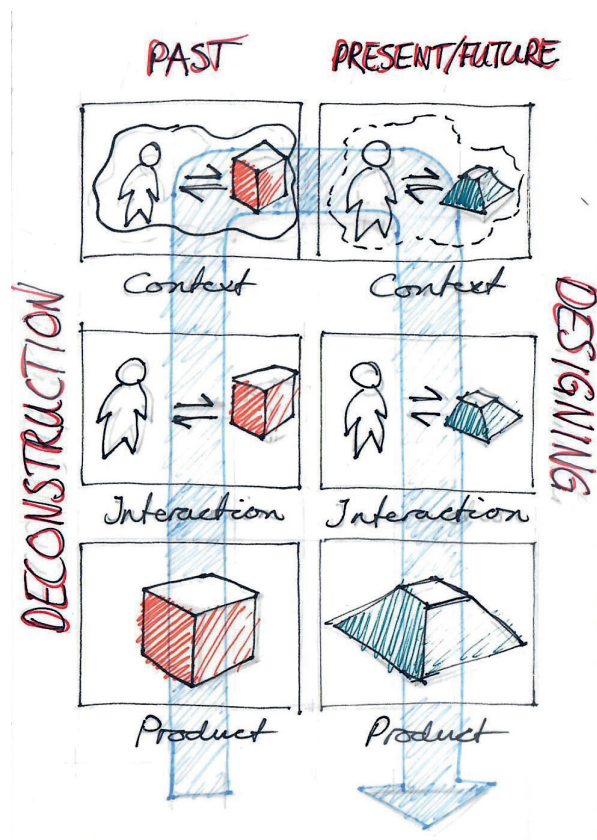
Research

Keep-worthiness is a term first coined by Bram Goosink in his master thesis (Goosink, 2020), under the same supervisor as myself, Trond Are Øritsland. Goosink defines it as 'Keep-worthiness determines how usable a products' value proposition is to a user. The value can be related to product utility, it can be sentimental, or something else. The keep-worthiness and perceived value of a product is subjective, depending on the user's beliefs and assumptions.'

Using the keywords "Keepworthy" or "Keep-worthiness" in academic search engines yields one (relevant) result – namely Bram Goosink's master thesis (Goosink, 2020). Goosink originally set out to experiment through prototyping using the framework, but was stymied by the corona pandemic. This led him to focus on further elaborating on theory and the development of his framework. Goosink's consolidation of theory has been foundational for the theory for my thesis, allowing me to focus on exploring keep-worthiness through idea-generating, prototyping and actualisation of products.

My process has been exploratory, and as such I haven't followed any framework categorically. Neither was it in my scope to create an all-encompassing framework for how to design for keep-worthiness. This is reflected in how thoroughly the theory is presented in the the next section. However, it was prudent for me to establish a foundation of qualities and characteristics of keep-worthy products for reference, evaluation and idea generation. Bearing this in mind, the following section lays out an overview of some of the most influential qualities used in my design process.
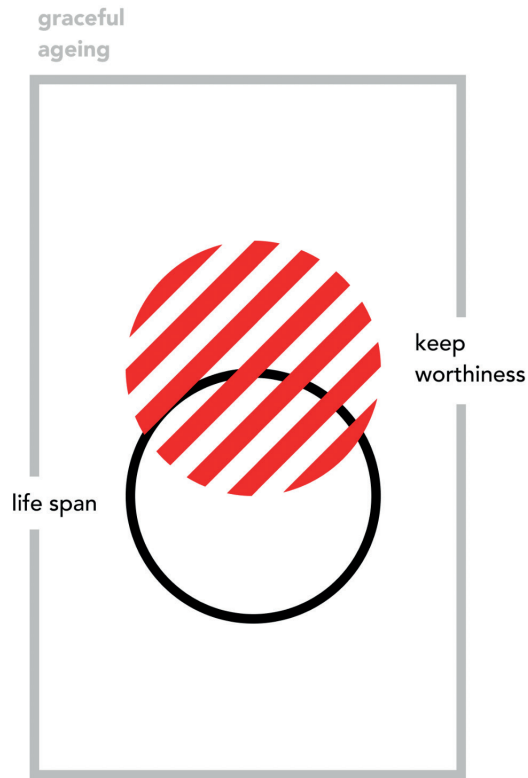
graceful
ageing

keep
worthiness

life span

Illustration of keep–worthiness in relation
to graceful ageing and life span of products
by Goosink (2020)

Characteristic qualities in keep-worthiness

ACT and SELF products

"Design is all about fitting people's needs"
–Donald Norman (CNN, 2015)

Sometimes we need something to drive a nail, sometimes we need something that makes us feel good. Hassenzahl distinguishes this succinctly as pragmatic and hedonic needs, which is accompanied by ACT and SELF products respectively (Hassenzahl, 2018).

An ACT product is primarily pragmatic, and is valued by its efficacy in manipulating the environment. A SELF product has predominantly hedonic attributes, and offers stimulation, identification or provokes memories in the user.

Adding the axis of weak and strong attributes, Hassenzahl describes four product characters.

Product characters emerging from combinations of pragmatic and hedonic attributes (Hassenzahl, 2018, p. 307)
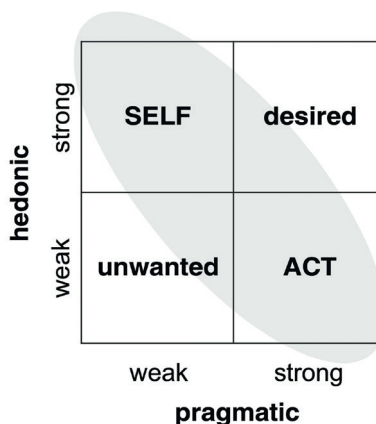
ACT products are only needed as long as the pragmatic or behavioural goal is present. On the other hand, SELF products relate to what a person requires from a product to satisfy their self. These hedonic needs are much less likely to change than our pragmatic needs, making SELF products inherently much more stable.

Schifferstein & Zwartkruis-Pelgrim (2008) suggest that consumer-product attachment can be completely disassociated from its utilitarian (pragmatic) function. For attachment to arise between an ACT product and a user, the product must exceed the users expectations in terms of achieving behavioural goals. This implies that the attachment between a SELF product and a user is generally much stronger than the bond between a user and an ACT product.

Don Norman's model of emotional design helps nuance the distinction between ACT and SELF products, by describing how we process emotions. Norman (CNN, 2015) emphasises that it is through emotions and not logic that we assign value, and that emotions are both subconscious and conscious. Visceral and behavioural processing are subconscious and intuitive, while reflective processing is conscious. It is through reflective processing we evaluate and assign value, creating memories and stories.

There's an evident correlation between subconscious emotional processing and ACT products, and between conscious emotional processing and SELF products. Nevertheless, reflective processing is fed by the emotions generated by the visceral and behavioural processes. In this way, Norman heralds the significance of subconscious processing through interaction, understandability, tactility, and so on. This duality shows that we can bring typical ACT products more into alignment with SELF products by designing for the visceral and behavioural emotions a product elicits.

Routines and rituals

Our everyday life is made up of routines and rituals. We rely on routines to carry out mundane tasks with minimal thought and effort. We value routines for their efficacy and efficiency, getting things done reliably and with minimal effort. Conversely, rituals are valued for the experiences and emotions they evoke, making the process just as important as the goal (Lévy, 2018).

We create routines to solve pragmatic needs, and if the need ceases, so does the need for the routine. Since rituals have intrinsic value, they may be upheld even though the initial need is no longer relevant.

At the risk of repeating myself, this distinction is reminiscent of ACT and SELF products, and subconscious and conscious emotional processing. Following this, rituals are inherently more stable and are valued higher than routines.

Below, we see Pierre Lévy's descriptive framework for rituals (Lévy, 2018), as visualised by Goosink (2020, p. 72). The framework describes rituals as being triggered by a time and place. Surrounding the ritual are elements that support the ritual. Elements can be physical artefacts, gestures, signs, interactions and so on. Elements can either be essential to the ritual, or contingent. The final dimension is the emotional impact an element has on the ritual.
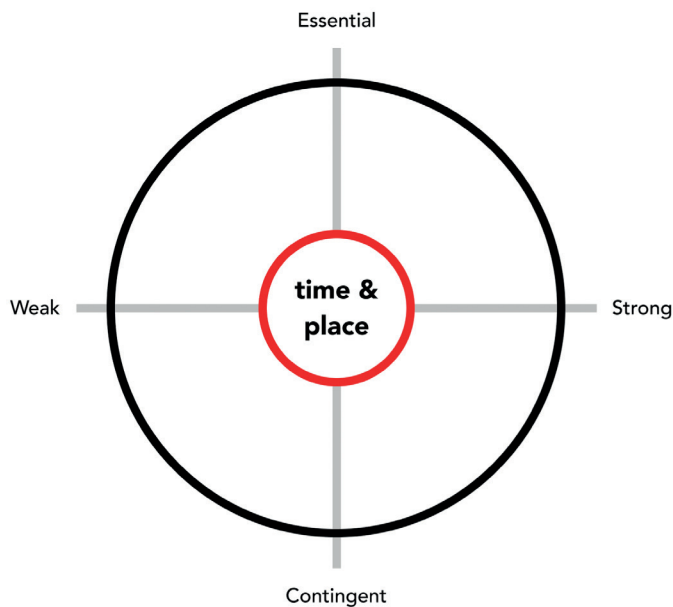
In order to explain the framework, let's consider the act of shaving. Rituals are triggered by a time and place. The ritual of shaving takes place in the bathroom, by the sink, in front of a mirror. Time describes how the ritual is nested within other activities preceding and following. The time to shave may be in the morning after a shower, and also influenced by how long ago since the last shave and how much time one has

The elements of a ritual and how they interplay are described as essential or contingent, and weak or strong. A shaving device is an essential element, whereas aftershave balm may be a contingent element. Without the essential element, the ritual can't be performed as expected and intended, whereas the absence of a contingent element doesn't significantly detract from the experience of the ritual. The axis weak-strong describes the emotional impact of an element. An element can be any permutation of these attributes; the balm may be contingent, yet hold a strong emotional impact for the ritual.

Rituals are forged through a conscious emotional process in a user, reflecting ones values and identity, and simply make us feel good. Goosink concludes that 'products representing strong elements are an excellent starting point for designers aiming to create keep-worthy products.' (Goosink, 2020). Strong elements contribute to the salience of a ritual, upholding its relevance and value.

Elevating routines into rituals has therefore been a mantra for my design process, as it encompasses many of the underlying qualities in keep-worthy products. Considering routines and the products that are associated with them, designers can use the framework to design products that serve as strong elements. In this way, we can empower the user to add their intent and purpose to a routine, elevating it to a meaningful ritual for them.

Categorical perception and contextual taste

'Categorical perception (CP) refers to how similar things look different depending on whether they are classified as the same category.'
> –(Fugate, 2013)

To make sense of a complex world, people subconsciously categorise things with perceived similarities. From facial expressions to musical harmonies, we create mental categories that help us discern differences and similarities (Fugate, 2013). In the physical world, we may categorise something as a table, or even in subcategories such as: conference table, dining table, writing desk, sofa table, and so on. The categories a person holds influences how they perceive things. For instance, a sommelier may hold hundreds of categories for wine, while others may only distinguish between red or white wine. According to Vanderbuilt (2016), a person is more likely to enjoy a product if they have more categories to evaluate them by.

Contextual taste refers to how the context in which we interact or envision a product influences how we perceive it. Consider the exact same bed on an overnight train and in a 5-star hotel. The context sets expectations that determine how we judge products.

Drawing on both categorical perception and contextual taste, we can find opportunities for keepworthy design. Let's take the product category of toilet brushes as an example. It is poorly regarded as a category, being saturated with primarily disposable plastic brushes and holders, as well for its context

of use (no further explanation required). By exploiting the expectations for the category and context, and challenging them, one can improve the value perception of a design. A toilet brush may never be an heirloom piece, but the threshold is lower for making a better received one, because expectations are lower. Consequently, we consumers may be more satisfied with it, and keep it longer.

Meaning of materials

To design for keep-worthiness, it is not enough to design for how a product is perceived brand new. It is imperative to design with the graceful ageing of a product in mind. The selection of materials and finishes used in a product should be considered carefully to give the best chance of graceful ageing as perceived by the consumer.

My studies in last year's specialisation course show that using traditional materials has the most appreciable benefits in prolonging the psychological life span of products (Berge, 2022). What materials constitute "traditional" may vary depending on context and culture. Wood, cast iron, leather, brass, glass, ceramics and wool are examples that many people regard as traditional materials. When we understand and know a material intimately, we are equipped to anticipate and more easily appreciate its changes through interaction and time.

People tend to prefer traditional materials in their everyday things (Karana, 2009, p. 85). Our abundance of interactions and experiences with traditional materials impart tacit knowledge. This gives us confidence in how it behaves, what stresses it can withstand, and how it will age. We know to expect patina, which makes us more likely to perceive it as accumulated character rather than damage. Furthermore, knowledge about a material makes us better equipped to maintain and repair it, which feeds forward into keep-worthiness.

My specialisation project complimenting my scientific article last year also instructed my use of materials in this thesis. In the project, I subjected various materials and finishes to both physical and chemical abuse, and recorded the changes. In short, this corroborated the theory of traditional materials being well suited for keep-worthiness.

A few material samples from my specialisation project:
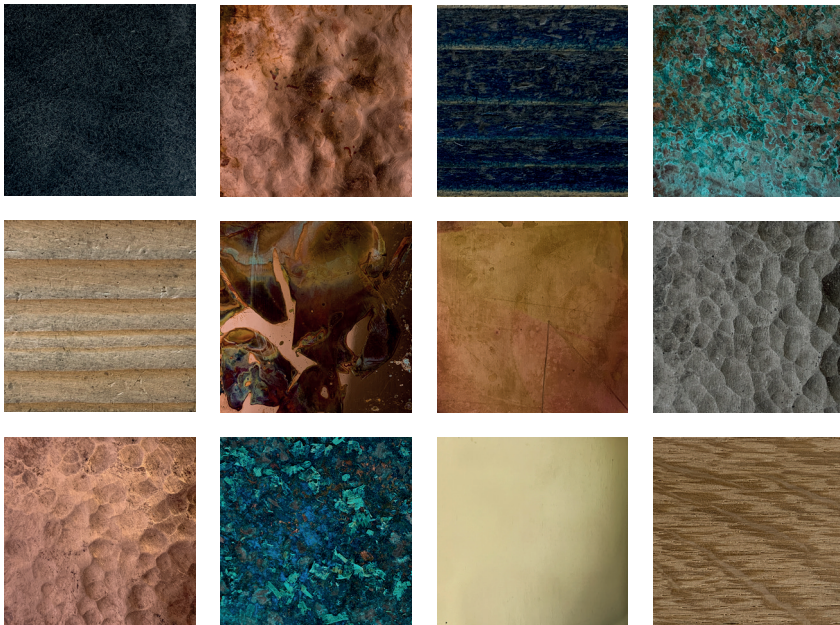
Labour leads to love

It is common to assign a high subjective value on something one has designed or made themselves. This applies to many self-design endeavours such as cooking, knitting, carpentry and even assembling flat-packed furniture (Franke et al., 2010, p. 125).

The IKEA effect refers to how a persons' valuation of a product is significantly increased if one has invested labour in assembling it (Norton et al., 2012). The same effect also applies to upgrades, maintenance and the repair of products. So long as the invested labour leads to a successful result, it increases the consumer-product attachment and the perceived value of a product (Haines-Gadd et al., 2018, p. 16; Lobos & Babbitt, 2013, p. 26). This provides a positive feedback loop where caring for a product increases attachment, and the other way around (Berge, 2022).

Mass-customisation

Mass-produced objects are by definition designed to meet the needs of the masses, and not tailored to any ones specific taste or needs (Arguin, 2010, p. 86). Eliciting a sense of "I designed it myself" in the consumer can help bridge this gap, making mass-produced objects feel tailored to the consumer. This is referred to as mass-customisation, where manufacturing companies facilitate consumers in customising certain aspects or features of a product, while still maintaining the cost benefits of mass-production (Franke et al., 2010; Levesque et al., 2022).

Modularity is one way to achieve mass-customization, for example in furniture such as sofa modules and shelf systems. Another approach is to provide permutations in materials, colours and finishes. Both approaches are examples of minimal design effort, yet greatly increase the potential to achieve a consumers preference fit.

'Customizing is part of how people are regaining access to an emotional connection with the object'
(Arguin, 2010, p. 86)

By customising a product, the product becomes unique to the consumer, and reflects their taste and values. Whether it is painting an old dresser, sticker bombing your computer or composing and assembling modular furniture, the products become more personal, and reflect our self. They become SELF products.

Summary

There are a plethora of qualities one can use as a starting point to design for keep-worthiness. It is important to point out that all qualities needn't be present for a product to achieve keep-worthiness. For example a product that elicits feelings of "I designed it myself" may be enough to hold a special place in ones heart even though it isn't really functional or part of a ritual.

However, it is evident that many of the qualities overlap or share ideas. Rituals, rich interaction, self-products, and reflective emotional processing all share the idea of transcending the pragmatic, and assign value to products through how we perceive them as an extension of our self.

Products

In order to not be overwhelmed by freedom in the beginning of the design process I set some limitations. I set out to create interior products for everyday life, in the context of a home. It was also important for me not to "just" make beautiful things with craftsmanship, but let the theory guide the process to novel and new product ideas.

For materials, I chose to work predominantly with wood. It is a traditional material, which makes it a sound choice for keepworthy products. Additionally, it is the material I was best equipped to work with, both in terms of skills and the facilities in the department workshop.

Drying bench

Design Brief

Making ACT products into SELF products.

Background

Given that the appreciation of SELF products is both more stable and generally provides a stronger relationship between user and product, I wanted to explore current ACT products and how they could be shifted more towards a SELF product, ideally without compromising on its ACT attributes.

ACT products are only needed as long as the pragmatic need is present. This led me to think about the products we use in our everyday, but stow away when not in use. The products we hide away so guests don't see them, are inarguably the opposite of hedonic products.

- Waste basket
- Dirty clothes basket
- Clothing iron
- Match box
- Work lights
- Plastic cutting board
- Drying rack

I decided to further explore drying racks. The pragmatic need to dry wet clothes is a routine everyone needs to do intermittently. In most cases, people value their drying rack solely by its pragmatic utility, which is its' ability to hang clothes and its' ability to be flat packed and stowed away easily.

Through a vision in product design (ViP) approach I mapped drying racks' current functionality, interaction and context. My vision was to design a drying rack that one would be proud to leave out when you have guests over. In this context, we can assume that the functionality to be stowed away easily is no longer relevant.

Furthermore, the interaction with conventional drying racks is unpleasant. The mechanisms for opening the rack can be described as flimsy, clanging and abrupt. The metal is cold to the touch, and makes unpleasant noises when interacted with. Why can't a drying rack have a warm touch, make soft sounds? The ViP approach helped me ask the right questions to devise a new vision for a drying rack that is meaningful for a user.

Prototyping

The first concept sketch shows a slatted wooden table that extends to reveal space for hanging clothes. It demonstrates its dual purpose, where the product must work both as a drying rack, and as what it is when it isn't.

I found wooden slats to be a good starting point, as it is a recognised way to create table tops and benches, and when expanded affords hanging clothes between the slats.
With wooden slats in mind, I set out to develop an aesthetic interaction experience. Aiming to keep some familiarity with traditional drying racks, I experimented with variations on the pivoting action.
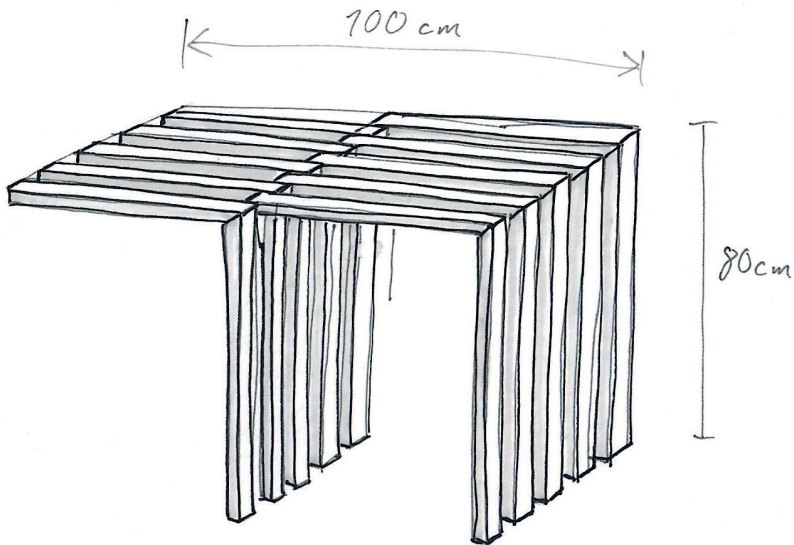
Rich interaction

The first prototypes were primarily concerned with the inter-action with the slats to create a drying rack. A rich interaction takes into account the interplay between form, function and interaction, and how they may be designed to support each other. Albeit clever, the first iterations of function didn't relate well to neither form nor interaction.

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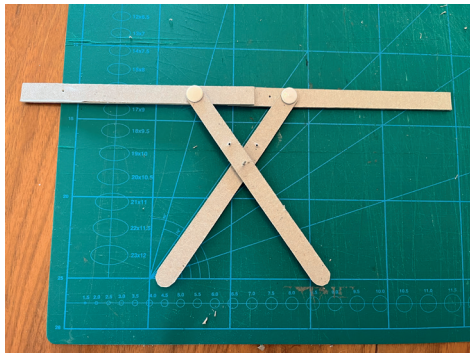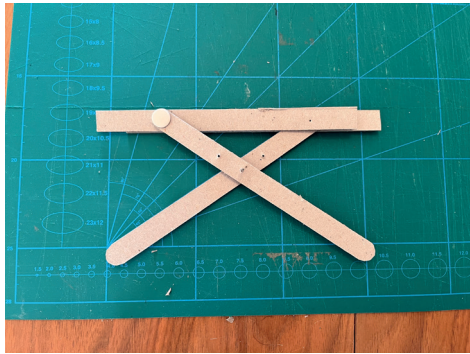
The final mechanism is based on a slot that enables the slats to be locked in both the open and closed position. The pin and slot, as well as the cross braces are visible on the front. This creates a link between the form, function and interaction, indicating both sliding and rotation as possible interactions. To change states, you first slide the slats to allow them to pivot open.

Context and categorical perception

By changing the context for the product, it became apparent that it was equally important to design for what the object is when it's not a drying rack. The first prototypes were mod-elled to approximate the dimensions of a coffee table, but this would be a poor choice for a combination furniture as it is in daily use. I reasoned that a more suitable match would be a bench. A bench is used as extra seating for company, a place to sit when tying shoes and so forth. In this sense, it too can be regarded as an inconspicuous/predominantly ACT product, which most of the time doesn't occupy much of our consciousness.

The categorical perception of a drying rack is heavily weighted as a utilitarian ACT product. This increases the perceived degree of novelty in the drying bench.

Familiarity and novelty

The X-legs are a familiar feature of the traditional drying rack. However, this degree of familiarity lacks novelty, and more importantly doesn't sit well with the aesthetics in the bench position. During the next prototypes I worked on a different leg design and mechanism that would be more suited for a bench, while still providing sufficient height and ease of use in its elevated position.

The final design is a trapezoidal shape with wide boards that give the bench a visual weight and character. The shape is simple and easy to read, which helps highlight the details in the slatted top. In the bench position, the folding legs are shaped to perfectly nest behind the bottom support. Upon lifting the bench up, the legs swing down, where they rest on support blocks mirroring the angle of the base.

Materials

In interest of time and material use, only one half of the final prototype is made. The prototype is made of pine and aluminium, simply because it was readily available. The actual product is envisioned to be made of cedar wood and brass details. Cedar wood is a light, yet relatively hard wood, and is naturally resistant to wet conditions. Because of this, cedar wood is also commonly used in outdoors furniture, where it patinas to a light grey. This would make the drying bench suitable to be outdoors on for example a balcony as both a bench and drying rack.

Summary Drying Bench

The drying bench is a reinvisioned drying rack that deserves its place in a home. Its rich interaction qualities are enticing to use, and makes the otherwise flat product salient. As is to be expected, there are some compromises on its utilitarian function, but not to its detriment.

Story

Kate lives alone in a small flat in Oslo. She is interested in interior design, and is always looking for ways to use her limited space efficiently while also reflecting her style. Kate uses the communal laundromat in the basement to do her laundry, and air-dries her clothes in her apartment. She has the drying bench in her hallway, and when she isn't drying clothes, Kate uses the bench to tie her shoes and put her everyday carry bag on.

Before Kate goes down to the laundromat to pick up her wet clothes, she ties her shoes while sitting on the bench, before changing the bench into the drying rack position. Kate has done this many times, but is still engaging due to the transformation the bench makes. It demands some concentration, but the haptic feedback of the mechanisms make the interaction positive and satisfying. With practice, the movements have become fluid, and the drying rack is up in no time.

Before she got the drying bench, Kate would make sure to fold her clothes and put the drying rack in an inconspicuous corner when she was expecting company. With the drying bench, however, she finds that it doesn't bother her, and even takes pride in showing off the bench to visitors.

Clamp

Design Brief

Regaining aesthetic interaction and rituals.

Background

We depend on light to achieve tasks, set a mood or fall to rest. The basic need for light today is controlled by a light switch or dimmer conveniently placed by the door. When turning on a light, we usually look at our surroundings, mostly caring about the ambiance the light provides, not the lamp which provides the light itself. This distances us from the lamp, depriving us from meaningful interaction with it, and makes it a primarily pragmatic ACT product.

In contrast, the act of lighting a candle is conscious. We no longer use candles primarily for its utility, but it is still a cherished ritual in many homes, providing a dim, cosy light. It fulfils a hedonic need. It requires inserting in a new candle, striking a match, and with some competence and concentration transfer the flame to the wick of the candle. We place the candle in different corners of the room or on a table to illuminate and bring life to a room.

The vision I devised was to recreate some of the aesthetic interaction and conscious ritual of lighting a candle in an electric lamp.

Idea-generating

I sketched out lamps in all different shapes and styles In order to grasp the established categories. This is the first step in order to play on categorical perception.

Focusing on aesthetic interaction for controlling the light, I generated ideas for lamps through sketching, 3d-modeling and working with modeling clay.
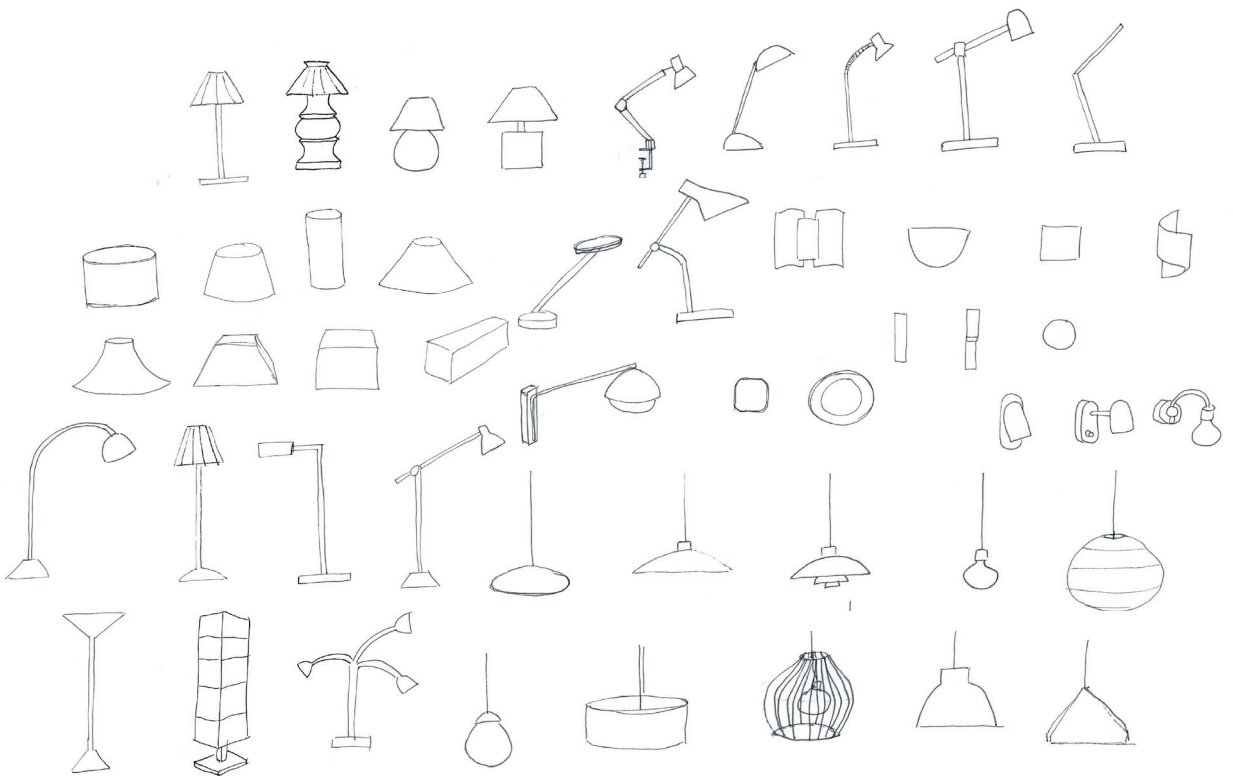
Idea

Lamps that require interaction ritual to turn on/off.
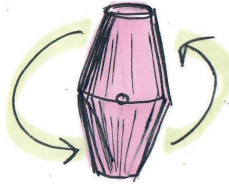
Underlying idea

Automation is taking away the ritual of everyday actions. Regain rituals, reflection.
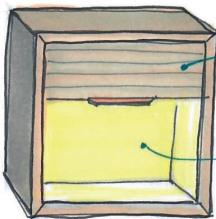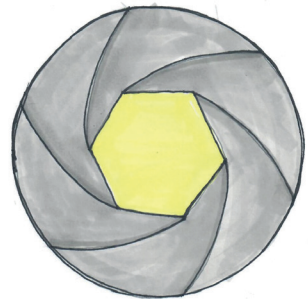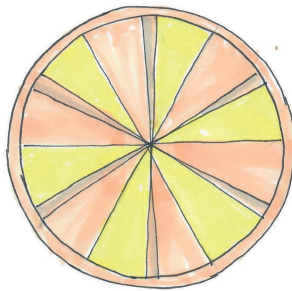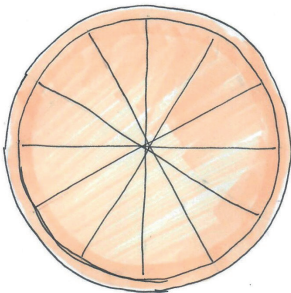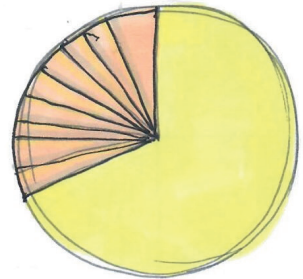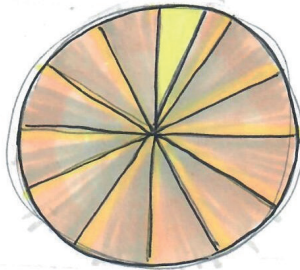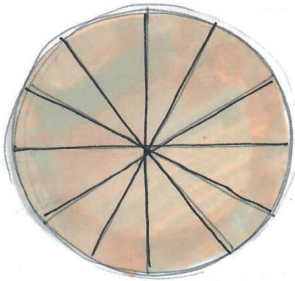
Tambour door "Persienne"

Lyspanel

Lyskilde "Parc"

Tambour door

"Jorda"

Sela

Soloppgang

Formiddag

Natt

"Sol"
↳ Dimmes med opp-
og ned-gang

Rotasjonspunkt

"Horisont"
↳ Mulig ikke 100%
tetthet?
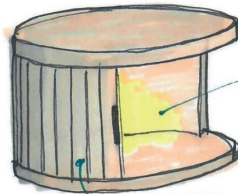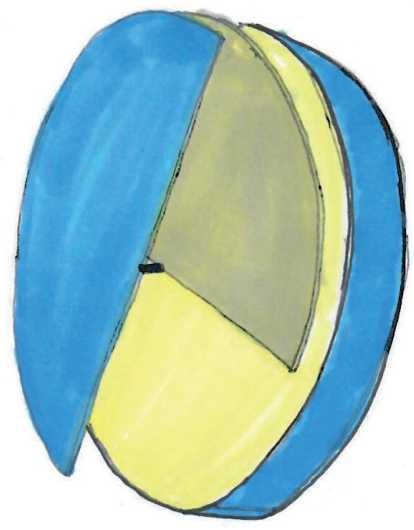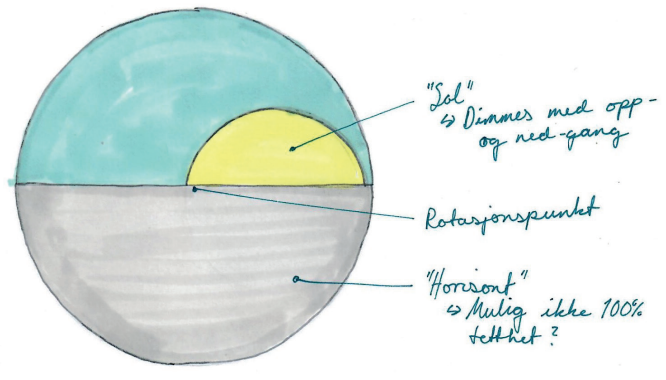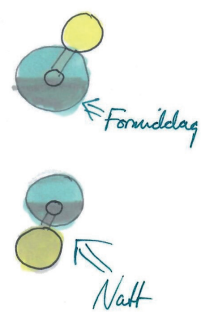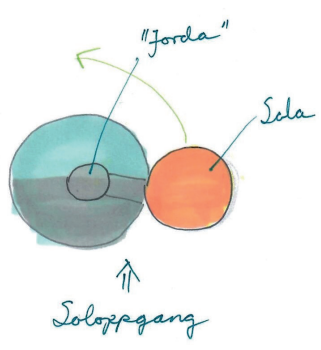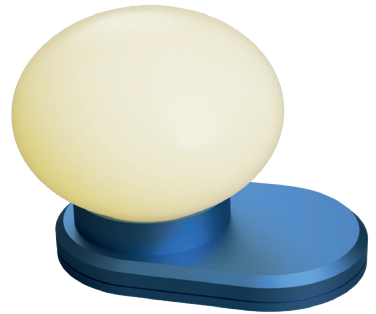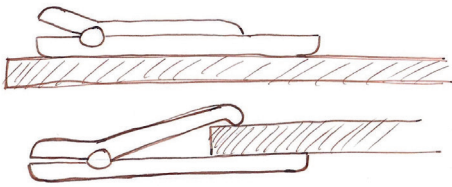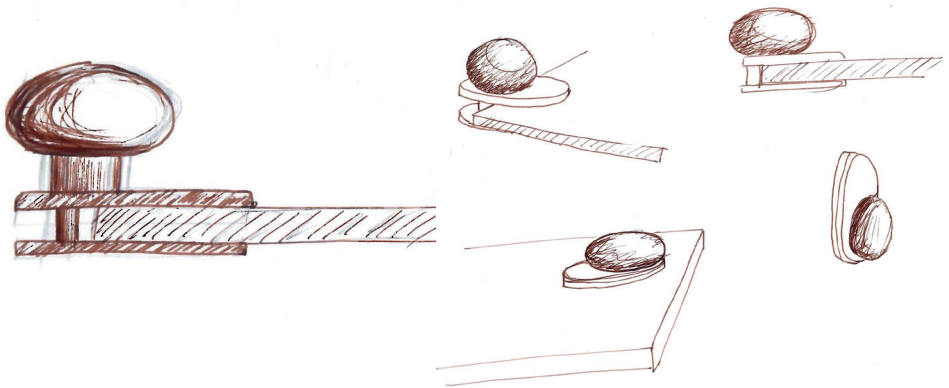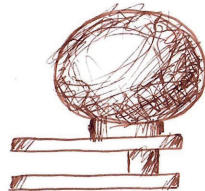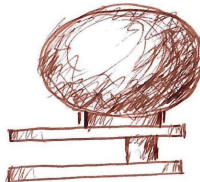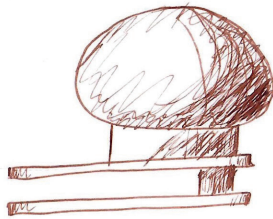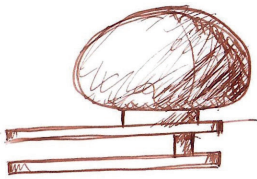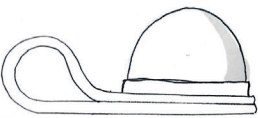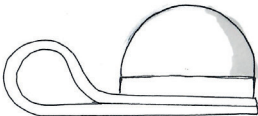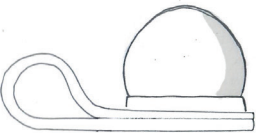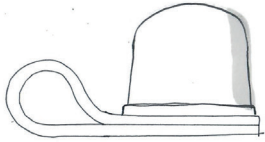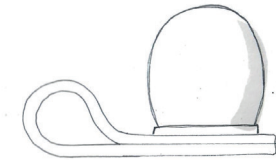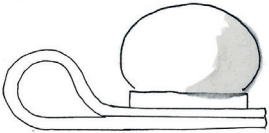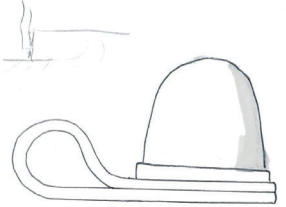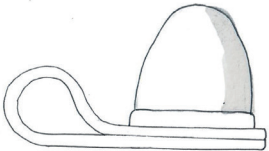
The interaction I settled on was based on a glass globe used as a conventional dimmer. Press on/off and turn to adjust brightness. The interaction is easy and intuitive to use, yet the intimacy to the light provides salience and a sense of novelty.
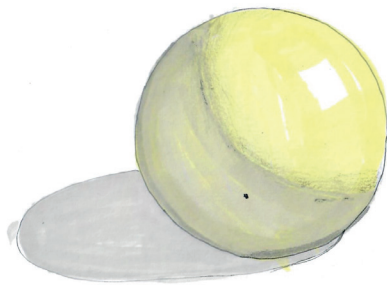
Mounting possibilities and salience
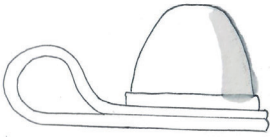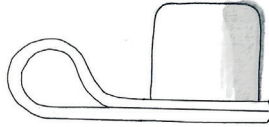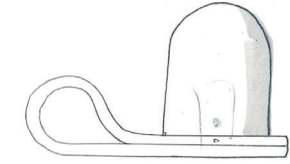
I wanted to facilitate the user in discovering new ways and places to use the lamp. Revealing new unexpected possibilities, can breathe new life into a product that otherwise might fade away into the background.

The clip is a strong form element and perceived affordance. Further use uncovers the finger loop for carrying. As the user considers ways of lighting their interior new mounting orientations become apparent. The lamp can be placed on its base, hung from keyhole slots, or be clipped on in any orientation.

Form, function and skillful interaction

The lip detail serves two purposes. Firstly, it makes the contact point further in on a shelf to achieve better leverage. Secondly, it affords a finger grip on top when sliding it onto a shelf. I considered adding more affordances to make the action of spreading the clamp easier to understand. However, I found through testing that one quickly figures out the best ways to open the base. This provides a sense of ability and skill, which can positively impact the interaction experience (Goosink, 2020, p. 81).

Cord or battery

The cord is a limiting factor for the lamp. There is an argu‐
ment to be made for making the lamp cordless, to more easily
be used in different places and situations. However, in the
context of keep-worthiness, one must consider the product in
the future. The intended use case is not to walk around with
it as a functional light, but rather to be placed somewhere to
create an ambience. When the battery runs out, it might evoke
negative feelings, and would still be dependent on a charger
and cables. Additionally, the batteries gradually wear out and
require replacing, eliciting semantics of being worn out and
disposable. The cord provides reliability, which is paramount
in the context of keep-worthiness.

Designing the interaction (technical)

Designing the interaction from a technical aspect was a significant undertaking, but essential to the model. To understand the interaction qualities, I deemed it crucial to have a functioning interaction to learn from. However, I will not go into detail into the technical solutions, as it only has relevance to the prototype. In manufacturing, off-the-shelf components could readily be used to achieve the same functionality.
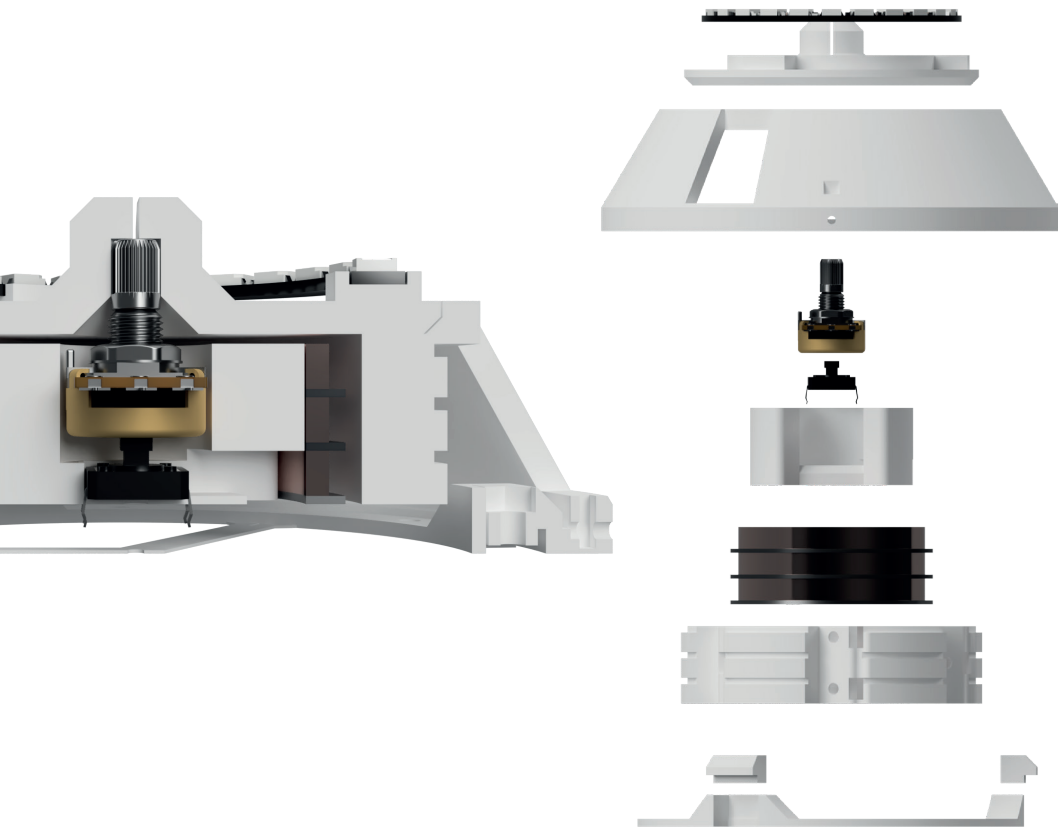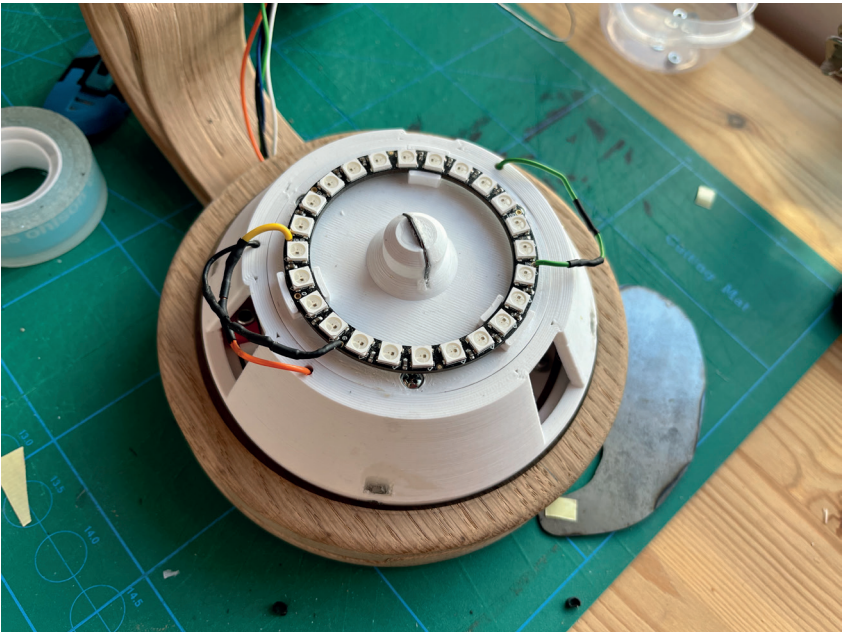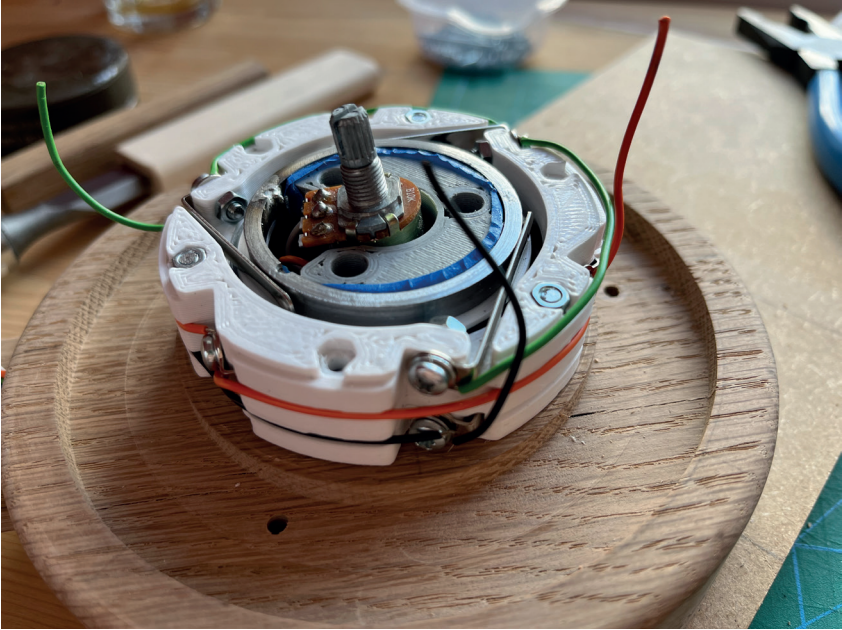
Materials and manufacturing

The model is made of oak and a 3D-printed shell in PLA plastic. The shape of the shell is designed to lend itself to vacuum-forming, which was the technique I expected to use for the prototype. However, the accuracy required for everything to fit together, made 3D-printing the most viable option. In a final design, I envision the shell being made of glass with a sandblasted satin finish. There is however an argument to be made that the shell could be plastic for the sake of durability.

Being an electronic devise, it was important to design for serviceability in the case of a frayed wire, or faulty components. The whole lamp-assembly is removed by three screws, easily accessible from the bottom. Two of the holes are also used as key-slots for hanging the lamp.

Despite being a complicated model to build, it is designed to lend itself well for CNC fabrication.
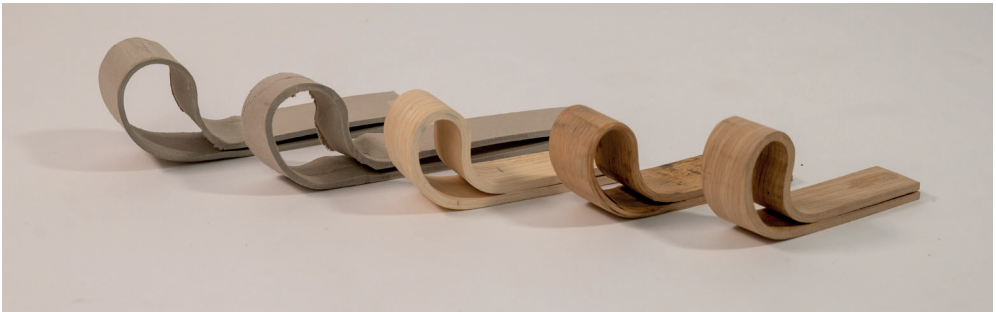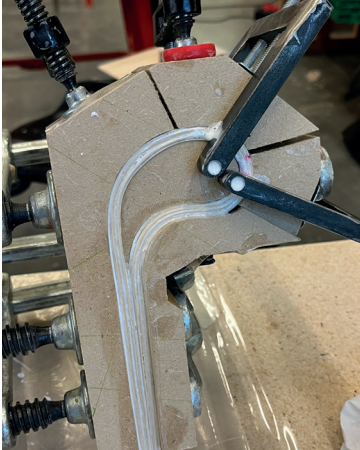
Keyholder

Design Brief

Turning routines into rituals.

Background

Following Lévy's framework for rituals (Lévy, 2018), I started by mapping out everyday actions by time and place. The period of time between waking up and leaving home stood out as a particularly interesting window of opportunity. The everyday morning is densely packed with mundane routines designed to get ready for the day in the most efficient way possible. Many, if not most of these morning routines are subconscious and skill based. They require few choices and little critical thinking: getting out of bed, taking a shower, putting on deodorant, preparing breakfast, and so on. Every persons' morning routine is of course highly personal; some people may have elaborate rituals for making coffee by hand with freshly ground beans, and some make instant coffee.

Studying morning routines, there were several opportunities to elevate them to rituals. Seeing as efficiency is especially important in the morning, I looked for opportunities to shift a routine to a ritual without adding complexity or time.

Leaving home

The time and place I ultimately decided on was crossing the front door threshold. One of the actions we do at this place and time, is to grab our keys from where we left them. Many homes obviously already have key hooks for exactly this purpose, but in most cases they are weak elements in the routine or ritual. I wanted to make the action of grabbing your keys and putting them back a more pleasurable and salient experience.

The ViP approach was again used to deconstruct current key holders and keychains. Some of the insights from this process were:
· Keys are personal, and can be seen as an extension of a persons' self.
· Many keychains have some sort of keyfob or trinket, as a personal expression, or visual and tactile identification.
· Keychains are subject to physical wear and tear. In pockets and bags, especially keyfobs show patina.
· Some keys are shared, for example keys to a car or a circuit breaker box.
· Some keys are used daily, others rarely.
· Many keyholders attempt to hide the keys, either for security or aesthetics.
· The interaction of hanging up a key by a ring is fiddly due to the hanging method or space allowance.
· The sounds of the interaction can be shrill, especially keyholders in metal.

These insights helped create a vision for a new keyholder with more meaning and value to the user. Focusing on daily used personal keychains, it was natural to extend this sentiment to the keyholder as well.

Concept sketch

The first conceptual sketch shows a modular system of keyholders, with unique key fobs that fit the keyholder. It embodies many qualities of keep-worthiness. The custom fit between keyfob and holder, makes the product personal. As an extension of a keychain that is self-extension, makes it a SELF product. It suggests a rich interaction, where the form, function and interaction support each other. The traditional materials wood and brass, coupled with metal keys rubbing on wood lend themselves well to understandable patina. Finally, the context offers a strong trigger in both place and time for a ritual to occur.

However, from an aesthetic point of view, there was more to be desired. At this point, I turned my attention to the shaping and detailing of a keyholder with the same qualities.
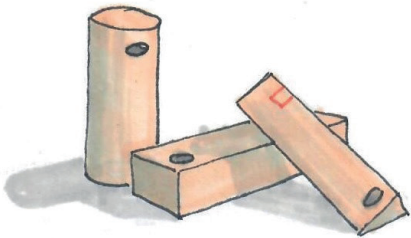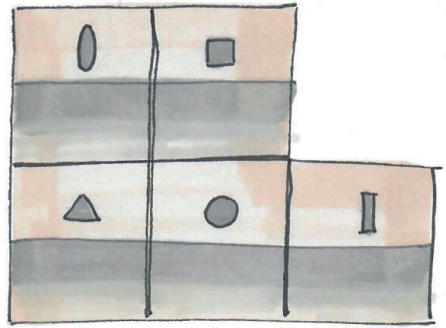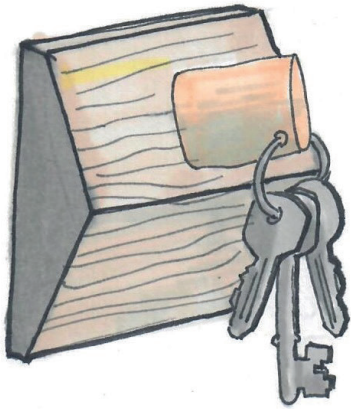
Prototyping

Through trials in sketching and models, I decided on a simple, yet appealing shape. It can perhaps be described as a bun with a detent. Being in the context of a hallway, the buns' radius is limited as to not afford hanging jackets over it.

Contrary to the first concept sketch, the shape is no longer modular in terms of fitting together with other keyholders. This reinforces the notion of it being personal.
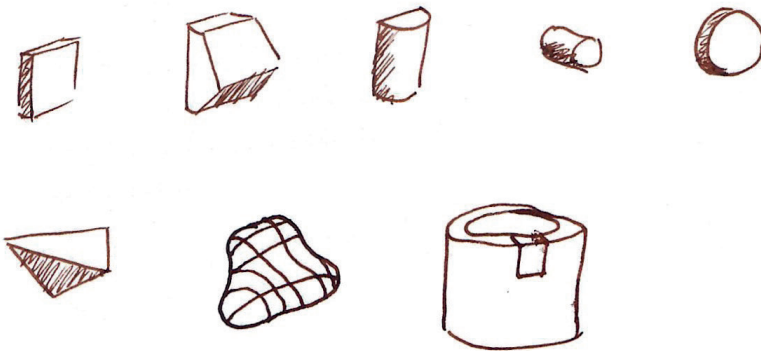
On the top of the holder is a slightly tilted brass housing with a matching keyfob. The keyfob will show signs of its substantial wear and tear compared to the housing. The keys will over time rub on the bottom rim of the bun, adding to the story of its use.

The keyholder is attached to the wall with two screws. One locks the rotation with a small stud, and the other goes through the housing attaching it to the wall.

Customisation possibilities

Keyfobs are a common way to add a personal touch to ones keychain. Therefore, this product could benefit significantly from facilitating mass-customization to achieve a better preference fit.

Since the housing is only attached by the screw going through it, it could be sold as a two-part kit. Although turning the metal parts on a CNC-lathe is most efficient, it would be feasible to manufacture any two-dimensional shape in the holder and keyfob. This could be designed and ordered in an online tool, or simply provide a limited set of different shapes to accommodate a typical household. Adding the possibility of choosing different materials for both the wood and keyfob/housing, one can facilitate the feeling of designing something unique through mass-customization.

Story

Anne (36) is the mother of a family of four, with two kids in high school. The mornings before work and school are often hectic, and there are many things to remember. However, through the years, they have subconsciously developed a rhythm of routines for who uses the shower, and who makes lunch and so on.

Anne is not herself in the morning, so her husband often has to remind her to bring her lunch with her. Anne is the first to leave for work, and after she has grabbed her bag and put on a jacket, she pulls her keychain out of the holder. Before they got the keyholder, Anne would every other day have to shout to her family to ask if they had seen her keys. With her own home for her keychain, she finds joy in always knowing where her keys are.

Returning from work, Anne pulls out her keys to unlock the door, but the door is already open. With the keychain in her hands, she enters and sees that her youngest son's keys are hanging in his holder – indicating he is already home. Seeing her own holder empty, she is reminded to hang up her own keys. With one seconds' worth of concentration, Anne locates her key–fob precisely in the matching hole in her holder, uniting them like they are meant to be.

Toolbook
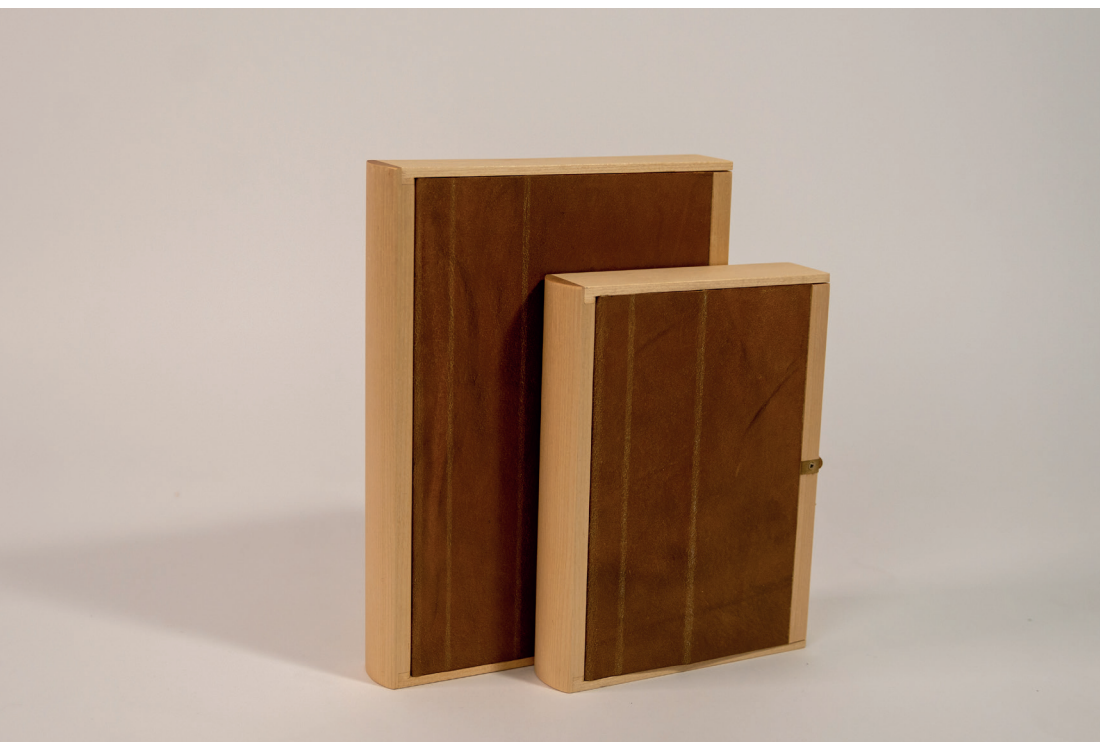
Design Brief

Turning ACT products into SELF products.

Background

In the same vein as with the drying bench, the idea for a more keepworthy toolbox came by studying ACT products. Many people view tools merely as a means to an end. They value tools for their efficacy in driving a nail, measuring accurately or tightening a nut. Once the task is completed, the tool is out of mind until another need for it arises.

Manufacturing companies exploit this to sell cheap tools that will get the job done, but make no effort to otherwise instil keepworthy qualities in the tools. Consequently in many homes, tools are stowed away in a basement, shed or otherwise mid- to long-term storage. When the need for a tool arises, this can lead to a higher threshold in retrieving and putting the tool back.

To generate a new vision for toolkits, I examined an IKEA-toolkit (picture on next page) following a VIP-approach. We can identify that the intended design qualities are to provide maximum utility at a minimal cost. A small hammer, multi-bit screwdriver, pliers and an adjustable spanner. The interaction with the box itself is flimsy plastic, and the no-brand tools are uninspiring and cheap. The toolkit is designed for the context of being useful to have in a drawer, but will most likely rarely get used.

Changing the context from a basement to the living areas of a home gave me the idea of using the book shelf as a starting point. Bookshelves are ubiquitous in most homes. However, our use of printed media has decreased in the past decades, increasingly making shelves a place to express oneself with decorations, plants, and other objects in addition to books.

By designing a toolbox imitating a book (hence toolbook), we can take advantage of peoples' categorical perception. People expect a toolkit to be utilitarian, dirty and hidden away. A toolbook as a useful decoration creates surprises in familiarity and novelty simultaneously.

IKEA toolkit

Construction

I chose to use solid wood and thin plywood for the toolbook. The main feature I wanted too include was the arched spine on binded books. I used rabbet joints, double rabbet joints and dadoes for strength, ease of assembly and to hide the end grain of the wood and plywood. The maximum size was constrained by a standard ring-binder.

Opening mechanism

The first iterations of the toolbook featured a sliding lid. This was prone to bind in the groove, created a weak lip and also meant that the lid could be lost separately from the box, which renders the box unusable. Moreover, the interaction was not pleasing and being made of plywood for strength and stability gave a cheap impression.

Drawing further inspiration from leather bound books, I aimed to incorporate leather to act as the hinge for the lid as well as signalling which side to interact with.
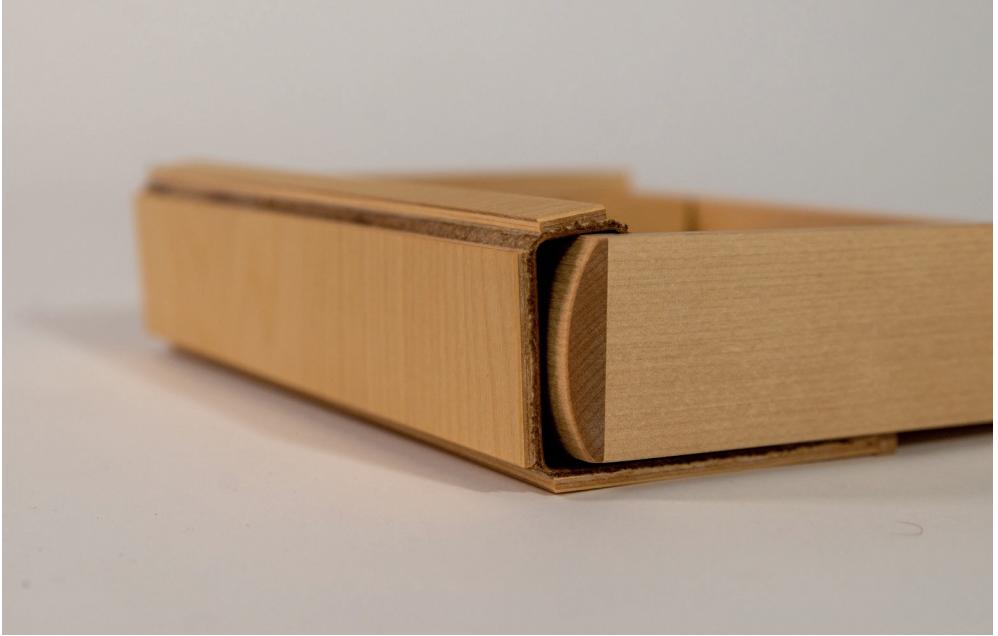
Cardboard hinge prototype
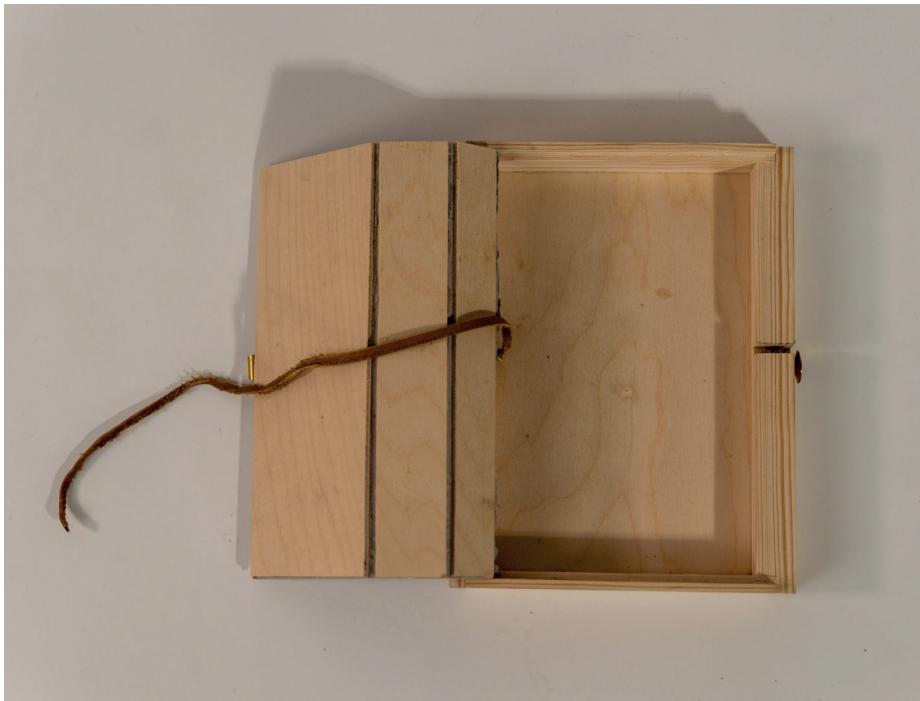
The leather is backed by three plywood pieces that allow the lid to fold around the spine while open, while still providing the necessary rigidity to the lid when closed. The leather is secured to the spine from the inside with a brass plate and screws, making it serviceable.

Locking mechanism

It was necessary to contrive a mechanism to keep the tools inside the box secured as well as keeping the lid closed. I experimented with several variations of a leather lace and different attachment methods. This required a compromise between the interaction qualities and how well the contents were secured. I prioritised the interaction quality over security, seeing as its intended use is to stand in a shelf.

The final design uses a single leather lace that can be pulled taught over the tools, hooked over the lid latch, before being secured by looping around the brass dish. The interaction is fluid and intuitive, yet requires deliberate and conscious steps that improve with practice.
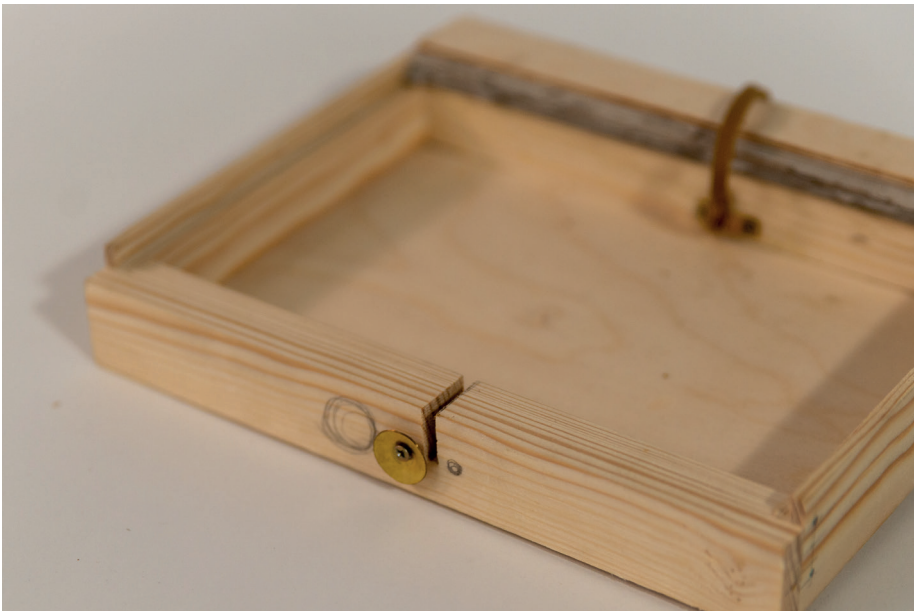
Contents

I decided not to develop a complete system for the contents inside the toolbooks, or go too deep in curating toolkits. The concept is not limited to traditional workshop tools, it could just as readily be a sewing kit, art supplies or a collection of fasteners for example. This would be an interesting design process in itself, and there could be several trains of thought that could align well with keepworthy qualities.

One option would be to provide complete toolkits with quality tools and tailor made holders, as depicted in the models. This would make the toolbook immediately accessible, and its benefits over the IKEA toolkit would in itself make it more likely to be perceived as keepworthy by a consumer.

However, there is an opportunity to make use of the "I designed it myself" effect. One could be to provide the books as a blank canvas, where the most eager consumers could design and make their own holders to fit their prized tools. Another approach could be to design a modular system with premade holder components that fit together in a grid that accommodates a variety of tools. Finally, one could also conceive of a service where the consumer through an online interface can select tools and modules from a predefined frame that are made on demand.

These alternatives require different degrees of effort by the consumer in achieving their preference fit. Nevertheless, we know that any contribution to making the consumer feel like they designed the toolbook greatly increases the value proposition for the consumer.

Grip
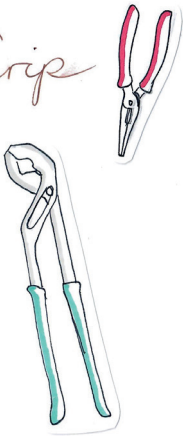
Sew

Miscellaneous

Screw

Attach

Cut
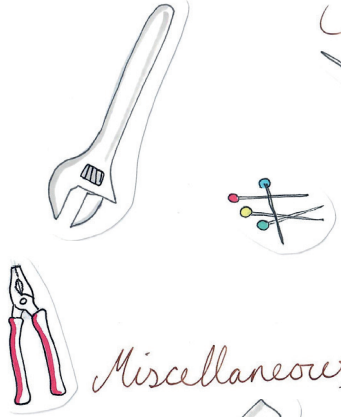
Force

Measure

Branding on spine

Another opportunity for customization would be to add branding on the spine. In my prototypes I have left the spines blank, but it is a canvas primed for a graphic symbol or text to illustrate the contents. One can even entertain the thought of replacing outdated collections of encyclopaedias with a collection of toolkits for the most avid users.

95

Findings
From research by design

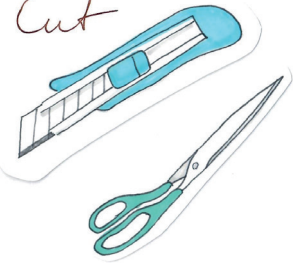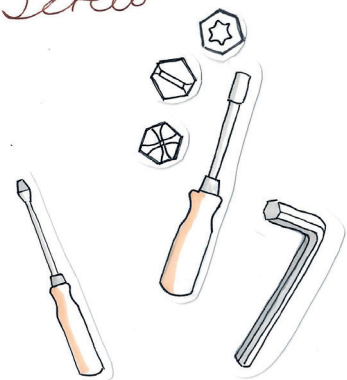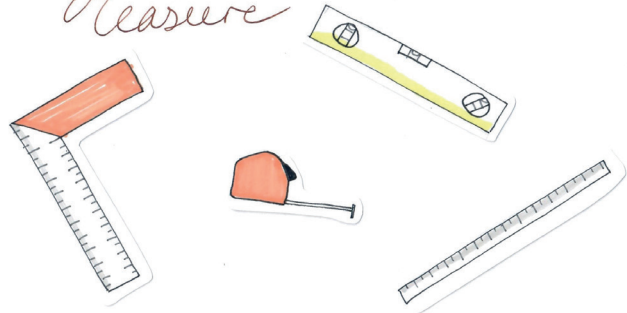The inspiration for this thesis originated in the descriptive nature of qualities for keep-worthiness. Have the principles for keep-worthiness contributed to the design process in a constructive manner?

The frameworks describing the many ways a product can be perceived as keep-worthy were daunting to contend with at first. How do you begin to make a beautiful product with rich interaction, that is a strong element in a ritual, ages gracefully and reflects ones self? The pitfalls seem overwhelming if one is to consider all principles simultaneously.

This was an important lesson in my process. I approached keep-worthiness holistically, trying to generate ideas that satisfied all of the principles. This resulted in the feeling of having to conjure something meaningful out of thin air, and many rejected ideas.

Instead, success came through focusing on one principle at a time. Let's consider the design process for the drying bench as an example. The principle I set out to explore was turning ACT products into SELF products. This informed the selection of a drying rack as a starting point. This cause and action may seem obvious, but is an important finding in itself. It illustrates that qualities alone are not a constructive starting point for generating ideas.

The contribution of perspective

With a product and principle in mind, the ViP method proved to be very useful. Where a traditional design process would aim to design a new drying rack, the ViP approach lends itself to providing a new vision for the product. By deconstructing a drying rack through the lens of ACT and SELF products, possible visions for a new drying rack emerged. The contribution of the perspective of the principle is noteworthy. If instead one were to use for example rich interaction as the perspective, the resulting vision might be completely different.

Building on principles

Turning our attention to how the principles support each other, another finding is in how we may add to the keep-worthy qualities of a product. At several points in the design process, I referenced the principles and tried to look for opportunities to either add or strengthen them. For example with the keyholder, the first concept was devised through the lens of turning routines into rituals. This was followed by considering the graceful ageing of the product. How the keys pivot then informed the shape of the holder, to consciously highlight the patina.

Working through principles in succession made me realise how this could be applied to any iterative product design process. Taking a step back, one can take a perspective of one of the principles of keep-worthiness, and evaluate ones design. What semantics does the material have? How will its use create a patina? How does the form support the interaction? Are there opportunities for customisation? Asking questions like these may guide the design closer to keep-worthiness.

Closing words

In conclusion, designing for keep-worthiness is possible. Starting with principles for keepworthy design, such as rituals and aesthetic interaction, we can create visions for products that carry meaning and value to people.

Through designing four products, I believe I have achieved two things. Firstly, I have learned truths about how to apply principles of keep-worthiness in any design process. It is about asking the right questions at the right time, and having the mindset to nudge designs in the right direction. Secondly, creating new products that have the potential to be perceived as keepworthy. I know for a fact that they most definitely are keepworthy to me.

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