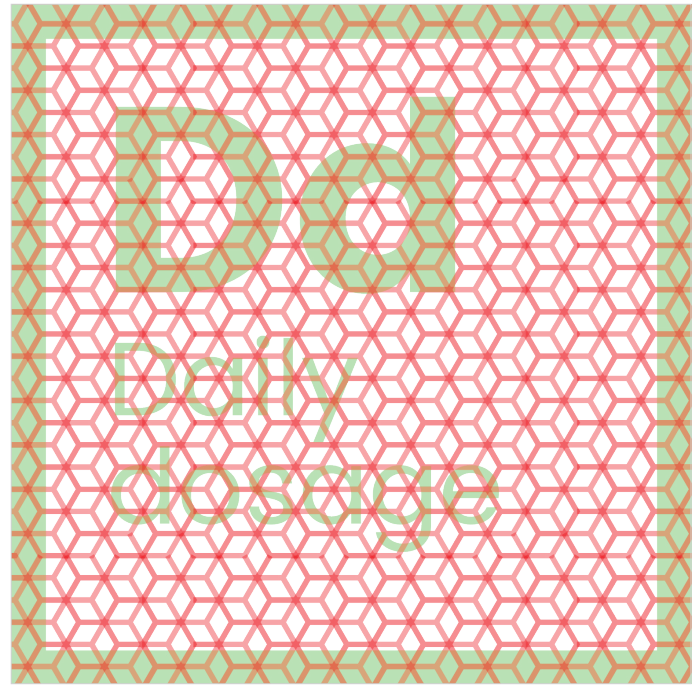
Daily
closure

Daily Dosage is a graduation project by Melanie Povlitzki and Sofia Germani

with supervision by
Eva Brandt

Codesign Master Program
May 29 2017

Det Kongelige Danske Kunstakademis Skoler
for Arkitektur, Design og Konservering

number of characters (with spaces) 48.394

A special thanks to our supervisor, Eva Brandt, for always helping to keep us on track.

Malene Teller Blume, Jesper Frederiksen and Nicolai Jæpelt, for a great partnership and assistance from Coop's side.

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Gurpreet Rehal
Ingeborg Himle Matland
Jette Gjerulff
MacKenzie Ruoff
Mathias Havelund Rasmussen
Mikkel Sarbo
Olena Withen
Siska Asved
Torsten Arendrup
Xénia Geller

And to all our friends and family members who have participated in long discussions about chemicals for the past 5 months.

We couldn't have done it without you.

Sofia &
Melanie

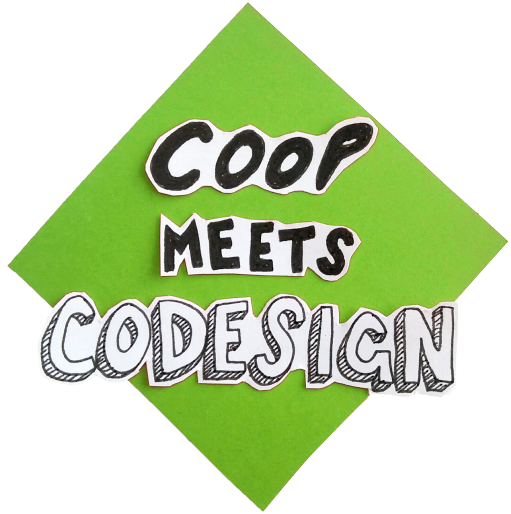
TABLE OF CONTENTS

INTRODUCTION

Every day we're exposed to chemicals through the food we eat, the clothes we wear and the products we use. Many of them pose a threat to our health and well-being. As students in the Codesign Master's Program, we've dedicated our final thesis project to exploring how to help people reduce their daily dosage of chemicals.

Daily Dosage is a collaboration with Coop Denmark, positioned within their Dirty Dozen strategy–an effort to remove from their shelves 12 groups of chemicals suspected of being harmful to human health and the environment. Within this highly complex situation, we've focused our design engagements on empowering people to make better choices that enable them to avoid extensive exposure to these chemicals.

Our research has shown that by suggesting small, concrete actions that focus on the positive steps people can take to change their daily habits and avoid the chemicals, we can motivate behavioral change more easily than when providing the full spectrum of information about them. Moreover, the project addresses a structural issue within Coop relating to the engagement of the company's member-base: We challenge the current structure for involvement by suggesting a design solution that equips Coop's volunteer members with materials that can assist them in sharing the information about the chemicals within their local community.


COOP
MEETS
CODESIGN

FINAL OUTCOME

The final deliverable is a kit that includes materials for conducting a "chemical scavenger hunt" in the supermarket. The kit is intended to be used by Coop's volunteer members in their local shops, and is designed to educate Coop customers about the Dirty Dozen chemicals and how to avoid them. The design makes use of the analog decoding "technology" of a red light filter that is used to reveal hidden messages (fig.1). The medium directly corresponds to the subject matter, affording an interesting parallel to the uncovering of the otherwise invisible chemicals.

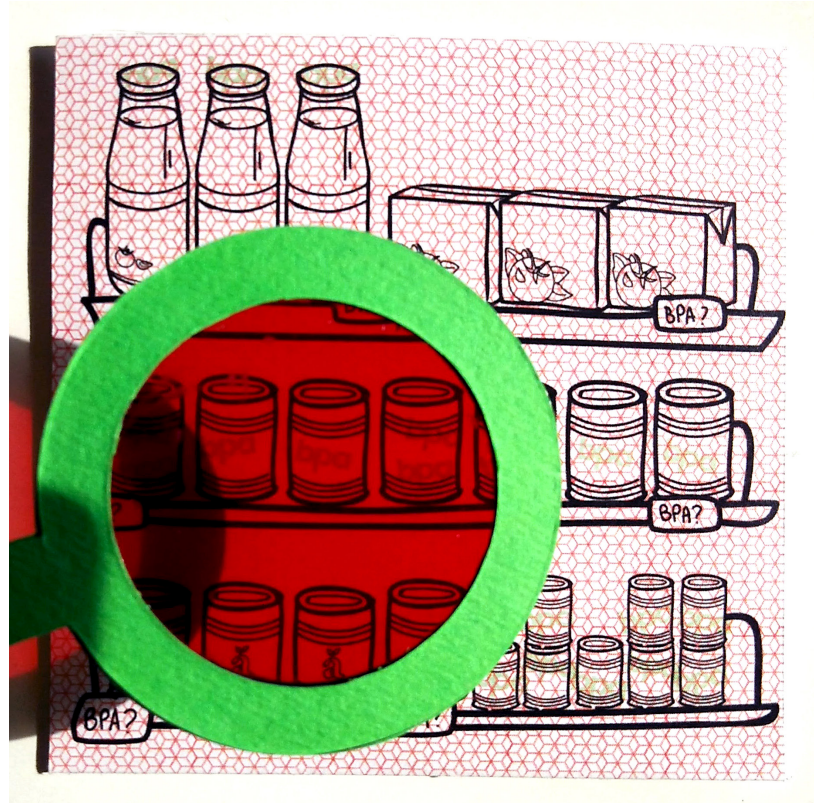


Fig 1 What is otherwise invisible is made visible using a red light filter

In short, the scavenger hunt will be set up by the volunteer, who places hidden clues throughout the supermarket that can only be read by using a red filter magnifying glass. The clues will enable the customer to solve a riddle or complete a quiz in order to win something–either a prize, recognition, discount or some other kind of incentive. Although chemicals and their health effects is by no means a humorous topic, Fullerton, Swain & Hoffman (2004) found that "a playful approach can be applied to even the most serious or difficult subjects because playfulness is a state of mind rather than an action" (p.92). By making the information about the chemicals present in the supermarket in a playful way, we aim to educate customers by engaging them in an activity while shopping. While we're still in the process of designing and making the kit, we're only able to provide a brief description and sketch of the components we expect it to contain (fig.2).

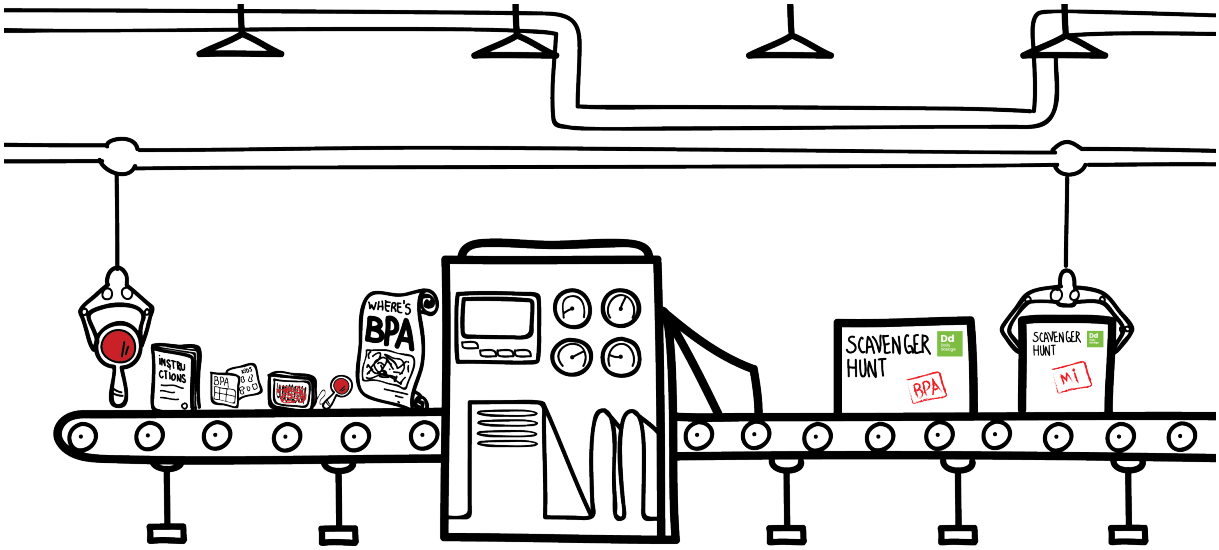


Fig 2 At present, we expect the kit to include the above elements: instructions for the volunteer, materials for the scavenger hunt and a small take-away for the customer.

Because there are 12 different chemicals on the Dirty Dozen list, we've decided to focus on each individually, providing material to do the scavenger hunt for a different group each month, for 12 months (fig.3). This rhythm can extend the opportunities for learning over a longer period of time, as well as enable more focused and clear information about each group. Some of the materials in the kit will be reusable, while others will be provided on a monthly basis. For this project, we'll create material for the first 3 months of the program and suggest to Coop a further development process if they're interested in moving forward with the concept.

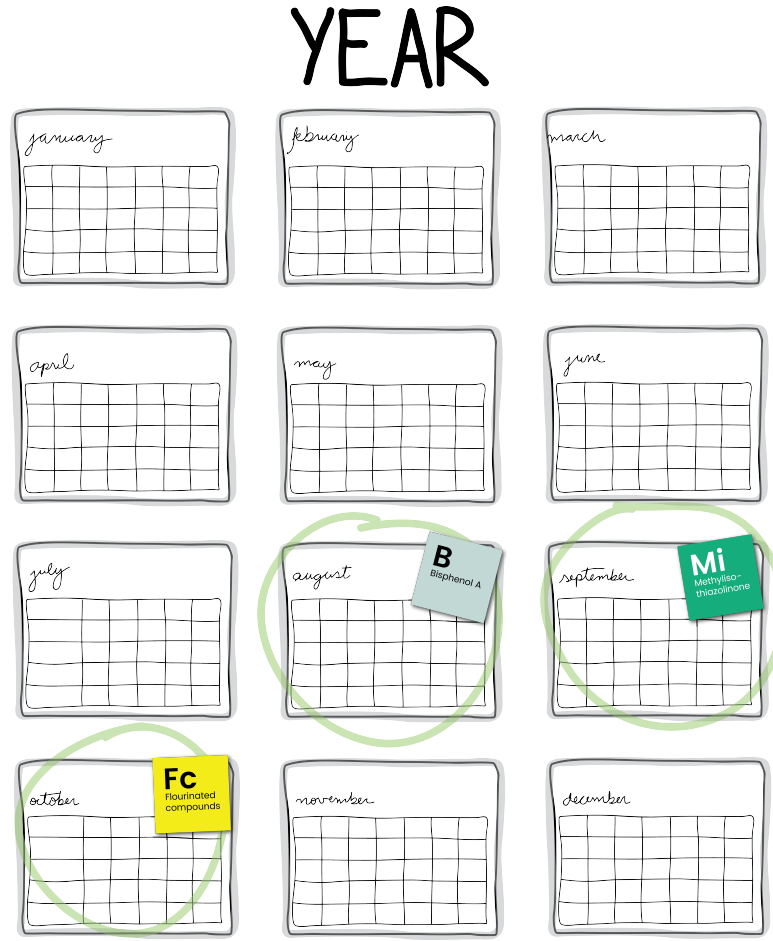


Fig 3 We'll start with the first 3 months, creating material for the following groups of chemicals: BPA, Mi and PFC's.

THE UNITED

The Daily Dosage project is aligned with the UN's 2030 goals for sustainable development. We point specifically towards two goals that our work is focused on addressing:

Good health and well-being

The chemicals on the Dirty Dozen list pose a threat to human health and well-being. Many of the chemicals on the list are endocrine disruptors, meaning that they can interrupt reproductive capabilities in certain concentrations. Not only can these chemicals impact the health of individuals, but also the ability of future generations to thrive. UN goal number three calls to **"substantially reduce the number of deaths and illnesses from hazardous chemicals"** (The United Nations, 2017). Our research has been focused on understanding the context in which people make their purchasing decisions, in order to understand how we can suggest alternatives that can fit into people's everyday lives. The goal of our work has been to empower people to change their habits and make decisions that will reduce their risk of chemical exposure and the negative consequences that come with it. Our work urges a new norm for our cultural acceptance of chemicals, in the hope that future generations will be more aware and prepared to make decisions that take their associated health risks into account.

NATIONS' GOALS

Responsible Consumption and Production

Not only are the chemicals on the Dirty Dozen list harmful to human health, they also have a negative impact on the environment – especially on aquatic ecosystems where the chemicals damage aquatic life and contaminate the water supply. Protecting natural resources and ensuring that our consumption patterns have a minimal effect on the environment is essential for moving forward in a sustainable manner. By 2020, the UN aims to achieve **"environmentally sound management of chemicals and all wastes throughout their life cycle... and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment"** (The United Nations, 2017). By making the issues surrounding these 12 chemicals experientially available, we aim to make the discussion about their widespread use accessible to a wider public, thereby increasing their presence in the public debate. By encouraging more responsible consumption habits, we can collectively drive demand away from products with harmful chemicals and towards cleaner, more responsible alternatives.

BACKGROUND

Coop

Coop is a member-owned grocery chain that provides daily commodities to their supermarkets across Denmark. Due to its member structure, the company has a vested interest in aligning their corporate operations with the interests of their members. As a result, Coop created a highly ambitious CSR (Corporate Social Responsibility) strategy, stating on their website their aim to be the most responsible grocery chain in Denmark.

Engagement in Coop's voluntary structure happens at a local level, where members can join their local shop's advisory board to influence operations. This structure has resulted in the average age of advisory board participants being 65, and many Coop members only thinking of their membership as a way of earning points and getting price reductions. Most people are unaware that as a member you also have the ability to affect change within your shop and within Coop as an organization by becoming active in the store's advisory board. Coop has expressed a goal of creating a more flexible structure for member involvement that 1) more accurately reflects the demographic diversity of the current Danish society and 2) allows members to gather around topics of interest rather than their physical locality. As such, Coop has expressed a desire to learn and try out new methods for involving their members.

The Dirty Dozen

The Dirty Dozen is Coop's chemical strategy. It began in 2015 as a 3 year plan for removing 12 groups of potentially dangerous chemicals from their shelves (fig.4-6). The chemicals on the list, though still legal, are under heavy suspicion by researchers and authorities for being harmful to our health. In *appendix 1* you'll find a detailed list of these chemicals, including what they are used for, where they're found and why they're dangerous.

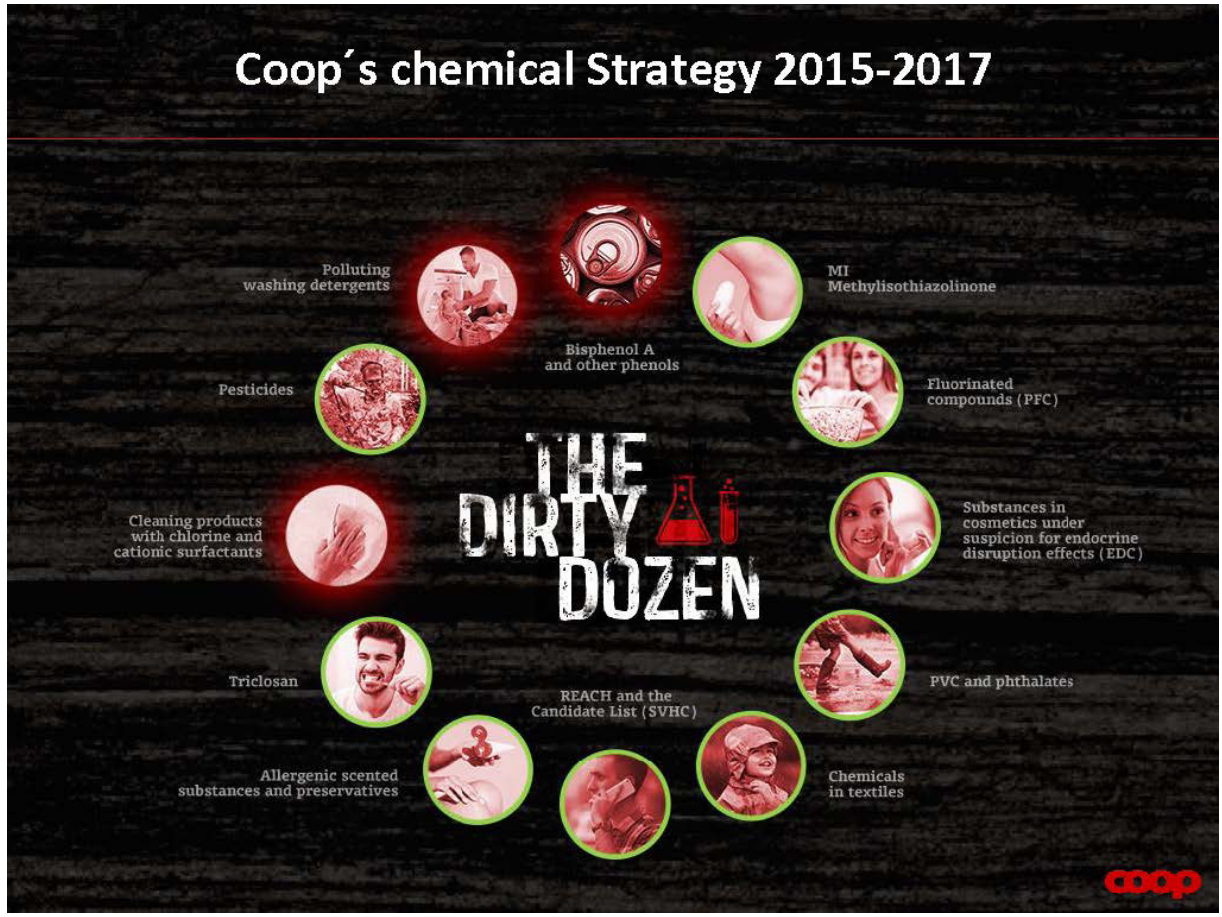


Fig 4 (Blume, 2016, p.6) The Dirty Dozen list was crafted together with the Danish environmental protection agency (Miljøstyrelsen) and food administration (Fødevarestyrelsen), governmental agencies that are aware of and concerned about these problematic chemicals, but have their hands tied in banning them from the Danish market due to EU harmonization laws. Because of the legislative difficulties surrounding these chemicals, the Danish authorities reached out to the industry suggesting that they could be a driving force in eliminating the chemicals from the market.

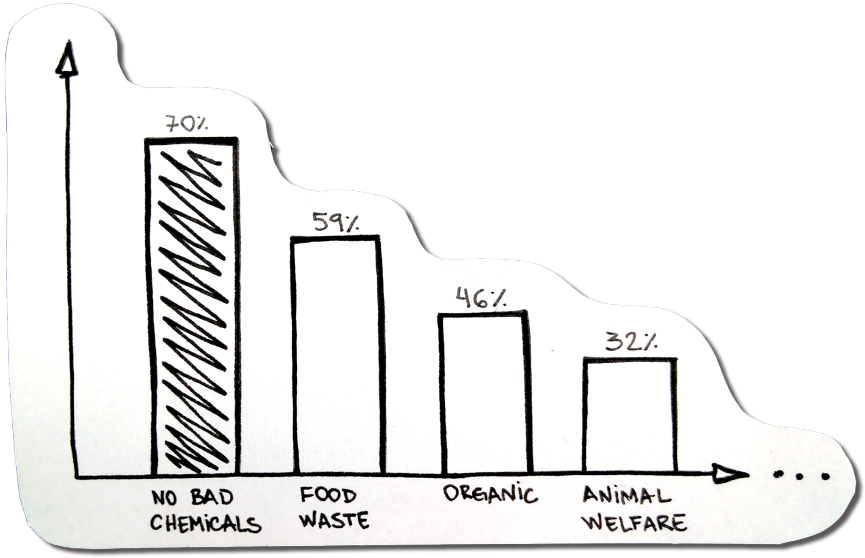


Fig 5 (Blume, 2016, p.3) According to Coop, safe chemicals is the #1 concern of their members, supporting the creation of the Dirty Dozen strategy.

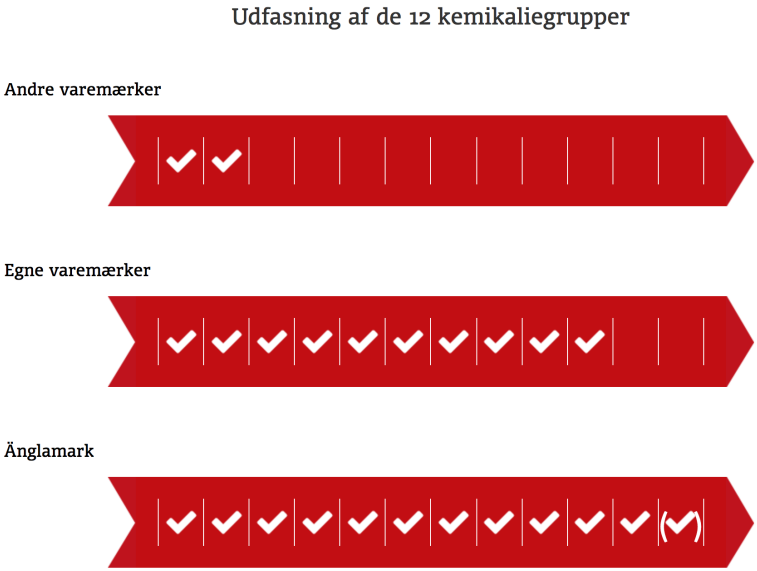


Fig 6 (Coop, n.d.) Coop's Strategy for removing each chemical has been to start with their premium, or most 'conscious' brands, like Änglamark, 365 Økologi and Irma Økologi, and then move on to phasing it out in the remaining Coop brands (e.g. Smag Forskellen, Coop C, Xtra, etc.). By starting with their own products, Coop has more leverage when approaching producers of other brands to request the phasing out of the chemicals, since they've already proven that it's possible. Since 2015, Coop has managed to ban all but 2 of the 12 groups of chemicals on the Dirty Dozen list from all of their own Coop brand products. The 2 groups that have yet to be banned are Bisphenols (BPA and other phenols) and cleaning products with chlorine and cationic surfactants. They still have a long way to go in convincing producers of other brands to follow suit in cleaning up their products.

Fig 7 Malene Teller Blume is the Quality Manager of Non-food at Coop and the "owner" of the Dirty Dozen strategy. Jesper Frederiksen is a Corporate Brand Manager at Coop who was hired to manage the communication about the Dirty Dozen.

Malene Teller Blume and Jesper Frederiksen (fig.7) became our main points of contact at Coop, and provided us with relevant background knowledge about the initiative and the major challenges they've been facing. The first big challenge when implementing the Dirty Dozen strategy was in navigating Coop's internal structure and getting all the departments on board to begin with. For example, the sales department was initially hesitant and concerned that the increased prices due to raised quality standards might lower the ability of Coop products to compete in a highly saturated and competitive market. In addition to these internal roadblocks, it's been difficult to get the producers of other brands to match Coop's new quality standards; most producers are not interested in exceeding the legal requirements, as they have their own bottom lines to keep in mind. Although both of these issues are relevant, we chose not to address either of them directly in our project, and instead focused our efforts on the customer.

Fig 8 In Denmark, cans are never marked to display whether or not they contain the chemical BPA (as they do in other countries, like the U.S.), so there's no way of knowing which cans are safe and which aren't.

As a customer, you may not know about Coop's new chemical standard–they have struggled to communicate the Dirty Dozen strategy to a wider audience. Moreover, it's often impossible to know if a product contains certain chemicals or not due to the lack of labeling on the package. Canned food products, for example, don't display whether or not they contain the chemical BPA (fig.8).

Understanding current labeling practices played a large role in our project. In appendix 2, you'll find a detailed list of the different labels that are currently used to help guide consumers' choices.

A systems analysis

Upon beginning our research, we quickly recognized the complexity of the system surrounding the chemicals and turned towards a systems thinking perspective. In *Systems Thinking*, Meadows (2008) explains that all systems consist of: elements, interconnections and a purpose or goal. Here, we provide a brief overview of the major elements or "actors" we identified within the system that the Dirty Dozen is a part of (fig.9).

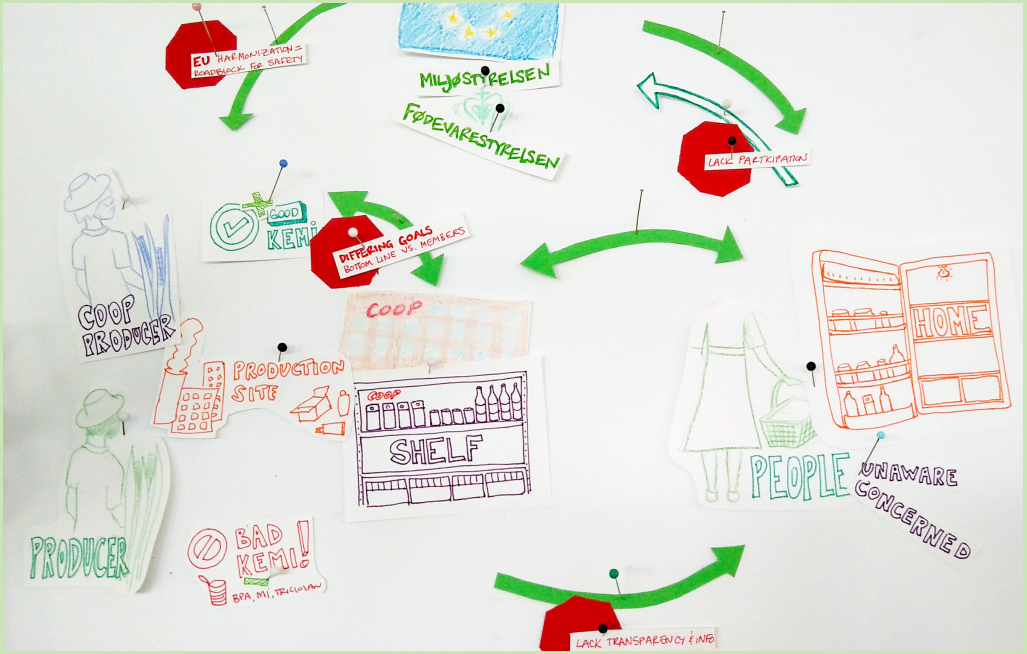


Fig 9 The map illustrates the connections between actors (green arrows), and identifies some problem areas where a lack of connection or divergence of goals leads to a malfunction within the system (red stop signs)

EU

Goal To harmonize laws and standards between European countries that make possible the open trade of goods and services

Danish government

Miljøstyrelsen & Fødevarestyrelsen

Goal To pass legislation and create programs that are intended to protect citizens from harmful products

Coop

Goal To remove the Dirty Dozen chemicals from their supermarket shelves, in order to serve the interests of their member-owners; to promote and sell more of their own brand products to increase profits; to align goals between departments

Producers

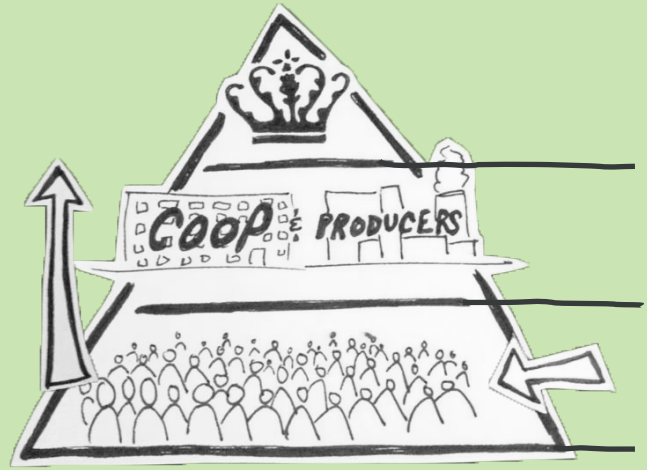
Goal To protect their bottom line, even if it means resisting improved quality standards in order to compete on price

Citizens

Goal To purchase safe products within their economic means, or to have the opportunity to make informed decisions about the products they purchase regarding both quality and price.

The next step in our system analysis was to identify leverage points, or what Meadows (1999) describes as places in a complex system "where a small shift in one thing can produce big changes in everything" (p.1).

We identified potential leverage points at three levels (fig.10): at the top level of politics, within industry (Coop & producers) and at the bottom level with the general public.



Create political pressure to change the legislation and address disparity of goals between EU and Danish regulation of chemicals

Work within Coop to align goals between departments or build business case for producers to adopt Coop's new quality standards

Address information gaps occurring among consumers

Fig 10 Three possible levels of intervention within the current system

Of these three options, we saw most design potential in adopting a bottom-up approach, addressing some of the information gaps among the general public. In *Dancing with Systems*, Meadows states that "99 percent of what goes wrong in systems goes wrong because of faulty or missing information" and that "you can make a system function better by feeding it accurate information at the right time" (2001, p.60). We found in our preliminary research that there are no current standards for the labeling of chemicals in food packaging. This means that as a consumer, you lack important information for making purchasing decisions.

Moreover, there's a huge information gap between the consumption of harmful chemicals and their long-term effects. At the point when you consume them, nothing happens. However, the combination of chemicals we are regularly exposed to can build up over time and create synergistic effects that can lead to adverse health conditions like cancer, chronic illnesses and reproductive problems. This is often referred to as the *cocktail effect* – which is rarely taken into account when determining the allowable concentrations of chemicals in products (Miljøstyrelsen, 2017).

"you can make a system function better by feeding it accurate information at the right time"

(Meadows, 2001, p.60)

Counterhegemony

The bottom-up approach we chose to work with is further substantiated by Foucault (1977) and his thoughts on how power in a system flows in a capillary and diffuse fashion–being both centralized at the top, with governments and corporations, and fragmented at the bottom, in the agency of multiple actors. According to him, governing decisions stem less from top-down regulation and more from bottom up normalization, meaning that when people act according to the norm, they are giving their consent and saying they approve, and are a part of shaping that behavior. In the context of the Dirty Dozen, our continued acceptance of products that contain harmful chemicals normalizes the practice, establishing the use of chemical additives in everyday products as a hegemonic practice.

Attempting to change the norm–which is indeed our intent on this project–establishes our work as *counterhegemonic*, given that it goes against what is commonly accepted. In *Counterhegemony or bourgeois piggery?*, Josée Johnston (2008) argues that if power is in multiple locations, then resistance should be applied on multiple points of contact, as different forms of agency confront different degrees of power. Agency, as defined by Siniscalchi & Counihan is "how people act on, connect to and transform economic or social relations while expressing their support or dissent" (2013, p.8). Agency is enacted by governments, corporations and individuals alike through daily acts–but agents are only thought to have power when they possess the capacity to affect outcomes. Coop can be considered an agent, but their individual customers might not have the same sense of agency and belief that they can change the system from their position within it. Johnston suggests that individuals can feel and see their power when they interact with others; that *empowerment* is necessarily a group project that requires cooperation to generate meaningful outcome. With this in mind, we focused on strengthening Coop's connection to their members and empowering them to play a more active role in working with Coop to create change. *Creating post-consumer values* is a concept that Johnston considers essential for successful counterhegemonic projects, which means allowing people to see themselves as more than mere consumers, but as part of a larger community. When people are part of a community, they focus more on the rights of the group than on their own individual rights, which provides further justification for our aim of building a community around the chemicals from within Coop's member structure.

Design activism

In order for Coop members to become actively engaged, they must first be able to identify the issues they are interested in engaging in. John Dewey (1927) explains that in order for people to engage in an issue, or in his terms, form a "public" around a "matter of concern", that they must be able to *feel* the consequences of an existing condition. DiSalvo explains that "the issues themselves do not exhibit agency to assemble people. Rather, it is the actions and effects of others communicating issues and their consequences, that prompt a public into being" (DiSalvo, 2009, p.51). As mentioned earlier, the consequences of long-term consumption of chemicals is not immediately apparent, but may be revealed over time. The lack of immediate feedback can result in the inability of a public to form around the issue. This is precisely where our thesis contribution is positioned. DiSalvo argues that the "act of communication is both a problem for the construction of publics and a place where design contributions can occur" (ibid. p.51). Accordingly, our roles as codesigners is to identify the matters of concern by giving form to the various issues surrounding these chemicals, enabling a wider public to "feel" and engage in them. Disalvo suggests various design tactics that can be employed to "invite users to experience the conditions and constructs of hegemony... and perform judgments about those conditions" (DiSalvo, 2012, p.53). Two specific tactics he suggests for revealing hegemony are *tracing* and *projecting* (fig.11).

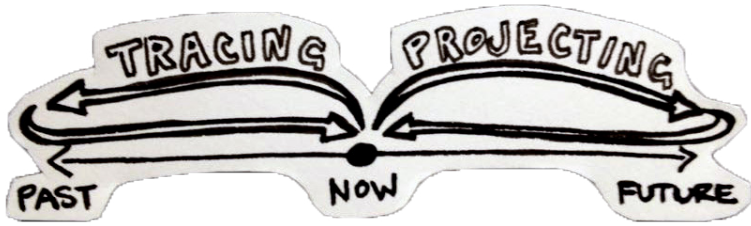


Fig 11 *Tracing* refers to going back in time to expose the "underlying structures, arguments, and assumptions of an issue" (DiSalvo, 2009, p.55), while *projecting* means moving forward in time to anticipate "future consequences associated with an issue" (ibid. p.52). We've found projecting to be relevant for illustrating the long-term health effects of chemical consumption, making them more tangible or immediately relevant.

PROBLEM STATEMENT

How might we empower people to reduce their "daily dosage" by providing Coop's voluntary members with a means of spreading knowledge about the Dirty Dozen chemicals with fellow members and customers?

OUR PROCESS

Like in most codesign processes, things don't always go as planned. While our initial intention was to explore the chemicals with Coop members by engaging an advisory board, we immediately hit a roadblock: it was really difficult to find an advisory board to work with. This unanticipated difficulty forced us to split our research efforts into two parallel tracks: engaging Coop's members, and investigating the chemicals themselves (fig.12).

When first establishing our collaboration with Coop, we were thrilled to be working with a partner that had a member structure and valued member involvement. We knew how relevant such a structure could be to a codesign process, and anticipated the ease with which we would be able to recruit participants.

Accordingly, our first step was to reach out to one of Coop's advisory boards to invite its members into our project. We contacted Nicolai Jæpelt (Project Manager at Coop Amba), who works with Coop's member structure, to put us in contact with one of the boards. It was harder than we anticipated for him to find a board interested in collaborating. Finally, he came through with contact information for Mikkel Sarbo, the chairman of the board at SuperBrugsen

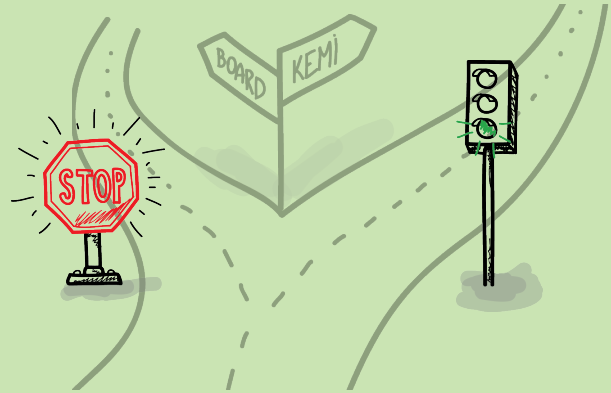
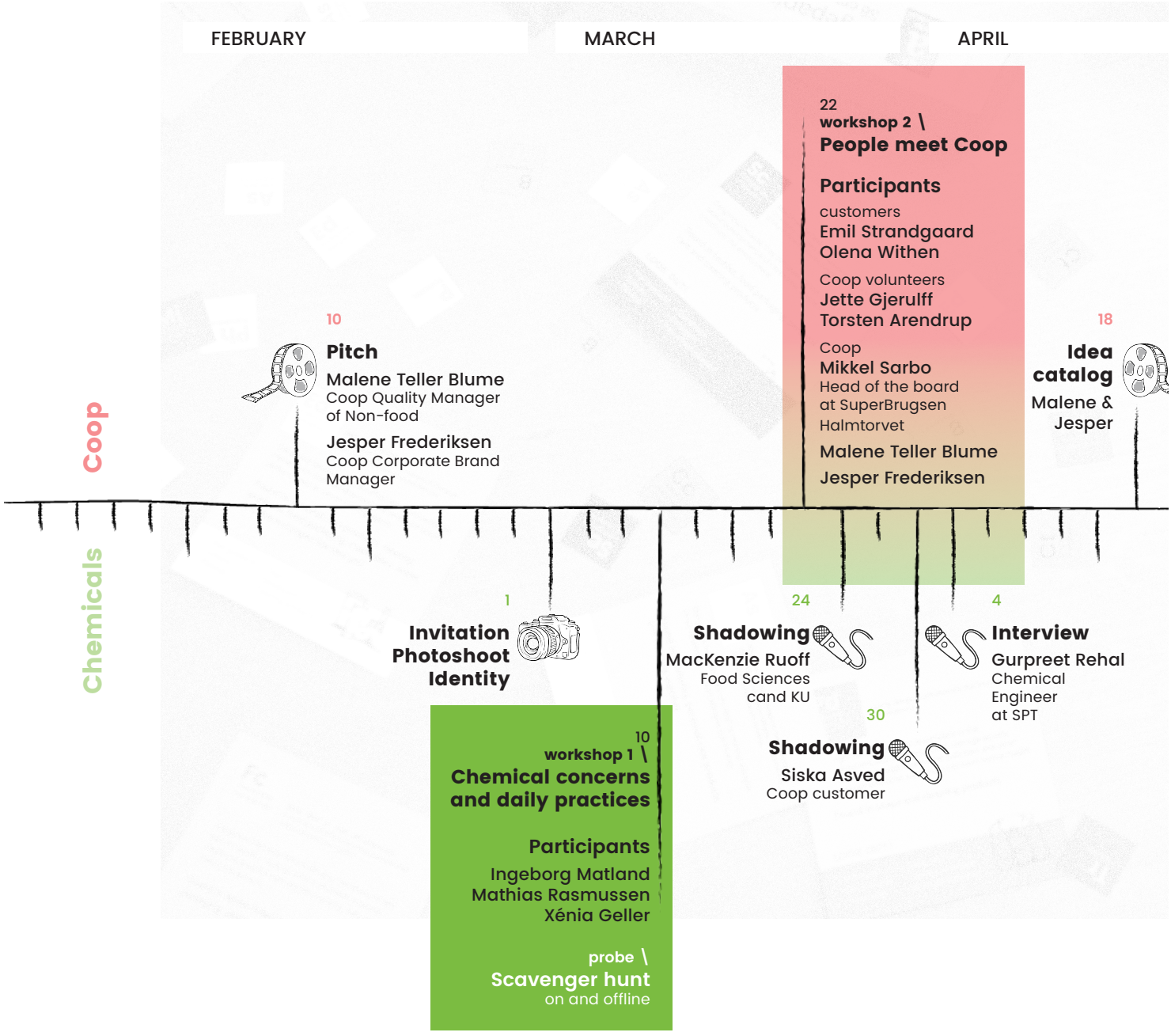


Fig 12 Our two parallel tracks

Halmtorvet, whom Nicolai wrote "would love to work with us!" Unfortunately Mikkel's enthusiasm wasn't so apparent when we tried to get in touch with him to plan a kick-off workshop: he was rather unresponsive to our emails and phone calls, and we could sense that this workshop was going to take a lot longer to plan than we had initially anticipated. We knew we couldn't wait any longer to start our research on the chemicals, and decided to go ahead with our own investigations outside the formal structure of the advisory board.


FEBRUARY
MARCH
APRIL
Coop
Chemicals
10
Pitch
Malene Teller Blume
Coop Quality Manager
of Non-food
Jesper Frederiksen
Coop Corporate Brand
Manager
22
workshop 2 \
People meet Coop
Participants
customers
Emil Strandgaard
Olena Withen
Coop volunteers
Jette Gjerulff
Torsten Arendrup
Coop
Mikkel Sarbo
Head of the board
at SuperBrugsen
Halmtorvet
Malene Teller Blume
Jesper Frederiksen
18
Idea
catalog
Malene &
Jesper
1
Invitation
Photoshoot
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24
Shadowing
MacKenzie Ruoff
Food Sciences
cand KU
4
Interview
Gurpreet Rehal
Chemical
Engineer
at SPT
30
Shadowing
Siska Asved
Coop customer
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workshop 1 \
Chemical concerns
and daily practices
Participants
Ingeborg Matland
Mathias Rasmussen
Xénia Geller
probe \
Scavenger hunt
on and offline

MAY

25
**Coop event at Kvickly Odense **
Volunteers attend seminars

Feedback on three prototypes that explored different directions

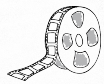
invited by **Malene**

20
**Coop bus tour **
Volunteers visit producers around CPH

Feedback on prototype iteration

invited by **Torsten**

4



Prototype test
at SuperBrugsen Nørrebrogade

2 day test of video about BPA

Starting with ourselves

Ezio Manzini describes codesign as a complex process "in which different stakeholders (design experts included) bring their specific skills and their culture" in order to initiate a dialogue in which "involved actors are willing and able to listen to each other, to change their minds, and to converge toward a common view" (Manzini, 2016, p.58). Inspired by Manzini's notion of design as a conversation, or as he describes it, *dialogic design*, we began the project by considering our design expertise as material for initiating dialogue. In the following section, we'll discuss examples where we allowed our professional design expression to serve as the first step towards collaborative exploration.

Invitation

As with many codesign processes, we began our work with an invitation (fig.14). According to Lindström & Ståhl (2016) an invitation frames "what the problem is, how to engage with it and who is to participate" (p.186). In order to get people to collaborate with us, we needed a visual way of expressing what we wanted to explore. We fell back on a method that has worked well in previous projects: 1) staging a photo shoot to create our own visual material 2) creating a visual identity for the project. These two components enabled us to communicate our design professionalism in the invitation we were crafting (fig.15-17).

Fig 14 Creating an invitation with our own images and visual identity enabled us to assert ourselves as designers in the project and show some of the competencies we have to offer.

Photoshoot

The intention of the photoshoot was to create thought-provoking visual material that would spark people's interest in the project. By staging the photoshoot using props, we were able to reconfigure the subject matter in a provocative and unfamiliar way. The contradictions these images brought forth bordered on the notion of the strangely familiar, whereby introducing strange elements in familiar settings can serve as a way of questioning commonplace everyday practices (Blauvelt, 2003).

Fig 15A By wearing laboratory equipment while cooking, we question the presence of chemicals in household products.

Fig 15B We play with the use of rubber gloves and green paint while applying personal care products – the green color represents the "invisible" chemicals in these products.


NYRR
GRIDIRON
AND LONGEST FOOTBALL THROW
4-MILE
RUN FOR LIFE
02.07.16

Visual identity

Even though we were working within the already established Dirty Dozen strategy, we wanted to make sure that our work stood out as a distinct project and didn't disappear completely into Coop's brand. We were critical of how Coop was communicating the strategy–the information was hard to find on their website and wasn't organized very simply or intuitively. To set ourselves apart, we created our own name, visual identity and logo for the project.

Fig 16A The Daily Dosage extended logo

Fig 16B The Daily Dosage brand

Naming

The name "Daily Dosage" refers to the amount of chemicals that we are exposed to on a daily basis. Knowing that it's impossible to avoid coming in contact with chemicals altogether, we chose a name that questioned what an acceptable "daily dosage" of chemicals could be.

Form

As the title doesn't specifically refer to chemicals, we alluded to them through the design of the logo, placing the title's acronym "Dd" in a square – just as chemicals are symbolically depicted in the periodic table of elements.

Typography

Poppins is a geometric sans serif open type designed by Indian Type Foundry's Jonny Pinhorn. Its clean and smooth lines caught our attention for being able to communicate a serious subject, such as harmful chemicals in our daily products, in a lighthearted and approachable manner.

Palette

Though the color green is often used to denote sustainability and "green" design, we chose this particular acid-green hue to allude to chemically hazardous substances.

Fig 17 Poppins' characteristics

Film

Another way that we asserted our design professionalism was by using film. According to our experiences within codesign, the use of film is generally applied towards documenting and presenting insights from field encounters or as part of "ethnographically inspired inquiry into user contexts" (Burr, Binder & Brandt, 2000, p.21). This is likely due to the fact that the medium affords a level of richness that goes beyond what photo and text descriptions alone can provide. In *Taking Video beyond 'Hard Data' in User Centred Design* the authors point out that "the leap from documentary to design artefacts is difficult and poorly explored" and argue that "there is both a need and an opportunity to overcome the limitations of viewing video material as data" (Burr et al., 2000, p.21). Accordingly, we wanted to push beyond using film as a vehicle for documenting and displaying user insights and explore different ways of using this medium in a codesign context. In reflecting on our experiments, we'd like to share two ways of using film that we found beneficial for our process: 1) As a negotiation tool for engaging collaborators (fig.18-20) and 2) As a prototyping mechanism (fig.21).

At our first meeting with our new partners, Malene and Jesper, we sensed a bit of skepticism about the project–perhaps they were afraid that collaborating with us would be a strain compared with what they'd gain from it. We knew we had to convince them of the value we had to offer. Following our commitment to working with film, we created this short, illustrated video. It was produced rapidly and sent off as a "quick and dirty" sketch of our ideas for the project. Despite the rough quality of the film, Jesper was impressed by our ability to express our ideas in such a simple and creative way. Because we sent the film in advance, he had time to watch it before our phone meeting and consider our suggestions in relation to his and Coop's interests. Thus, he was prepared to explain why the "information" track seemed more relevant for Coop as well as express his concerns regarding the proposed ideas. It's worth mentioning that it was at this point that we received a commitment from our partners to contribute their time to the project, and shortly after we received an approval of our requested budget.

Fig 18 Here we used hand drawn illustrations and a voice-over narrative to describe to our project partners the two directions the project could take before beginning. The film was produced quickly, primarily as a means of describing our thought process in a visual way in order to involve our partners in the decisions we were making while writing the initial program. You can view the full length of film on the attached USB (film #1) or by accessing the following link: https://vimeo.com/203448174/10480c6270.

1 New Label

We describe the potential in Coop creating a label for their chemical standard, including requirements for chemicals in product packaging.

Film #2 on USB or https://vimeo.com/213660636/c3d858019c

2 Training

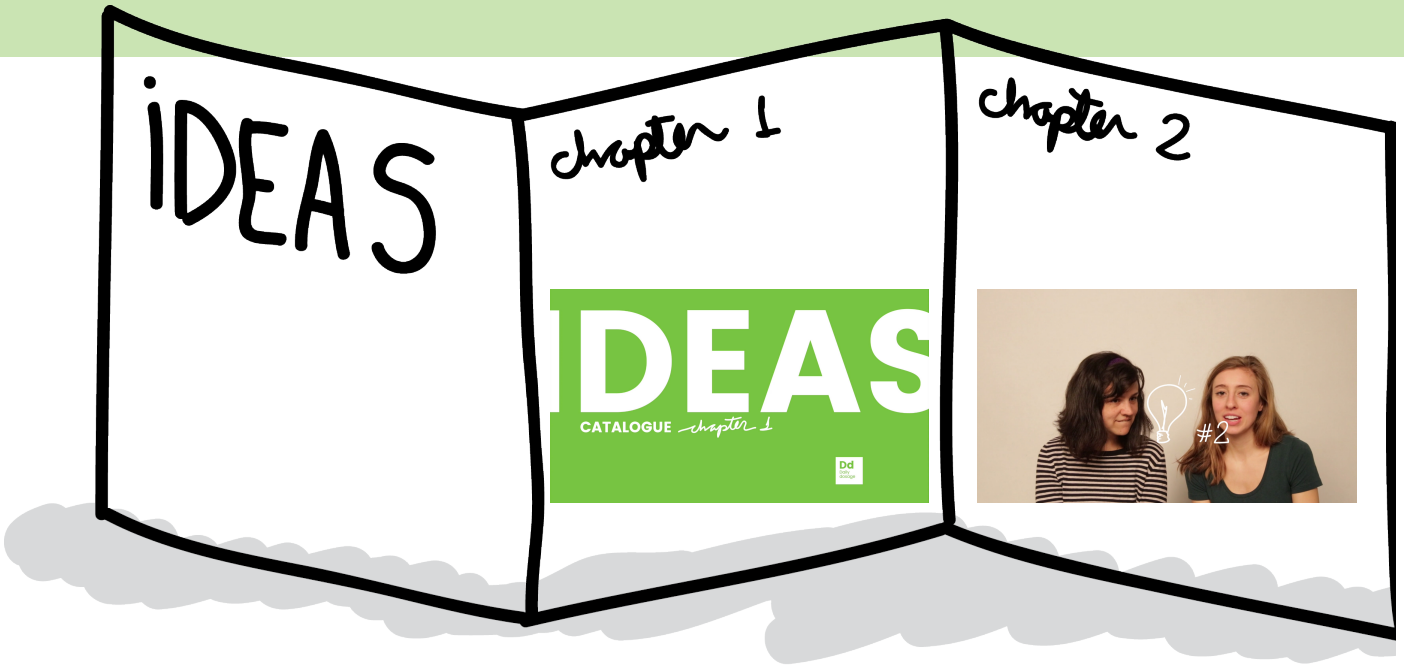
We discuss the benefits of using an interpersonal approach to informing customers about the chemicals by training employees.

Film #3 on USB or https://vimeo.com/213677282/3d9086355b

3 D.I.Y.

We propose encouraging "do it yourself" solutions that reduce customers' dependence on ready-made products.

Film #4 on USB or https://vimeo.com/213663164/f17428942d



4 Installation

We suggest creating a stand-alone installation in the supermarket to inform customers about the chemicals while they shop.

Film #5 on USB or https://vimeo.com/213669427/4092a466df

5 Back-pocket

We present 6 additional ideas that we see potential in developing, though in less detail than the previous 4.

Film #6 on USB or https://vimeo.com/213673421/f82dad0ff3

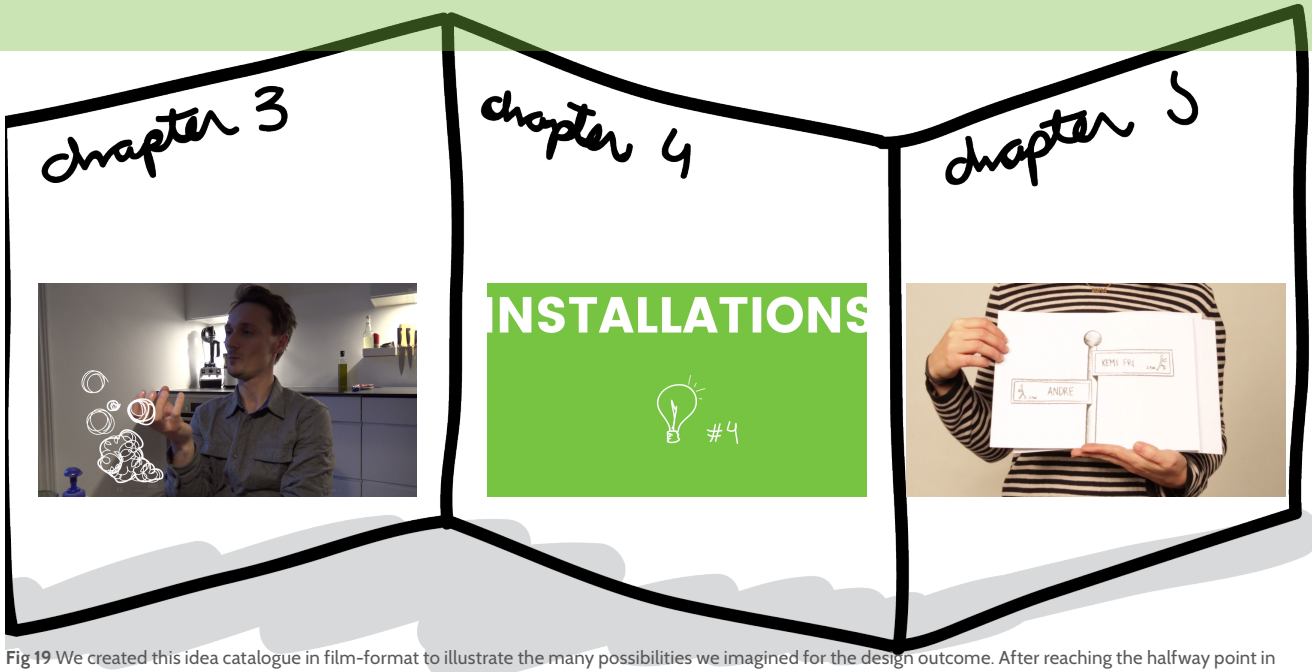


Fig 19 We created this idea catalogue in film-format to illustrate the many possibilities we imagined for the design outcome. After reaching the halfway point in our process, we had gathered more information than we could use in the remainder of the project and wanted to make sure that our partners were involved in narrowing down the scope and determining the direction of the final outcome. Each of the 5 chapters of the idea catalogue is approximately 3 minutes long, and includes a presentation of research insights and a discussion of the idea itself.

At this point in the project, we had gotten to know that our partners had very busy schedules, so we decided to do them a favor by making the idea catalogue in film format rather than in writing. In total, they lasted 15 minutes, and could be watched on the go or during a coffee-break. Despite the fact that we only sent the films a half-a-day in advance before our meeting, both Malene and Jesper were able to watch them beforehand. Jesper explained that he watched them at home with his kids, and we wonder if he would have invested his free-time if we had sent him a detailed report instead.

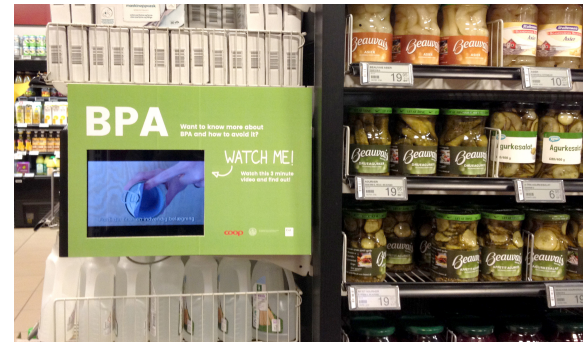
These films had a higher production quality than the first, and were more reflective and critical. We took a meta-level perspective on the project, zooming out to discuss the strengths and weaknesses of each approach. This was done very simply by putting ourselves in front of the camera in the film studio and discussing the ideas together (fig.20). The informal, conversational tone we establish in the films invites the viewer into our internal thought process, while illustrations and animations provide visuals that supplement our ideas. Moreover, we presented our research insights through clips from our field encounters, which served to "maintain reference to the context of use" and remind of the issues that project was focused on addressing (Burr et al., 2000, p.28).

Fig 20 Here, we discuss the ideas together in the film studio, taking a meta-level perspective on our work

In comparison to using written text, we couldn't provide details about each idea in the film. At the meeting, there was much more to discuss and clarify, but the films served as an entry point to a deeper conversation about the qualities of each approach. Malene and Jesper were able to point towards which aspects of each approach they found most promising and/or challenging. For example, the idea of employee training reminded Malene of an existing program at Coop for educating volunteers about Coop's CSR initiatives. She saw great potential in tapping into that system and improving it, rather than starting a completely new program for employees. We were mainly interested in the interpersonal aspects of the employee training idea, and agreed in that it made sense to start with an existing structure–keeping in mind that our design space is not empty, and that we can contribute constructively by engaging in established practices (Kjærsgaard & Boer, 2016, p.230). Jesper was most drawn towards the idea of having something in the supermarket that the customers could interact with, but also saw potential in working with volunteers. Together, we defined success criteria for the project, and in the end had negotiated a final outcome that combined elements from both the employee training and supermarket installation ideas–though focused on volunteers rather than employees. As we've seen in these two examples, film can provide "a media for on-going negotiation and reflection on stories of the design to be created... allowing them to invoke yet new stories" (Burr et al., 2000, 2008).

Yet another way we used film was as a material for prototyping (fig.21-22).

Fig 21 This film prototype was created as a way of informing customers about the BPA in canned food products at the time they make their decision about what to buy: in the canned food aisle at the supermarket. The film is 3 minutes long and explains–through footage from our participants, illustrations and voice-over–what BPA is and how to avoid it using 5 simple tips. You can watch the film (#7) on the USB stick or by accessing the following link: https://vimeo.com/215804028.



Figs 22A & B The first version of the prototype (left) was presented at an event for volunteers in Odense. We learned that the film wasn't visible enough, and that customers weren't aware of what it was. So, we made a frame for the screen with more information, installing it at SuperBrugsen Nørrebrogade for two days during chemical week. At the end of the film, the viewer was prompted to ask for more information at the cashier, where we'd left flyers about the project.

We learned from these experiments that it was hard to assess people's reactions to the prototype's qualitative aspects. As we weren't standing next to the film at all times (it was in the supermarket for 48 hours), we weren't able to ask follow up questions or observe their behavior after watching it, so we don't know if they chose differently after viewing the film. If we *were* standing by the film, would our presence have made people shy away from watching it? We do know that it was successful in attracting some people's attention: upon picking up the film, an employee said he noticed people watching it, but hadn't received any comments about it. However, only 16 of the 45 brochures we had placed by the cash-register were left at the end of two days, meaning that 29 people must have asked for more information. The statistics on Vimeo and Facebook show that a third of the people who started watching the film finished it, suggesting that it was too long.

Looking back, we should have created a way to capture people's responses to the film, for example, by leaving a comment box where people could put feedback. We could also have been present in the shop to observe people's behavior and approach them afterwards to ask their thoughts, or ask an employee to pay attention to the prototype and give us detailed feedback at the end.

Autoethnography

Being that the audience of our project was the general public, rather than a narrow segment, we were, in a sense, also part of the target group that we were designing for. This provided us with a unique opportunity to include our own experiences in the fieldwork. Due to the subject matter of the project being chemicals in everyday products, we found ourselves constantly immersed in the subject: every time we went to the supermarket, we would observe labels on packaging, where certain products were placed, how the people around us were choosing what to buy etc. We too were trying to navigate in this very confusing field, and were finding it difficult to sort out all the information that we were constantly gathering. It seemed as though a lot of the chemicals are unavoidable: they are in our food, personal care products, furniture, clothing, and even in the air we breathe inside our homes. In order to work through all the new information we were gathering, we started documenting our own practices. We each tried to calculate our own personal "daily dosage" by searching for the chemicals in our homes and in the products we use every day. We took photos, made sketches of where we found them and started recording notes on our daily chemical exposure (fig.23).

Figs 23A & B Our documentation of our own practices and exposure to the chemicals inside our homes

Once we identified which chemicals we most often come in contact with, it became easier for us to try and figure out how we could avoid them. For example, we both found that we had been buying canned food products that contain BPA. With this new knowledge we started changing our practices by cooking dried beans in advance and freezing them in canned-sized portions or buying tomatoes in cartons, which don't contain BPA. In hindsight, what we were doing resembled autoethnography–a qualitative method that entails drawing on your own experience in order to "extend understanding about a societal phenomenon" (Wall, 2006). Although we didn't provide a detailed written account of our practices, our reflection on our own experiences enabled us to connect more easily to others' experiences. By starting with ourselves, we had a point of reference that was less academic and more personal when initiating conversations about the chemicals with our friends, families and research participants. In this way, our autoethnographic accounts were less about using ourselves as a means for understanding culture, as suggested by Wall (2006) in *An Autoethnography on Learning about Autoethnography*, but rather about using our own experiences to create a common ground for collaborative exploration.

With that, our families and friends started becoming part of our research as well. The subject of our thesis naturally came up in casual conversation, and because the topic of food and everyday products is so easily relatable, we found ourselves discussing it at dinner parties, family gatherings and when out with friends. Even though these people weren't "formal" participants in the project, these continuous discussions provided a constant stream of feedback about the work we were doing in relation to their own personal experiences. We made an effort to document these conversations whenever possible, experimenting with various media (fig.24).

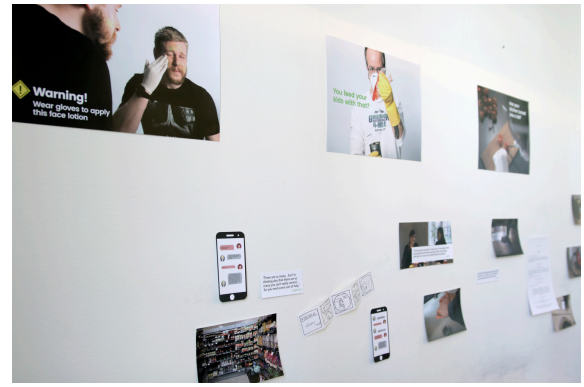


Fig 24 These are some of the ways we experimented with documenting our informal conversations about the chemicals

By experimenting with various documentation media, we observed the strengths and weaknesses of each approach. For instance, using sound recordings or film affords a greater degree of authenticity, as the person viewing or hearing the recording gets to experience the words directly from the person speaking it. When we, as designers, re-work the speech to be displayed in a more playful visual format, like a comic strip or chat convo (fig.25), the medium may seem less trustworthy, as it is one step removed from the person who initially said it.

However, the richness of sound and film also come at a cost, as they rely on presentation and recording technology that isn't always readily at hand. We experienced this several times, when we found ourselves in conversations about the chemicals but without our phones within reach. Other times, the conversations came and went so quickly that by the time the phone recorder was turned on, we had missed the most important parts of what the person had said. Another issue was the quality of the sound. When we were in social settings like

Fig 25 Re-working the material to be expressed in a more playful visual format, though fun, can reduce validity or authenticity by displacing it from the person who initially said it

dinner parties, the voices were so muffled by background noise that it was hard to hear what they said. In those circumstances, the sound recording served more as a reminder of what was said, than a presentable clip to be used for sharing with an external audience. Thus, our experiment of recording all our personal conversations about the chemicals was less successful than we had hoped for. Nonetheless, our dedication to document forced us to tune in to the conversations we were having and enable them to play a significant role in guiding our research.

In presenting conversations on paper, we made a comparison of two experiments (fig.26):

Overall, externalizing our new knowledge through documentation enabled insights to be shared with our participants and partners at Coop, which we found beneficial during the beginning of our process when we were trying to uncover people's concerns, worries and experiences with the chemicals. As we moved forward towards prototyping the final deliverable, we documented new conversations less and less, and focused more on organizing and synthesising the information we already had.

CRAZY ALLERGIES

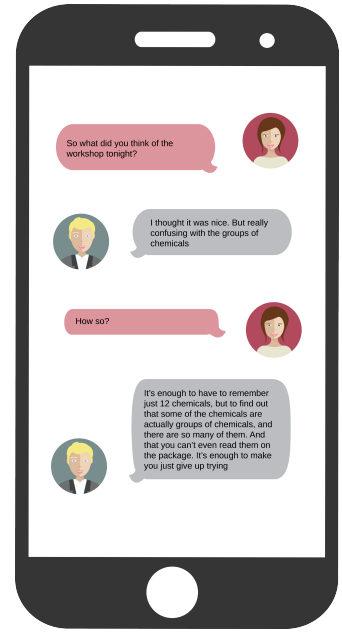
Written by
Daily Dosage

INT. GITTE AND JOHANNES' HOME - EVENING

GITTE, JOHANNES, MARGARIDA, YAARA, SOFIA and EMIL sit around the dining table. There are wraps and fillings in the middle of the table for them to make their own plates. SOFIA, MARGARIDA and YAARA discuss about their school projects while EMIL addresses his parents in Danish.

EMIL
Do you have some eye drops?

JOHANNES
Yes, I think they're in the bathroom upstairs.



Figs 26 Presenting dialogues as a script (left) required a lot from the viewer, as it is text-heavy and not engaging. Presenting them as a phone chat (right) provided an element of relatability; the visual context makes it more accessible.

Generating knowledge through codesign

In codesign, we strive to involve all stakeholders in the design process, from research and conceptualization to implementation. In the Center for Research in Codesign (CODE), at The Royal Danish Academy of Fine Arts (KADK), the approach to codesign is based on the Design Anthropological Innovation Model (DAIM), which combines design, anthropology and user involvement in a process seen as several rehearsals of possible future everyday lives: "By setting the scene for exploratory techniques like design games, extreme prototyping and improvised scenarios among actual social communities, design opportunities can emerge in the context in which they are to gain their meaningfulness" (Halse et al, 2010).

Being educated where the DAIM model was created, we've naturally integrated these techniques and principles into our codesign practice. We've aimed to maintain sustained collaboration by staging several encounters with our stakeholders throughout the project (Halse et al, 2010). These encounters have taken the form of events, workshops and interviews, where particular tools and techniques have been used to engage our participants in producing knowledge. In this section, we'll present some of the knowledge we've generated about the chemicals.

Packaging

The theme of packaging came up several times during our research: both in relation to it's design and composition.

Package design

During workshop 1, we asked participants to go around a home searching for products that they believed might contain harmful

Fig 26 Mathias doesn't worry too much about chemicals and buys products that are convenient, on sale, or that he's accustomed to buying.

chemicals. Then, we gathered at a table around the products and shared the reasons for choosing those particular products. In a codesign project, designers are responsible for developing tools to assist non-designer participants join the process in fruitful ways (Sanders & Stappers, 2008). Such tools are often called "dialogue tools"–tools that help facilitate a dialogue about a topic. In this case, the products themselves served as dialogue tools, and it was rather the activity surrounding the products (scavenger hunt) and the setting (home) that enabled them to take on various meanings. The set-up and context aided in facilitating conversations after the scavenger hunt; we learned just how much package design influences people's perception of a product and what they expect from it (fig.26-27).

Chemicals in the packages' composition

Even though a product may give the impression of being "clean" or "innocent", we learned through our research that the packaging itself may contain harmful chemicals, and that there is no legislation requiring the labeling of chemicals in packaging. For example, with chemicals like Methylisothiazolinone (MI), the chemical is added to the product itself, meaning that it must be declared on the package's ingredients list under various names, like Methylchlorisothiazolinone or 2-methyl-4-isothiazol (fig.28). However, BPA–a chemical used in the lining of cans and on the lids of glass jars–doesn't need to be declared at all.

Fig 27 All three of the workshop participants agreed that Dove soap couldn't contain harmful chemicals because its packaging looked so clean and innocent.

Fig 28 When chemicals are added to the product's contents, it is declared on the ingredients list–like here with "Methylchlorisothiazolinone" (MI)

You might be wondering, like several of our participants, why does it matter? You're not eating the package, after all! However, studies show that 80-100% of the BPA in the lining of a can is transferred to the food immediately upon filling and sealing the can (Goodson, 2004, p.1). You might also wonder why Coop doesn't just mark on their cans that they don't contain BPA as they do in other countries like the U.S. We asked that very question to Coop's BPA specialist, Louisa Raith Sørensen (fig.29), only to find that the issue was even more complex than we'd imagined.

When asking Coop's BPA specialist Louisa Raith Sørensen why they don't label cans from Änglamark, 365 and Irma Økologi as BPA-free, she explained that: "[these cans] are BPA-NI–meaning that BPA is not intentionally added. [...] The producer guarantees that BPA is not added to the inside, however it can appear in small amounts as pollution in the cans, since producers also produce cans with BPA and all or most BPA-NI cans have BPA coating on the outside. [...] We have considered marking our cans, but have chosen not to because of the risk of pollution."

On their website, however, they advertise these cans as BPA-free: "It's not simple to communicate our BPA-ban to consumers. I guess we have chosen to call our cans 'BPA-fri' instead of BPA-NI, because it's more simple to understand, even though BPA-NI would be more correct. We have the same communication issue when it comes to the packaging. It would be obvious to advertise our ban directly on the packaging, but it is also dangerous; The Danish Consumer Council does not support such a labeling. We have chosen the happy medium, where we communicate on our website, but not directly on the cans."

Fig 29 "BPA-fri" on the Dirty Dozen website

At the end of workshop 1, we gave our participants a probe that encouraged them to discover their own daily practices and exposure to the chemicals (fig.30). Probes enable participants to "document their private lives, contexts and experiences" enabling the designer access to parts of people's lives that they otherwise wouldn't be invited into (Mattelmäki & Battarbee, 2002, p.266). In this case, the probe asked participants to observe, document and share pictures of the chemicals they could find in their own homes. A few days after the workshop, Ingeborg contacted us, expressing how difficult it was to determine if her products contained these chemicals or not (fig.31).

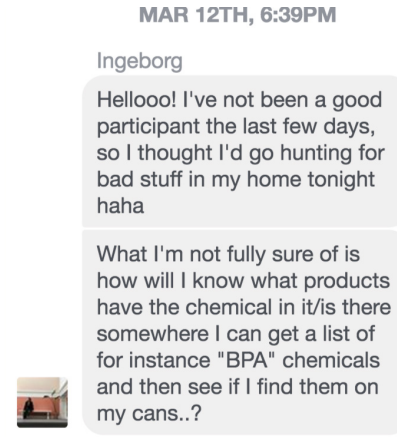


Fig 31 Like most of our participants, Ingeborg had a hard time figuring out how to know if her products had chemicals if they weren't marked on the packaging

Fig 30 The probe was crafted with the goal of understanding when, where and how the chemicals are used on a daily basis. It was comprised of a small booklet with instructions and information about each chemical and an envelope with small stickers with each chemicals' symbol. Participants were instructed to follow our Facebook page, where we would give out information about one chemical each day, for 12 days, encouraging them to search for it in their homes, tag the product with the corresponding sticker, and share it on our Facebook page.

In order to engage a wider audience, we also created a digital version of the probe that we posted on our Facebook page (fig.32). The intention was to prompt discussions online and uncover more of people's concerns about the chemicals. On day 1, we addressed the issue of labeling on BPA cans through a short video (fig.33).

Fig 32 We posted information about a chemical, asking people to search for it in their homes and share. At the supermarket, we tagged products that had the chemicals.

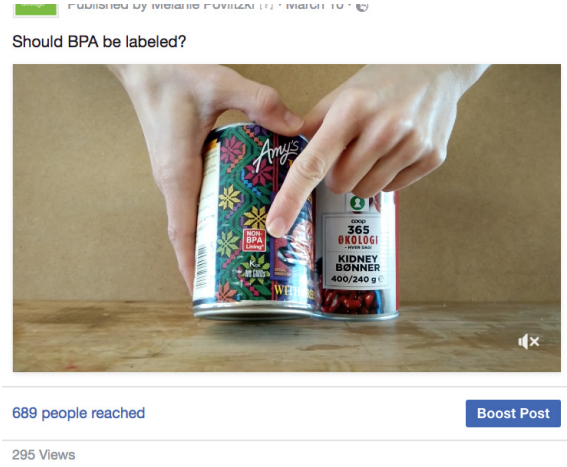


Fig 33 This video explains the lack of labeling on BPA cans. See film #8 on the USB or https://www.facebook.com/DailyDosage12/videos/1826587189027791/

Unfortunately, the online probe failed to generate as much dialogue as we had hoped for. Facebook statistics showed that people would open the pictures we were posting–likely reading the information–but would seldom share or comment. We received feedback on the probe from our participants: 1) it was too demanding and hard to identify

the chemicals when they weren't labeled 2) it was overwhelming to realize that the chemicals are everywhere. With that, we revisited our strategy, starting to do the work for them by posting pictures of which specific products we had found the chemicals in–instead of asking them to find them themselves–and by posting concrete ideas on how to avoid them. Still, we failed at creating dialogue and engagement through this digital platform. If we were to create a digital probe again, we might consider how to increase our chances of capturing feedback. We wonder if having the probe on an open and public Facebook page might have made people shy away from commenting. If we had created a closed group with fewer participants, would people have shared more? We would also make the tasks quicker and easier to engage with, thereby demanding less from our participants.

Overwhelming

As seen in the feedback from the probe, people were overwhelmed by the chemicals. Despite our effort to simplify the information and make it accessible, our participants still expressed that it was too complex to navigate. Some of our participants were shocked that they should even have to think about chemicals when shopping–how had the law not provided them with better protection from harmful substances? They felt betrayed by the government and by producers for not disclosing all the information about their products (fig.34). Others reacted in a more apathetic manner. They may have heard about some of the chemicals before, but chose to dismiss the information because they felt that there wasn't anything they could do about it anyway (fig.35).

Fig 34 Conversation between Sofia and Emil, when he first learned about the chemicals, sharing his feeling of being cheated.

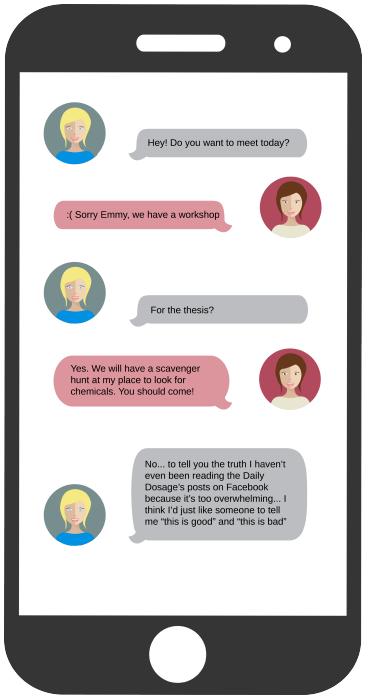
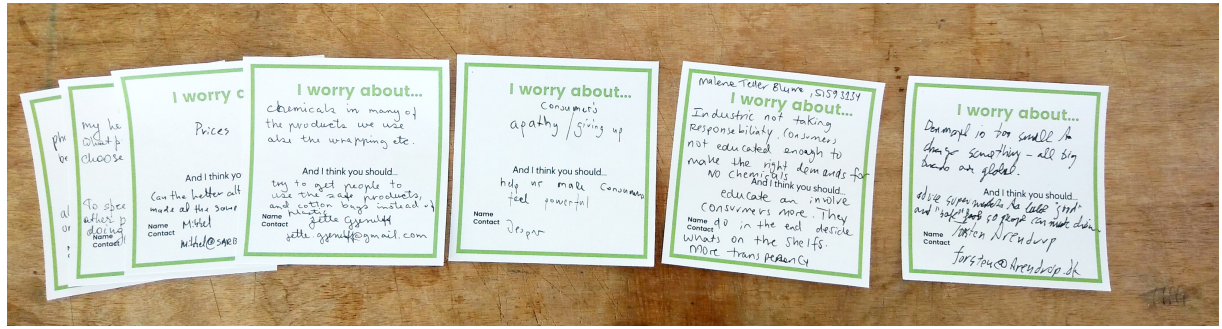


Fig 35 Emmy chooses not to think about the chemicals, since the information about them seems to complicated to navigate. She wishes someone would just tell her what is good and what is bad.

Because it became a recurring theme in our research, we chose to address this overwhelming feeling in workshop 2, where Coop customers, employees and board members would meet face-to-face to discuss the issue of chemicals. We wanted our partners at Coop to see and feel just how difficult it is to navigate as a customer. To set the stage and put them in the shoes of a "regular confused consumer", we set the table with a warm-up activity for identifying which products contained which chemicals (fig.36).

Fig 36 For the first 10 minutes of workshop 2, participants were asked to label the products on the table using the chemical stickers, which we had placed all over the table to reiterate the feeling of being surrounded by them without knowing what to do. We instructed the participants to use the KemiLuppen app as a tool for looking up the products,.

This exercise helped to even out the playing field and establish a common ground between the people from different levels within Coop that were present at the workshop. We are all customers at some point, so most participants could empathize with the overwhelming feeling of not knowing how to choose without the complete information. At the end of the workshop, we asked the participants to share their main concerns after having heard and discussed what we had had presented from our research (fig.37-39). Not only was the overwhelming feeling a concern for customers, but also for our partners at Coop; they feared that their customers would feel powerless and just give up on trying to make the right decisions for avoiding the chemicals.



Figs 37, 38 & 39 Jesper fears that customers will just give up, Malene worries that they don't have enough knowledge to demand safer products, and Torsten believes that products should be labeled as "good" and "bad".

Tips

We realized through these conversations that talking about the chemicals without providing people with practical solutions on how to avoid them was contributing to the apathetic attitude and making them feel like they weren't in control. This was the opposite effect that we wanted our project to have: we wanted to empower people to make changes to avoid the chemicals, not to overwhelm them to the point where they give up! This made us return to the autoethnographic part of our research–how were we dealing with the chemicals and how had we not yet given up? We noticed that our practices were changing in small ways: we began buying soap without MI and scanning products with the KemiLuppen app before buying them. These small steps helped us to stay motivated and feel in control even during the most overwhelming parts of the project. Our participants shared with us their own tips on how they avoid the chemicals (fig.40-42), so we began collecting these tips and sharing them.

Fig 40 Siska eats primarily organic food, and is very concerned about chemicals. She shared some of her "do it yourself" tips with us, like how she boils dried beans and freezes them instead of buying them in cans.

Fig 41 We learned from one of Coop's volunteer members that by putting plastic wrap over the glass jar before putting on the lid, you can avoid BPA contamination when reusing glass jars

Fig 41 Xénia has some knowledge about the chemicals on the Dirty Dozen list, and has been changing her habits for about a year to become healthier. One of the changes she made was switching out her regular deodorant for a crystal one that doesn't contain chemicals. She could really recommend this type of deodorant and shared the tip with everyone at the workshop.

This made us consider how much and what kind of information we should provide in our design outcome. It seemed as though there is a fine line between giving people the information they need in order to understand why they should change their habits, but not so much that they become overwhelmed and give up. We decided that our approach would be to always connect the "technical" information about the chemicals to positive actions you can take to avoid them– empowering people rather than burdening them with the knowledge.

Excuses and exceptions

Even when we have the knowledge needed to make good choices, we are all still humans, and have a natural desire for pleasure: we often rationalize our product choices–even when we know we're not making the healthiest one. Excuses vary depending on the occasion, and we found many throughout our research: some people make exceptions for the sake of comfort, convenience or because they have an emotional connection to a certain product. Others try to balance their choices to avoid restricting themselves too much; if they make good decisions most of the time, they allow themselves to splurge when on vacation, celebrating or hanging out with friends (fig.43-46).

Fig 43 Ingeborg was not raised to think about the products she buys, the thought of chemicals in her everyday products had never crossed her mind. When she moved to Denmark she was stunned by how much people here think consciously about their everyday products–it made her feel like she should be considering these things too. Yet, she still finds there's something cosy about the dishwashing detergent that reminds her of her grandma's home. Sometimes she wants to buy the smelly green one just for the sake of nostalgia!

Fig 44 Emil has always bought allergy-free products and for the last few years has tried to consume mainly organic products. He was bothered to learn about chemicals in packaging, and resents that society has developed in a way that makes us feel like we need things that we don't actually need. Despite this, he admits that he still really likes toothpaste that foams a lot, even though he knows that the non-foaming toothpaste is better for him.

Fig 45 Xénia is very aware and tries to avoid chemicals at home, but makes exceptions in social situations and gives herself room to choose poorly sometimes

Fig 46 MacKenzie, a master's student in Food Science at Copenhagen University, is aware of some of the chemicals, but still makes a lot of exceptions based on budget, flavor and purpose.

Although we won't directly address excuses in our design outcome, we're aware that they can get in the way of people changing their habits. In revisiting our goal of creating post-consumer values, it's important to consider the human need for pleasure. In our final outcome, we aim to make it enjoyable to shop healthier. We expect that by presenting people with clear information and simple actions–that are not only healthy, but that can also feel, taste, smell and look good–that we can allow them to experience a different type of pleasure: relishing in the fact that they've made a safer choice and enjoyed it. Creating a foundation of shared identities and understandings of the good life is, according to Johnston (2008), an effective path for maintaining sustained mobilization for change.

Advisory board

Up until now, we've primarily discussed our research on the chemicals themselves. As mentioned earlier, we were simultaneously trying to find ways of connecting with Coop's advisory boards to understand the structure. It actually took Melanie joining the board of her local SuperBrugesn in order to understand the details of how the individual boards function. Through this experience and by joining Malene at an event for volunteers in Odense, we learned that the member involvement within Coop is not as widespread as we had thought, and is often times hindered by bureaucracy. Although we don't have room to unfold those issues in this report (we'll save that for the exam), we will briefly outline the structure within which our final deliverable will be situated.

As mentioned earlier, after presenting Malene and Jesper with the idea catalogue, we decided together that we would tap into the program that Coop had already established for involving their volunteer members in their CSR initiatives. In short, Coop provides free education in the form of seminars, and in exchange expects them to volunteer by spreading the information in their local shop (fig.47-49).

Fig 47 The first step in becoming involved is to join the advisory board of your local shop. Each shop is allowed 5-7 board members. Each year, they must be voted in at the shop's annual meeting, which is open to all members of that shop. When you get voted in, you're given a welcome card and a catalogue of Coop's education program for advisory board members. Here, you can choose between several different courses provided throughout the year, with different themes.

Malene and Jesper are aware that this structure isn't particularly successful. Attendance rates at these events are rather low, and many times the participation stops after the course. While some of the older (65+) advisory board members think it's cosy to sit in the shop and hand out flyers, the format lacks engagement with customers and communicates the message poorly. At the event in Odense, some volunteers expressed their frustration with this format, because they don't want to just promote Coop's products

Fig 49 After the event, Coop suggests that the members volunteer by sharing the information in their local shop. This usually takes the form of sitting in the shop for a day handing out flyers that are provided by Coop

Fig 48 We attended one of these courses in Odense to see how they work and present some of our prototypes. This particular course was about Coop's quality standards, and started with three lectures by Coop's staff about the history of Coop, their new animal welfare label and the Dirty Dozen. Afterwards, there was a tour in the shop where participants were able to taste and try out different products. At the end, there was food, drinks and a round for sharing feedback about the event.

(fig.50). Other volunteers expressed that they didn't have the proper materials for doing the work that Coop expected; they lacked resources for bringing these messages to the customers. For example, one woman requested small samples of Coop's products to share with customers. Others wished for information that didn't just inform about the products, but also the issues surrounding them (fig.51). These experiences confirmed that participation in Coop's member structure is not as easy as we initially had thought. Realizing this, we challenged Coop's current notions of involvement, urging them to provide greater support for volunteers, as a gesture of appreciation for their time and contribution. We believe that Coop needs to give more in order to fulfill the potential of their voluntary structure.

Fig 50 This woman (and others at the event) expressed a desire to educate customers–rather than sell–and to share information about the causes she's passionate about.

Fig 51A Torsten is very engaged in Coop's voluntary structure and regularly organizes events like dinner clubs where members can meet and discuss different topics like: "What is good food?" We met Torsten at our second workshop, and he asked us for a copy of the chemical cards we had created to use at his dinner club. He appreciated that they displayed the information in a clear and simple way and could be used to educate about the issues at hand.

Fig 51B Mikkel is the chairman of the board at SuperBrugsen at Halmtorvet. He believes Coop should make more use of their voluntary structure, so they are able to come further with their initiatives without having to invest in hiring more people.

Exploring in all directions

One thing you might notice about our research is that we explored in many different directions, rather than a linear path (fig.52). Thus, our prototypes didn't necessarily build on the same idea through each design iteration. Our strategy was rather to produce generative prototypes, seeking to uncover new pieces of the "chemical puzzle" every time. Generative prototyping is a DAIM strategy in which we "relentlessly try out what new thoughts and actions a design suggestion might spur. [...] It is not only about testing if an idea fits the defined goal; it remains open also for what we are conducting inquiries for" (Halse et al., 2010, p.27). Following this strategy, we experimented with many different aspects of the subject simultaneously, probing to see where where we could uncover the most design potential. At times, we had trouble seeing the red-thread throughout the process, but in reflection, it could be that the red thread was our courage to experiment, even when we were unsure of what we would gain from it.

The result of this approach was that we uncovered so many compelling insights that we were unable to integrate them all into our final design solution. Towards the end of the project, it was extremely difficult to decide what to focus on in the final deliverable–it meant saying goodbye to so many interesting parts of our research and leaving them behind. Perhaps this was the biggest challenge we faced in the project: deciding how to organize and synthesize after developing such a rich and diverse body of knowledge to draw on in the project.

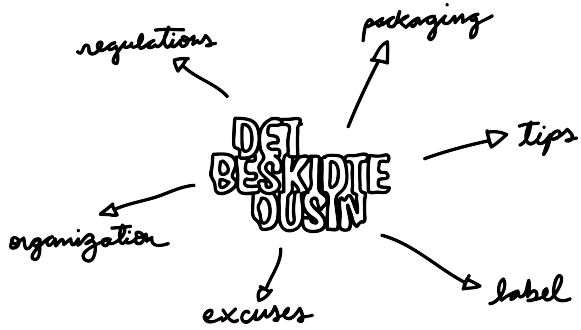


Fig 52 Prototyping in all directions, enabled us to explore many different aspects of the issues at stake.

Making the invisible, visible

As mentioned earlier, one of the biggest challenges with these chemicals is that they are invisible. We're not able to see them, and their effects may only reveal themselves many years later. How are we to feel the pressure to act on something that is so intangible? As designers, we have a great advantage in our ability to give form to things that are otherwise intagible or difficult to grasp. Our design ambition is to make the chemicals visible–forcing them into the spotlight of the public eye–but there is, of course, more than one way of doing that. In this section, we will briefly outline two of the paths we explored as design solutions before deciding upon what the final outcome would be.

Our design ambition is to make the chemicals visible–forcing them into the spotlight of the public eye

New label

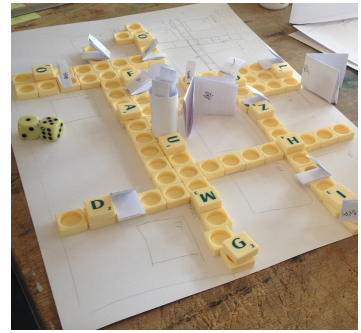
After reading the results of our research, you might be wondering why we didn't choose to make a new label about the chemicals in product packaging; that would certainly be a way of making the chemicals more visible. Our research did uncover strong potential for creating a new label, and this was one of the suggestions (#1) that we made in the idea catalog we presented to Coop. There are two main reasons that we chose not to follow this path. First, while we did see an exciting challenge in co-creating the standards for the label together with Coop customers and members, we felt less drawn to the design challenge of creating the graphics for the label itself. Secondly, when we proposed the idea to our partners, they immediately shook their heads. Apparently Coop is facing many challenges with the new animal welfare label that they just launched and aren't ready to invest in another widescale labeling project–at least for now. The main problem they're facing is making customers aware of what the new label means. Similarly, many of the people we've interviewed in our research admitted to not knowing what all the labels on the market mean, and that they have a hard time differentiating between them (fig.53-54).

Fig 53 Even though MacKenzie studies food science, she's not aware of what every label means.

Fig 54 Even though Siska is a very aware shopper, she admits to not knowing what every label means–even though she feels like she should–but just trusts them anyway

Board game

We spent two weeks exploring the potential for making a game that could be used by Coop's volunteers to help educate about the chemicals. One of the reasons we were drawn to the game format was that games allow the creation of alternative worlds that are "defined by rules" and "result in a quantifiable outcome" (Salen & Zimmerman, 2003, c.7, p.11). In the game universe, we could enable players to experience consequences of long-term chemical consumption through instant feedback defined by the rules. Compressing a lifetime into a half-an-hour game session seemed an interesting way of making the chemicals visible. After creating several prototypes (fig.55), we realized that the information was too complex to fit into a single board game–we would have to create additional material to supplement it, giving the volunteers too much work. We also struggled to find the right balance between making the game educational, while still being fun and entertaining. Moreover, we decided that it was important to create something that could function in the supermarket setting. At this point, we simplified our idea to create a simple and playful activity to be carried out by advisory board members in their local shop. Even though we decided not to create a game, our explorations of game design enabled us to understand how play could become a central part of our design.



Figs 55A, B & C For two weeks we explored possibilities for creating a board game about the chemicals, to be used by Coop's volunteer members.

REFLECTIONS

Although we've discussed several aspects of our project throughout the contents of this report, there are some reflections about the project that we haven't had the space to share. These reflections are about how the project relates to our individual interests and codesign practices. We'll present them in brief here, with the expectation of discussing further in the exam.

Melanie

Design activism

Throughout the past year, I've become increasingly interested in design activism and have been particularly drawn towards the work of DiSalvo and researchers from CODE who write about design activism in a codesign context. This project can be seen as an effort to "prompt change from within" Coop as an organization, as suggested by Lenskjold, Olander and Halse (2015) in *A Minor Design Activism*, but can also be assessed for its aesthetic qualities that distinguish it as a design activist effort.

Sofia

Participation and kids

The world has been designed by adults, but kids live in it too. For the past 8 years, I've been working with design for kids, and have found in codesign a good way of giving them their fair share. In order to motivate kids to participate in the design processes, encounters must explore their natural ways of acting in fun, creative ways (Alvarado, 2012). Although we haven't included kids in this project *yet*, I found the value of playful participation with adults– remembering that kids aren't the only ones who need support to get their fair share.

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APPENDIX 1

The Dirty Dozen Chemicals

A closer look at the 12 groups of chemicals on the Dirty Dozen list

Methylisothi-azolinone (MI)

(Urwin & Wilkinson, 2013)

What it is

A preservative

Why it's dangerous

Can cause contact allergy

Where it's found

It can be found in paints, glues, cosmetics etc.

Possible substitutes

Not yet known

Bisphenol A (BPA) and other phenols

(Vandenberg et al, 2014)

What it is

A chemical that hardens plastics

Why it's dangerous

It may be an endocrine disruptor, having adverse effects on the development of the reproductive tracts, on metabolism, development of the brain, and of the mammary gland and its response to chemical carcinogens

Where it's found

It can be found in polycarbonate plastics and epoxy resins such as those used to line food and beverage containers, in medical equipment, thermal paper, and personal care products. The primary source of BPA exposure is through food, but there is uncertainty with regard to the amount of exposure that can also occur dermally and through air

Possible substitutes

Epoxy lacquer in cans

Fluorinated compounds (PFCs)

(Mijløstyrelsen, 2017)

What it is

A group of chemicals used to make materials fluid repellent

Why it's dangerous

They can accumulate in the environment and animals' bodies, causing tumors, diabetes, neonatal death and possibly harm on the immune, liver, and endocrine systems

Where it's found

They can be found in drinking water, teflon, firefighting foam, paints, adhesives, fluorinated polymers, water-resistant textiles, interior lining for food and beverages packaging

Possible substitutes

Silicone, natural greaseproof paper, Bionic Finish Eco from Rudolf, Teflon Lite, 3M Cross Linker (Blume, 2017, p. 15)

Endocrine disruptors (EDC)

(Zoeller et al, 2012)

What it is

A group of chemicals, or mixture of chemicals, that can interfere with any aspect of hormone action

Why it's dangerous

They may cause adverse effects on the development of the male and female reproductive tracts, obesity and other aspects of metabolism, development of the brain, and development of the mammary gland and its response to chemical carcinogens

Where it's found

They can be found in cosmetics, detergents, flame retardants, children's toys, food packaging, and pesticides (National Institute of Environmental Health Sciences, 2017)

Possible substitutes

Not yet known

Phthalates

(Bouma & Schakel, 2010)

What it is

A group of chemicals used as plasticizers

Why it's dangerous

Some phthalates are suspected to affect the kidneys and liver and cause testicular damage. Certain phthalates have been classified as having a damaging effect on reproduction and several of them – including DEHP, DBP, BBP and DIBP – have been placed on the Candidate List (European Chemicals Agency, 2017)

Where it's found

They can be found in PVC and other plasticized materials, including flooring, roofing, wires, cables, hoses, and coated fabrics, such as artificial leather for bags and book covers

Possible substitutes

Acetyltributylcitrate, tributylcitrate and diisononyladipate

Chemicals in textiles

(Chemsec, 2017)

What it is

Diverse chemicals that can be found in or added to textiles, such as dyes/pigments, flame retardants, solvents, surfactants, water and soil repellents, biocides and pesticides, plasticisers and phthalates or the composition of the fibers themselves

Why it's dangerous

Some can cause contact allergies, others are endocrine disruptors; The chemicals can be discharged into the wastewater and damage aquatic ecosystems and the environment

Where it's found

They can be found in all types of textiles

Possible substitutes

In some cases natural dyes/ pigments or wax-based alternatives to water repellents

REACH and the Candidate List

(European Chemicals Agency, 2017)

What it is

CMRs (carcinogens, mutagens and/or reproductive toxicants), PTBs (Substances that are difficult to break down) and others, like endocrine disruptors

Why it's dangerous

CMRs can cause cancer or disturb sexual development. One example is phthalates. PTBs, such as the brominated flame retardant HBCDD (hexabromocyclododecane) can be persistent, bioaccumulative and toxic and travel long distances in the environment. Its hazardous properties can lead to adverse human health and environmental effects worldwide

Where it's found

HBCDD, for example, is used in polystyrene products, such as insulation, packaging and in plastic electronics. It is also applied in textile coatings

Allergenic scented substances and preservatives

(Astma-Allergi Danmark, 2017)

What it is

Both natural and artificial perfumes, preservatives like formaldehyde and MI & MCI

Why it's dangerous

They can lead to the development of contact allergies

Where it's found

They can be found in Cosmetics, personal care products and cleaning supplies

Triclosan

(Mijløstyrelsen, 2017)

What it is

A preservative

Why it's dangerous

Bacteria can develop resistance to it and it is suspected of being an endocrine disruptor

Where it's found

They can be found mainly in toothpastes and deodorants

Cleaning products with chlorine and cationic surfactants

(ATSDR, 2010)

What it is

Chlorine is a disinfectant, and cationic surfactants are used to make fat soluble in water

Why it's dangerous

Chlorine can irritate the respiratory system, cause vomiting and even death depending on the amount of exposure. It has also been linked to dementia in the elderly.

Cationic surfactants are synthetic, irritating, allergenic and toxic chemicals; oral intake can be lethal

Where it's found

Cleaning products like soaps and laundry detergents or hair conditioners

Pesticides

(European Commission & EFSA, 2017)

What it is

Any substance or mixture of substances used to destroy, suppress or alter the life cycle of any pest

Why it's dangerous

Pesticides have been linked to a wide range of human health hazards, ranging from short-term impacts such as headaches and nausea to chronic impacts like cancer, reproductive harm, and endocrine disruption. Chronic health effects may occur years after even minimal exposure to pesticides in the environment, or result from the pesticide residues which we ingest through our food and water

Where it's found

They can be found primarily in produce, but also in packaged foods when the raw ingredients they're composed of have been sprayed with pesticides

Polluting washing detergents

(ACS, 2017)

What it is

Washing detergents that have in their composition substances that can accumulate in the body or the environment, such as nonylphenol

Why it's dangerous

They are bioaccumulative and when mixed with other substances, such as chlorine, can lead to the formation of other harmful substances that can cause an array of problems to human health, even death

Where it's found

They can be found in shampoo, detergents and other cleaning products

APPENDIX 2

Current Labeling Practices

Below is a list of the most common labels used in Denmark for indicating the chemistry, health and/or environmental impact of consumer products. You might notice in reviewing the list that none of these labels take the packaging of the product into consideration. For example, while organic foods are controlled for their contents, they may just as well be packaged in containers that leak chemicals into them. This is perhaps the biggest "hole" that we've identified in the current labeling practices.

The "Swan" Label / Svanemærket

(Astma-Allergi Danmark, 2017)

Most stringent requirements in terms of environmental impact

The life-cycle of each of the product's components is taken into consideration when rating its impact on the environment

Perfumes allowed in adult products but not in baby products

Publicly owned Nordic label

EU Ecolabel / EU Blomsten

(Astma-Allergi Danmark, 2017)

The EU's official environmental label

Similar requirements to the Nordic label with a focus on environmental impacts

Also includes allergy and health considerations in terms of chemicals

Publicly owned EU label

"The Blue Wreath" / Den Blå Krans

(Astma-Allergi Danmark, 2017)

Focus on chemicals that can cause contact-allergies like formaldehyde, MI and perfumes

Buying products with this label can minimize the risk of developing allergies caused by chemicals

Privately owned Danish label (Asthma-Allergy Denmark)

EcoCert label

(Astma-Allergi Danmark, 2017)

Certifies organic skin and body care products

A product can be certified as "organic" with only 10% of its ingredients coming from organic origin

Products can contain natural perfumes that can also cause allergies

Privately owned French label

Oeko-Tex Label

(Bevidstforbrug.dk, 2016)

Ensures that the chemicals used in textile production don't contain harmful chemicals or chemicals that cause allergic reactions

Has nothing to do with whether or not the textiles are produced using organic fibers

Privately owned label with headquarters in Switzerland, but with organizations from 15 different countries behind it

Key-hole Label / Nøglehuls-mærket

(Bevidstforbrug.dk, 2016)

Indicates that the food has the appropriate amounts of salt, sugar, fat and fiber according to the food administration's guidelines

Doesn't have anything to do with organic production or chemical additives

Publicly owned Danish label (Fødevarestyrelsen)

Ø-Label / Ø mærket

(Bevidstforbrug.dk, 2016)

Takes into consideration the environment, chemicals, and animal welfare

Products must contain only raw ingredients from organic production – no artificial fertilizers or sprays

Products may not contain artificial sugars like aspartame, flavor enhancers or certain colorants

Only limited use of additives allowed

Publicly owned Danish label (Fødevarestyrelsen)

EU Organic Label / EU's Økologimærke

(Bevidstforbrug.dk, 2016)

Takes into consideration the environment, chemicals, and animal welfare

Limits the use of pesticides, artificial fertilizers, antibiotics and other additives

Food products can't contain GMO's

Publicly owned label (EU)

APPENDIX 3

Division of tasks

Throughout this master's thesis project, we collaborated very closely. To divide the project into two parts –what Sofia did and what Melanie did–is not particularly easy. This is because most parts of the project were created using a ping-pong strategy, where one of us would start something, and the other would review it, change things, and send it back. Therefore, we both have had a hand in every part of the project. However, we do bring to the table different skills and design competencies, and found interest in different aspects of the project. If we have to split it down the middle, then we'd do it like this...

Sofia

Visual communication

Sofia was in charge of managing the project's visual identity and brand. She was in charge of the layout work involved in creating our program, invitations, prototypes, presentations, report and other materials along the way. In addition to codesign literature, Sofia contributed with perspectives from food activism, counterhegemony and game design.

Melanie

Film & writing

Melanie was in charge of producing the project's film elements for presentations to Coop, mid-crits, Facebook, prototypes and the exam. As the native english speaker in the group, she also had the final hand in the project's written elements. In addition to codesign literature, Melanie contributed with perspectives from design activism and systems thinking.

... the rest we've done together.