FutureFramer

A showroom approach for imagining the future of food through layered choices

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Food is fundamental to our existence; it gives us energy and joy. Unfortunately, the production and practices surrounding food are also impacting the climate negatively. As people highly value food, changes can be unwanted. However, food could be a suitable medium to communicate the impact of climate change on our current food practices. Trends often influence the imagination of future scenarios in society. This research addresses two research questions: (i) How do people feel about the future of food when provoked with a climate change-induced future? and (ii) How do people feel about the future of food when provoked with a climate change-induced future? For this research, the Showroom methodology was used to gather qualitative data. FutureFramer was created existing out of multiple layers as an Experiential Future to have people shaping their future of food and to discover the motivations behind their decisions. Findings show that participants acknowledged that emerging technologies offer opportunities for new experiences, but had an overall aversion to technocentric future scenarios. The restrictions participants imagined in future practices were most often time and motivation.

Additional Keywords and Phrases: futures, food practices, speculative design, climate change, tensions, imaginaries

1 INTRODUCTION

Food is fundamental to our existence as we spend many hours eating, preparing, and digesting food throughout our lives [40]. Food not only gives us the energy to get through the day, but it can also bring us great joy. In some cases, even the slightest smell and a mere sight of food can trigger a sheer feeling of happiness. Sadly, our food behavior is slowly but steadily affecting the world's climate negatively [29].

Climate change is a topic discussed on many agendas worldwide. From 1980 until now, the temperature has increased twice as fast as per decade from 1880 until 1980 [32]. Global greenhouse gas (GHG) emissions need to be reduced to limit global warming and keep the global temperature in line with the targets set by UN Paris Agreement [50]. To reduce GHG

emissions, significant change is needed in all major sectors. The food sector accounts for approximately 30% of global GHG emissions and 70% of global water consumption [11, 24, 39, 45].

Besides the changes needed in the food industry, people's diets also contribute to limiting climate change. The relationship between food and the environment is seldomly considered by people when buying or consuming food. Instead, most people base their food choices on health rather than environmental factors [28].

As food is so important to people, it is understandable that changes in our food behavior can be unwanted. Nevertheless, since food is valued so much by people, food is also a suitable medium to communicate the impact of climate change on our current food practices. Showing the effects of environmental change on our future food could motivate people to adopt new/different food practices and (partially) sacrifice current habits. Therefore, the first research question is the following: *How do people feel about the future of food when provoked with a climate change-induced future?*

The way people imagine future scenarios is often influenced by trends currently in society [37]. Personal narratives are important for future imagining, however, people can feel powerless over trends that are not in their control [37]. Therefore, a second research question is introduced: *What tensions do people imagine in adopting future food practices?* To answer these questions, an artifact was created existing out of multiple layers to have people shaping their future of food and to discover the motivations behind their decisions.

2 THEORETICAL BACKGROUND AND RELATED WORK

2.1 Current and future food practices

Environmental sustainability has been a topic of interest in the HCI research field for over a decade [12] A large body of work has been dedicated to promoting pro-environmental behavior through creating and implementing new technologies into design [12]. With the progression of these technologies, Human-food interaction (HFI) researchers have also been experimenting with various technologies to explore sustainable food interactions [21]. There is a growing interest in implementing technologies to enhance food-related practices [3, 21].

The interest in developing foods that are more personalized and fortified with nutritional preferences to prevent or cure nutrient deficiencies is steadily growing within the food industry [26, 48, 35]. Correspondingly, there is a growing interest in developing artificial intelligence technologies for enhancing personalized nutrition plans and supply chains [15]. Parallel to these developments, food printing technologies have seen major advancements as they hold great promise to become a sustainable, low cost, and personalized manufacturing method for quality food [2, 20, 25, 26, 43]. In addition, other promising technological advancements that could enhance personalized food are nanotechnology and nutrient encapsulation [46].

Next to the advancement of technologies to improve the health aspects of food, researchers are also experimenting with technologies to enrich the sensory experience of food (taste, smell, appearance, and sound) [14]. For example, Nimesha Ranasinghe et. al. [38] have proposed a way to enhance the taste with light and weak electrical pulses.

The past decade has also seen increased attention to new sustainable and environmentally friendly food systems, also known as Alternative Food Networks (AFN) [1]. These initiatives encourage local production and aim to shorten the production supply chain [13].

2.2 Design practices for doing research about the future

Exploring, forecasting, and envisioning the future has a rich history of models and methodologies in a multitude of disciplines, and academic futurists have been pursuing the proposition that the future must be pluralized to open up alternative futures for decades [6, 29, 42, 51].

2.2.1 Future Ethnography Research

During the mid-1970s, social-cultural anthropologist Robert Textor opened up new concepts to explore ideas of the future and paved the way for Anticipatory Anthropology, which modifies anthropological knowledge and ethnographic methodologies to initiate change [44]. However, using this approach can be difficult when understanding future imaginaries. The future is in essence a fictional domain where imagination can exist and ideations happen. It "cannot be experienced directly, but only through images, thoughts, feeling and the multiple ways these are subsequently expressed in the outer world" [42].

Based on that premise, Veselsky and Textor [47] created a framework to collect participants' projections of the future through ethnography: Ethnography Future Research (EFR). Instead of simply asking, "what do you believe is going to happen in the future" EFR aims to go deeper and tries to sketch overall trends and possibilities within a certain contextual future [47] While EFR tends to be effective in verbally exploring, mapping, and rendering imagined futures, it lacks the materials to make them visible, tangible, interactive, and explorable [10]. Over the past decade, a critical mass of online writings, toolkits, models, and practices have been developed by a multitude of designers, steered by the pioneering works of Stuart Candy, Anthony Dunne, Fiona Raby, and Julian Bleecker [9, 7, 18, 5]. These efforts resulted in various fore sighting approaches, of which we will discuss Experiential Futures, Speculative Design, and Design Fiction.

2.2.2 Speculative Design and Design Fiction

The history of Speculative Design can be found in the design practices of Critical design, termed by Anthony Dunne and Fiona Raby in the late 1990s [16, 17]. Critical design is framed as a method to evoke debates and reflective dialogues about dominant cultural values and prevailing worldviews through design practices. By creating and showcasing artifacts, designers frequently use critical design to challenge the status quo and open up dialogue between the critically minded designer and the public. Like Critical Design, Speculative Design relies on artifacts that open up meaningful discussions and dialogues between the designer and the public [18]. However, whereas critical design challenges predominate worldviews in current times, the practice of Speculative Design projects future visions to open up discussions and explore the preferable future [18].

Parallel to the emergence of Speculative design, Julian Bleecker proposed the design practice of Design Fiction; a design practice that allowed the amalgamation of design, science fact and, science fiction [5, 9]. It makes ideas tangible and experienceable while freeing the imagination from constraints and limitations [5] Whereas Speculative Design was debated as a design practice that explores preferable futures, Design Fiction aims to explore potential futures through active making [5].

2.2.3 Experiential Futures

The most recent formulation of Experimental Futures is "the design of situations and stuff of the future to catalyze insights and change" [8]. Experiential Futures can be beneficial for making futures explorable and visible [9, 10, 18, 19, 36]. Inherently, Experiential Futures includes not only future-situated conventional design outputs like prototypes, physical artifacts, and images, but also all other design outputs that could lead to meaningful visions of the future [9]. To give a few

examples, this encompasses advertisements, games, digital simulations like virtual and augmented reality, immersive installations and theaters, guerilla interventions, or mail art [9].

The need for these approaches can be attributed to the inherent challenge faced when doing future research: the abstraction of the subject matter. To deepen and better understand the discussion and reflection on one or more futures, the entire human experience must be involved.

Experiential futures as a method and design space can be particularly interesting for designers who are less concerned with arts or media practices [9]. Whereases Speculative Design and Design Fiction tend to express futures in physical and material objects, Experiential Futures allows a far more comprehensive range of experiences and inherently concern themselves more with-high quality engagement, action, and insights [9]. While this broad design space holds great promise as a methodology to discover and map the future, one of the drawbacks is the plurality of practices that can exist [9]. Despite this, it does open up opportunities to document new practices, approaches and stresses the importance of documenting cases for the field to build on [33].

2.3 Social Practice Theory

Practice theory is a broad field of study [22]. Without going into too much detail, one of the fundamental ideas of Practice Theory is that everyday life can be expressed in actions or practices [22]. Based on this idea, Social Practice Theory emerged, determining a link between everyday actions and the context or social situation in which these actions occur [33, 41]. What makes Social Practice Theory interesting for designers is that it holds the ability to understand how social practices exist, prevail and change [30]. Elizabeth Shove et al. build on the idea that practices are a collection of multiple elements that come together when the practice is performed [41]. Moreover, they express society as a set of constantly changing practices and place emphasize the continuous renewal, emergence, and breaking apart of the relationships between practices and their elements [30, 41]. Instead of defining a large set of elements, Elizabeth Shove et al. reduced these elements to 3 core elements. These are: (1) material things, (2) competence (skills), (3) meaning (symbolic significance) [41].

3 THE DESIGN

As previously described, it can be difficult for the general public to engage in discussions about the future. James Auger suggests that designers can certify the accessibility for their audiences by providing them with a perceptual bridge that allows them to move away from their context to the domain of a design concept [4]. Building on that, Dunne and Raby suggested that a what-if proposition can function as the perceptual bridge and can help create a scenario that invites the audience to enter an alternative reality [18] In the case of this research, the audience is invited to create an alternative reality of the future based on their own decisions, specifically focussed on the topic of food.

Based on the outline of technological developments shown in the related works, the artifact FutureFramer (see Figure 1) was created to function as the perceptual bridge. FutureFramer consists of a wooden base with six slots, holding transparent acryl sliders with each unique stickering (see Figure 2). See Appendix A.1 for a detailed impression of FutureFramer. On each of these sliders (see Appendix A.2 for an overview), the participants are confronted with the imagery plus an explanation of a two-option choice and a corresponding question card (‘What would you choose if…’). Every slide has a different theme surrounding food practices so that the participants can look at their future of food from different angles and perspectives and discover the motivation behind their decisions. The themes are nutritional value, experience, storage, scarcity, taste, and production. Within these themes, it was tried to confront the participants with trend-following choices that highlight different future directions within the topics.

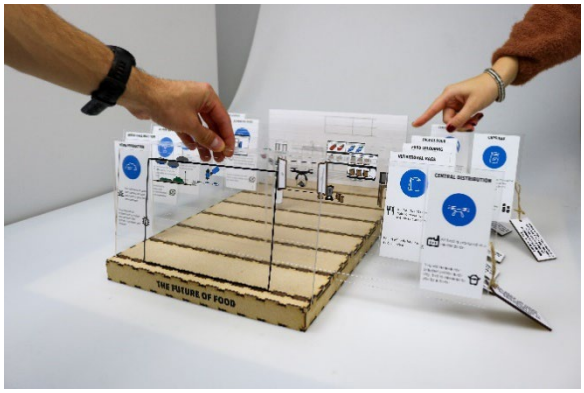

Figure 1: FutureFramer artifact while being interacted with

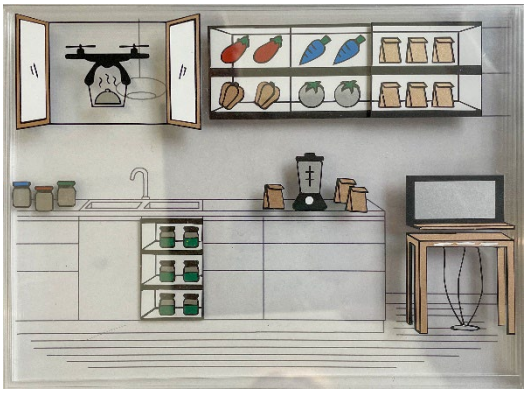

Figure 2: Closeup of the imagery on the sliders

The decisions in FutureFramer can be made by sliding the acryl plates to the side so the frame aligns with the guidelines presented in the front. After placing all the sliders to the participant's preference, a total overview of their choices can be seen by looking at the artifact from the front (see Figure 2). As earlier described, on each slider, there is an imagery of choice, illustrating how the option would translate into an object that can be found in a future kitchen. At the back of FutureFramer, an image was added of an everyday kitchen. It was decided to build upon the image of an everyday kitchen because the future can be experienced as far away. Relating the created future to everyday life can give a greater sense of understanding of the broader subject.

FutureFramer allows for both individual and group exploration of the future of food. Due to the multiple sliders with choices, more than one future can exist in the artifact and invites participants to reflect not only on one option but also on the bigger and more complex picture of decisions that must be made in the future by society.

4 METHOD

In this chapter the set-up of the research and the data analysis are explained.

4.1 Research strategy

The study is based on the showroom methodology presented by Koskinen et al [52]. Showroom origins from critical design and aims to be provocative to facilitate discussions. Parts of human imagination are non-rational; therefore, research approaches can be too. Instead of focusing on (social) sciences, showroom relates more to the fields of art and design. Design researchers using the showroom methodology engage with society and explore futuristic scenarios in the present.

If researchers truly want to create a better world with design, they must gather information on locations where people are. Conducting research in locations related to the design is crucial as design can be closely related to its surroundings.

Even though showroom is closely related to arts, how the work is presented by researchers to the research community is scientific. To answer the research questions showroom enables the researchers to create an artifact to facilitate discussions and imagination about the future of food. By conducting this research with a showroom methodology qualitative data will be gathered to facilitate future design activities on the topic of future food practices.

4.2 Study set-up

The study set-up was spread over two locations, the city center of Eindhoven and the university's main building. Conducting the study at these two locations allowed for a small representation of society. Per location, five participants interacted with the FutureFramer in duos or as individuals. To attract the attention of participants, an additional sign was made with the text 'What is your future of food?'. The prototype was placed on a pillar to have it on the height of an average person's eyes. This height made it easier for people to see through the layers allowing them to see how the decisions made influenced the look of their kitchen. See appendix A.3 for pictures of the study set-up including the attention sign and pillar.

4.3 Conducting the study

Per layer, the researcher read the corresponding question card and explained the decisions. Participants were asked to think out loud to make it possible for the researchers to take notes. Sometimes during the decision-making process, the researcher asked questions to elaborate on the consideration the participant was making.

After all the decisions were made, participants were asked to reflect on their decisions. Participants explaining their decisions created room for a discussion with the researchers to gather more insights into the participants' reasoning. The duration was, on average, 15 minutes including the interaction with the FutureFramer. However, sometimes new discussions arose, extending the research to 20-25 minutes.

4.4 Data analysis

All data was gathered by notetaking during the interactions and discussions, therefore all data is qualitative. To analyze the data, multiple steps were taken. An overview of the thematic analysis is given in Appendix A.4. Appendix A.4 does not visualize the actual data analysis but only illustrates the process. Firstly, a deductive analysis was done, meaning that the data is clustered on predefined themes. The predefined themes are from the Social Practice Theory (SPT) [33]. The themes are: competence, defined as a skill; material, defined as everything related to objects; meaning, defined as the motivation behind an action [33].

After filtering the data into the SPT clusters, an inductive analysis was done per SPT cluster, meaning that the data define the clusters. Between clusters in a SPT cluster, a relationship existed. These were evaluated, and the clusters were connected. See Appendix A.5 for the competence-material-meaning clusters. The SPT clusters had similar smaller clusters corresponding to categories tension, past, present, and future. Therefore, the SPT clusters were split into these categories. The smaller clusters from every SPT cluster were combined within each category. See Appendix A.6 for the interrelations between topics. Lastly, cluster insights were interpreted and concluded, which will be described in the next section 'Findings and Discussion'.

5 FINDINGS AND DISCUSSION

5.1 Findings

Clustering the data into the SPT themes 'competence', 'material' and 'meaning' [41] revealed that all three clusters were indirectly mentioned equally. This suggests that the participants thought of skills, tangible aspects and motivations when provoked with future food practices by FutureFramer.

From the inductive analysis, it became clear that the collected findings could be linked to the following overarching topics: the future – the present – tensions. The interpretations that make up these topics are elaborated on in the following three subsections of this chapter.

5.1.1 Findings related to the future

While thinking of future food practices, participants expressed positive associations, mostly about natural and fresh food as an ideal situation. One participant argued that choosing homegrown spices supported his general vision of life. Another participant gladly exclaimed: "I am all for producing food at home." Participants said they would like this kind of future where food would be produced naturally. At the same time, on the other hand, participants also saw opportunities in emerging technologies related to food. They imagined that technological solutions could provide a sense of security, as drone delivery would ensure that every household has enough food.

Furthermore, an elderly couple supposed that youth will love 3D-printed food as it increases the experience opportunities. Looking back at the deductive analysis, most of these positive associations were originally located in the 'meaning' cluster of the SPT [41]. Thus, people tend to stick to motivations behind actions when imagining the future. It might seem as though thinking about meaning helps people to relate the future to them personally.

Next to positive thinking, there were also negative associations and dystopian thoughts about the future. In discussing a future where people would not be able to feed themselves straight out of nature, a participant claimed that "it would be a shame if this is the future". Participants, in general, regarded unnatural food practices as a dystopic situation. One participant said: "Digital food would make me feel uncomfortable." Others felt like they would be fooling themselves and abandoning nature with a digitally enhanced taste of food: "It feels wrong to find a digital solution instead of solving the root of the problem." They argued that we should not lose ourselves in technological solutions as it makes people feel out of touch with the real problem. Next to that, some participants expressed a skeptical attitude towards some of the proposed options of technology in cooking. Participants were not enthusiastic about food coloring or 3D printing food. They declared that both 3D-printed food and colored food are non-fresh.

The aforementioned positively and negatively associated findings together suggest that most participants acknowledge that technology will become more involved in our future food practices. In discussions, participants disclosed that they believed that in the future, digital technologies could evolve as much as imposed by FutureFramer, and confirmed that they could see digital food happening in the future. Despite this, techno-centric solutions are generally not appreciated as "we would distance ourselves from nature". The collected findings advocate that being able to eat natural and fresh foods is preferred for the future.

Alongside positive and negative associations, participants also reflected on future food practices in the bigger picture after interacting with FutureFramer. A participant speculated that in the future, people might work less and, therefore, would have more time to maintain a kitchen garden. Another participant saw an opportunity to share spices between homes in communities. Some participants even looked beyond themselves towards the impact on society. How would the vulnerable intestines of patients in hospitals react to food if its structure were different in the future? There was also a concern about increasing the gap between rich and poor when fresh food will become an expensive good. Other participants similarly imagined that fresh food might become a luxury, something that they would still want to pay more for occasionally, for example during the weekends.

Participants also expressed some interesting thoughts specifically about their constructed kitchen of the future. One participant commented: "It is a lot of things to have in my future kitchen", which was affirmed by another participant who

gave the remark that the kitchen looked full. Another participant noted that he did not think the kitchen of the future would take the form of a traditional kitchen like in FutureFramer. This participant illustrated that instead of a regular water tap, there might be a machine that filters water from the garden. These findings say something about how people imagine the future. Even though the participants struggled with imagining the change of the actual food (e.g., food enhanced by digital taste), they are confident that their future kitchen will look different. All these findings related to the 'material' cluster of the SPT [41], which suggests that the participants perceive their kitchen as a tangible object about which they have practical thoughts.

5.1.2 Findings related to the present

Apart from merely talking about the future, participants also placed some food practices that FutureFramer indicated as futuristic in current time. A participant remarked that people already pick food based on color in supermarkets. Appended by another participant was that food coloring is nothing new. Another participant correspondingly stated that homegrown spices could be reality right now. In addition, participants made links to similar already existing concepts like self-sustaining community living. One participant associated drone delivery with a system like HelloFresh. These findings suggest that part of the speculation in FutureFramer is not being perceived as futuristic, but rather like it could either happen right now or is happening.

In discussions provoked by FutureFramer, participants reflected also personally on their current eating habits. One participant contemplated that something should be changed regarding meat products, even though he himself does not eat plant-based food yet. Others acknowledged that they ate similarly to nutritional bags already. Regarding the choice between home production or drone delivery, two participants individually argued that they would like to go for growing food at home, but drone delivery would be a better fit with their current habits. To quote a participant: "If I were seventy years old, I would definitely choose home production, but with my current lifestyle I would probably go for central distribution."

Some findings suggest that people do not have good experiences yet with 'futuristic' food. A participant disclosed that he had eaten insects on a vacation which was not tasteful. Another participant said that his personal experiences with fermented food were not favorable: "the smell of fermented food makes me nauseous".

The foregoing findings make it seem as though people know things must change, but do not act yet due to being stuck in routine, or because people are not satisfied with current alternatives and therefore have resistance to changing their diet.

An adjacent topic that emerged was the value that food has in people's lives. Participants perceived eating as a ritual, mainly for social aspects. Efficiency was not valued as much as the eating ritual. Derived hereof, the social aspects of eating and everything around eating food are important to people. Changes that interfere with these social aspects are not preferred.

5.1.3 Findings related to tensions

In considering the options of future food practices, the participants imagined restrictions on time, motivation, skills, materials and money. An argument mentioned repeatedly by most participants was that a kitchen garden would take too much time and effort. Multiple participants did not feel like they could accomplish home production: "I already struggle with keeping one basilica plant from the grocery store alive". The amount of space a kitchen garden would take up was also a concern: "I don't think home production is realistic, since homes will become smaller, people will be living in flats." Furthermore, it was notable that participants often chose for eating capsules instead of investing in fresh food, considering their budget.

Besides these tensions, it is interesting to note that participants related the probability of the future to relevant issues such as the energy crisis. They imagined that a kitchen garden could consume a lot of energy, where there are already shortages of energy right now.

Looking at the mentioned tensions, people do not see how their current lifestyle would allow home-grown food even though they would prefer fresh food. These restrictions were mostly findings that link back to the 'competence' and 'material' clusters of the SPT [41].

5.2 Provocation by FutureFramer

FutureFramer encouraged participants to make decisions between future food practices. An observation is that while having to make decisions, participants tried to work around. A participant asked: "Can I also slide in percentages?". Other participants tried to make combinations. They said they would prefer a combination of fermenting food and the kitchen garden for variation in taste, or that fermented food could be consequential to the kitchen garden as you first grow the food and then ferment it yourself. Another combination that was mentioned was to alternate between eating capsules and paying a lot for fresh food. Interesting to see was that multiple participants made compromises in their decisions because they wanted to be consistent to earlier made decisions. With participating duos, this led to internal discussions and considerations. This unforeseen side effect was induced by FutureFramer and influenced by the sequence in which the dilemmas were proposed. An opportunity here is to research whether people would still make the same decisions when the layers would shuffle.

5.3 Limitations

Although this research provided many insights, there are a few limitations. First, from the findings, it can be argued that there is a preference for more natural food in the future. Due to this project's limited time, the number of participants is too small to generalize this finding. Qualitative research aims for richer data and fewer participants. However, the goal was to recruit participants randomly in a public space to have them represent society. Nevertheless, the number of participants recruited in this study is too low to represent Dutch society.

Secondly, FutureFramer turned out differently than it was intended. The intention was that moving the layers would make a fully assembled kitchen visible from the front view. However, the distance between the layers and the fact that they were slightly tilted troubled the front view. The troubled view could have disturbed the reflective element of FutureFramer as it made it harder to see the final assembled kitchen and the influence of the choices.

Lastly, the showroom methodology allows for much freedom regarding data gathering. In this research, all data was gathered by asking questions to the participants based on what they were saying. The on-the-spot questioning works very well to gain more insights into the participants' thoughts. However, it could have been beneficial to have also a preliminary set of questions prepared to ask every participant. Asking participants similar questions could give a better insight into topics important for the researchers.

5.4 Future work

One interesting observation during the study was that sometimes participants wanted a balance between two choices. In this research, FutureFramer only allowed participants to choose one option from the two. For future research, it could be valuable to have the option to decide on a 'common ground' between two choices. Additionally, some people had trouble deciding within a certain topic because both options were unfavorable. Therefore, it could be interesting to give the

possibility to eliminate a layer. Eliminating a layer could be interpreted as an actual dystopian scenario, which could also lead to valuable discussions.

Related to improvements on the choices given by FutureFramer, another improvement could be to increase the experiential factor of FutureFramer by making FutureFramer bigger. A larger size of FutureFramer could enhance a more engaging experience following the theory of Experiential Futures [9, 10, 18, 19, 36]. For example, the decision-making would become more severe and more definite if a participant must move a layer with the strength of the whole body. Also, it would allow for more details in the future kitchen, and for people to emerge themselves in the future scenario they just constructed, which could make the kitchen feel more realistic.

A general opportunity that arises from this research is to implement the concept of FutureFramer into different kinds of contexts. Other researchers could explore the potential of having layers in constructing a vision of the future. After all, a future is layered since it is not the case that the world changes entirely from one day to another.

6 CONCLUSION

The first research question was: *How do people feel about the future of food when provoked with a climate change-induced future?* Even though participants acknowledged that emerging technologies offer opportunities for new experiences, the findings suggest that the participants had an overall aversion to technocentric future scenarios. However, it can also be interpreted that the participants would want other futures to come true instead. For example, a future where food is naturally produced since participants clearly expressed a desire for fresh food. An essential meaning in the practice of food is the social ritual. For some participants, the proposed technologies were not perceived as futuristic since they already felt like close reality. A speculation is that commonly shared imaginaries of the future influence people's expectations of what will become real, and therefore probability increases in people's minds.

The second research question was formulated as: What tensions do people imagine in adopting future food practices? Relating to this question, the restrictions participants imagined in future practices were most often time and motivation. These tensions could be partly due to limitations people experience in the present, like being stuck in a routine. Participants were dissatisfied with currently known alternatives and therefore feel resistance to changing their diet.

All in all, participants were aware that food would and should change in the future. After interacting with FutureFramer, they could imagine future practices in such detail that they pictured tensions as time, motivation, skill, material, and money.

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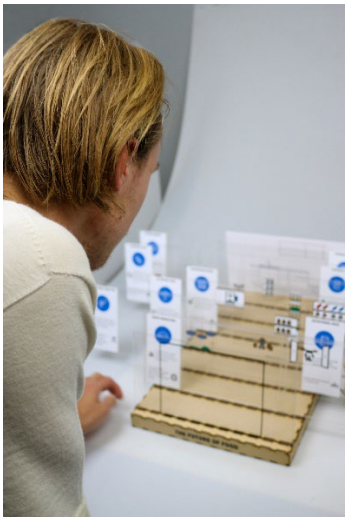
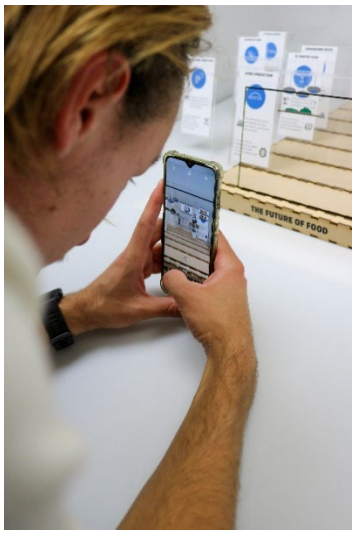
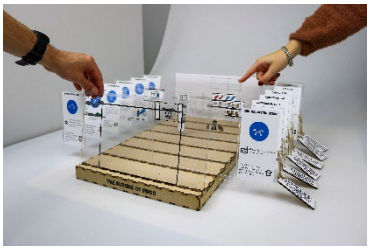
A APPENDICES

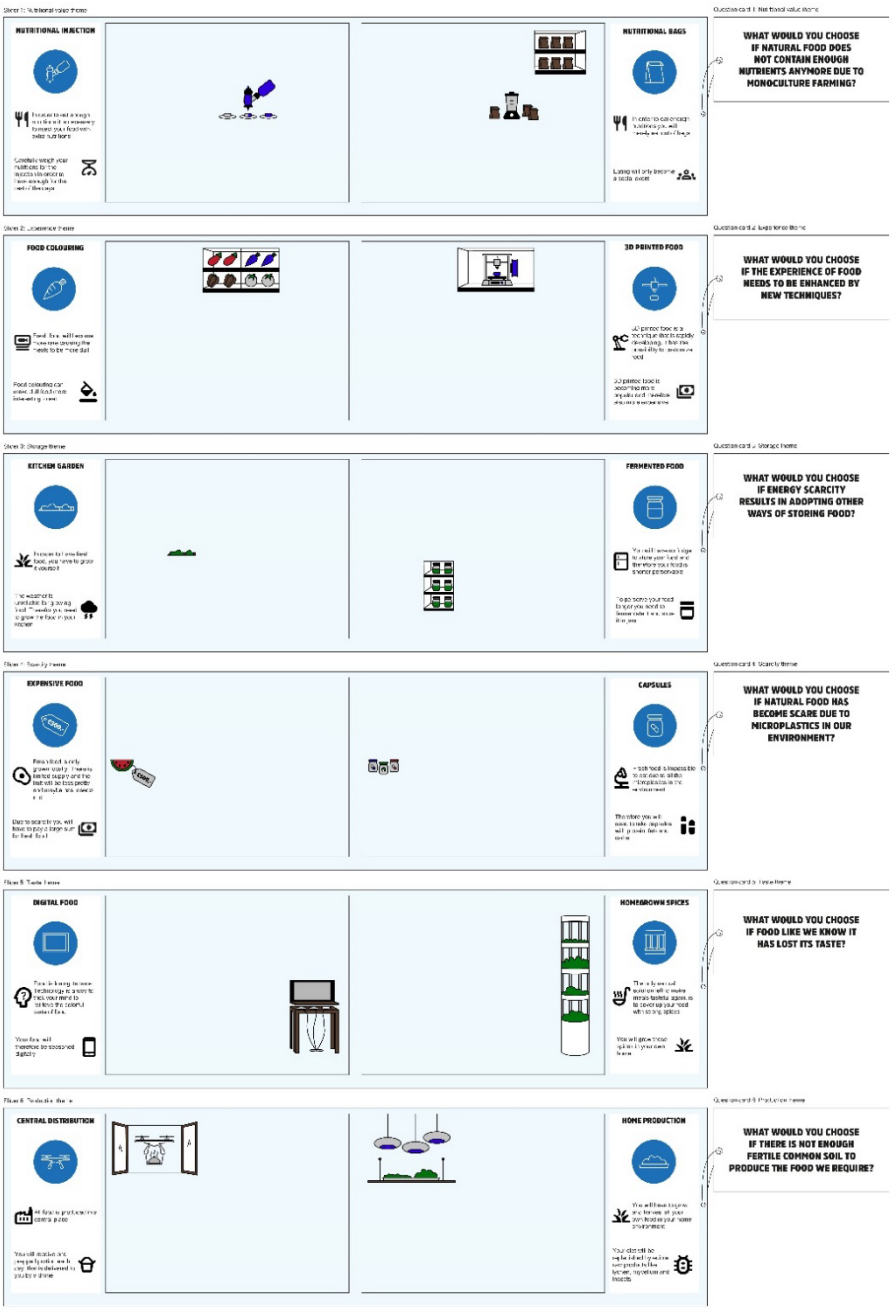
A.1 Impression of research artifact FutureFramer





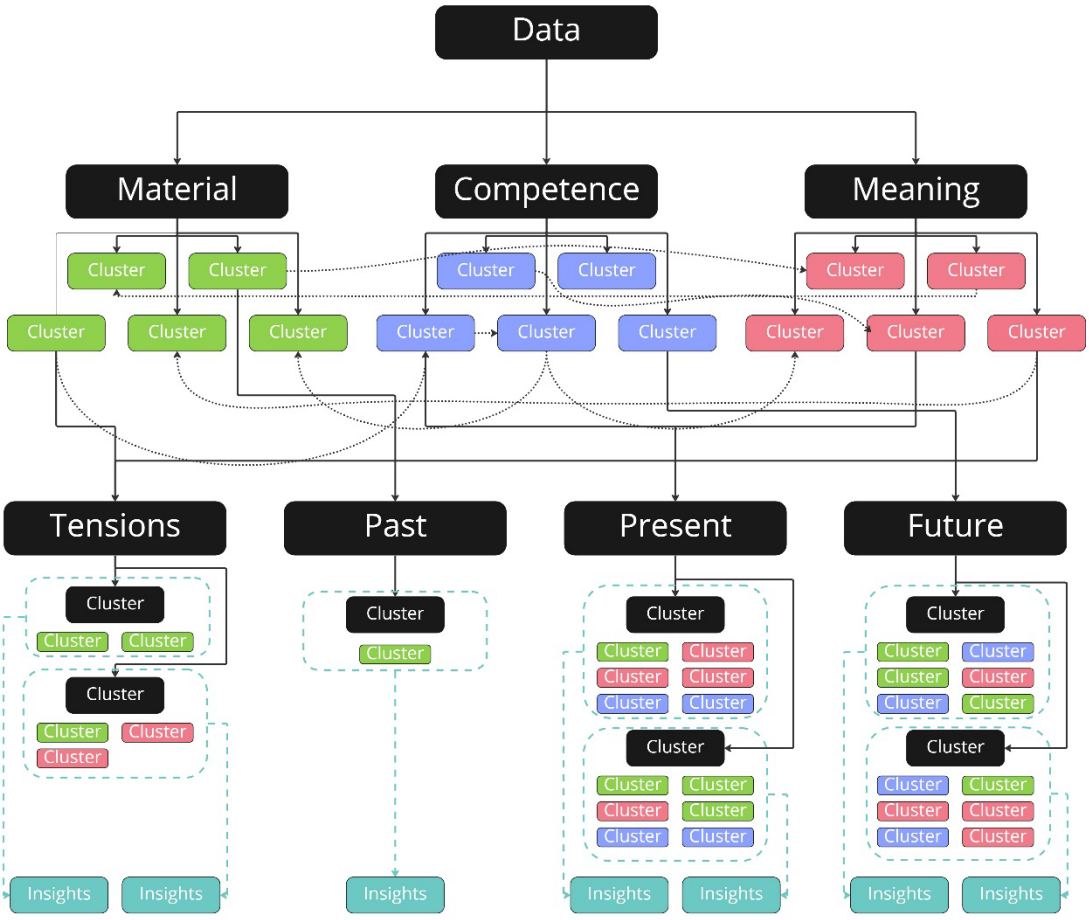


A.2 Overview of the different sliders

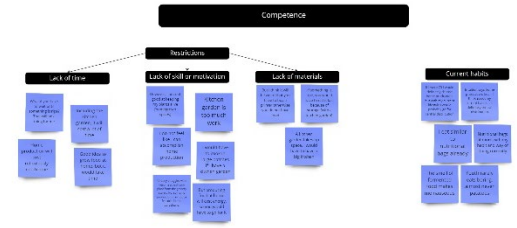


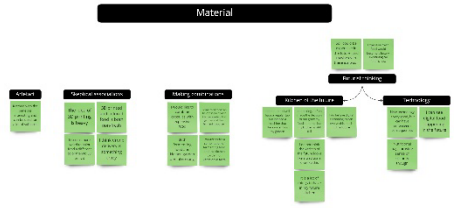
A.3 Study setup

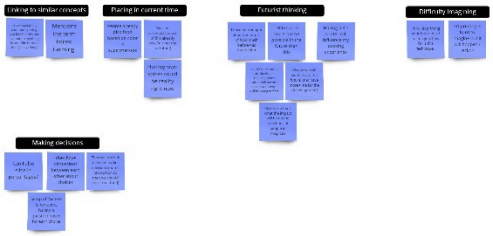
A.4 Data analysis process overview

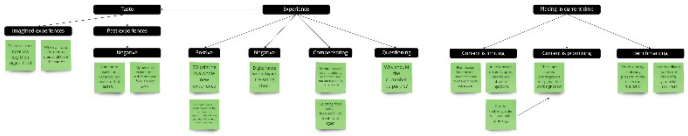


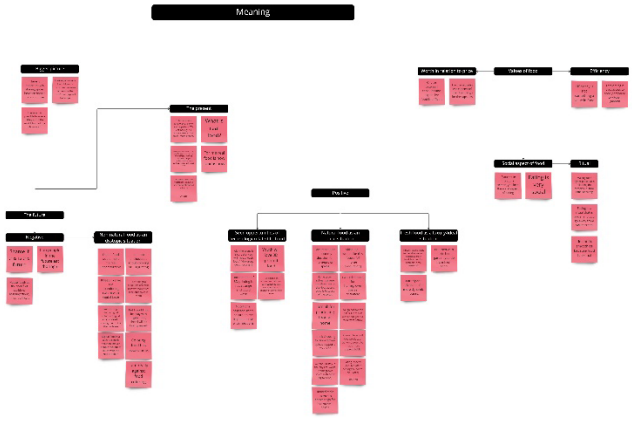
A.5 Data analysis competence-material-meaning clusters



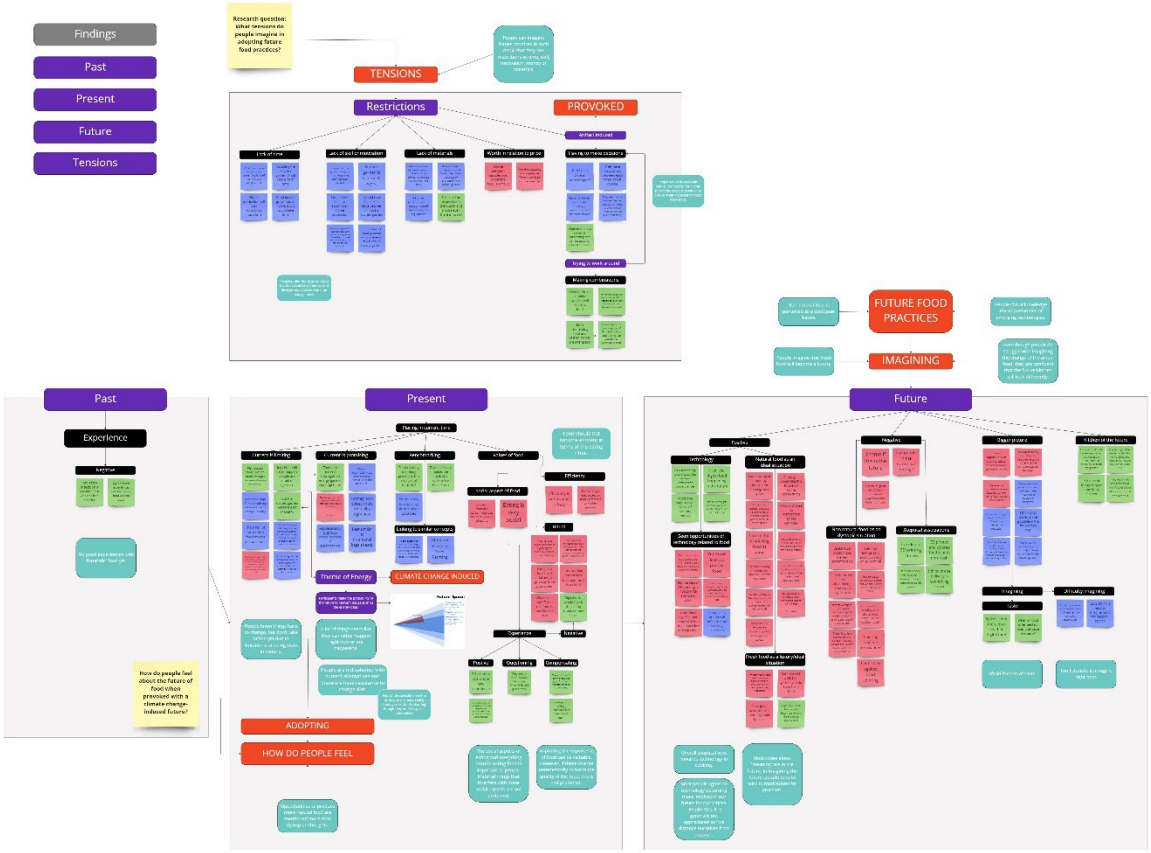








A.6 Data analysis interrelations between topics



A.7 Background of the Authors

Ivy G.C. van Dongen

Background

This year I finished my bachelor Industrial Design at Eindhoven University of Technology and directly continued with the master. During the 3 years of doing the bachelor, I have found myself mostly being in projects surrounding the topic of health. I enjoyed the straight forward way to go in the design process in this field, as there is a clear problem that arose and needs a solution. However I noticed that, while talking to an expert (technology nursing teacher) as part of my Final Bachelor Project and seeing the procedures related to the COVID-19 crisis, way too often action is taken after a problem has been there for a while in the Dutch healthcare. There is a lack of long-term and future (design) perspective, which I would like to address in my future career. In order to be of value within this field and after already gathering experience within the health sector, I currently try to focus on projects about different futures, such as being in the New Futures squad with a project about the future of work and this project about the future of food. Within these projects I want to learn how to design for the future myself, but also how I can other people explore possible futures, which I can therefore use as project input.

Contributions

My contribution in this research project has mostly been in working out the details of the artifact (including a benchmark of art installations), crafting the FutureFramer and documenting it by creating a video (as part of the presentation) and several pictures/visualizations (see Figures and Appendix A.2). Next to that, I have taken notes as collection of data during the tests with participants, sorted them and have taken part in the thematic analysis. Lastly for the report, I have written the sections The Design and Abstract (partly).

Vere Vreeswijk

Background

Starting my Bachelor of Industrial Design at the Eindhoven University of Technology in 2018, I had a wide range of interests, from data to materials to behavior change and sustainability. Throughout my bachelor, my interest in sustainability became my core interest, and everything around it should support that interest. Graduating my bachelor's in 2022, I finished with a skillset that existed out of UX/UI design, design for climate action, speculative design, and designing for experiential futures. I am no designer highly qualified in a few skills or methods, but a designer who knows many different methods to connect the suitable method with the problem.

My field of interest is societal problems, preferably focused on climate action. I believe that speculating about the future is crucial for societal problems, as the future is something we can shape in the current. Though, to design for a preferred future, I see it as necessary to understand and combine multiple perspectives and constraints from people.

In September, I started with the Master of Industrial Design to develop myself further in methods such as speculative design and how we can use this for societal problems. Therefore, the project 'Imagine: Contested Futures of Sustainability' interested me very well. Especially combined with the showroom approach, which allows for gathering a lot of qualitative data, fitted my design vision best.

Contribution

My main contribution to this research project has been developing the research outline, ideation of the research artifact, creating the side panels of the artifact, creating a (slightly provocative) sign to attract participants, researching a theoretical framework for the data analysis, having discussions, and asking critical questions to the participants during the showroom,

data analysis. For the paper, I wrote the introduction, the methods, the limitations, (partially) the future work, (partially) the abstract, checked all other chapters on grammar and content and adjusted if needed, and the report formatting in the ACM template.

Elke van Dael

Background

During the four years of studying Industrial Design at the Eindhoven University of Technology (TU/e), I have found my passion for tackling complex societal challenges. My focus is on society rather than on creating individual need. I believe that responsible innovation and combining different stakeholder views together is the key for managing societal change. Some values I find important are taking responsibility for creating an inclusive community, optimism and taking leadership in doing meaningful work.

My curiosity awakens when I imagine all the different future realities design is making possible. A problem I see here is that people tend to lose the bigger picture in their thoughts about the future. A cause of this problem is lack of perspectives. I believe we can anticipate better on possible futures. Design can be purposefully used as a tool to question the status quo and ideology, therewith provoking people's thoughts.

While doing the Master of Industrial Design at TU/e, my goal is to develop myself as a thoughtful social designer that takes consequences of challenging developments into account and exposes these kinds of side effects of other innovations.

Contribution

For this project, I have taken responsibility for constructing the research questions and specifying the research challenge. Relevant activities I have undertaken are conducting the pilot test, data-gathering during the showroom, making codes for the data-analysis, doing thematic analysis and writing the Findings and Discussion and Conclusion sections in the paper.

Marc Wijkmans

Background

During my second year of studying Industrial Design at the Eindhoven University of Technology, I developed a passion for tackling societal and environmental problems through the design practices of Speculative Design and Design Fiction. Throughout the rest of my Bachelor studies, this interest narrowed down to addressing the socio-environmental problems of the wearable and fashion industry. I believe design can and should be used as a tool to systemically change current practices into longstanding future practices. By (re)imagining the world around fashion through exploring and demonstrating possible and/or probable futures, and collectively defining a preferable clothing industry that is sustainable, durable, and most important, desirable, I imagine a world in which we can cohesively embrace the cultural and societal benefits of clothing in an environmentally friendly and responsible way.

Contribution

My main contribution has been ideating the context of the research, ideating the future scenarios for the FutureFramer, designing the icons/drawings for the frames of the FutureFramer, pilot testing the research setup, collecting quantitative data through discussions with participants, finding frameworks for the data analysis, contributing to the thematic analysis. For the paper, I wrote the related work section and parts of the introduction.

A.8 Ethical Review Board Approval Form and Consent Form

Ethical Review Form Education

(Version 17.07.2020)

This Ethical Review Form should be completed for every research study that involves human participants or personally identifiable data. The form should be submitted and approved by your supervisor before potential participants are approached to take part in the research study.

Part 1: General Study Information

1	Student name and email	Elke van Dael, e.v.dael@student.tue.nl Ivy van Dongen, i.g.c.v.dongen@student.tue.nl Vere Vreeswijk, v.vreeswijk@student.tue.nl Marc Wijkmans, m.h.c.wijkmans@student.tue.nl
2	Supervisor name and email	Dan Lockton, d.j.g.lockton@tue.nl
3	Degree Program	Industrial Design
4	Bachelor/master	Master
5	Bachelor/master end project?	It is not an end project.
6	Course name and code	Constructive Design Research, DCM100
7	Project title	'Imaginary Choices' (falls under project 'Imagine: Contested Futures of Sustainability')
8	Research location	Public space in Eindhoven; Piazza square.
9	Research period (start/end date)	Between October 3 2022 and October 16 2022.
10	[If Applicable] Proposal already approved by (external) Ethical Review Board: Add name, date of approval, and contact details of the ERB	N/A
11	Research question	How do people feel about the future of food when provoked with a climate change-induced future? What tensions do people imagine in adopting future food practices?
12	Description of the research method	The participants will be asked to interact with the research artefact, which involves making choices between futures of food practices. After the interaction, participants will be asked to discuss what they see and think about (imagining) food practices of the future.
13	Description of the research population, in- and exclusion criteria	The target audience of this research are general members society, to be found in public spaces like the Piazza square in Eindhoven. Participants are non-vulnerable adults participating voluntarily in the research and discussion.
14	Number of participants	Between 1 and 15, aiming for at least 10. Typically sessions will involve 1 individual participant, but there is room for 1 or 2 more individuals to join in each discussion.

Ethical Review Form

15	Explain why the research is socially important.	Food behavior is slowly, but steadily, affecting our environment in a negative way (Hoek et al., 2017). The food sector accounts for 30% of the global GHG emissions and 70% of the global water consumption (Garnett, 2014; Tilman & Clark, 2014). At present, the relationship between food and the environment is seldomly considered by people when buying or consuming food. Perhaps, showing the effects of environmental change on our future food could motivate people to adopt new/different food practices. Garnett, T. (2014). What is a sustainable healthy diet? A discussion paper. Food Climate Research Network. www.fcrn.org.uk Accessed June 2014. Hoek, A., Pearson, D., James, S., Lawrence, M. & Friel, S. (2017, januari). Shrinking the food-print: A qualitative study into consumer perceptions, experiences and attitudes towards healthy and environmentally friendly food behaviours. *Appetite, 108*, 117–131. https://doi.org/10.1016/j.appet.2016.09.030 Tilman, D., & Clark, M. (2014). Global diets link environmental sustainability and human health. Nature, 515, 518e522.
16	Describe the way participants will be recruited	The participants will already be present at the research location. They will be approached politely with the question whether they would have any interest in the research, or their interest is sparked by the setup and they will approach the research by themselves.
17	Provide a brief statement of the risks you expect for the participants or others involved in the research and explain. Take into consideration any personal data you may gather and privacy issues.	Participants might be confronted with difficult choices or dystopian views of the future, which might be upsetting (but no more than mild discomfort). Data should be treated appropriately with respect for the participant's privacy. No audio/video recordings will be made, only written notes of the discussions and unidentifiable documentation of the choices the participants made.

Ethical Review Form

	Part 2: Checklist for Minimal Risk	Yes	No
1	Does the study have a medical scientific research question or claim (see definition below) *Medical/scientific research is research which is carried out with the aim of finding answers to a question in the field of illness and health (etiology, pathogenesis, signs/symptoms, diagnosis, prevention, outcome or treatment of illness), by systematically collecting and analysing data. The research is carried out with the intention of contributing to medical knowledge which can also be applied to populations outside of the direct research population.'*	☐	☒
		If yes or maybe: Your supervisor should submit the study to the ERB. You cannot get automatic ethical approval	If no: Continue with question 2
2	Does the study involve human material (such as surgery waste material derived from non-commercial organizations such as hospitals)?	☐	☒
		If yes or maybe: This is only allowed if your supervisor has consulted with the medical coordinator. Continue with question 3	If no: Continue with question 3
3	Will the participants give their explicit consent – on a voluntary basis – either digitally or on paper? Or have they given consent in the past for the purpose of education or for re-use in line with the current research question?	☒	☐
		If yes: Continue with question 4	If no: Your supervisor should submit the study to the ERB. You cannot get automatic ethical approval
4	Will the study involve discussion or collection of personal data? (e.g. name, address, phone number, email address, IP address, BSN number, location data) or will the study collect and store videos, pictures, or other identifiable data of human subjects?	☐	☒
		If yes: The handling, storing and de-identification of the personal data should be discussed with your supervisor. Continue with question 5 if you met all requirements for handling personal data (see …)	If no: Continue with question 5

Ethical Review Form

		Yes	No
5	Does the study involve participants who are particularly vulnerable or unable to give informed consent? (e.g. children, people with learning difficulties, patients, people receiving counselling, people living in care or nursing homes, people recruited through self-help groups)?	☐	☒
		If yes: Your supervisor should submit the study to the ERB. You cannot get automatic ethical approval	If no: Continue with question 6
6	May the research procedure cause harm or discomfort to the participant in any way? (e.g. causing pain or more than mild discomfort, stress, or anxiety)	☐	☒
		If yes: Your supervisor should submit the study to the ERB. You cannot get automatic ethical approval	If no: Continue with question 7
7	Will the participants receive any compensation for their participation? Such as a coupon or a chance to win a prize?	☐	☒
		If yes: Your supervisor should submit the study to the ERB. You cannot get automatic ethical approval	If no: Continue with question 8 or 10, depending on the type of study (see red text below)
The following questions 8-9 are for *observational* research (e.g. (semi-)structured interviews; focus groups; (participatory) observations). If your research is *experimental*, then skip questions 8-9 and continue with question 10			
8	Will it be necessary for participants to take part in the study without their knowledge and consent at the time? (e.g. covert observation of people)?	☐	☒
		If yes: This is only allowed when observing behavior in public space. If so, continue with question 9. If you observe people in non-public space without their consent, your supervisor should submit the study to the ERB. You cannot get automatic ethical approval	If no: Continue with question 9
9	Will participants be asked to discuss or report sexual experiences, religion, alcohol or drug use, or suicidal thoughts, or other topics that are highly personal or intimate?	☐	☒
		If yes: Your supervisor should submit the study to the ERB. You cannot get automatic ethical approval	If no: Continue with part 3

Ethical Review Form

The following questions 10-13 are for *experimental* research (e.g. measurements on yourself or another person; testing a prototype/device; influencing behavior through manipulation (e.g. light or temperature). If your research is *observational*, then skip questions 10-13 and continue with part 3			
		Yes	**No**
10	Is the study invasive (i.e. it affects the body such as puncturing the skin; taking blood or other body material (such as DNA) from the participant)?	☐	☐
		If yes: Your supervisor should submit the study to the ERB. You cannot get automatic ethical approval	If no: Continue with question 11
11	Does the device have a medical purpose sucs as diagnosis, prevention, monitoring, prediction, prognosis, treatment or alleviation of disease or injury?	☐	☐
		If yes or maybe: Your supervisor should submit the study to the ERB. You cannot get automatic ethical approval	If no: Continue with question 12
12	Will the experiment involve the use of physical devices that are 'CE' certified for unintended use (meaning you will use existing CE certified devices for other things than they were originally intended for?	☐	☐
		If yes: This is only allowed if they are completely harmless. They should have a harmless voltage of <5V and hazardous waste (fumes/gas/substances) should not be released. You should discuss with your supervisor whether you need to have the device tested for safety	If no: Continue with question 13
13	Will the experiment involve the use of physical devices that are not 'CE' certified?	☐	☐
		If yes: This is only allowed if they are completely harmless. They should have a harmless voltage of <5V and hazardous waste (fumes/gas/substances) should not be released. You should discuss with your supervisor whether you need to have the device tested for safety	If no: Continue with part 3

Ethical Review Form

Part 3: Enclosures and Signature		
1	Enclosures (tick if applicable): ☒ Informed consent form (link to template); ☐ The survey the participants need to complete, or a description of other measurements (such as interview questions or a description of the prototype); ☐ Text used to find participants (such as brochures, flyers, etc); ☐ Approval other research ethics committee;	
2	I hereby declare that I have completed this form truthfully Signature(s) of the student(s) Date	 September 29 2022

Discuss this form with your supervisor. If any of the boxes your ticked in Part 2 suggest that your supervisor should submit your study to the ERB for ethical approval, try to change your research design in such a way that your supervisor can approve it instead. If this is not possible, ask your supervisor to submit the proposal to the ERB. It will take two to five weeks before you receive a decision from the ERB.

Part 4: Review by supervisor			
		Yes	**No**
1	Does the data storage adhere to all requirements of responsible data management (link toevoegen)?	X	☐
		If yes: Continue with question 2	If no: Discuss with your student the necessary steps to adhere to the requirements
2	Does the research proposal adhere to all requirements for automatic approval?	X	☐
		If yes: Please skip the questions 3-6 and sign the form	If no: Discuss with your student if any alterations can be made in order to adhere to the requirements for automatic approval. If you decide that the study cannot adhere to the requirements, then you as a supervisor need to submit the proposal to the ERB. Please answer the following additional questions (3-6)

Ethical Review Form

Additional questions for ERB approval		
3	Elaborate on the topics from part 2 that do not allow for automatic approval. Describe how you safeguard any potential risk for the research participant for each topic.	
4	Describe and justify the number of participants you need for this research, taking into account the risks and benefits	
5	Explain if your data are completely anonymous, or whether they will be de-identified (pseudonymized or anonymized) and if so, explain how	
6	Who will have access to the data?	

Part 5: Signature by supervisor		
	I hereby declare that I have completed this form truthfully Signature of the supervisor Date	 3/10/22

Subject information for participation in scientific research

Future of food

Introduction

Dear Sir/Madam,

You are asked to take part in a scientific study.
Participation is voluntary. Participation requires your written consentBefore you decide whether you want to participate in this study, you will be given an explanation about what the study involves. Please read this information carefully and ask the investigator for an explanation if you have any questions. You may also discuss it with your partner, friends or family.

1. General information

This study has been designed by Eindhoven University of Technology and Imagine: Contested Futures of Sustainability and is being carried out Master of Science students of Industrial Design at Eindhoven University of Technology

2. Purpose of the study

This research focusses on the tension that people experience when it comes to adopting a future diet.

3. What participation involves

During the study, the following will happen:
- data is collected about the way participants make decisions and motives for the decisions. Besides, perspectives on the future of food will be gathered.

4. What is expected of you

In order to carry out the study properly is important that you follow the study instructions.

It is important that you contact the investigator:

- if you no longer want to participate in the study.

5. If you do not want to participate or you want to stop participating in the study

It is up to you to decide whether or not to participate in the study. Participation is voluntary.

If you do participate in the study, you can always change your mind and decide to stop, at any time during the study. You do not have to say why you are stopping, but you do need to tell the investigator immediately.
The data collected until that time will still be used for the study.

If there is any new information about the study that is important for you, the investigator will let you know. You will then be asked whether you still want to continue your participation.

6. End of the study

Your participation in the study stops when

- you choose to stop
- We have collected the decisions and a conversation to elaborate on the decisions is conducted.

The study is concluded once all the participants have completed the study.

7. Usage and storage of your data

Your personal data will be collected, used and stored for this study. This concerns data about your age group. The collection, use and storage of your data is required to answer the questions asked in this study and to publish the results. We ask your permission for the use of your data

Confidentiality of your data

To protect your privacy, your data will be given a code. The data and other information that can directly identify you, will be omitted. Data can only be traced back to you with the encryption key. The encryption key remains safely stored in the local research institute. The data that is sent to the client will only contain the code, not your name or other data with which you can be identified. The data cannot be traced back to you in reports and publications about the study.

Access to your data for verification

Some people can access all your data at the research location. Including the data without a code. This is necessary to check whether the study is being conducted in a good and reliable manner. The person who has access to your data for review is Dan Lockton. We ask you to consent to this access.

Retention period of your data

Your data must be kept for 5 years at the research location.

Withdrawing consent

You can withdraw your consent to the use of your personal data at any time. This applies to this. The study data collected until the moment you withdraw your consent will still be used in the study.

More information about your rights when processing data
For general information about your rights when processing your personal data, you can consult the website of the Dutch Data Protection Authority.

If you have questions about your rights, please contact the person responsible for the processing of your personal data.

If you have questions or complaints about the processing of your personal data, we advise you to first contact the research location.

8. Any questions?

If you have any questions, please contact the study team.
If you have any complaints about the study, you can discuss this with the investigator. If you prefer not to do this, you may contact the [complaints' committee at Eindhoven University of Technology.

9. Signing the consent form

When you have had sufficient time for reflection, you will be asked to decide on participation in this study. If you give permission, we will ask you to confirm this in writing on the appended consent form. By your written permission you indicate that you have understood the information and consent to participation in the study. The signature sheet is kept by the investigator. Both the Investigator and yourself receive a signed version of this consent form.

Thank you for your attention.

Appendix: Subject Consent Form

Future of food

- I have read the subject information form. I was also able to ask questions. My questions have been answered to my satisfaction. I had enough time to decide whether to participate.
- I know that participation is voluntary. I know that I may decide at any time not to participate after all or to withdraw from the study. I do not need to give a reason for this.
- I give permission for the collection and use of my data to answer the research question in this study.
- I know that some people may have access to all my data to verify the study. These people are listed in this information sheet. I consent to the inspection by them.
- I want to participate in this study.

Name of study subject:
Signature: Date: __ / __ / __

I hereby declare that I have fully informed this study subject about this study.

If information comes to light during the course of the study that could affect the study subject's consent, I will inform him/her of this in a timely fashion.

Name of investigator (or his/her representative):
Signature: Date:__ / __ / __

Informatie voor deelname aan wetenschappelijk onderzoek

The future of food

Officiële Nederlandse titel: De toekomst van voedsel

Inleiding

Geachte heer/mevrouw,

Wij vragen u om mee te doen aan een wetenschappelijk onderzoek.
Meedoen is vrijwillig. Om mee te doen is wel uw schriftelijke toestemming nodig. Voordat u beslist of u wilt meedoen aan dit onderzoek, krijgt u uitleg over wat het onderzoek inhoudt. Lees deze informatie rustig door en vraag uw arts uitleg als u vragen heeft. U kunt er ook over praten met uw partner, vrienden of familie.

1. Algemene informatie

Dit onderzoek is opgezet door Eindhoven University of Technology en Imagine: Contested Futures of Sustainability en wordt gedaan door Master of Science studenten Industrial Design aan de Eindhoven University of Technology

2. Doel van het onderzoek

In dit onderzoek wordt er gekeken naar wat de mogelijke weerstand is die mensen ervaren als het gaat om het aanpassen naar een ander dieet in de toekomst.

3. Wat meedoen inhoudt

Tijdens het onderzoek zal het volgende gebeuren:

- er worden gegevens verzameld over hoe keuzes worden gemaakt en onderliggende motieven voor die keuzes. Daarnaast worden de toekomstbeelden over voedsel verzameld en vastgelegd.

4. Wat wordt er van u verwacht

Om het onderzoek goed te laten verlopen is het belangrijk dat u zich aan de instructies houdt.

Het is belangrijk dat u contact opneemt met de onderzoeker:

- als u niet meer wilt meedoen aan het onderzoek.

5. Als u niet wilt meedoen of wilt stoppen met het onderzoek

U beslist zelf of u meedoet aan het onderzoek. Deelname is vrijwillig.

Als u wel meedoet, kunt u zich altijd bedenken en toch stoppen, ook tijdens het onderzoek. U hoeft niet te zeggen waarom u stopt. Wel moet u dit direct melden aan de onderzoeker. De gegevens die tot dat moment zijn verzameld, worden gebruikt voor het onderzoek.

Als er nieuwe informatie over het onderzoek is die belangrijk voor u is, laat uw arts dit aan u weten. U wordt dan gevraagd of u blijft meedoen.

6. Einde van het onderzoek

Uw deelname aan het onderzoek stopt als

- u zelf kiest om te stoppen
- we uw keuzes hebben vastgelegd en een gesprek heeft plaatsgevonden om deze keuzes toe te lichten.

Het hele onderzoek is afgelopen als alle deelnemers klaar zijn.

7. Gebruik en bewaren van uw gegevens

Voor dit onderzoek worden geen van uw persoonsgegevens gebruikt en bewaard. Gegevens die wel worden verzameld zal anoniem zijn. Het gaat om gegevens zoals leeftijdsgroep. Het verzamelen, gebruiken en bewaren van uw gegevens is nodig om de vragen die in dit onderzoek worden gesteld te kunnen beantwoorden en de resultaten te kunnen publiceren. Wij vragen voor het gebruik van uw gegevens uw toestemming.

Vertrouwelijkheid van uw gegevens

Om uw privacy te beschermen krijgen uw gegevens een code. De gegevens die u direct kunnen identificeren worden daarbij weggelaten. Alleen met de sleutel van de code zijn gegevens tot u te herleiden. De sleutel van de code blijft veilig opgeborgen in de lokale onderzoeksinstelling. De gegevens die naar de opdrachtgever worden gestuurd bevatten alleen de code, maar niet uw naam of andere gegevens waarmee u kunt worden geïdentificeerd. Ook in rapporten en publicaties over het onderzoek zijn de gegevens niet tot u te herleiden.

Toegang tot uw gegevens voor controle

Sommige personen kunnen op de onderzoekslocatie toegang krijgen tot al uw gegevens. Ook tot de gegevens zonder code. Dit is nodig om te kunnen controleren of het onderzoek goed en betrouwbaar is uitgevoerd. De persoon die ter controle inzage krijgt in uw gegevens is Dan Lockton. Wij vragen u voor deze inzage toestemming te geven.

Bewaartermijn gegevens

Uw gegevens moeten 5 jaar worden bewaard op de onderzoekslocatie.

Intrekken toestemming

U kunt uw toestemming voor gebruik van uw persoonsgegevens altijd weer intrekken. Dit geldt voor dit onderzoek. De onderzoeksgegevens die zijn verzameld tot het moment dat u uw toestemming intrekt worden nog wel gebruikt in het onderzoek.

Meer informatie over uw rechten bij verwerking van gegevens
Voor algemene informatie over uw rechten bij verwerking van uw persoonsgegevens kunt u de website van de Autoriteit Persoonsgegevens raadplegen.

Bij vragen over uw rechten kunt u contact opnemen met de verantwoordelijke voor de verwerking van uw persoonsgegevens.

Bij vragen of klachten over de verwerking van uw persoonsgegevens raden we u aan eerst contact op te nemen met de onderzoekslocatie.

8. Heeft u vragen?

Bij vragen kunt u contact opnemen met het onderzoeksteam.
Indien u klachten heeft over het onderzoek, kunt u dit bespreken met de onderzoeker. Wilt u dit liever niet, dan kunt u zich wenden tot de klachtencommissie van Eindhoven University of Technology.

9. Ondertekening toestemmingsformulier

Wanneer u voldoende bedenktijd heeft gehad, wordt u gevraagd te beslissen over deelname aan dit onderzoek. Door uw schriftelijke toestemming geeft u aan dat u de informatie heeft begrepen en instemt met deelname aan het onderzoek.
Het handtekeningenblad wordt door de onderzoeker bewaard. Zowel uzelf als de onderzoeker ontvangen een getekende versie van deze toestemmingsverklaring.

Dank voor uw aandacht.

Bijlage: toestemmingsformulier deelnemer

Future of Food

- Ik heb de informatiebrief gelezen. Ook kon ik vragen stellen. Mijn vragen zijn voldoende beantwoord. Ik had genoeg tijd om te beslissen of ik meedoe.
- Ik weet dat meedoen vrijwillig is. Ook weet ik dat ik op ieder moment kan beslissen om toch niet mee te doen of te stoppen met het onderzoek. Daarvoor hoef ik geen reden te geven.
- Ik geef toestemming voor het verzamelen en gebruiken van mijn leeftijdsgroep voor de beantwoording van de onderzoeksvraag in dit onderzoek
- Ik weet dat voor de controle van het onderzoek sommige mensen toegang tot al mijn gegevens kunnen krijgen. Die mensen staan vermeld in deze informatiebrief. Ik geef toestemming voor die inzage door deze personen.
- Ik wil meedoen aan dit onderzoek.

Naam deelnemer:

Handtekening: Datum : __ / __ / __

Ik verklaar dat ik deze deelnemer volledig heb geïnformeerd over het genoemde onderzoek.

Als er tijdens het onderzoek informatie bekend wordt die de toestemming van de deelnemer zou kunnen beïnvloeden, dan breng ik hem/haar daarvan tijdig op de hoogte.

Naam onderzoeker:

Handtekening: Datum: __ / __ / __

FUTUREFRAMER

A SHOWROOM APPROACH FOR IMAGINING THE FUTURE OF FOOD THROUGH LAYERED CHOICES

RESEARCH BY: ELKE VAN DAEL, IVY G.C. VAN DONGEN, VERE VREESWIJK, MARC H.C. WIJKMANS
COACHED BY DAN LOCKTON
POSTER BY VERE VREESWIJK

FRAMING

Food is a fundamental part in our existence, in our daily life, and many hours are spent on food every day [10]. Climate change is a topic that is discussed worldwide, and counteraction is needed. Unfortunately, the food industry is globally responsible for 30% of the greenhouse gas emissions and 70% water consumption [2, 4, 9, 11]. Because food is fundamental for people and society, it could be used to communicate the consequences of climate change. Showing a possible future might have people reflecting on their behavior. Dominant trends in the society can affect the way futures are imagined [8]. People tend to feel powerless over trends that are out of their control. But what if people can choose which trends will become reality in the future? This research aims to address ***"How do people feel about the future of food when provoked with a climate change-induced future?"*** and ***"What tensions do people imagine in adopting future food practices?"***

METHODOLOGY

The design-research methodology showroom, as defined by Koskinen et al. [6], was used to answer the research questions. Design researchers using the showroom methodology engage with society and explore futuristic scenarios in the present. The showroom allowes for rich data. Gathering data via discussions can allow for the researcher's interference to ask follow-up questions and gain a deeper understanding of a person's motives. As this project was very future-orientated, the showroom approach fitted it best as it allowed us to explore alternative futures. As society plays a crucial role in shaping the future, it is essential to have the showroom in a place that represents society [6]. Therefore, the research was done at the city center of Eindhoven and the university's campus. In total, 10 participants over 18 interacted with Future Framer. Participants were recruited by drawing their attention with a provoking question.

FUTUREFRAMER

An artifact and a what-if question can provide people with a perceptual bridge from their context to the context of the presented future [1][3]. With FutureFramer, the participants can create their preferred future of food by making decisions. The artifact exists out of multiple layers, each addressing a possible issue in the future. On the side of the artifact, the choices are explained.

After answering all questions, the participant assembled their future kitchen. The self-assembled kitchen helps the participants to reflect on their created future. Participants were asked to think out loud, and after the interaction, the kitchen was discussed. While the participants were interacting and discussing their thoughts with the researcher, one other researcher gathered all the data by taking notes.

ANALYSIS

To analyze the qualitative data, multiple steps were taken. First, a deductive analysis on the predefined themes of the Social Practice Theory (SPT) [7] was done. SPT is interesting for designers because it holds the ability to understand how social practices exist, prevail and change [5]. The SPT themes were (i) material, (ii) competence, and (iii) meaning. The data was spread equally over the themes. Next, the data were inductively analyzed per theme, resulting in similar clusters across themes. Therefore, new clusters were created, and the data were categorized by past, present, future, and tensions. Within these categories, the similar clusters per theme were clustered, so the themes were mixed. Lastly, per cluster per category insights were formulated.

INSIGHTS

PRESENT — ***TENSIONS*** — ***FUTURE***

The findings show that people are stuck in routines making it harder to act even though they are aware of the needed change. Another issue for change is that people are dissatisfied with current alternatives available for diet changes.

In considering the options of future food practices, the participants imagined restrictions on time, motivation, skills, materials and money.

Participants mostly saw natural and fresh food as an ideal situation. Unnatural food practices were seen as a dystopic scenario, as they were afraid that we would lose ourselves in technological solutions. Participants were skeptical towards some options of technology in cooking.

CONCLUSION

Even though participants acknowledged that emerging technologies offer opportunities for new experiences, the findings suggest that the participants had an overall aversion to techno-centric future scenarios. However, it can also be interpreted that the participants would want other futures to come true instead. The restrictions participants imagined in future practices were most often time and motivation. These tensions could be partly due to limitations people experience in the present, like being stuck in a routine. All in all, participants were aware that food would and should change in the future. After interacting with FutureFramer, they could imagine future practices in such detail that they pictured tensions as time, motivation, skill, material, and money.

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Individual reflection

Individual reflection of Vere Vreeswijk on the course Constructive Design Research. Methodology: Showroom. Project: Imagine: Contested Futures of Sustainability.

03/11/2022, Eindhoven University of Technology, v.vreeswijk@student.tue.nl

1 LEARNING GOALS

Firstly, I want to reflect on the learning goals for this course.

The first goal for this course was to learn more about the showroom methodology, as I expected it to closely relate to my goal and approach as a designer. As a designer, I highly value broadening my own perspective with perspectives from others to ensure that my designed solutions also work for other people in society. Comparing the showroom methodology to lab, field, and studio, showroom matches my design approach best because it allows me to create an artifact to show a future vision and collect views from others. Besides, the data collection is done by discussing outcomes or thoughts with participants. Gathering 'rich' data is essential when designing for the future, as the future can be shaped in the present. I see this learning goal as successful since I gained a better understanding of the showroom methodology in relation to the other methodologies and can use it in future research.

The second learning goal focused on using the showroom methodology to start an open conversation and create a comfortable environment. During the user tests, I was responsible for explaining the questions and choices to the participants, and asking reflective questions. However, I sometimes had trouble with remaining objective and not influencing the participants with my thoughts about the future. Part of having a discussion is done by expressing thoughts as a researcher as well. However, I wanted to gain insights into what their thoughts were, not influenced by my perspective. Overall, I experienced how to create an open environment where participants could share their thoughts and ask critical questions.

The last learning goal was about data collection and analysis. I saw it as a struggle to objectively capture all the insights from the discussions without making an audio recording. For the data collection, I experienced it as crucial to have at least one other person taking notes and one person focusing on the discussion or to make the extra effort to prove to the ethical board that an audio recording is necessary. Using an existing framework to support the data analysis helped to get structure in the data. Combining deductive and inductive analysis enabled me to understand more explicit ways of structuring data. By gaining this new knowledge, I can analyze my data in multiple ways and have the ability to select the correct method suiting the goal.

2 PROFESSIONAL IDENTITY AND VISION

As I already briefly mentioned via the outcomes of the learning goals, the showroom methodology really suited me and my vision or approach as a designer. It allows for making a statement, gathering rich data, understanding other perspectives, discussing societal problems, and future thinking. Even though I see value in the different methodologies, the showroom will best fit the topics I want to design. In my research project (M1.2), I am sure to use the showroom methodology.

I can be very brief about the topic of the research, the Imagine project. I am absolutely excited that I had the opportunity to participate in this project. It combines future thinking with sustainability and speculative design. I will definitely continue with projects related to these topics.

Lastly, I would like to discuss the overall course and what it has brought me. At the start, a design research course did not excite me at all. However, this course really put design research in a different perspective for me. It taught me to do research within speculative design, which is something I struggled a lot with during my FBP. The course showed me how research matters and how designers have a unique contribution to deliver to the research community. Especially when it comes to designing for the future. It also taught me new skills in how I can structure my research process, which steps are necessary to take and how to be critical on your own process.

Overall, I am satisfied with all the knowledge this course provided me, and I am prepared for my M1.2 research project and future design research projects.