



*This **SUX!***

The Sustainable UX Design Toolkit

Towards sustainable development goals in UX practice

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Abstract

UX designers define digital products that shape our modern world. They are at the very beginning of product development and can directly influence the impact the products generate. However, little attention is paid to sustainability values in day-to-day business, which has a counterproductive effect on all dimensions of sustainable development.

This thesis explores how a digital co-design toolkit can help UX design (UXD) practitioners find ways to integrate sustainable values into their daily work. Thematically, this project focuses on the UN Sustainable Development Goals (SDGs). On the one hand, to ensure a holistic point of view on the topic of sustainable development. On the other hand, to provide an approach to contribute to the SDGs from the UXD field.

This research builds upon Sustainable Interaction Design (SID) theories, and a participatory design approach is pursued using a co-design process.

The result of this work is a digital toolkit, which is designed for a collaborative online whiteboard platform for UX practitioners. The thesis contributes knowledge to the field of Interaction Design by proposing a toolkit for sustainable UX design.

Keywords: sustainable interaction design, ux design, participatory design, co-design, generative toolkits

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1 Introduction

This paper discusses the challenge of practicing UX designers to integrate sustainability values and aspects into their daily work. The partner project of this work is a community project that was started by practicing UX designers to counteract the problem.

1.1 Sustainability and User Experience Design (UXD)

UX designers of digital products are a part of the society that develops systems that guide our modern world. The products, services or applications they create have a long-term impact on the planet we live on. Software development and digital design are not in sustainable harmony with our environment, our finite resources, a healthy economy, and social justice for all inhabitants of our planet. We are far away from a sustainable future, and a radical change must occur at all levels (Becker et al., 2015). The profession of the UX designer is constantly evolving, but it is still a relatively young profession. So far, there is no straightforward education path as in other professions. Most UX designers have neither learned at universities how to design for sustainability (Blevis et al., 2015) nor is this required by their employers. Nevertheless, designers of digital products have a responsibility to design sustainably, for which there is currently too little awareness. However, more and more UX designers see an increasing need to create digital products more sustainable. Most of them face this problem on their own and feel overwhelmed by the topic. How can UX designers approach this problem, how can they find ways to face these challenges in their everyday work, and what solutions are already there?

1.2 Stakeholder, community & project

The work in this thesis happened in collaboration with a new community project *The Sustainable UX Manifesto* (2021). The project was initiated by senior UX designer Thorsten Jonas, the main stakeholder in this thesis project. The working group of this project currently consists of around 15 UX designers who got to know each other at the online conference UX Copenhagen in the context of the project's first kick-off workshop (2021). The international group consists of participants from Denmark, Sweden, Norway, Germany, Belgium, Iceland, Switzerland, the US, and Malaysia. The project of this working group follows a holistic approach that places the 17 UN Sustainable Development Goals (SDG) (2021) at the center of their mission, "*How to include sustainable values and aspects into our daily work*". However, the community does not just want to write textual principles about why it is essential to design sustainably because, in their opinion, there are already enough manifestos out there. These manifestos often describe why it is necessary to design sustainably, but they are not proposing how to achieve that. Therefore, the approach of the community is to find or develop practical and actionable solutions. The project is in a very early stage and needs a focused, practical framework to follow. In the course of this work, the aim is to work closely with the members of this community and to integrate them into a co-design process.

1.3 Goal and research question

This work aims to design a digital toolkit for the community working group of the Sustainable UX Manifesto. It is not the aim to answer the question of how UX designers can integrate sustainability values and aspects into their work. Instead, the digital toolkit will provide a framework and guide to answer this question in order to find solutions as a community. With this goal as motivation, this thesis explores the following research question:

How can a digital co-design toolkit help UX practitioners to explore opportunities and find ways to include sustainable values in their daily work?

To answer this question and to explore how to bridge the gap between theory and practice, it will be supported with the following sub-questions:

1) How can existing SID theories and frameworks be used to include UN SDG into the practice of UX designers?

2) How do these frameworks have to be transformed so that they will support UX practitioners?

The following chapters describe the User Experience Design (UXD) field background and theory from the Interaction Design (IxD) research field. Which also provides a deeper insight into the Sustainable Interaction Design (SID) research field. The used methods will be described, and the course of the design process will be shown. At the end of this thesis, the results of this work will be presented, and individual points of this work will be critically reflected.

2 Background and Theory

2.1 Sustainable development

The United Nations presented the 17 Sustainable Development Goals (SDG) in September 2015 (see figure 1), which pursue a holistic approach to include all dimensions of sustainability (2021).



Figure 1: UN SDG (Global Goals Ressources, 2021)

The SDGs include social sustainability to combat poverty, injustice & inequality, strengthen everyone's right to education and health care. Furthermore, in the dimension of ecological sustainability, the goals include the urgency to counteract climate change in order to protect nature and all habitats on the planet. The third dimension of economic sustainability describes the goals of a healthy economy with responsible production and strong partnerships. The United Nations have declared these goals as an agenda until 2030 to appeal to all countries.

The SDGs are quite broad and, of course, not a direct guideline for the UXD field. So far, relatively few contributions to the SDGs have been published from the HCI research field. However, it can be seen that the importance of the SDGs has increased in recent years through international workshops on this topic to discuss the responsibilities of the HCI community with regard to the SDGs (Eriksson et al., 2016; Fredericks et al., 2019; Kumar et al., 2020). For this reason, this thesis will take the view on sustainable development as a learning process to integrate sustainable values into UXD, and will follow the recommended model of the three dimensions of sustainability for design and software development by Becker et al. (2015) (see figure 2).

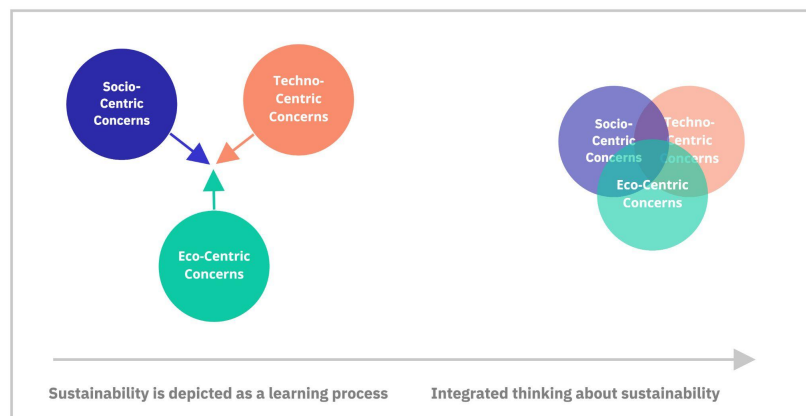


Figure 2: A practical view on sustainable development, based on Becker et al. (2015)

The dimensions are described as 1. socio-centric concerns, 2. techno-centric concerns, and 3. eco-centric concerns. These are initially considered individually, and a balanced interface will be found in the learning process by finding and using the right tools and methods (Becker et al., 2015). Becker et al. (2015) explain the dimensions as follows:

Socio-centric concerns: How can software make people's lives better?

Techno-centric concerns: Software qualities and the value they create

Eco-centric concerns: Protecting the environmental economic

2.2 Sustainable Interaction Design (SID)

Computer technology has a growing influence in our lives; new working conditions such as home offices in the corona pandemic affect us directly or indirectly with systems such as fitness trackers that accompany us in everyday life and measure our health data. However, with the growing need for digital products and services come many unsustainable problems. The spectrum of problems touches on all dimensions of sustainability. At an eco-centric level, this

begins with the production of the devices, the enormous energy consumption chain from the hosting to the required infrastructure to the end-user (Frick, 2016, pp. 41-45). Furthermore, digital devices are dependent on finite resources, such as lithium-ion batteries and various metals like cobalt, to connect the components to the hardware (Yang et al., 2021). In addition, many of these devices are not designed for longevity from the outset, nor are they designed in such a way that the materials can be returned to a sustainable cycle after use (Franquesa et al., 2016). In the techno-centric dimension, for example, we can see that software depends, on the one hand, on UX design decisions such as usability, accessibility, and inclusiveness for information and interactions on the other hand (Reed & Monk, 2011). At the socio-centric level, for example, there are digital services that often offer addictive patterns or negatively affect mental health, such as the constant request for notifications in screen applications or dark patterns in e-commerce that induce unsustainable consumption or unconscious decisions (Gray et al., 2018).

Sustainable interaction design (SID) is a countermovement to the problems caused by digital products and services. The research field pursues the approach of not considering technology and its users as part of the problem but instead transforming it into part of the solution. SID was introduced in 2007 by Blevis with the appeal that sustainability should be at the center of IxD (2007; Preist et al., 2019). Blevis defines design “as an act of choosing among or informing choices of future ways of being” and calls for the integration of sustainability aspects of the “environment, public health, social justice and equality” into design decisions (2007). With the recommendation to integrate sustainability aspects into IxD, the handling of methods, values, categories, open research questions, and sustainability principles are presented (Blevis, 2007). Furthermore, the research field considers the development of methods, the use of reflective approaches, and the support of the user in making more sustainable decisions. User behaviors and consumption, increasing awareness of SID in general, the sustainable use of materials, the transparency of information about the resource consumption of computerized systems, and more sustainable use of technologies are also considerations of SID (Carl DiSalvo, 2010). The methodological approach pursued in this thesis, described in more detail in [chapter 3](#), provides that practicing UX designers re-examine their current toolset in order to find and implement potentials for the integration of sustainability values. The use of the approach to adapt or supplement existing methods and practices is strongly recommended by SID researchers (Blevis, 2007; Mankoff et al., 2008; Nathan et al., 2008; Carl DiSalvo, 2010).

2.3 Reflective criticism from SIDs and UXDs own ranks

Around 2014, SID researchers began to reflect on their previous work and criticize the low output of the research field (Silberman et al., 2014; Knowles et al., 2014; Roedl et al., 2015). Knowles et al. consider that the outcome has too little impact. The research community focuses too much on solutions of the privileged society; it does not deal enough with the social problems of survival-anxiety and climate change (2014). Furthermore, SID should actively participate in innovative forms of technology-supported activism and use the potential of crowd-sourcing to address and share problems as well as solutions (Knowles et al., 2014).

Knowles and Håkansson saw the need for a knowledge base in which the knowledge of the SID community is built up collaboratively with crowd-sourced content (2016). Researchers see the need to take more action, as Erikson takes a clear position “We want to change things for real, not just write papers” (Silberman et al., 2014, p. 66). Silberman et al. point out the great potential for major changes as soon as SID researchers collaborate more with other disciplines and practitioners (2014).

Similar criticism can be observed from the ranks of UX practitioners in the industry. Dozens of blog posts show that designers recognize the need for actively practicing sustainable UX design (SUX) in their daily work and projects (O'Connor, 2021; Brabo, 2020; Heibeck, 2019; Bernardino, 2020; Wright, 2020). Designers realize that they must no longer remain part of the problem but must become part of the solution and build communities that tackle these problems together (climate designers, 2021; The sustainable UX Manifesto, 2021; climateaction.tech, 2021). As Knowles et al. see the need to build up a knowledge base in the SID field (2014), this is also recognized by the practitioners in the design field, which is illustrated in [chapter 2.8](#) Canonical examples.

2.4 Reflective framework *Should Do, Can Do, Can Know*

The framework *Should Do, Can Do, Can Know* (Wei et al., 2019) is an analytical framework that was created to reflect, categorize and compare value-based IxD projects at the School of Design in Hong Kong. The framework is divided into four categories; the first category *Should Do*, describes the motivation, values and vision the respective project is pursuing. The second category *Can Do*, describes what the designer will achieve in the project to contribute to the vision of *Should Do*. For this purpose, the concept, approach, or applied strategies are presented. The *Can Know* category shows what knowledge the designer takes from the domain knowledge. The last category *Forms* represents what the designer has reached with the project, e.g., some form of the prototype. Since this framework focuses on value-related projects, it offers an optimal basis for considering three essential aspects of the work of designers who deal with the topic of sustainability. How this framework will be applied in this thesis will be explained in [chapter 4.4.1](#).

2.5 From Theory to Practice

When looking at the work of design practitioners from the commercial industry and comparing this with the work of IxD or HCI researchers, it is often found that there is a large knowledge gap between the professions. Theories and design methods from the research field are often not known to practitioners or are carried out incorrectly from the point of view of researchers (Goodman et al., 2011). Norman considers both perspectives from the HCI research field and the practicing side at the Apple group and explains the research-practice gap as a major problem that must be countered (2010). According to Norman, a new discipline has to be developed that knows theoretical research, translates methods for design practitioners, and makes them applicable (2010).

To counter the knowledge-practice gap, Goodman et al. propose criteria to make theories more applicable to practice (2011). The criteria include that a common language between the professions must be developed, areas must be localized that are in the interest of both fields. Furthermore, theories have to be explained clearly and have to point out the relevance for practice. In addition, concept development principles must be created that are open for criticism and change (Goodman et al., 2011). Remy et al. (2015) carried out an experiment to apply the theoretical attachment framework (Odom et al., 2009) with practicing designers. As a result, Remy et al. reflect three main challenges (2015, pp. 1311-1312):

1) Identifying the suitable target audience	When finding a suitable audience, there can be obstacles due to the different experiences of the designers and different levels of interest in the topic itself.
2) Finding the appropriate stage in the design process	Designers have different ways of approaching a design task; it must be considered how the designers work and how the theoretical framework fits into the work process.
3) The most effective medium of communication	The medium of communication must match the media and tools of the practicing designer. For example, a theory can not only be passed on to the designer in text form; it should be adapted to a visual language and match the way of working in the design process.

2.6 The Double Diamond

The double diamond framework was designed by the Design Council in 2005 and was created for an optimized design process (Drew, 2020). The process is divided into the phases of *Discover* as diverging research phase, *Define* as a converging synthesis phase, *Develop* as a diverging ideation phase and *Deliver* as a converging implementation phase. The framework is visualized as two diamonds (figure 3) with two phases in each diamond which makes clear which phase is diverging and which is converging. This framework will later be used as an analytical tool as described in [chapter 4.4.3](#).

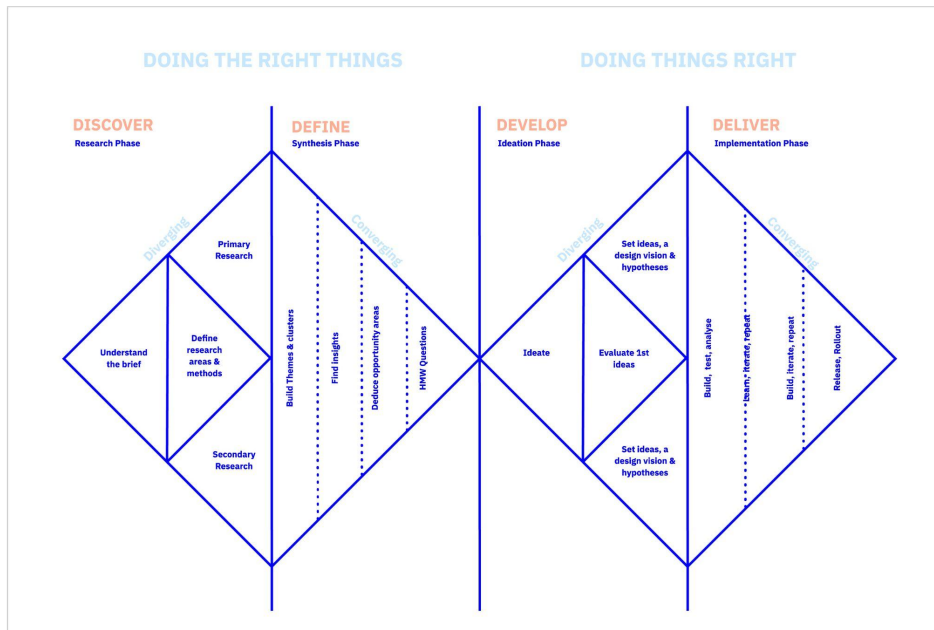


Figure 3: The Double Diamond design process mode based on Nessler (2016)

2.7 Participatory design and co-design process for sustainability

Participatory design is a design approach in which all project stakeholders are integrated into the design process as active participants (Sanders & Stappers, 2007). The design approach focuses on the co-design process in which the participants participate in collaborative activities in each phase. This approach aims to develop a common understanding, to learn, to develop solutions and, as Simonsen and Robertson describe it, to support a "collective reflection-in-action" (2013, p. 9). The application of this design approach is pursued for very open questions (Sanders & Stappers, 2007) and wicked problems (De Jong et al., 2016) since complex problems must be viewed from different perspectives. According to Manzini and Vezzoli, designers have to find new ways by means of co-design and form creative communities to address problems related to sustainability (2008, p. 34). Sanders and Stappers also see a necessary change in the designer's role from translator to facilitator (2012, p. 24). Accordingly, the designer's role is to make the theoretical domain knowledge applicable to enable the participants to take part in the creative design process. The designer will play a central role in the future for "[...] the creation and exploration of new tools and methods for generative design thinking" (Sanders & Stappers, 2012, p. 25). However, stakeholders as co-designers can never completely replace the role of an educated design expert, which is why the entire design process cannot be completely shifted on the participant's side (Sanders & Stappers, 2012, p. 24).

2.8 Canonical examples

In the following section, four different canonical examples are considered, which contain similar goals pursued in this work.

2.8.1 Sustainable design manifestos

In recent years sustainable design manifestos have been published more and more frequently by design communities, initiatives, or agencies that have laid down principles for a more sustainable design. Most of these principles are very simple, inspiring, and memorable formulated. Designers can digitally sign these manifestos and agree to follow these principles in their work.

The F1st Things F1st Manifesto

A good example of a sustainable design manifesto is the F1st Things F1st Manifesto (figure 4) by the design community climatedesigners.org (2020). The manifesto is available in 20 languages and suggests six principles that designers should follow in order to focus their work on more sustainable values. Basically, this manifesto calls for designers to help transform society from being profit-driven to being ethically fair and sustainable. Furthermore, members of the design community are asked to help develop and shape the manifesto. A public Google document (2021) has been made available to ensure the opportunity to participate in the manifesto. In the Google document, the participation of community members can clearly be traced.

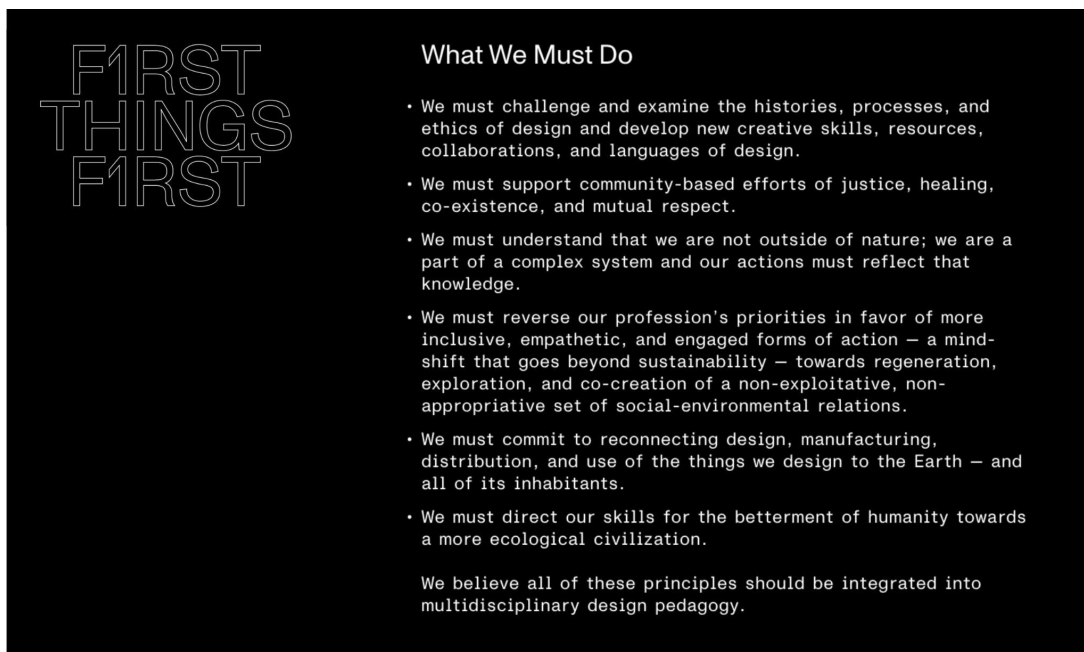


Figure 4: Screenshot The F1st Things F1st Manifesto (2021)

Humane by Design principles

Another manifesto that presents seven principles are the *Humane by Design* principles by UX designer Jon Yablonski (2021). The website provides a guideline for user interface patterns to support user well-being. For each principle, Yablonski gives basic examples and explanations for the recommended design patterns (figure 5). Another section contains a collection of resources, links to articles and books. These principles and examples are already included in the explanation of the practical application (figure 6).

The Humane by Design principles are:

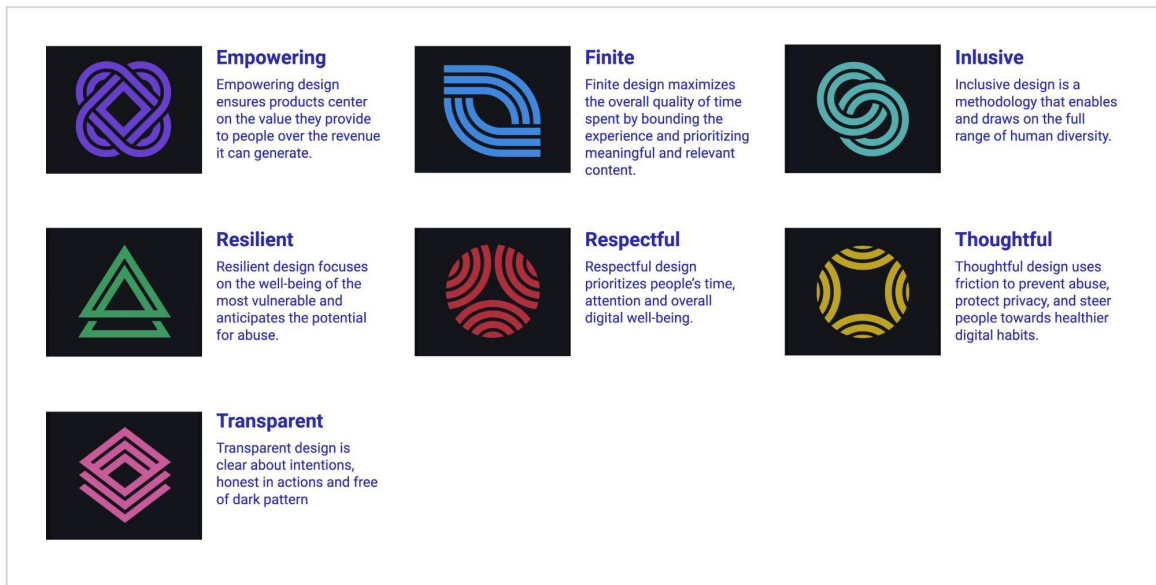


Figure 5: Humane by Design Principles by Yablanski (2021)

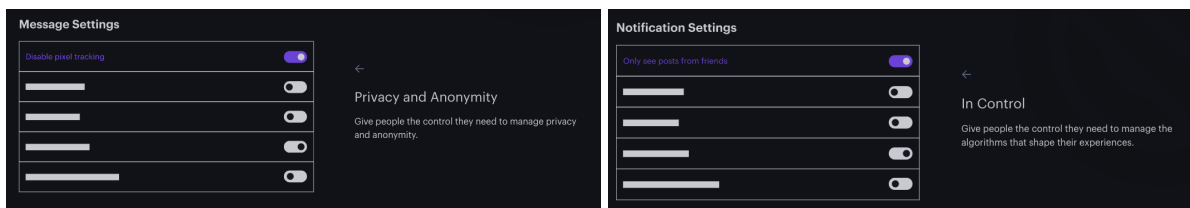


Figure 6: Practical examples of the Design Principles by Yablanski (2021)

2.8.2 Digital co-design toolkit

Collaborative online whiteboards such as *Miro* or *Mural* offer a subsection in which various templates and toolkits are freely available for all users. The variety of templates ranges from simple organization tools to methods and strategies to interactive co-design workshops. So far, there are almost no templates that deal with the topic of sustainability.

The *Crisis Curve* (2021) is a *Miro* template created by Tom Wujec and the Project Management Institute. The template offers an interactive workshop framework for teams dealing with wicked problems (figure 7). The framework pursues a strategic approach to identify problems and opportunities. For the various co-working activities, the framework is divided into four phases:

1. Crisis: The current situation has to be analyzed
2. Stabilize: Possible solution options must be searched for and identified
3. Restore: Clear goals must be defined
4. Grow: Activities must be planned in order to implement the goals



Figure 7: Excerpt from the Crisis Curve toolkit (2021)

The activities in the phases offer different interactive methods for brainstorming, prioritizing ideas, categorizing, setting goals, evaluating goals, and creating work processes. According to the number of *Miro* uses, the toolkit has already been used 982 times and seems very popular. As the authors describe, it is a rough framework for developing a holistic approach to business strategies (Wujec, PMI, 2021).

2.8.3 Design Community-Driven Project for Climate Change

The project of the designandclimate.org (2021) community follows Wright's (2020) formulated principles for designing sustainable services. The community participants test these principles in their everyday work; the experiences are collected using a *Miro* board (Wright, 2021) and discussed in video call sessions. The participants give regular feedback on which principles they have been able to integrate into their everyday work, which are difficult for them, and what the obstacles were. Principles for Designing Sustainable Services (Wright, 2020): 1. *Make Climate a priority*, 2. *Take Responsibility*, 3. *Go for Radical*, 4. *Build a Community of Practice*, 5. *Use Data to Get Started*, 6. *Balance Short and Long-term Actions*, 7. *Seek Solutions with Co-benefits*, 8. *Be Pragmatic and Opportunistic* (figure 8).

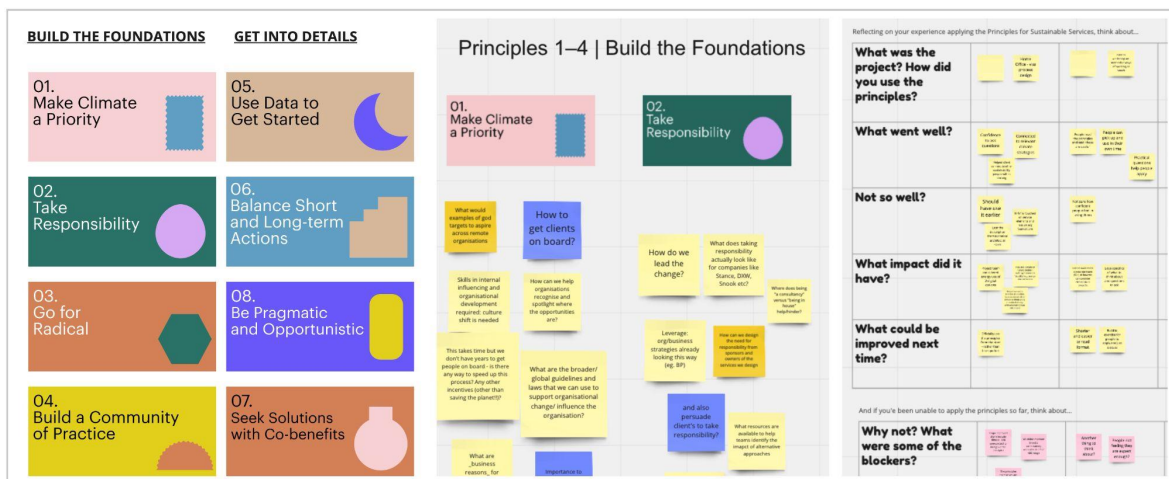


Figure 8: Excerpt from the designandclimate.org Miro board (2021)

The principles listed above are only the headings; each principle contains clear explanations and recommended questions in Wright's article to stimulate thoughts about the respective principle. This project is difficult to evaluate at this point as it is still in its infancy. Based on an

initial assessment, the community seems to be relatively active and motivated to apply the principles. Some of the participants seem to have already achieved their first successes by inspiring other employees and decision-makers in the work environment.

2.8.4 Reflections on Canonical examples

The examples of the design manifestos have fundamentally very valuable principles that encourage sustainable design. Above all, the *F1st Things F1st* manifesto shows a created community work and is continuously being optimized. The shared Google document shows the active participation of community members. However, it can also be seen in the comments that the designers are asking for more practical suggestions (figure 9).

“We’re looking to highlight real world examples after each bullet of what people are doing/have done/can do so that we provide practical suggestions to designers.”

Figure 9: A comment from a community member (2021)

The second example, *Humane by Design* principles, pursues value-oriented sustainability in the socio-centric dimension. However, since the principles focus exclusively on a human-centered design approach, they exclude further dimensions of sustainability. The digital toolkit *The Crisis Curve* offers a methodical framework for teams to work together on wicked problems. Therefore, the toolkit does not explicitly focus on specific problem areas such as sustainability. There are no toolkits in the resource library of the online whiteboard platforms that focus on the topic of sustainability. The last example shows how a community works together via an online whiteboard in order to integrate sustainable principles into daily work. It goes one step further and motivates designers to work together actively. In this project, however, it can also be stated that the participants have difficulties applying the principles. They demand more best practices and tools to implement the principles. The works presented are particularly noteworthy and generally indicate increasing awareness of sustainable action in the design community. In summary, however, it can be said that there is a need to develop community-based solutions that support the digital design industry in practice and enable action for sustainability.

3 Methods

Since this thesis follows a methodological approach, the different methods that are used in this work are listed and explained in this chapter. The first section mainly comprises the research methods, and the second section contains the methods that have been integrated or explored in the digital toolkit itself.

3.1 Methods part 1

The following methods in the next section were mainly used to develop, structure, and synthesize the thesis work.

3.1.1 Semi-structured interviews

In semi-structured interviews, the interviewer uses a list of topics and questions to be discussed during the course of the interview. The order of the topics in each interview can vary and the questions are asked in the natural language of the interviewer so that the interview develops into a natural dialogue. In this type of interview, open questions are often asked, whereupon the interviewer asks for deeper details in the answers. In this way, more profound levels of information acquisition can arise, which is why each interview can deliver very different results (Roulston, 2010, Chapter 2).

3.1.2 Affinity diagramming

Affinity diagramming is used to cluster information gathered from design research. In the context of interviews, the information from each interview is collected on sticky notes. The information from all interviews is sorted according to similar problems, thoughts, and statements. After all information has been sorted, the related information is given a descriptive umbrella term. With the result, the researcher receives an orderly overview, summary, and focus of the interview results (Hanington & Martin, 2012, Chapter 3).

3.1.3 Empathy mapping

Empathy mapping is a design thinking method to synthesize collected data of user research and build empathy with the users (Gibbons, 2018). With this method, the user's information is divided into the sections *Says*, *Thinks*, *Does*, *Feels* and displayed on a canvas.

Says: Statements from the user are collected, and direct or indirect quotations can be used.

Thinks: At this point, the user's thoughts are summarized.

Does: Collects what actions the user is doing.

Feels: Shows the emotional feelings of the user.

Furthermore, empathy maps can represent a specific interviewed participant or a summary of several participants.

3.1.4 Co-creation session

In generative co-creation sessions, different participants are invited who represent the target group. These sessions serve to determine the participants' values, experiences, and needs for new concepts, products or services by means of various tasks (Sanders & Stappers, 2012, p. 156). For each step of the session is planned exactly which tasks the participants will do, as explained in the next section 3.1.5. Furthermore, the designer will create a toolkit with which the participants can express themselves creatively in different ways. It is also possible to give the participants a kind of homework so that certain situations and emotions in their lives can be reflected on (Sanders & Stappers, 2012, p. 157). In this work, different sessions will be carried out as explained in [chapter 4 Design Process](#).

3.1.5 Generative Toolkits

Generative toolkits are developed by researchers or designers for co-creation sessions to support participants in the activities of expressing knowledge, feelings, experiences, imagining the future, creating connections and ideas. Sanders and Stappers refer to these toolkits as *Make Toolkits* (2012, p. 70). The toolkits are designed to guide participants through the creative process and are intended to create opportunities from reflection to creative doing and leading to solution ideas. The ingredients of toolkits can consist of different methods, which are supported by different visual materials. The materials support the participants in expressing themselves creatively and in triggering associations, experiences, and emotions. These can be, for example, pictures, words, symbols, shapes, dolls, or Legos (Sanders & Stappers, 2012, p. 70-71). The examples are physical materials, but Sanders & Stappers also see the need to explore new technologies in order to find out how generative tools will look in the future (2012, p. 8). One form of this exploration will be presented in the design process of this thesis using a collaborative online whiteboard.

For the generative sessions, Sanders & Stappers recommend the four steps in the path of expression (figure 10). In the first step, there should be an activity in which the participants share their current experiences around the topic. In the next activity, the past experiences should be shared, and the following activity should make it possible to abstract these experiences into the future. The last activity allows the participant to create something.

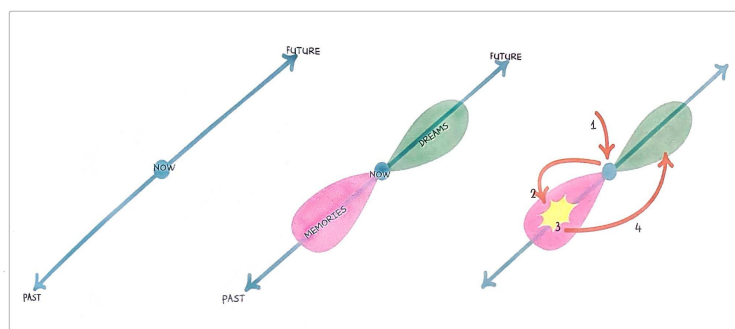


Figure 10: The path of expression (Sanders & Stappers, 2012, p. 55)

3.1.6 Prototyping Report Card

The *Prototyping Report Card* is a method of the innovation agency IDEO to evaluate the outcome of activities with a prototype (IDEO, 2021). When planning an activity with participants, it is important to formulate what is specifically to be tested. For this, learning questions, the key metrics for success, the testing methods, and the assumptions are defined (see figure 11). In the second part, the learning outcomes and what needs to be improved for the next iteration are analyzed after the activity.

Before Prototyping—Your Learning Plan			
Top 3 learning questions this prototype is testing:	Key Metrics for Success <i>Ex. number of people who show up, qualitative feedback in exit interview</i>	Testing Method <i>Ex. live tests, role play, storyboard</i>	Assumptions What would need to be true in order for this to work? <i>Ex. resource availability, law, or policies</i>
After Prototyping—Your Report Card			
What We Learned What answers did we find to our learning questions? Did we see the results we wanted in our key metrics? Did we find out anything about our assumptions?		Iterations Based on our learnings, what do we need to change? What are we taking forward from this prototype? What do we need to learn next?	

Figure 11: Prototyping Report Card, Human-Centered Design Resource IDEO.org (2021)

3.2 Methods part 2

The methods described below were mainly used as parts of the toolkit; to experiment with them or were adaptively integrated.

3.2.1 Ice-breaker

Ice-breaker activities are carried out at the beginning of team activities or workshops to “warm-up” the participants for the following activities. The ice-breakers can be questions, games or trust exercises. Since it is the first joint activity, it should be relatively simple; it ensures that the participants learn to feel comfortable interacting with one another and get to know each other (seedsforchange, 2021, p. 5).

3.2.2 Creative brainwriting using incompleteness

Creative brainwriting can be used to support the imagination of a person. The method of incompleteness can be used to learn more about a user or create new ideas and connections. Instead of asking direct questions to the participant, open-ended sentences or sentences with gaps to complete can be used to stimulate the imagination (Sanders & Stappers, 2012, p. 45). An example of how to learn more about a participant might be: *When I get up in the morning, the first thing I have to do is _____.*

3.2.3 The Golden Circle

The golden circle of innovation presented by Sinek is a theoretical concept for inspirational leadership (2009). The model (figure 12) describes that inspirational communication can arise when the answers to the questions of *Why*, *How* and *What* are communicated in this order. Sinek describes that true innovation only arises when the question of the *Why* becomes aware, which means the higher goal and the main purpose, it is the core of a vision. The *How* question relates to how one will achieve the defined goal. The answers for the *Why* and *How* questions stimulate the limbic brain which is responsible for our emotional world of feelings, such as trust and loyalty. Since the *Why* and *How* addresses the level of values and belief systems of people, this can have a more decisive influence on human decisions. The *What question* is the question

that is answered in order to communicate what will be done to achieve the defined goal. This stimulates the neocortex in the brain, the area responsible for analytical and rational thoughts (Sinek, 2009).



Figure 12: The Golden Circle of Innovation (Sinek, 2009)

3.2.4 Diary studies

Diary studies are used in design research to collect data from a specific target group from their everyday lives. Representative persons of the target group receive a diary format in which certain situations, experiences, or feelings can be recorded. The diary guides the person through questions or tasks and can be in physical paper or a digital format. Various options can be used to record observations, such as photos, video or voice recordings, drawings, maps, text or shapes, and stickers. This type of exploratory research is used to obtain information about a certain period of time and to discover key moments (Hanington & Martin, 2012, Chapter 41).

3.2.5 How might we

The *How might we* method is used after a research phase to formulate design challenges. To formulate the design challenges, the team asks itself *how might we ...* and completes the question with a problem, e.g., *how might we offer our users more transparency about the use of their personal data? Or how might we empower people to use public transportation instead of their cars?* The questions are then prioritized and can offer opening points for ideation or brainstorming sessions (Gekeler, 2019, pp. 68-69).

3.2.6 Brainstorming

Brainstorming is a way of thinking deeply about a topic or problem. For this method, the problem is written in the centre of a whiteboard or sheet of paper. Subsequently, ideas and thoughts are written around the problem and further ideas that arise from the first ideas. The rule here is quantity over quality, which creates space for many ideas and inspirations (Hanington & Martin, 2012, Chapter 9)

3.2.7 Theory of Change

The *Theory of Change* is a method that can be used to shed light on the extent to which a solution brings about a positive change. The design and innovation agency IDEO divides the method into five steps (IDEO, 2021) (figure 13).

- 1 Define the main design challenge that the team wants to address.
- 2 Describe the current state that needs to be changed and formulate the desired target state.
- 3 Consider concepts that have the potential to support a change.
- 4 Explain of how the concepts will create the change.
- 5 Reflect the concept critically by considering the required conditions and risks of the concept.

Figure 13: Five steps theory of change method, based on IDEO (2021)

3.2.8 Sketching

Sketching is an often-used method in the design process to visualize ideas and thoughts. It can be used in different ways to document observations like environments, people, or interactions.

The method is also used to explore, visualize usage contexts in storyboards, or show the very early stages of a prototype. Designers also use it as a communication tool to make concepts and certain descriptions of an idea clear. In participatory design, it is used in generative sessions so that participants can freely express their thoughts, ideas, feelings, and needs (Hanington & Martin, 2012, Chapter 43). A sketch does not have to be done exclusively with paper and pen; it can also take on other forms represented by physical objects and surroundings (Buxton, 2007, p.113). Buxton describes the attributes of sketches that they can be implemented quickly, take up little time and money, are low in detail, pursue clear communication, and do not represent a specification but rather exploration and recommendations (2007, pp. 111-113).

3.2.9 Feedback collecting: *I Like, I wish, what if*

The *I Like, I Wish, What If* method is used to collect feedback from participants after user testing (Dam & Siang, 2020). To this end, three statements are formulated by the participants. With the *I like...* statement, the participants can record what they noticed positively in testing. The *I wish...* statement opens up the possibility to address ideas about the prototype, and the *What if...* statement can be used to collect considerations that may not have been taken into account in the prototype. Basically, this method collects constructive feedback and organizes it in a framework (figure 14).



Figure 14: Feedback framework (Siang & Interaction Design Foundation, 2020)

4 Design process

This chapter explains the design process of this work and the used co-design approach. Furthermore, an insight into the briefing and cooperation with the stakeholder will be described. Then the individual phases of the process as well as relevant activities with participants and the respective decisions are presented in chronological order.

4.1 The process

The design process in this thesis basically follows a co-design process. Since this project works with generative design, which includes various activities, the process is described as a spectrum and interplay for and with co-design (figure 15). In the spectrum of *For co-design* are the planning and analytical activities of the researcher. These include planning the research, co-design process, collecting data, and analyzing the co-creation sessions (Sanders & Stappers, 2012, chapters 5, 7). The activities reflected in the participants' participating activities are in the spectrum of the *With co-design*. This includes the co-planning with the stakeholders and the co-creation session (Sanders & Stappers, 2012, pp. 156, 165 - 172).

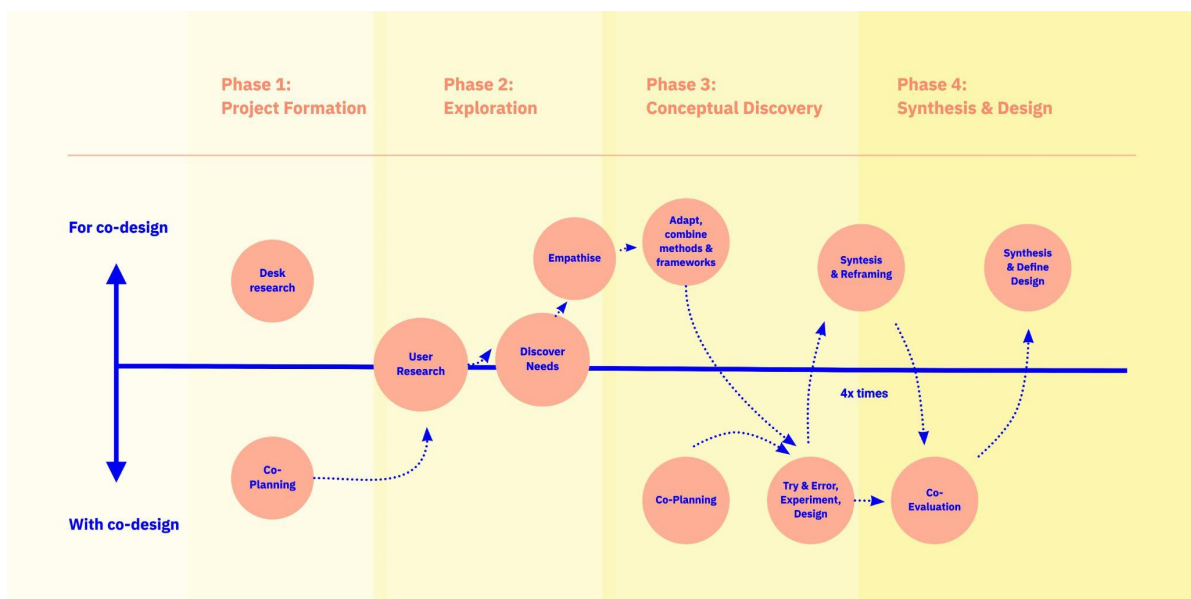


Figure 15: The spectrum & interplay for and with co-design

Phase one of the *Project Formation* includes the designer's activities in the *For co-design* spectrum, including desk research through literature research and the consideration of canonical examples. In the spectrum of *With co-design* lies the co-planning with the stakeholder and participants. In the second phase, *Exploration*, the activities are in the middle of the spectrum. In this phase, the focus is on user research, which includes discovering the experiences and needs of the target group. However, the empathizing of the results lie on the side of the designer. Then it goes on to the *Conceptual Discovery* phase, frameworks and suitable methods for the generative sessions will be explored. In this phase, further co-planning takes place in order to discuss upcoming activities jointly. Between the phases of *Conceptual Discovery* and *Synthesis and Design*, the toolkit will be iterated and optimized several times with co-creation sessions.

4.2 Phase 1: Projekt Formation

4.2.1 Desk research

The results of the relevant desk research have already been explained in section 2 Background. Various theories, papers from the ACM library, literature from the SID research field, and co-designs were researched, which will be used in the course of the design process. Furthermore, canonical examples were viewed, and inspiration was drawn from them, as described in [chapter 2.8](#).

4.2.2 Defined the briefing with the stakeholder

In the first meeting with the projekt leader of the community project, it was discussed in what form and scope the work of this thesis can contribute to the project *The Sustainable UX Manifesto*. Various possibilities were considered, the design approach of generative design was explained, and in which way this approach could be possible in cooperation with the community. In a further meeting with the projekt leader and some participants of the community, expectations and goals were discussed together. As a result, organizational points were agreed and planned together. Because this community project is in the first phase, it was agreed that a methodical approach and a toolkit would be created in this thesis, with which the community can carry out the co-design sessions. Since the community would like to focus on the UN Sustainable Development Goals (SDGs), it was decided to design the toolkit template to make it suitable to be adapted for other SDGs.

4.3 Phase 2: Exploration

The following section will describe the different steps in the exploration phase, with the main focus on the experiences and needs of the toolkit target group.

4.3.1 Semi-Structured Interviews

In order to collect the experiences of the SUX community members on the topic of Sustainable UX (SUX) design and to localize the needs, eight interviews were carried out. As described in section 3.1 Methods, the semi-structured interview method was chosen to lead the interviews

on a natural level of communication and give as much space as possible for individual answers. Before the interview, the participants were asked to review the UN Sustainable Development Goals (SDGs). In preparation, a list of topics and questions to be discussed was prepared and an ice-breaker ([chapter 3.2.1](#)) to create a personal level with the participants. When selecting the participants, care was taken to interview a very diverse group of different gender, age, origin, and UX focus:

Age	29 - 42 years
Gender	3 male, 4 female, 1 non-binary
Countries	Belgium, Sweden, Germany, Netherlands
Level Experience	Intermediate, Senior
UXD Focus	UX Strategy, UX Consultancy, UX Research, UX Concept, Visual UI

The parts of the interview were as follows:

Ice-breaker

The ice-breaker responded to the question: *What is your most unsustainable behavior?* The interviewer first gave their answer to this question to give an example, then the interviewee answered the question.

Topic list and questions

The list of topics and questions included their motivation to integrate sustainability aspects into their daily work and their reason for participating in the *Sustainable UX Manifesto* project. Furthermore, their current state of knowledge about SUX, their work situation in connection with SUX, and their communication in the work environment. In addition, the hurdles they have to integrate SUX into their work will be discussed. It is to be found out which UN goal they would like to explore first and which content would be helpful for a SUX toolkit. The complete list of questions and topics is given in the [appendix 10.1](#).

4.3.2 Interview result mapping

The results of the interviews were clustered using an affinity diagram ([chapter 3.1.2](#)) and sorted into categories. The motivations for integrating SUX design and working on the SUX design Manifesto project were divided into personal and professional motivations.

Personal motivations

The personal motivations of the participants are that most of them have very strong ethical values, are very aware of the consequences of unsustainable behavior, are concerned about the future of the next generations, and see the urgency of a necessary change (see figure 16).



Figure 16: Personal motivations of participants

Professional motivations

The professional motivations (figure 17) emerge from the intrinsic motivations and contain that there is not enough importance and awareness in the UXD profession on the subject of sustainability. Furthermore, the participants see that there are often wrong assumptions about sustainability in digital development. For example, there is often the assumption that digital products are fundamentally sustainable because they replace analog processes. However, the resources required behind the screen are not considered enough. The participants stated that current publications or manifestos attract attention to design sustainably but offer too few opportunities for practical solutions. Many of those interviewed feel the urge to dedicate themselves to the topic of sustainability and to act sustainably. It has often been mentioned that the human-centered design approach is no longer sufficient and that further levels of sustainability have to be considered in the design work. The interviewed UX designers see the responsibility as designers and the need to contribute to a sustainable future. Especially because technology is increasingly shaping society, the participants see an opportunity to bring a change from their position.



Figure 17: Professional motivations of participants

Needs priority 1

The last category of the results is divided into first and second priority needs (see figure 18). The first priority of the needs is that the respondents need a knowledge base. It was often mentioned that best practices, success stories, tangible examples, and essential guidelines are needed. In addition, the designers lack a kind of “how to practice”, which means methods, practical tips and tricks that are actionable. Furthermore, they see the need to meet the challenge of finding sustainable ways to work out as a community since sustainability is a wicked problem that cannot be dealt with as an individual. In order to find new ways and solutions, they see the step to act as a community by co-design. They want to learn and share experiences together because they see sustainability as a process that has to take place continuously. When asked which SDG they would like to tackle first, most of them spoke out in favor of *Gender Equality* or abstained.

Needs priority 2

The last part of the results sums up the needs that belong to priority two. This is mainly due to needs at the communication level. The interviewees said they would like to have more arguments to inspire their team and clients at work to convince them to act sustainably.

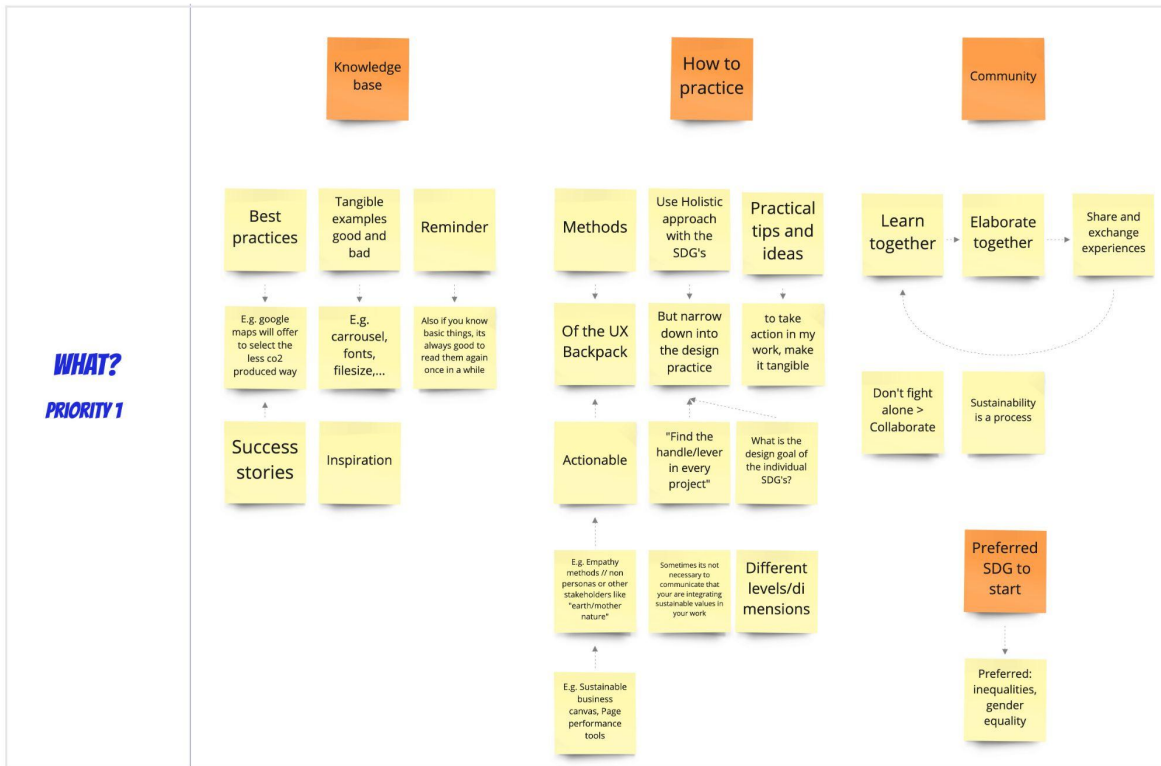


Figure 18: Target group needs priority 1

4.3.3 Interviews: Deeper empathizing with the participants

The respondent UX designers are roughly divided into two typifications, which have arisen using the *Empathy Mapping* method (chapter 3.1.3). Among them, there is *The aware learner* (figure 19), the UX designer who has recently been engaged in the topic of SUX, who continues to learn and explores.

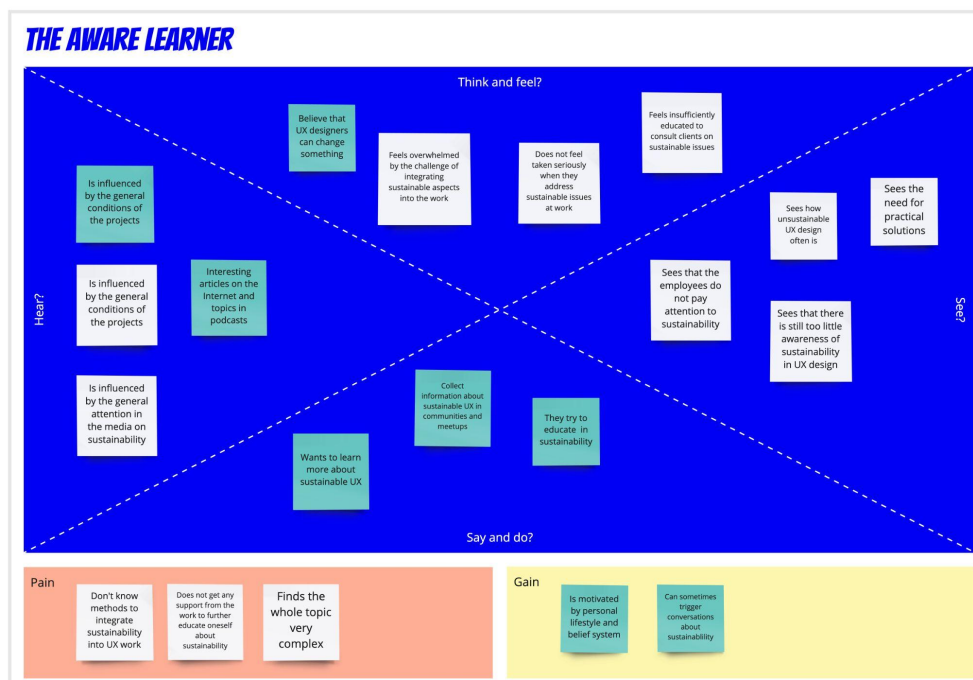


Figure 19: Empathy map - The aware learner

Then there is *The informed lone fighter*, the UX designer who already knows a lot about SUX and tries to integrate this into many work areas. This type of UX designer has already found some personal ways to design sustainably and inspire or convince other people in the work environment to act sustainably. However, this type also encounters hurdles due to the low awareness of sustainability in the industry and business goals that often do not harmonize with sustainable goals (see figure 20).

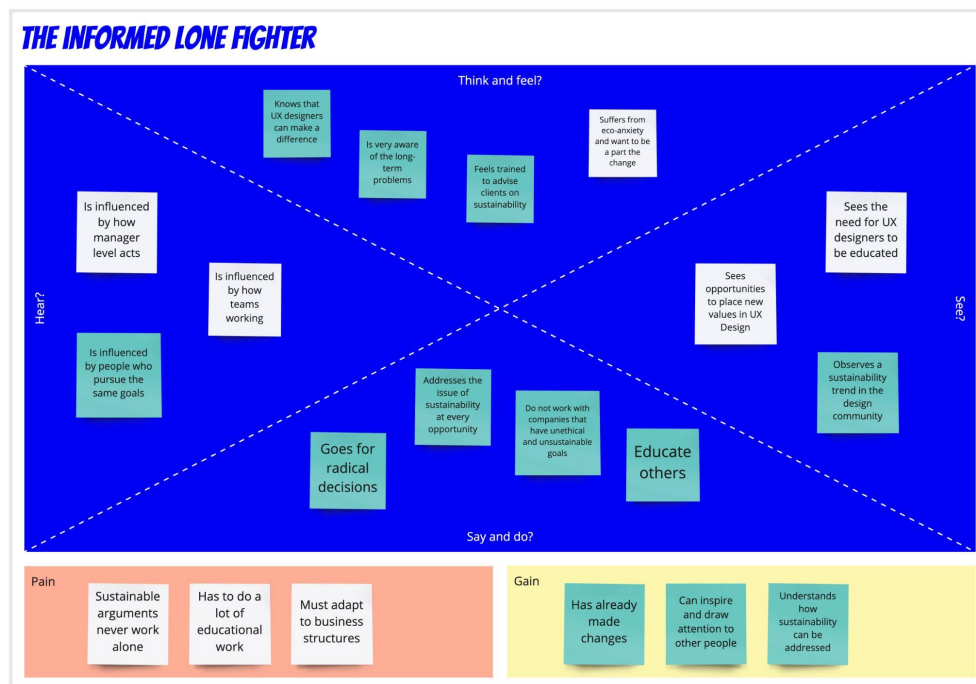


Figure 20: Empathy map - The informed lone fighter

4.4 Phase 3: Conceptual discovery

The following section explains the steps involved in the conceptual discovery. The adaptation of the used framework and its application will be explained. Furthermore, the combinations of the toolkit methods will be described and improvements to the toolkit will be illustrated in the several iterations. The carried out co-creation sessions will be shown and how the results led to decisions in the design.

4.4.1 The framework

In order to give a suitable structure to the toolkit, the presented framework in [chapter 2.4](#) by Wei et al. *Should Do, Can Do, Can Know* will be used (2019). The framework will be adapted from an analytical-reflective framework to a reflective co-design framework (see figure 21). Since the original use of the framework looks at projects in the past and this project works from the present into the future, the order of the framework segments has been reversed to *Can Know, Can Do, Should Do*. The framework has different meta-levels, leading the participants to step by step deeper into the design process. It is important to mention that the framework in the

entire process of this work focuses on one selected SDG as an example. The selected example is SDG 5 *Gender Equality*, which the participants worked on throughout this work.

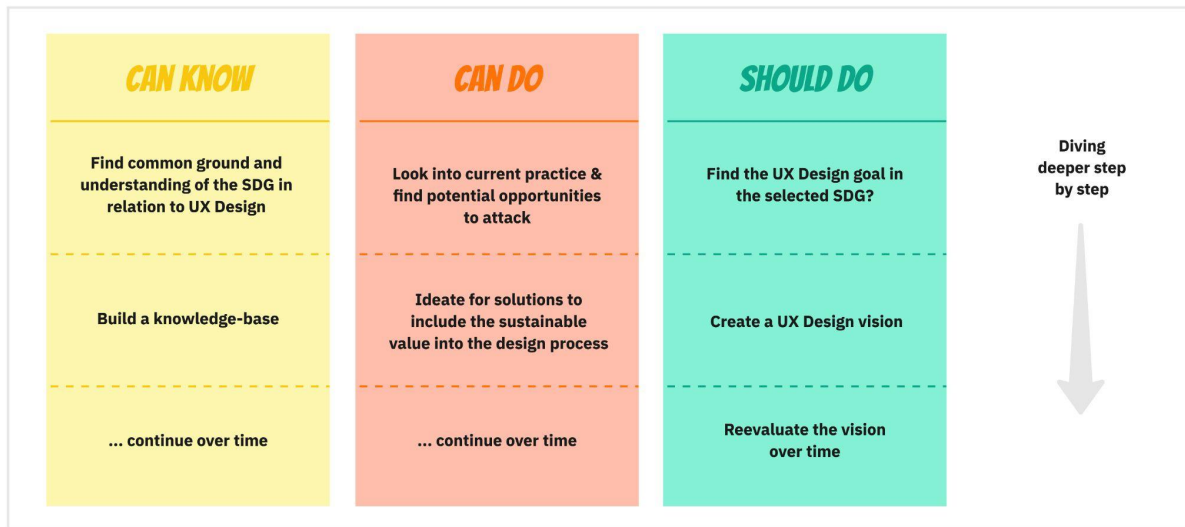


Figure 21: Adapted Framework - Can Know, Can Do, Should Do

The first segment in the framework is *Can Know*. The first step is to develop a common understanding of all participants for the selected SDG. In the second step, the current knowledge of the participants about the topic is collected. Best practices of digital products or services are collected that illustrate how sustainability values have been integrated. Bad examples of digital products and services are also collected, illustrating the effects of disregarding sustainability values. These resources are presented and discussed by the participants. Afterwards, the participants are asked to continuously expand the knowledge base with new examples over the long term.

The next segment of the *Can Do* framework looks at the current practice of UX designers. A typical design process (chapter 2.6.) is analyzed step by step. In each step, the participants consider the current practice, methods, or activities and look for potential ways of integrating values from the selected SDG. In the next level of *Can Do*, the potential possibilities from the analysis should be used for ideation, and solutions should be developed.

The *Should Do* segment is the vision level in which the UXD goal of the selected SDG will be formulated. This vision will be repeatedly examined and improved over the course of the learning process and beyond.

The last step provides an evaluation of the used framework parts. However, the last step is not fully considered in the long-term due to the time limit of this thesis.

4.4.2 How to apply the framework

According to Remy et al. (2015), the main challenges in applying a theoretical framework (chapter 2.5) with design practitioners will be considered.

1) Identifying the suitable target audience

The target audience for this project involves UX designers of various levels of experience, with a strong interest in sustainability and the need to include sustainability values into their work.

Remy et al. describe that the different levels of experience can be a hurdle in the process. This was already considered in the previously presented framework in the segment *Can Know*, by building a common knowledge at the beginning of the process.

2) Finding the appropriate stage in the design process

The second hurdle was about finding the right moment in the design process for the designer. Since the entire design process is considered in the *Can Do* segment of the framework, this is likely not an obstacle to applying the framework.

3) The most effective medium of communication

The third hurdle that Remy et al. describe is the choice of communication media and tools that are suitable for designers. When working with the participants, care was taken to ensure that the communication was based on typical designer tools such as zoom video calls and a typically used collaborative online whiteboard such as *Miro* as a workspace. Furthermore, as explained in the next section, different design methods for the generative toolkit are combined so that this is in line with the typical work of UX designers.

4.4.3 Toolkit part 1

In order to bring the framework to life, different constellations of methods and activities are combined for each segment so that it develops into a generative toolkit. The first part of the toolkit was created for the first co-creation session. Furthermore, the sequence of activities in the co-design sessions follows the path of expression explained in [chapter 3.1.5](#) (Sander & Stappers, 2012). The participants first reflected on the current thoughts on the selected SDG in the *Can Know* segment. In the *Can Do* segment past experiences are reflected in the design process analysis, and then a future vision is defined in the *Should Do* activity. Since the *SUX Manifesto* working group is an international community, the toolkit aimed to be designed for a digital collaborative online whiteboard platform. The composition of the activities is as follows:

Can Know

The first activity is a short brainstorming session where the participants should write down their thoughts and feelings about the topic of the SDG. In addition, they could optionally add a picture or graphic to visualize their thoughts (figure 22) followed by a group discussion. The aim is to gain an overview of the participant's level of knowledge of the topic and what they understand by the term. The second activity included a short reading task in which the participants read through the SDG *Gender Equality* to increase their knowledge of the topic and focus on the SDG in the course of further activities.

WHAT ARE YOUR THOUGHTS WHEN YOU THINK ABOUT GENDER EQUALITY?

Optional: You can add image which supports your thoughts.

Supportive beginnings of sentences that you can but don't have to use:

The first thing I think about / when it comes to gender equality is ...

The last thing I learned / read / heard about gender equality is ...

For me, gender equality means ...

The best example of gender equality for me is ..

Gender equality is important because ...

I always associate gender equality with ...



Figure 22: Co-creation session warm-up

The last activity of the *Can Know* segment includes collecting positive and negative examples of digital products in which gender equality plays a role (figure 23). On the one hand, this activity should give the participants an overview of the current status in the digital industry on the subject of gender equality. On the other hand, it should establish the relationship to the UXD work and what impact decisions have in the design. The result of this activity represents the beginning of a knowledge base that can be further supplemented within the long-term course of the process.

COLLECT EXAMPLES OF DIGITAL PRODUCTS WHERE YOU CAN SEE THAT GENDER EQUALITY PLAYS A ROLE.

(E.g websites, mobile/voice/ tv apps, IoT, AI, AR, VR, MR, other software, games,...)

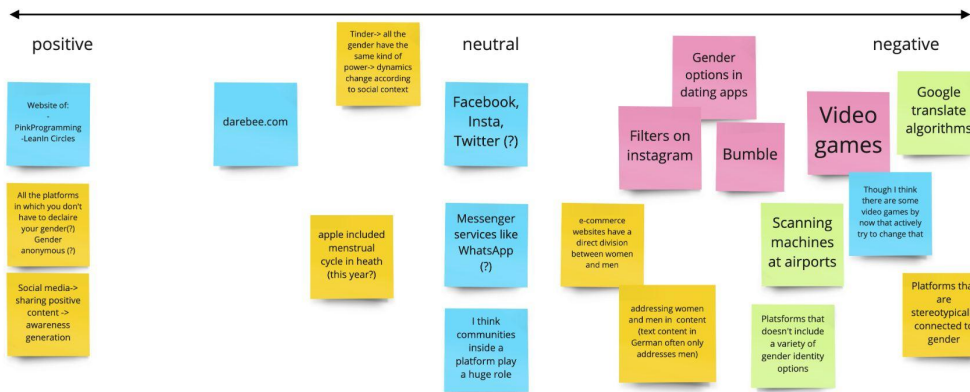


Figure 23: Co-creation session, collection of digital products on the topic gender equality

Can Do

In the *Can Do* segment, the focus was on looking at the practice by analyzing each step of the Double Diamond design process. The participants have to consider what they usually do in this phase, which methods they use, and which actions take place. Thereby, potential possibilities are brainstormed in order to integrate values of the SDG *Gender Equality* (see figure 24).

DISCOVER - Research phase

The first diamond helps people understand, rather than simply assume, what the problem is. It involves speaking to and spending time with people who are affected by the issues.

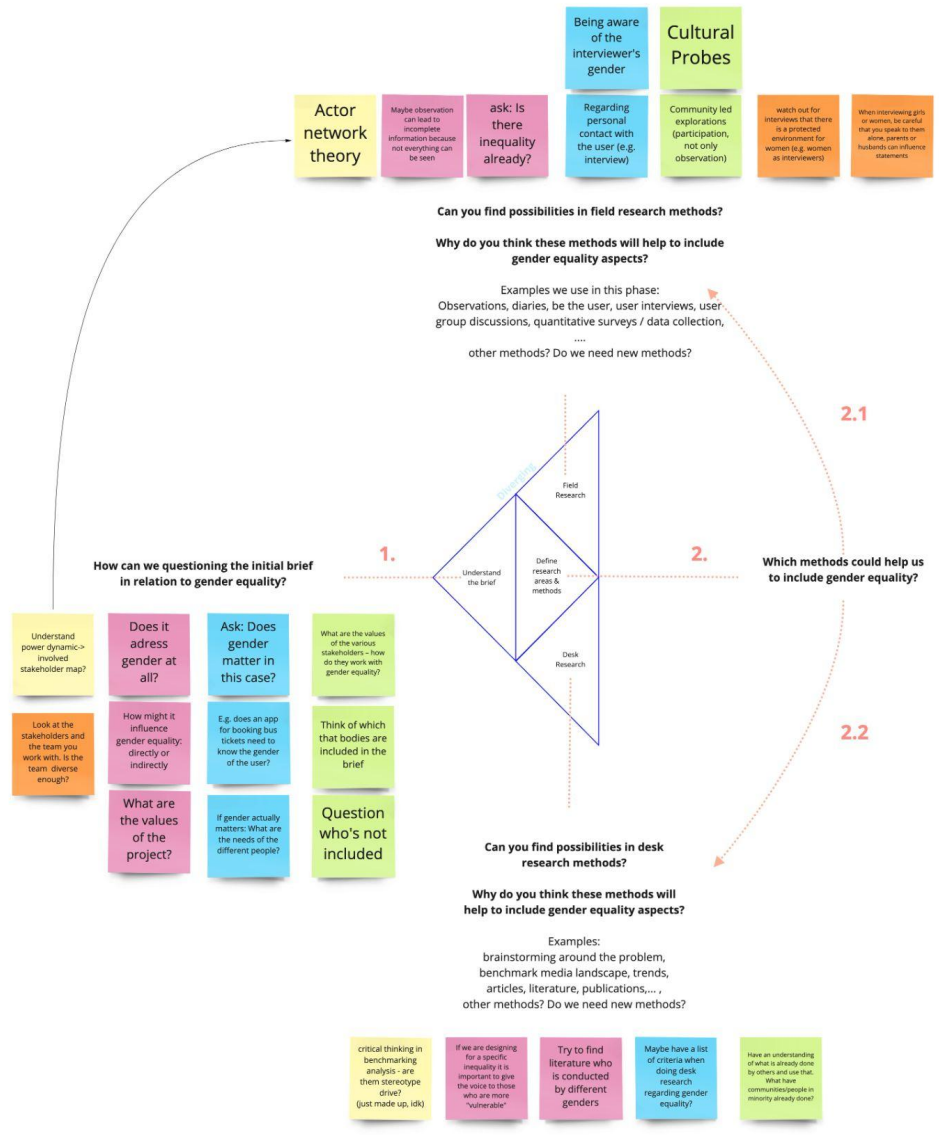


Figure 24: Double Diamond analysis, example for the research phase

Furthermore, in each phase, a free field was shown at the end, called the hidden layer. The hidden layer offers the possibility to think even more freely about possibilities in the respective phase that the classic double diamond may not be covered (figure 25).

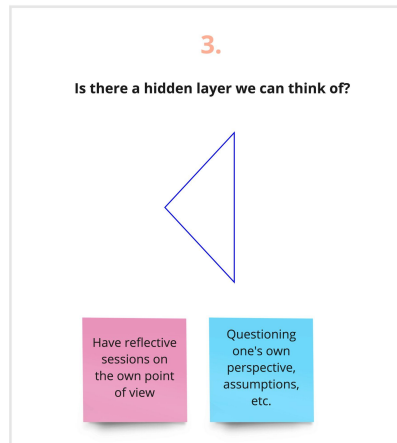


Figure 25: The hidden layer beyond the Double Diamond

Should do

In the *Should Do* segment, the UXD goal for the SDG should be formulated using a creative brainwriting task (figure 27) (chapter 3.2.2). This represents the UXD vision for the selected SDG and later becomes part of the *Sustainable UX Manifesto* on the website outside of the thesis.

Feedback & Inspiration

The last part of the session contains a feedback tool in which the participants can rate all activities of the session, add additional feedback or inspiration (figure 27). This part is used to evaluate the toolkit.

SHOULD DO
5 min.

THE VISION

Please complete the sentences

It is important to design gender-equal /-sensitive digital products because ...

It's a dynamic that need a change

they are rowdays, shaping our behavior and how we moved forward as a society

gender inequality touches all aspects of life as does technology rowdays

it affects society and the world

In order to design gender-equal /-sensitive digital products, we have to ... (think / consider / understand / ...) AND ... (do / make / implement / create / ...).

take into account the needs of all the genders and individual products that include everyone in the same way

take into account all different genders and have every thing user research

consider all perspectives involved and create platform opportunities for open discussions

Understand our own standpoints and how that affects what we do

I believe in a future in which all digital products are gender-equal /-sensitive because ...

there is a need. Maybe I won't be able to enjoy the equality, but future society will and thanks to us

technology is coming during the younger generations and we have the responsibility to ensure there will be every thing, making their

The situation regarding gender equality is always changing in a number of countries, and so do the digital products

It would contribute to a more equal society

Figure 26: Vision and goal definition with creative writing exercise

FEEDBACK AND INSPIRATION

CAN KNOW

Collect examples of digital products where you can see that gender equality plays a role.

Please take your color and slide it onto the scalars.

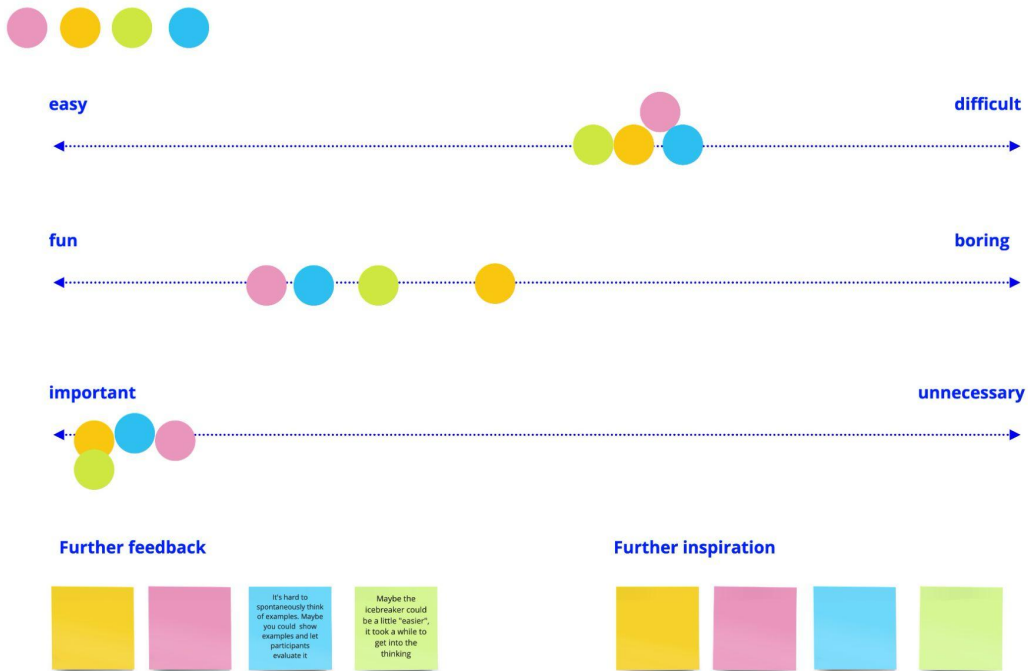


Figure 27: Feedback tool example of task 1

4.5 Phase 4 - Iterations: Design > Testing > Synthesising

4.5.1 Co-Creation session 1: Pilottest

To test the first part of the toolkit, four IxD students were invited to a co-creation session for a pilot test. In this session, the participants went through all the steps of the framework described above.

Can Know activities

The first part of the co-creation session was part of the *Can Know* segment and at the same time, the warm-up exercise for the participants (figure 22). In this task, the participants expressed their thoughts on the topic of *Gender Equality*. The participants could handle the task well and write down their thoughts on sticky notes. However, few participants took the

opportunity to use pictures to visualize their thoughts. Some participants noted that the warming could be a little easier to get started with in the feedback.

During the reading task, it was observed that the length of the text was appropriate for the planned time but that the participants received a large amount of information.

In the last activity, in which the participants were supposed to collect examples for digital products, it was observed that some participants had difficulties in finding concrete examples. The time was too short and the translation from the previous information to the current practice was overwhelming for some of the participants. The participants were inspired by the given examples and could build on them. From a retrospective perspective, the format for collecting examples was not particularly suitable for building up a kind of long-term knowledge-base collection. It can be seen that this requires more structure.

Can Do activity

In the *Can Do* activity, in which the participants analyzed all phases and steps of the Double Diamond, the participants could handle the task very well. However, they were initially overwhelmed by the visual representation of the template. There were too many requirements to be processed in one step. Furthermore, the planned time for this analysis was estimated too short, and it was clear that this analysis required a lot of energy and time for the participants.

Should Do activity

The *Should Do* activity, in which the participants were asked to define the UX design goal of the SDG using the brainwriting task, it became clear that the participants very positively received the method. However, the participants gave the feedback that the sentences to be completed were sometimes too similar so that the answers were relatively similar as well.

Feedback tool

In the feedback round, the participants were able to work very well with the visual tools, but the written feedback was rather low. Basically, the pilot test helped to discover many opportunities for improvement in the toolkit.

4.5.2 Iteration & Improvements 1

After the pilot test, some elements of the toolkit were optimized. For this purpose, a simpler introductory ice-breaker was created (figure 28). The collection of examples was optimized for better categorization, and the visualization of the double diamond analysis was simplified (figure 29).

LETS GET TO KNOW EACH OTHER 3 min. 🕒

TELL US...

WHEN YOU WERE LITTLE, WHO WAS YOUR FAVORITE SUPER HERO AND WHY?

Pick a post-it color for the whole workshop

Figure 28: Ice-breaker as warm-up activity related to the topic of gender equality

DOUBLE DIAMOND ANALYSIS 2 min. 🕒

DEVELOP - Ideation Phase
Brainstorm design ideas & concepts, test out what works and discard what doesn't.

1. Ideation

Can you find possibilities in methods or actions in this step?

Why do you think your chosen method or action will help to include **gender equality** aspects and values?

Examples we use in this phase:
Crazy 8, sketching, scenario building, role-playing, service blueprints, mood boards, story boards, ..., other methods? Do we need new methods?

Is one gender excluded in the brief?	The language of the brief can reveal a lot	Initial desk research on the company can reveal a lot	If the brief is excluding gender, reformulate a section as proposal
Is it smart to do that from a business perspective to exclude 50% the world population?	Ask regarding company quotas on gender equality	Questioning the values	Look around the table > Is this a gender balanced group?

Figure 29: Improved Double Diamond analysis template

Since a few iterations had to be carried out for the toolkit, it was necessary to use a framework for comparing and documenting the results. For this reason, the IDEO prototyping report card method (explained in [chapter 3.1.6](#)) was adapted to an analysis table (figure 30). The table supports structuring all test objectives, observations, improvements, and design decisions of the toolkit. All tables of the co-creation sessions are listed in the appendix. Furthermore, more time will be planned for the next co-creation session, as the effort involved in the activities was underestimated in the pilot test. In addition, the participants have to be prepared for the SDG topic before the session.

Co-creation session x		
Before the session		
Learning questions	Key metrics for success	Assumptions
What should be tested?	Which criteria describe a success?	What are the assumptions before the session?
During the session		
Observation	Key metrics fulfilled / not fulfilled	Assumptions confirmed / not confirmed
What is being observed? What are the participants doing?	Did it lead to success / not success?	Have the assumptions been confirmed or refuted?
Next Steps		
Optimization of the preparation	Optimizations regarding the entire toolkit	Optimization of a framework segment part
What has to be changed for the preparation of the next co-creation session?	Does something have to be changed that affects the entire toolkit?	Does something have to be changed that affects a certain part of the toolkit? <input type="checkbox"/>

Figure 30: Analysis table for co-creation sessions

4.5.3 Co-creation session 2

For the second co-creation session, four members of the SUX community with different UXD focus were invited. The session was scheduled for two hours this time. The participants were asked to prepare thematically for the session by reading the *SDG Gender Equality* and bringing an example for a digital product in which gender equality plays a role.

Observation & results

The second co-creation session's most decisive results were that the participants' thematic preparation made a decisive difference in the level of discussion among the participants. Furthermore, the collection of examples could be discussed in a valuable way. The division into teams to analyze the Double Diamond has resulted in a more effective way of working. However, even though it was a longer session, the time was insufficient because the participants did not know each other so well, and discussions took up more time than planned.

4.5.4 Iteration & Improvements 2

The planning and work content were restructured for the next meeting. It has been shown that too many activities in a session overload the participants, especially when the sessions take place after their working day. The scope of the tasks must be reduced so that the participants can reach a thematically deeper level in the activity.

4.5.5 Co-Creation session 3

For the third session, four participants with different UXD focus were invited again. The session was set to one and a half hours. For this session, the participants were asked to read the *SDG Gender Equality* and bring an example. This session focused mainly on the first framework segment *Can Know*.

Observation & results

The participants were able to develop a deeper understanding of the SDG and build a relation to UXD. They were able to use the new table well and intuitively add and discuss their examples. On their own initiative, the participants added two additional sections to the knowledge-base. They have compiled a list of publications and a list of important terms on the topic.

4.5.6 Toolkit part 2

Can Do activity 1: Self-observation diary

The participants of the last session were invited to another co-creation session. A digital diary (chapter 3.2.4) was created on the collaborative online whiteboard that the participants should carry out over two days (figure 31). The participants should observe themselves while they are working. First, they should use emojis to show how they feel about the topic in relation to their work as a designer (figure 32). Then they should record situations in which they encountered the topic of gender equality during their work (figure 33, 34). In the last step, they should reflect on these situations by adding a picture that visualizes the situation, a short description, an illustration with icons that show the parties were involved, and a mind map of their thoughts. All anonymized diaries can be viewed in the [appendix 10.2](#).

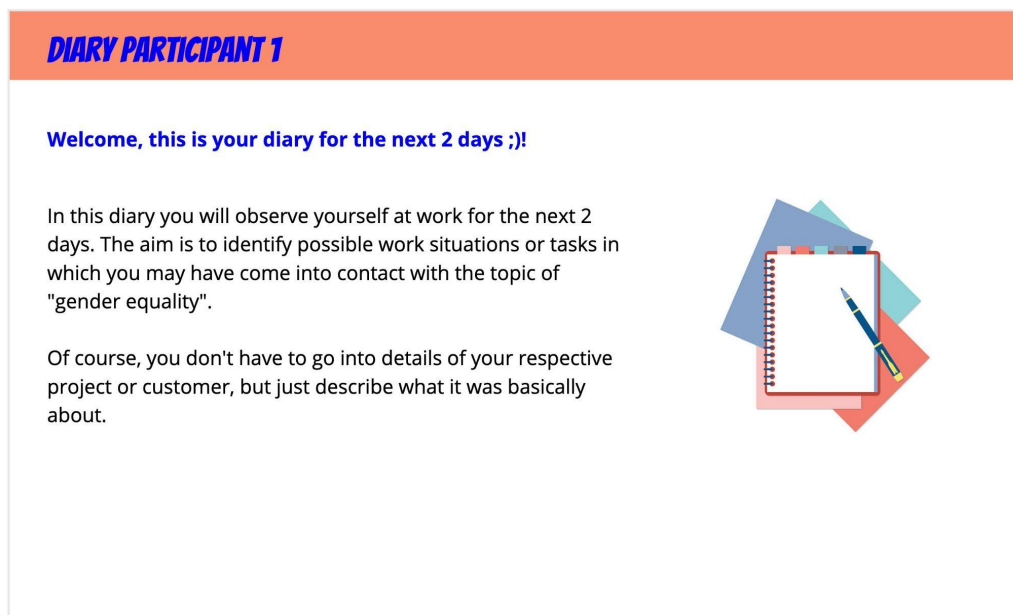


Figure 31: Self-observation diary introduction

STEP 1: SHORT CHECK-IN

How do you feel when you think about gender equality and your work as a designer. Choose an emoji that describes this feeling and add your thoughts as keywords.

Emojis



In the Miro app section you can find more emojis ...

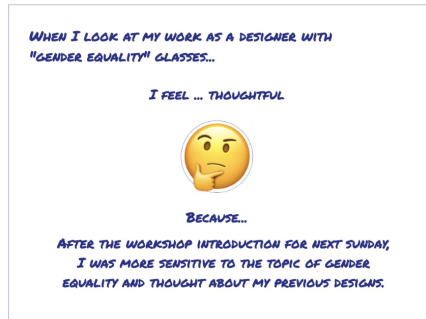
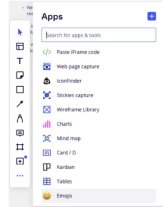


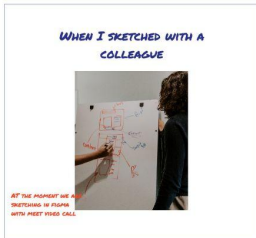
Figure 32: Self-observation diary part one, feeling check-in

STEP 2: DISCOVER SITUATIONS - DAY 1

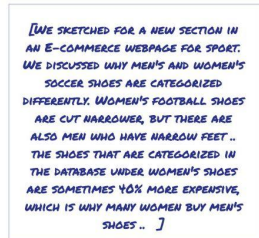
Go through your daily work with open eyes for the next two days, can you recognize moments in your work in which you came into contact with the topic of gender inequality or gender equality?

Now you: Day 1

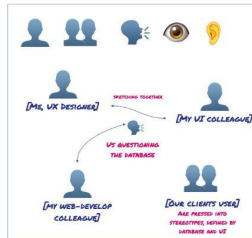
Add a headline & picture that visualizes/symbolizes the situation or task:



Describe the situation & what you noticed in the situation



Who is involved or indirectly affected by your observation and why? Represent the relationship using the icons.



What are your thoughts on that? Create a mind map

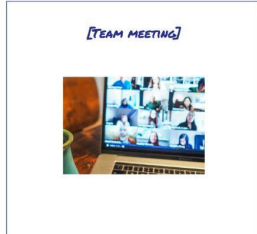


Figure 33: Self-observation diary day one: Discover situations

STEP 3: DISCOVER SITUATIONS - DAY 2

Now you: Day 2

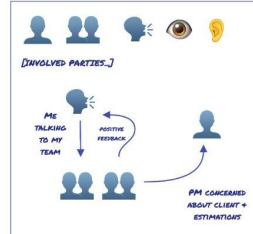
Add a headline & picture that visualizes/symbolizes the situation or task:



Describe the situation & what you noticed in the situation

THE NEXT DAY I WANTED TO ADDRESS THE TOPIC IN THE TEAM. I WAS LOOKING FORWARD TO HEARING FROM MY FELLOW PROJECT MANAGEMENT AND SALES COLLEAGUES ON DISCOVERY. THERE WERE CONCERNS THAT THE FINANCIAL ESTIMATE DID NOT INCLUDE ANY CHANGE IN THE DATABASE WHEN THIS TASK WAS SOLD. BUT I WAS ABLE TO CONVINCE YOU THAT IT IS A PROBLEM THAT WE SHOULD NOT IGNORE

Who is involved or indirectly affected by your observation and why? Represent the relationship using the icons.



What are your thoughts on that? Create a mind map

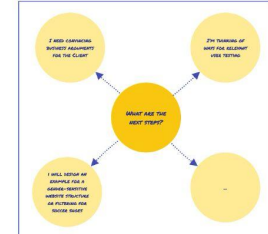


Figure 34: Self-observation diary day two: Discover situations

Can Do activity 2: Double diamond analysis

The second activity consists, as before, the Double Diamond analysis; this has basically not changed except for the visual representation.

Can Do activity 3: Creation

The third activity of the *Can Do* consists of a creation part. The participants should take one of the discovered opportunities from the Double Diamond analysis, in which they see potential to develop an idea. This part aims to develop a solution to integrate sustainable values of the SDG into the daily work of UX designers. The potential of the selected opportunity should be explained first, then the current status and the status of the change should be described (figure 35). The method was adapted from the theory of change (chapter 3.2.7). The next step will be the core elements of the idea; Values, context, and form (figure 36). This is followed by the ideation part, using brainstorming and sketching to concretize the idea. In the last step, the solution is specifically described or visualized (figures 37, 38).

CAN DO - LET'S DIVE INTO ACTION

● 20 min.

- Pick a method, idea or action from one of the double diamond boards where you see a great potential to integrate gender equality values or aspects.
- Describe why do you see potential to support gender equality in this method/ action/ idea?
- Describe the current state of the method/ action and what is the goal of the change?

TEAM 2

Place or describe your selection here:

The HMW should be also in a sheet format:D

I see the potential to support gender equality because ...

HMWs are a way of thinking about design challenges.

→

Gender equality is a big challenge

←

Building the right thing in the right way, right?

Current state:

What are we usually do in this action / method? Or what is missing in the current state?

FROM

The HMW Method is used to think about design challenges.

Translation

→

Changed / new state:

How can we integrate gender equality values or aspects into this action / method ? Or what will the idea bring?

TO

A gender equality HMW addition.

Figure 35: Creation part 1 - Example of a team

CAN DO - IDEATION

● 10 min.

- Discuss the core elements of your change with combination of the cards

Choose cards from the categories *values*, *Context of use* and *Form or type of presentation* that could be the core elements of your idea.

If categories are missing or not fitting to your idea add some.

You can also assign several cards from one category to your idea, but make a conscious decision.
- Place your combination of core elements

TEAM 2

VALUE	CONTEXT OF USE	FORM, TYPE OF PRESENTATION
Empower women	Inclusiveness	Teams
		With Stakeholder
		Check-list
		Script
Equality	Awareness	User Research
		User Interface
		Canvas
		Info graphic
Behaviour change	Protection	Ideation
		Communication
		Diagram
		Storyboard
Accessibility	...	Vision
		Challenge definition
		Catalog
		...
		Cards

THE CORE ELEMENTS OF : [YOUR TITLE OF YOUR IDEA]

...

Challenge definition

Cards

Figure 36: Creation part 2 - Example of a team

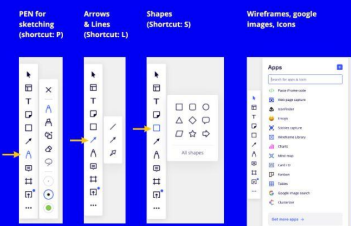
CAN DO - SKETCH YOUR IDEA

🕒 50 min.

1. Try to concretise your idea.

1.1 Add a description of your idea:
Briefly describe what the idea could contain and what it is used for.

1.2 Add a visualization of your idea.
E.g. Sketch on paper upload a photo, if you have a graphic tablet you can also sketch directly here in Miro, you can also use shapes, arrows, post-its, pictures, wireframes or pictures from the Miro tools.



TEAM 2

THE GENDER EQUALITY HMW CARDS

So that the HMWs are not lost in the double diamond brainstorming and can be used as a deck of cards, let's make a collection of the HMWs that can also be added by other participants.

The cards can be used in addition to each HMW session.

In addition, we write the purpose of the question for each card.

THE GENDER EQUALITY HMW CARDS

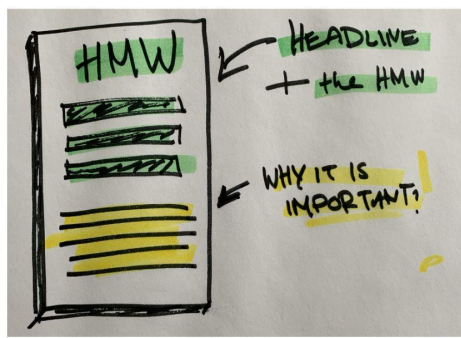


Figure 37: Creation part 3 - Example of a team

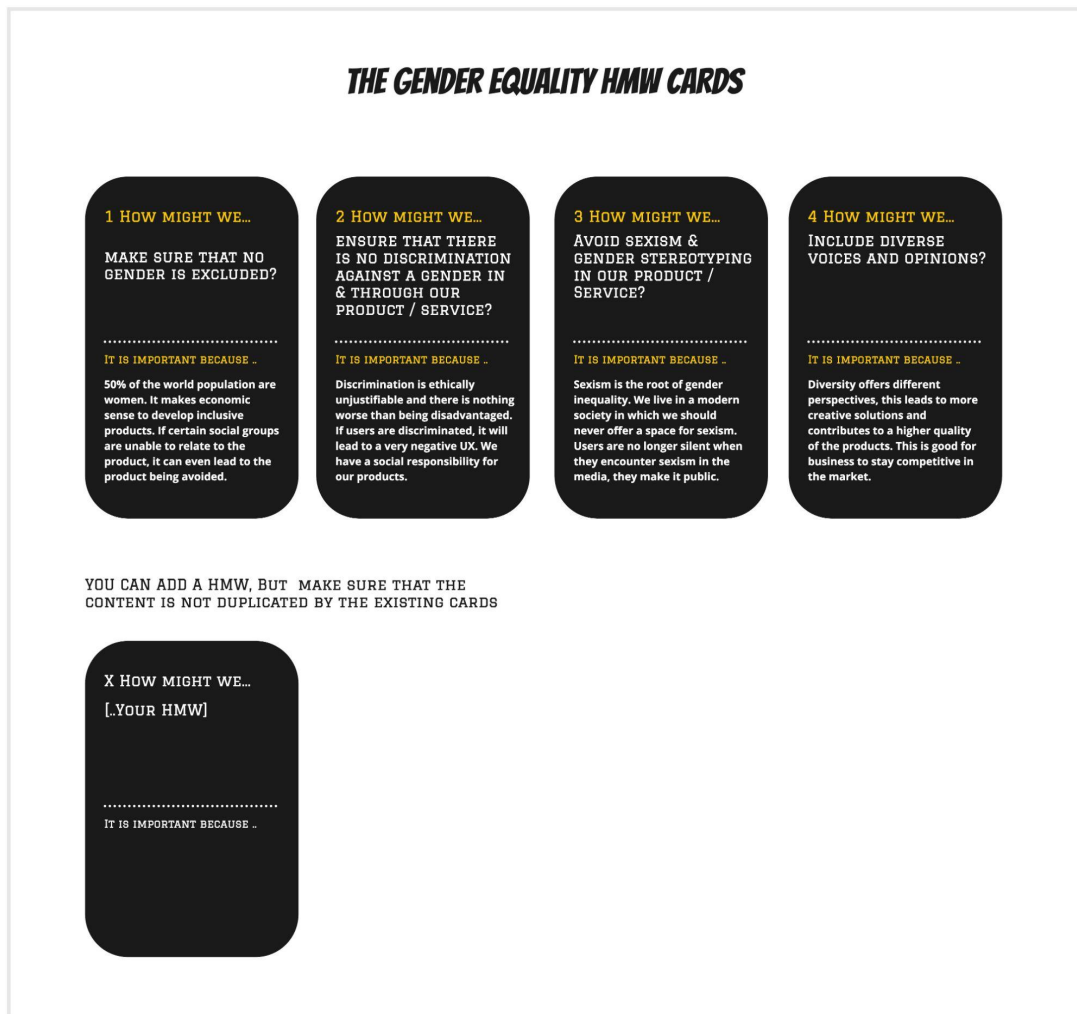


Figure 38: Result - Example of a team

Should Do activity: Vision & Goals

Since some participants in the first co-creation session could not fully understand the intention of the beginning of the sentence of the creative writing tasks, the activity was optimized using a further method. In order to methodically develop a vision, the brainwriting task was restructured using the method of the Golden Circle (chapter 3.2.3) to answer the questions of the *Why*, *How* and *What*.

Feedback tool

Since the participants of the last session mainly gave feedback with the visual elements and left out the open sticky notes for further feedback, the tool was optimized using the feedback method *I like, I wish, What If* (chapter 3.2.9). The assumption was that the method supports the participant in giving constructive feedback.

4.5.7 Co-creation session 4

In the fourth co-creation session, the focus was on the *Can Do* framework segment. The co-creation session was scheduled to last four hours, including breaks. The participants should first share their experiences with the diary in the group. Then the four participants were divided

into two teams, and the Double Diamond analysis was carried out. In the second part of the session, ideas and solutions were generated. Since it was the last session of this thesis, the vision and goals of the *Should Do* segment were defined in the last part, and the feedback tool was used.

Observation & results

The results of the diaries were very different and consisted in part of observations, perceptions in the work environment, or described experiences with specific work tasks. It was fascinating that one participant had a direct influence on a work project. This designer was particularly attentive to a new project from the previous co-creation session and directly integrated gender equality values. One could observe a direct translation of the knowledge from the last co-creation session into practice and that alone through the increased awareness of the SDG *Gender Equality*. The participants gave feedback that the diaries were a good preparation for the activities of the *Can Do* segment.

In the creation part, some participants stated that they wanted more space for the ideation part. Furthermore, one team was able to work very well with the core element cards. The other team found it rather difficult to choose specific core elements, as the initial idea was not yet mature enough to define core elements at the time.

However, both teams were able to generate valuable ideas and results. The first team created a collection of warm-up activities ([appendix 10.4](#)) for team meetings in order to integrate gender equality values into the work area. The second team created a how-might-we gender equality card edition ([figure 38](#)). These cards should make it possible to integrate gender equality values into every HMW session. Furthermore, the second team created an idea for a map that represents a link resource collection for gender-sensitive writing in different languages ([appendix 10.4](#)). Participants stated as feedback that the toolkit could also provide a presentation template to summarize the results on a frame.

In addition, the participants see many possibilities from the Double Diamond analysis that were not previously selected in the ideation activity. Some participants took this with them as voluntary “homework” and created further ideas and solutions a few days after the session. The feedback tool was used significantly more in this session, and the textual feedback fields were also used.

4.5.8 Iteration & Improvements 3

The feedback and results of the last session were used in the final design phase to optimize the toolkit. A guideline was drawn up on how the entire process for working on an SDG can be carried out. For this purpose, the sequences for the sessions and the activities were structured. For the creation part, new methods were included to support the ideation activities. The toolkit was designed as a template to use for future co-creation sessions and work on the other SDGs.

5 Main results & final design

One result of this work is the toolkit template created in the end. This was created through the four successive iterations concept> co-creation> synthesis> design.

The toolkit was structured by the adapted framework *Can Know, Can Do, Should Do*. The *Can Know* segment is used to build up a common knowledge-base. The *Can Do* segment guides the participants to reflect and analyze the design practice. Furthermore, the activities help to lead the creation phase of ideation and solution creation. The *Should Do* segment supports the participants in jointly creating a UX vision and goals for the selected SDG. The toolkit also includes a feedback tool that allows participants to reflect on the activities. The complete toolkit template can be viewed until 15.08.2021 in the [Miro board linked here](#).

Additionally, the toolkit was submitted to the template library of the collaborative whiteboard platform *Miro* and is currently in the process of being checked by *Miro*. Suppose the template meets the platform's criteria, the SUX Toolkit will not only be available to members of the *SUX Manifesto* community, but also to all users of the *Miro* platform.

Besides, I see the generated knowledge by the participants about the entire process, changes in the mindset that positively influences the participants' everyday work, as well as all the results of the participants ([appendix 10.4](#)) as a valuable result of the generative design. Some participants mentioned that they viewed their projects from different angles. The changed mindset can already be seen in the self-observation diaries ([appendix 10.2](#)), as one participant describes that he started to think about gender categorisations in the database of his project (see figure 39). Since this designer was at the very beginning of a project, he was able to directly integrate values for a more gender-sensitive product.

“To be honest, I probably wouldn't have thought about categorisation of the genders in the database if I hadn't participated in the last session.”

Figure 39: A thought of a participants self-observation diary

In addition, from the results and experiences of the entire process of this thesis, a recommendation for a co-design process plan (40) for the future work of the community with the toolkit was developed (see figure 41).

1 INTRODUCTION & ORGANISATION SESSION

Introduction, selection of one SDG, team building, explanation of the process & next session

2 PREPARATION PHASE

Individual preparation before the next session: Participants have to read selected SDG & further infos, have to bring one example related to UX-Design (digital product, tools, methods, ...) to the next co-creation session

3 GROUNDING SESSION

CAN KNOW

Find a common understanding of the SDG & create a knowledge-base

SHOULD DO

Find the UX Goal in the SDG, formulate the first Vision

4 OBSERVATION PHASE

Let the first impressions work, use self-observation diary

5 ANALYSE SESSION

CAN DO

Analysation of the current practice step by step & find opportunities to integrate sustainability values

CAN KNOW

Continue building up the knowledge base

6 OPPORTUNITY & REFLECTION PHASE

Participants reflect and select one opportunity for the next session

7 CREATION SESSION

SHOULD DO

Revisit the vision

CAN DO

Ideate & develop solutions

8 PRESENTATION SESSION

CAN DO

Presentations of ideas & solutions to the community

SHOULD DO

Revisit the vision

Figure 40: Proposal plan of co-creation process for the SUX Manifesto community

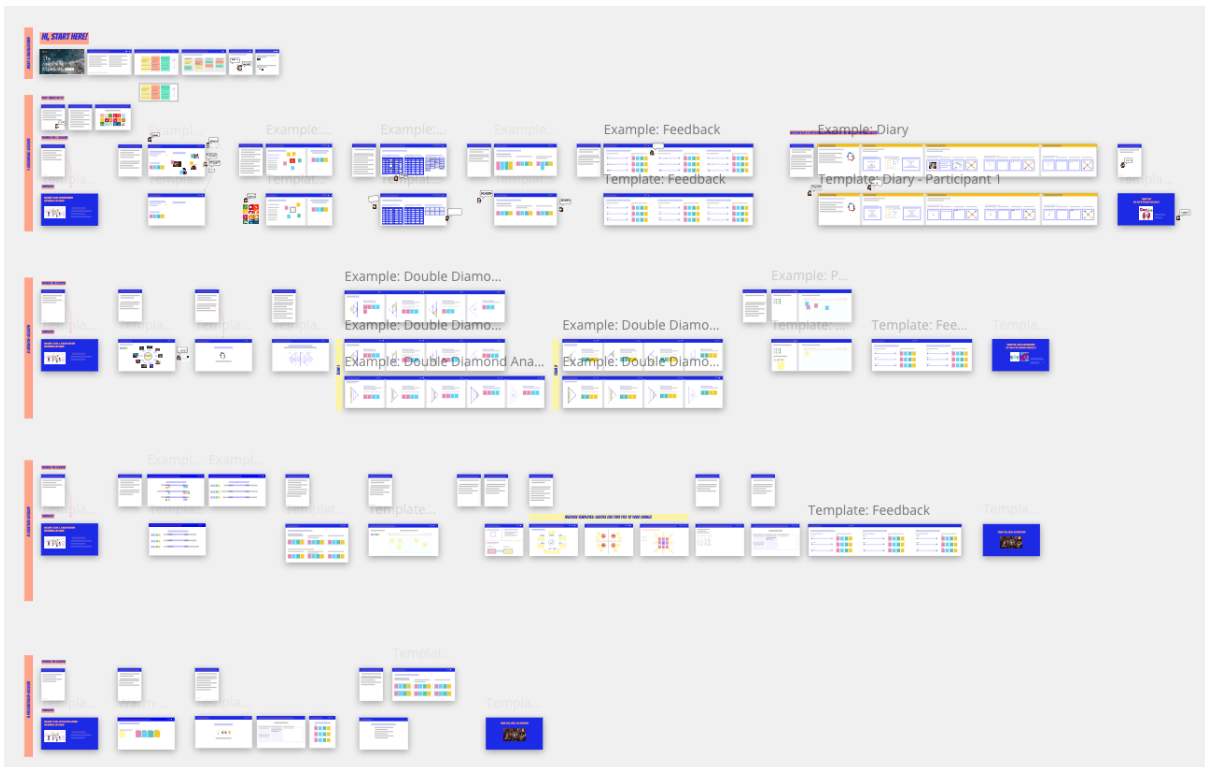


Figure 41: Overview SUX toolkit template

6 Discussion

6.1 Reflection co-creation sessions

Developing a suitable toolkit for a community to deal with major sustainability problems requires thoughtful planning and strategy. The recognized need by Sanders & Stappers (2012) for the change of the role of the designer from translator to facilitator is particularly evident in community projects like this one. The designer designs the process and tools to support the participants in generating common knowledge and solutions. This project can clearly illustrate the necessary methodical approach. In the beginning, simple methods were used for each activity. In the course of this project, the activities included combined or adapted methods for the specific purpose of the community. Especially for online-based platforms such as collaborative whiteboards, it can be seen that design expertise is required in order to guide the participants into a deep engagement to the activities. The underestimated expenditure of time for generative activities shows the level of detail in which the activities have to be prepared to achieve valuable results.

6.2 Working with stakeholder & UX community

The work with the stakeholder and the community was very enriching and inspiring throughout the whole thesis. The timing for the coming together of this thesis and the community project was perfect, as it is still at the very beginning. A methodical approach for the future work of the community could be developed. Furthermore, the values and goals of the stakeholder and the community were very much in line with mine. Every meeting and co-creation session gave

much input to optimize the toolkit. The motivation of the participants to work on the project in their free time was incredibly inspiring and supported the outcome of the entire project. However, it should also be noted that the changing participants in the co-creation session sometimes required a lot of additional explanation. The optimal condition for working on one SDG would be to work constantly with the same participants over the entire process. In addition, working on an SDG is basically possible within a few weeks in four to five sessions. However, there are hurdles when working on an SDG and creating a toolkit happen in the same timeframe.

6.3 Benefit for the target group

The first target group is the *SUX Manifesto* community. They receive the most significant benefit from this thesis. They can use the created toolkit for future co-creation sessions to work on many of the SDGs. Furthermore, they can use the developed recommendation for the co-design process to plan all sessions in order to pursue their goal and develop solutions. The second target group includes UX designers outside the community. On the one hand through the solutions that will be created in the future by the *SUX Manifesto* community and published on their website. On the other hand, if the toolkit meets the criteria of the *Miro* platform, it also can be used freely.

6.4 Future work

For future work, a long-term evaluation of the toolkit would be very supportive for the work of the *SUX Manifesto* community. Furthermore, it would be ideal if the solutions created by the participants can also be evaluated after use, and improvements can be made over the course of the process. The created toolkit focuses on how UX designers can integrate more sustainable values of the SDGs in their daily work, which is also the goal of this work and the community. However, the toolkit probably excludes working on some SDGs, as some SDGs offer more opportunities to integrate values into day-to-day work than others. Therefore it would be interesting for future work to expand the toolkit so that all SDGs can be processed. The SDG 6 *Clean water and sanitation*, as an example, could probably be relatively challenging to integrate into the everyday work of UX designers if they are not working specifically on a project that relates to this topic. Nevertheless, I see potential to develop an extended toolkit part to work on those SDGs which are not includable in the daily work of UX designers. After this thesis, the cooperation with the SUX community will not end. I will remain a member of the community, continue to develop the toolkit, and support co-creation sessions. In the next step, the project will be presented at various UX events such as the *This is HCD MeetUp* Berlin and UXcamp Europe to find more participants for the community project.

7 Conclusion

This thesis project shows a practical co-design process in which a generative toolkit is designed for a SUX community project. The paper describes the theoretical background of SID and UXD, including the hurdles of integrating sustainable values into the daily work of practicing

UX designers. The creation of the toolkit is based on the theoretical SID framework in combination with co-design and adapted design thinking methods. Furthermore, the entire development process of the generative design toolkit with insights into the co-creation sessions is presented. In the development of the toolkit, one exemplary SDG *Gender Equality* is used as an object of investigation. Moreover, the toolkit is specially designed for the working environment of a collaborative online whiteboard.

8 Acknowledgements

The master thesis project is the result of several weeks of research, readings, user interviews, analyzes, reflection, and intensive co-creation sessions. These weeks were an intense experience in which I learned a lot. I am grateful that I could devote all of my time during this thesis to a topic that is personally important to me. However, this work would never have been possible without the support of some people I would like to thank.

First of all, I would like to thank the stakeholder and my friend Thorsten Jonas, who gave me the opportunity to develop this thesis together with the community project. Who supported me throughout the process of this work, and networked me with community members.

A big thank you goes to my supervisor Maliheh Ghajargar, who gave me weekly feedback on my work. She patiently helped me to set the right focus, advised me in my decisions, reviewed my thesis, and gave me many helpful comments on it.

I would also like to thank the community members Simone Brauner, Bavo Azarko, and Christoph Stark for their commitment, who participated in most of the co-creation sessions. In addition, I would like to thank all participants of my UXD network who took part in the co-creation session and who wish to remain anonymous. Furthermore, I would like to thank all participants who took part in the interviews, who took the time and trusted me to share their experiences with me.

Another thank you goes to my fellow students who took part in the pilot test and Anna Schröder, who took the time to review my work.

9 References

- Becker, C., Chitchyan, R., Duboc, L., Easterbrook, S., Penzenstadler, B., Seyff, N., & Venters, C. C. (2015). Sustainability Design and Software: The Karlskrona Manifesto. *2015 IEEE/ACM 37th IEEE International Conference on Software Engineering*, 467–476. <https://doi.org/10.1109/ICSE.2015.179>
- Bernardino, I. (2020, September 1). *Let's Talk About Sustainable Design*. Medium. <https://uxplanet.org/lets-talk-about-sustainable-design-e9922ecb32f5>
- Blevis, E. (2007). Sustainable interaction design: Invention & disposal, renewal & reuse. *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems - CHI '07*, 503–512. <https://doi.org/10.1145/1240624.1240705>
- Blevis, E., Koskinen, I. K., Lee, K.-P., Bødker, S., Chen, L.-L., Lim, Y., Wei, H., & Wakkary, R. (2015). Transdisciplinary Interaction Design in Design Education. *Proceedings of the 33rd Annual ACM Conference Extended Abstracts on Human Factors in Computing Systems*, 833–838. <https://doi.org/10.1145/2702613.2724726>
- Brabo, R. C. (n.d.). *Can green UX save the world?* Creative Bloq. Retrieved May 3, 2021, from <https://www.creativebloq.com/features/green-ux>
- British Design Council. (2021, April 22). *Beyond Net Zero: A Systemic Design Approach*. Design Council. <https://www.designcouncil.org.uk/resources/guide/beyond-net-zero-systemic-design-approach>
- Buxton, B. (2007). *Sketching user experiences: Getting the design right and the right design*. Elsevier/Morgan Kaufmann.
- Climate Designers*. (n.d.). Climate Designers. Retrieved May 3, 2021, from <https://www.climatedesigners.org>
- ClimateAction.Tech. (n.d.). ClimateAction.Tech. Retrieved May 3, 2021, from <https://climateaction.tech/>
- Dam, R. F., & Siang, T. Y. (2020). *Test Your Prototypes: How to Gather Feedback and Maximise Learning*. The Interaction Design Foundation. <https://www.interaction-design.org/literature/article/test-your-prototypes-how-to-gather-feedback-and-maximise-learning>
- #*designandclimate*. (n.d.). Retrieved May 4, 2021, from <https://sites.google.com/view/designandclimate/events>

- DiSalvo, C., Sengers, P., & Brynjarsdóttir, H. (2010). Mapping the landscape of sustainable HCI. *Proceedings of the 28th International Conference on Human Factors in Computing Systems - CHI '10*, 1975. <https://doi.org/10.1145/1753326.1753625>
- dpicampaigns. (n.d.). The Sustainable Development Goals. *United Nations Sustainable Development*. Retrieved April 6, 2021, from <https://www.un.org/sustainabledevelopment/sustainable-development-goals/>
- Drew, C. (2019, September 3). *The Double Diamond*. Design Council. <https://www.designcouncil.org.uk/news-opinion/double-diamond-15-years>
- Eriksson, E., Pargman, D., Bates, O., Normark, M., Gulliksen, J., Anneroth, M., & Berndtsson, J. (2016). HCI and UN's Sustainable Development Goals: Responsibilities, Barriers and Opportunities. *Proceedings of the 9th Nordic Conference on Human-Computer Interaction*, 1–2. <https://doi.org/10.1145/2971485.2987679>
- Ferreira, B. M., Barbosa, S. D. J., & Conte, T. (2016). PATHY: Using Empathy with Personas to Design Applications that Meet the Users' Needs. In M. Kurosu (Ed.), *Human-Computer Interaction. Theory, Design, Development and Practice* (pp. 153–165). Springer International Publishing. https://doi.org/10.1007/978-3-319-39510-4_15
- First Things First 2020*. (n.d.). First Things First 2020. Retrieved May 4, 2021, from <https://www.firstthingsfirst2020.org>
- First Things First 2020 Manifesto: Community Voices*. (n.d.). Google Docs. Retrieved May 4, 2021, from https://docs.google.com/document/d/1vFZ3y04kPTxmYKeRoDbK9l0OmETKP-9JM M3fEbhu_6Q/edit?usp=embed_facebook
- Franquesa, D., Navarro, L., & Bustamante, X. (2016). A circular commons for digital devices: Tools and services in reuse.org. *Proceedings of the Second Workshop on Computing within Limits*, 1–9. <https://doi.org/10.1145/2926676.2926684>
- Fredericks, J., Parker, C., Caldwell, G. A., Foth, M., Davis, H., & Tomitsch, M. (2019). Designing Smart for Sustainable Communities: Reflecting on the Role of HCI for Addressing the Sustainable Development Goals. *Proceedings of the 31st Australian Conference on Human-Computer-Interaction*, 12–15. <https://doi.org/10.1145/3369457.3369550>
- Frick, T. (2016). *Designing for Sustainability*. O'Reilly Media, Inc.

- Gaver, B., Dunne, T., & Pacenti, E. (1999). Design: Cultural probes. *Interactions*, 6(1), 21–29. <https://doi.org/10.1145/291224.291235>
- Gekeler, M. (2019). *A practical guide to design thinking*. Friedrich Ebert Stiftung.
- Gibbons, S. (n.d.). *Empathy Mapping: The First Step in Design Thinking*. Nielsen Norman Group. Retrieved May 13, 2021, from <https://www.nngroup.com/articles/empathy-mapping/>
- Gray, C. M., Kou, Y., Battles, B., Hoggatt, J., & Toombs, A. L. (2018). The Dark (Patterns) Side of UX Design. *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems*, 1–14. <https://doi.org/10.1145/3173574.3174108>
- Hanington, B., & Martin, B. (2012). *Universal Methods of Design: 100 Ways to Research Complex Problems, Develop Innovative Ideas, and Design Effective Solutions*. Rockport Publishers. <https://eds-b-ebshost-com.proxy.mau.se/eds/ebookviewer/ebook/bmxlYmtfXzU3NjQ5MV9fQU41?sid=a38f8efb-a9dd-4e9c-9ca8-cdc1ccde5984%40pdc-v-sessmgr01&vid=8&format=EK&rid=1>
- Heibeck, F. (2019, August 21). *Sustainable User Experience*. Medium. <https://medium.com/a-view-from-above/sustainable-user-experience-8260006f5232>
- IDEO.org. (n.d.). *Design Kit: Prototype Report Card Worksheet*. Retrieved May 15, 2021, from <https://www.designkit.org/methods/build-run-prototypes>
- Knowles, B., Blair, L., Coulton, P., & Lochrie, M. (2014). Rethinking plan A for sustainable HCI. *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, 3593–3596. <https://doi.org/10.1145/2556288.2557311>
- Knowles, B., & Håkansson, M. (2016). A sustainable HCI knowledge base in progress. *Interactions*, 23(3), 74–76. <https://doi.org/10.1145/2904896>
- Kumar, N., Cannanure, V. K., Gamage, D., Prabhakar, A. S., Sturm, C., Loaiza, C. R., Sabie, D., Bhuiyan, Md. M., & Moreno Rocha, M. A. (2020). HCI Across Borders and Sustainable Development Goals. *Extended Abstracts of the 2020 CHI Conference on Human Factors in Computing Systems*, 1–8. <https://doi.org/10.1145/3334480.3375067>
- Nessler, D. (2016, September 3). How to rethink the Design process, fail, reflect and iterate. Medium. <https://uxdesign.cc/how-to-fuck-up-the-design-thinking-process-and-make-it-right-dc2cb7a00dca>

- Miroverse | *Miro Community Templates Gallery*. (n.d.). Retrieved May 4, 2021, from <https://miro.com/miroverse>
- O'Connor, K. (2020, July 14). *Using UX Design to Build a Sustainable Future*. UX Magazine. <https://uxmag.com/articles/using-ux-design-to-build-a-sustainable-future>
- Preist, C., Schien, D., & Shabajee, P. (2019). Evaluating Sustainable Interaction Design of Digital Services: The Case of YouTube. *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems*, 1–12. <https://doi.org/10.1145/3290605.3300627>
- Reed, D., & Monk, A. (2011). *Inclusive design: Beyond capabilities towards context of use*. <https://doi-org.proxy.mau.se/10.1007/s10209-010-0206-8>
- Remy, C., Gegenbauer, S., & Huang, E. M. (2015). Bridging the Theory-Practice Gap: Lessons and Challenges of Applying the Attachment Framework for Sustainable HCI Design. *Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems*, 1305–1314. <https://doi.org/10.1145/2702123.2702567>
- Roedl, D., Bardzell, S., & Bardzell, J. (2015). Sustainable Making? Balancing Optimism and Criticism in HCI Discourse. *ACM Transactions on Computer-Human Interaction*, 22(3), 1–27. <https://doi.org/10.1145/2699742>
- Roulston, K. (2021). *Reflective Interviewing: A Guide to Theory and Practice* (By pages 74-95). SAGE Publications Ltd. <https://doi.org/10.4135/9781446288009>
- Sanders, E. B.-N., & Stappers, P. J. (2008). Co-creation and the new landscapes of design. *CoDesign*, 4(1), 5–18. <https://doi.org/10.1080/15710880701875068>
- seedsforchange.org. (n.d.). *Seeds for Change. Facilitation Tools for Meetings and Workshops*. Retrieved May 14, 2021, from <https://www.seedsforchange.org.uk/tools.pdf>
- Shneiderman, B., Plaisant, C., Cohen, M., Jacobs, S., Elmqvist, N., & Diakopoulos, N. (2016). Grand challenges for HCI researchers. *Interactions*, 23(5), 24–25. <https://doi.org/10.1145/2977645>
- Silberman, M. S., Nathan, L., Knowles, B., Bendor, R., Clear, A., Håkansson, M., Dillahunt, T., & Mankoff, J. (2014). Next steps for sustainable HCI. *Interactions*, 21(5), 66–69. <https://doi.org/10.1145/2651820>
- Sinek, S. (2009). *How great leaders inspire action*. https://www.ted.com/talks/simon_sinek_how_great_leaders_inspire_action

- Global Goals Ressources. Retrieved May 17, 2021, from <https://www.globalgoals.org/resources>
- Sustainable UX co-design event UX Copenhagen®. (n.d.). *UX Copenhagen®*. Retrieved April 6, 2021, from <https://uxcopenhagen.com/sustainable-ux-co-design-event/>
- Sustainable Web Design Community Group*. (n.d.). Retrieved May 3, 2021, from <https://www.w3.org/community/sustyweb/>
- Sustainable Web Manifesto*. (n.d.). Sustainable Web Manifesto. Retrieved April 6, 2021, from <https://www.sustainablewebmanifesto.com/>
- The Global Goals Resources*. (n.d.). The Global Goals. Retrieved May 17, 2021, from <https://www.globalgoals.org/resources>
- The Sustainable UX Manifesto—Is coming soon*. (n.d.). Retrieved May 3, 2021, from <http://sustainableuxmanifesto.com/>
- Wright, N. (n.d.). *Principles for Designing Sustainable Services*. Miro.Com. Retrieved May 4, 2021, from https://miro.com/app/board/o9J_kgkJcAA=/
- Wright, N. (2021, May 3). *Principles for Designing Sustainable Services*. Medium. <https://medium.com/wearesnook/principles-for-designing-sustainable-services-bbf3f3948ac2>
- Wujec, T., & Project Management Institute. (n.d.). *Project Management Institute's The Crisis Curve: Navigating Intense Change template* | Miroverse. Retrieved May 4, 2021, from <https://miro.com/miroverse/the-crisis-curve-navigating-intense-change>
- Yablonski, J. (n.d.). *Humane by Design*. Retrieved May 4, 2021, from <https://humanebydesign.com>
- Yang, Y., Okonkwo, E. G., Huang, G., Xu, S., Sun, W., & He, Y. (2021). On the sustainability of lithium ion battery industry – A review and perspective. *Energy Storage Materials*, 36, 186–212. <https://doi.org/10.1016/j.ensm.2020.12.019>

10 Appendix

10.1 Topic list and questions for semi-structured interviews

Semi-structured interview, leading script - 60 min

In the semi-structured interview, I interviewed different participants of the project group/community *Sustainable UX Manifesto*. It is about getting to know the first participants and discovering the needs, obstacles, hurdles, and experiences of the participants. With regard to their work context as a UX designer and to what extent they are already working with the topic of sustainable values and goals and/or would like to work in the future.

Ice-breaker

- What is my most unsustainable behavior?
- What is your most unsustainable behavior?

Motivations

- What motivates you most to integrate sustainability aspects into your work?
- Why are you interested in the Sustainable UX Manifesto?
- Why do you see the need for such a manifesto/toolkit?
- Do you think that we as UX designers can make an important contribution to a more sustainable future?
- What are you expecting from the project?

The current level of knowledge

- To what extent have you already dealt with the topic of sustainability in relation to your work as a UX designer?
(A lot: already included in communities, the focus of my work,.. // medium: informed, read, overview created // little: general interest in the topic // new to the topic // not at all: ...)
- What is Sustainable UX for you? Or how would you describe/define the work of Sustainable UX?

Work situation

- When do you think about your everyday work as a UX designer, in which situations are you most often confronted with sustainable thoughts/values?
(Start a new project when you develop a strategy, when you observe something, when you work with customers, team meetings, when you do user research, ...?)
- Can you currently integrate sustainable aspects/values into your work as a UX designer?
If so, how do you integrate it? (in what form, methods? strategies? How is it expressed? and if not, what do you think is preventing you from doing it?)
- Can you talk to your co-workers about sustainable topics?

If so, are these topics work-relevant? (what do you talk about often, which topics, in which situations, in which environments, one-on-one or group discussions?)
If not, why do you think the topic is not present in your conversations?

- Can you talk to your clients/stakeholders about sustainability topics/values?
If so, do they have sustainable values or goals or are you addressing them?
If not, why do you think the topic is not present in your conversations?
- With which people or departments in your work context do you find it very easy to talk about sustainable topics? (direct work colleagues, other designers, boss, management, project management, sales, developer, end-user, ...)
- Which people do you find it difficult to talk to about sustainability aspects in a work context? With which people do you get stuck in these conversations? Do you even avoid speaking to any of them?
- How do you feel in your work situation in relation to the current presence of sustainable values in the company, agency, department?
(not good: because not important, does not reflect my personal values, not heard, ... // okay: the topic is present and is perceived, ... // good: because there are sustainable values or goals, ... / / very good: because values reflect my personal values, i am asked to work sustainably, ...)
- Have you already had positive experiences with integrating sustainable aspects into your work?
If so, how did you integrate it?
- Have you had negative experiences with integrating sustainable aspects into your work?
If you tried, why did it fail?
(Other people, work colleagues, clients, budget, wrong methods ...)

Future

- With which people in your work environment would you like to talk to more about sustainable values/goals?
- If there would already be a SUX Toolkit, what would you expect or would you like to find in it?
- In which areas of your work do you see potential in the future to integrate more sustainable aspects/ values?
What do you think is needed to make this a reality?
Which sustainable topic would you like to explore more in order to integrate it into your work context?

- In which topic of the UN sustainable development goals do you see the previously discussed potentials the most?


10.2 Anonymized self-observation diaries

In this section the self-observation diaries (chapter x.x) of participant 2 (figure 42, 43), 3 (figure 44, 45), and 4 (figure 46, 47) are presented.

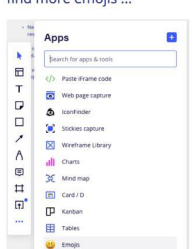
PARTICIPANT 2 - STEP 1: SHORT CHECK-IN

How do you feel when you think about gender equality and your work as a designer. Choose an emoji that describes this feeling and add your thoughts as keywords.

Emojis




In the Miro app section you can find more emojis ...



WHEN I LOOK AT MY WORK AS A DESIGNER WITH "GENDER EQUALITY" GLASSES...

I FEEL ... ANNOYED AND FRUSTRATED



BECAUSE...

I AM THE ONLY WOMAN ON MY TEAM

Figure 42: Participant 2 - Diary part 1

PARTICIPANT 2 - STEP 2: DISCOVER SITUATIONS - DAY 1

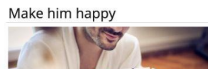
Go through your daily work with open eyes for the next two days, can you recognize moments in your work in which you came into contact with the topic of gender inequality or gender equality?

Now you: Day 1

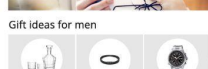
Add a headline & picture that visualizes/symbolizes the situation or task:

STEREOTYPES EVERYWHERE

Make him happy



Gift ideas for men



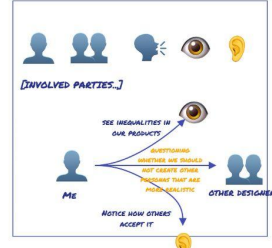
Describe the situation & what you noticed in the situation

OUR MARKETING DEPARTMENT DOES NOT UNDERSTAND IT, THEY PRE-MUTE PERSONAS FOR US TO PURSUE. FULL OF STEREOTYPES, WHAT'S THE POINT? MARKETING PERSONAS ARE NOT REAL USER PERSONAS!

MY MALE COLLEAGUES USING THESE PERSONAS

Who is involved or indirectly affected by your observation and why? Represent the relationship using the icons.

[INVOLVED PARTIES.]



What are your thoughts on that? Create a mind map

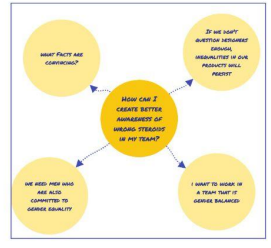


Figure 43: Participant 2 - Diary part 2

PARTICIPANT 3 - STEP 1: SHORT CHECK-IN

How do you feel when you think about gender equality and your work as a designer. Choose an emoji that describes this feeling and add your thoughts as keywords.

Emojis



In the Miro app section you can find more emojis ...

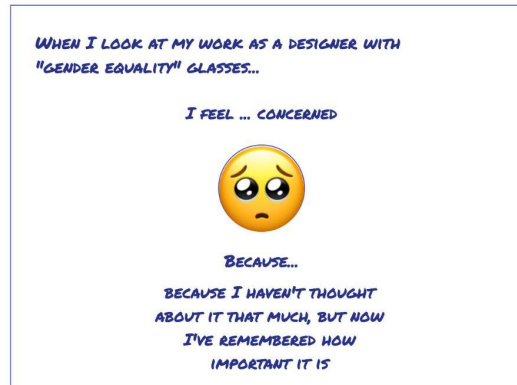
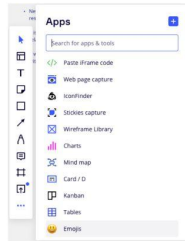


Figure 44: Participant 3 - Diary part 1

PARTICIPANT 3 - STEP 2: DISCOVER SITUATIONS - DAY 1

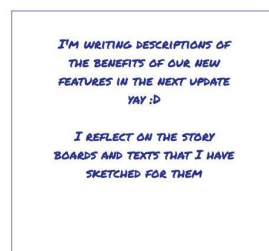
Go through your daily work with open eyes for the next two days, can you recognize moments in your work in which you came into contact with the topic of gender inequality or gender equality?

Now you: Day 1

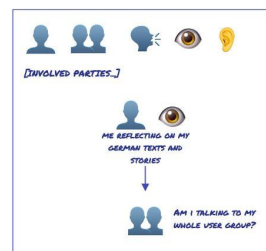
Add a headline & picture that visualizes/symbolizes the situation or task:



Describe the situation & what you noticed in the situation



Who is involved or indirectly affected by your observation and why? Represent the relationship using the icons.



What are your thoughts on that? Create a mind map

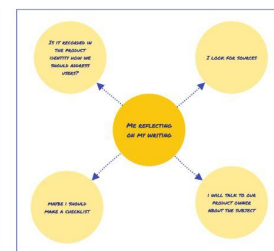


Figure 45: Participant 3 - Diary part 2

PARTICIPANT 4 - STEP 1: SHORT CHECK-IN

How do you feel when you think about gender equality and your work as a designer. Choose an emoji that describes this feeling and add your thoughts as keywords.

Emojis



In the Miro app section you can find more emojis ...

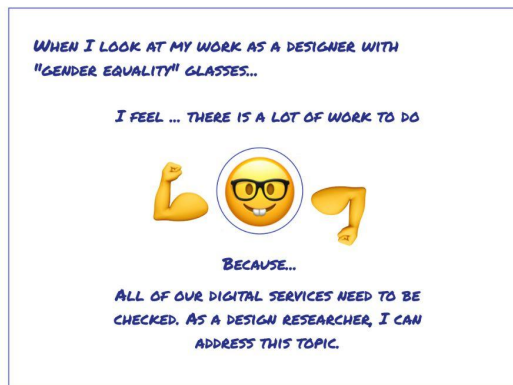
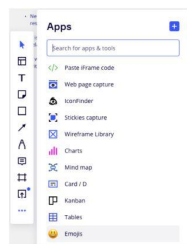


Figure 46: Participant 4 - Diary part 1

PARTICIPANT 4 - STEP 2: DISCOVER SITUATIONS - DAY 1

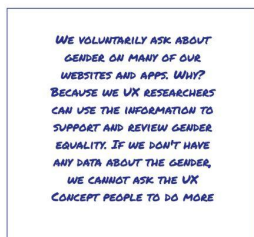
Go through your daily work with open eyes for the next two days, can you recognize moments in your work in which you came into contact with the topic of gender inequality or gender equality?

Now you: Day 1

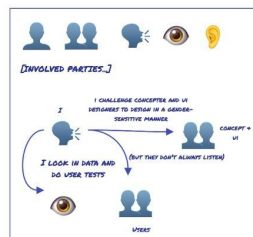
Add a headline & picture that visualizes/symbolizes the situation or task:



Describe the situation & what you noticed in the situation



Who is involved or indirectly affected by your observation and why? Represent the relationship using the icons.



What are your thoughts on that? Create a mind map

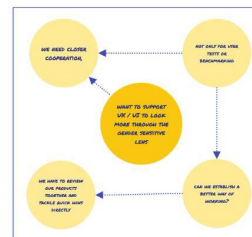


Figure 47: Participant 4 - Diary part 2

10.3 Analysis tables of the co-creation sessions

Co-creation session 1 (test pilot)		
Before the session		
Learning questions	Key metrics for success	Assumptions
<p>Do the activities of the <i>Can Know</i> segment help develop a common understanding of the SDG?</p> <p>Do the activities of the <i>Can Do</i> segment support the participants in reflecting on their design process and in deriving possibilities in which they see potential changes?</p> <p>Does the <i>Should Do</i> activity support the creation of a common UX design vision and goals for the SDG?</p> <p>Is the feedback tool suitable for receiving constructive feedback?</p>	<p>The participants develop a common understanding of the SDG in relation to UX design</p> <p>The participants can reflect on their work process using the given materials and find opportunities</p> <p>Participants can share a common vision and goals</p> <p>The participants can use the feedback tool to express themselves constructively</p>	<p>The participants can feel their way into the topic through the activities</p> <p>Participants can handle most of the methods as they are combined design methods</p> <p>The participants have different motivations and backgrounds than the UX design community of the project</p> <p>The whiteboard platform and the video call platform are familiar to the participants and do not need to be explained</p>
During the session		
Observation	Key metrics fulfilled / not fulfilled	Assumptions confirmed / not confirmed
<p>The timing was far too short</p> <p>The tasks were sometimes too demanding in relation to the given time</p> <p>Some activities were not clear enough described and needed more explanation</p> <p><u>Can Know</u></p> <p>Participants were able to express and share their thoughts on the SDG</p> <p>Reading task was too much information intake</p> <p>Excessive demands in finding good examples in relation to UX design</p>	<p>The participants developed a common understanding of the SDG, but not in-depth enough</p> <p>The design process phases that were worked on could be adequately reflected</p> <p>A common vision and goals for the SDG could be described</p> <p>Participants were partly able to express their thoughts using the feedback tool and were more likely to give feedback in group discussions</p>	<p>Activities the participants supported to print out, but the need for further methods is clearly recognizable</p> <p>The students couldn't fully adopt the UX designer's point of view, as there were different backgrounds and little practical experience</p> <p>There was no need to explain the means of communication used</p>

<p><u>Can Do</u> Visual overload of the template, too high demands in too short a time</p> <p>Good opportunities for integrating the SDG have been found</p> <p><u>Should Do</u> Goals and vision could be created, but supporting methods could be optimized</p> <p><u>Feedback Tool</u> Visual elements were used, textual elements less, the limited time pressure was a negative factor</p>		
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Next Steps

Optimization of the preparation	improvements regarding the entire toolkit	Optimization of a framework segment part
<p>More time will be planned for the next session</p> <p>The participants will be asked to read the SDGs before the session</p> <p>Participants will be asked to bring an example of a digital product in which gender equality plays a role</p>	<p>The descriptions and instructions of the activities are described more clearly</p> <p>In the next session, the participants will be divided into teams to do different parts of the activities and to use the time effectively</p>	<p>The warm-up will be prepared easier</p> <p>A table will be used as the format for collecting the examples</p> <p>The visual representation of the <i>Can Do</i> Double Dimond analysis will be visually simplified</p> <p>Further segments are initially kept the same, in order to be checked twice in the next session with the community</p>

Co-creation session 2

Before the session

Learning questions	Key metrics for success	Assumptions
<p>Are there different results for the student group due to different professional experiences?</p> <p>Do the participants have a deeper understanding of the</p>	<p>The participants develop a common understanding of the SDG in relation to UX design</p> <p>The participants can reflect on their work process using the</p>	<p>The participants have a deeper understanding of the SDG through the preparation</p> <p>The participants can discuss the examples brought with them</p>

<p>SDG because of the preparation before the session?</p> <p>Do the activities of the <i>Can Do</i> segment support the participants in reflecting on their design process and in deriving possibilities in which they see potential changes?</p> <p>Does the <i>Should Do</i> activity support the creation of a common UX design vision and goals for the SDG?</p> <p>Is the feedback tool suitable for receiving constructive feedback?</p>	<p>given materials and find opportunities</p> <p>Participants can share a common vision and goals</p> <p>The participants can use the feedback tool to express themselves constructively</p>	<p>directly and categorize them in the table</p> <p>The participants can create a stronger reference to UX design as they work in practice every day</p>
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During the session

Observation	Key metrics fulfilled / not fulfilled	Assumptions confirmed / not confirmed
<p>The timing was far too short again</p> <p>The use of a simple ice-breaker as a warm-up supported the introduction to the subject</p> <p><u>Can Know</u></p> <p>Participants were able to express and share their thoughts on the SDG</p> <p>The participants were able to see a relation between UXD and the SDG. However, this could be more profound.</p> <p>Quick categorization and valuable discussions about the examples they presented</p> <p><u>Can Do</u></p> <p>Many opportunities for integrating the SDGs have been found</p> <p><u>Should Do</u></p> <p>Due to time constraints, the activity could not be carried out</p>	<p>The participants developed a common understanding of the SDG, but there is still potential to gain a deeper understanding of the subject</p> <p>The analyzed design process phases could be appropriately reflected</p> <p>No vision could be created for reasons of time</p> <p>Participants were partly able to express their thoughts using the feedback tool and were more likely to give feedback in group discussions</p>	<p>Compared to the first group, the participants had a deeper understanding of the SDG through the preparation</p> <p>The activities the participants supported to print out, but the need for further methods is clearly recognizable</p> <p>The discussions and input from the UX designers were strongly related to their work practice</p>

<u>Feedback Tool</u>		
Textual feedback was partially added		
Next Steps		
Optimization of the preparation	Improvements regarding the entire toolkit	Optimization of a framework segment part
Restructuring of the co-design session on time and activities		<u>Can Know</u> More support is needed to build a relation between the SDG and UX. The table and information collection for the knowledgebase must be optimized There must be more time available for discussion

Co-creation session 3		
Before the session		
Learning questions	Key metrics for success	Assumptions
Does the improved structure guide the participants in building a deeper level of common understanding of the SDG? Can the participants build a better relationship between SDG and UX design? Is the tool for information collection of the knowledge base more intuitive to use?	Participants build a deep shared understanding of the SDG. Participants find a stronger connection from SDG to UXD. The knowledge base is used as intended.	The new structure enables the participants to focus better on the activities. The optimized table helps the participants to categorize and present their examples. Through the optimized activity 2 (touch the topic), the participants build a stronger connection to UXD.
During the session		
Observation	Key metrics fulfilled / not fulfilled	Assumptions confirmed / not confirmed

<p>As in the last session, the ice-breaker introduced the topic well.</p> <p>The participants were able to develop a deeper understanding of the SDG and build a relation to UX design.</p> <p>The participants were able to use the new table well and intuitively add and discuss their examples.</p> <p>On their own initiative, the participants divided the knowledge base into two further sections. For the examples of digital products, they added a list of publications and a list of important terms on the topic.</p>	<p>Participants build a deep shared understanding of the SDG.</p> <p>Because the participants have more time to discuss things together and concentrate only on the can know segment, a deeper understanding of the SDG in connection with UX design is built up.</p> <p>The table for the knowledge base was used intuitively enough.</p>	<p>The assumption was confirmed that concentrating on one segment produces better results.</p> <p>The participants were able to establish a connection between the SDG and UXD earlier.</p> <p>The new table helped the participants.</p>
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Next Steps

Optimization of the preparation	Improvements regarding the entire toolkit	Optimization of a framework segment part
	<p>The next part of the toolkit is created, which leads to the ideation and creation of solutions.</p>	<p><u>Can Do</u> A diary is created as the first part of the Can Do segment to prepare the participants for the co-creation session</p> <p>Activities have to be developed to support the participants in ideation and the creation of possible solutions.</p> <p><u>Should Do</u> Will be optimized based on the observations & feedback of the co-creation session 2.</p> <p><u>Feedback tool</u> Will be optimized so that participants can give constructive feedback.</p>

Before the session		
Learning questions	Key metrics for success	Assumptions
<p>Did the diary help the participants to be more attentive to the SDG in everyday life? Did the diary prepare the participants for the Double Diamond analysis?</p> <p>Does the new double diamond display guide the participants better through the analysis?</p> <p>Does the new part of the <i>Can Do</i> segment support the participants in creating ideas and finding solutions?</p> <p>Does the feedback tool help the participants to give constructive feedback?</p>	<p>The participants used the diary.</p> <p>The diary allowed the participants to reflect on their daily work.</p> <p>The participants can carry out the double diamond analysis without major hurdles.</p> <p>The participants create ideas and solutions.</p> <p>The participants can give constructive feedback.</p>	<p>The diary helps the participants to go deeper into the Double Diamond analysis, as it has prepared them mentally for it.</p> <p>The double diamond analysis will provide more extensive results, as the participants have all been busy with their respective design phase on the work through the diary.</p> <p>The participants will find ideas and solutions.</p>
During the session		
Observation	Key metrics fulfilled / not fulfilled	Assumptions confirmed / not confirmed
<p>The results of the diaries were very different and consisted in part of observations, perceptions in the work environment, or described experiences with specific work tasks.</p> <p>One participant had a direct influence on a work project in relation to the SDG.</p> <p>Some participants stated that they wanted more space for the ideation part.</p> <p>One team was able to work very well with the core element cards. The other team found it rather difficult</p>	<p>The key metrics have been met, but the ideation part must be optimized.</p>	<p>Most of the assumptions were confirmed.</p> <p>The participants freestyled them in the ideation part, which is okay, but the toolkit has to provide more support.</p>

<p>to choose specific core elements, as the initial idea was not yet mature enough to define core elements at the time.</p> <p>Both teams were able to generate valuable ideas and results.</p> <p>Participants stated as feedback that the toolkit could also provide a presentation template to summarize the results on a frame.</p> <p>The feedback tool was used significantly more in this session, and the textual feedback fields were also used.</p>		
<p>Next Steps</p>		
<p>Optimization of the preparation</p>	<p>Improvements regarding the entire toolkit</p>	<p>Optimization of a framework segment part</p>
<p>A guideline must be drawn up from all co-creation results as to how the process can be carried out optimally.</p>	<p>The sequences for the sessions and the activities have to be structured.</p>	<p><u>Can Do</u> The creation part must be optimized so that the participants receive more support.</p>

10.4 Further outcomes of co-creation 4

The final results of Team 1 from the fourth co-creation session represent a collection of stereotypes that should be avoided in digital products (figure 48, figure 49) and ice-breakers that can be used in team meetings to address the issue of gender equality (figure 50). In addition to the results presented by team two in chapter x.x, the same team has created a map with resources from gender-sensitive writing for different languages (figure 51).

CAN DO - LET'S DIVE INTO ACTION

● 20 min.

- Pick a method, idea or action from one of the double diamond boards where you see a great potential to integrate gender equality values or aspects.
- Describe why do you see potential to support gender equality in this method/ action/ idea?
- Describe the current state of the method/ action and what is the goal of the change?

TEAM 1

Place or describe your selection here:

Address the topic in your team

Can we create a gender bias team ice-breaker?

Can we collect stereotypes we should avoid in our designs?

I see the potential to support gender equality because ..

Address gender equality in teams

→

and .. check how gender sensitive the team is

→

.. to see what educational work we still have to do around this topic

Current state:

What are we usually do in this action / method? Or what is missing in the current state?

FROM

We are constantly doing ice-breakers in meetings or retros

Translation

Changed / new state:

How can we integrate gender equality values or aspects into this action / method ? Or what will the idea bring?

TO

Include ice-breaker to draw attention to gender equality in teams

OR

Subconscious integration of stereotyped content

Translation

A collection of stereotypes that reminds us what to avoid

Figure 48: Description of the chosen opportunity of team 1

CAN DO - SKETCH YOUR IDEA

50 min.

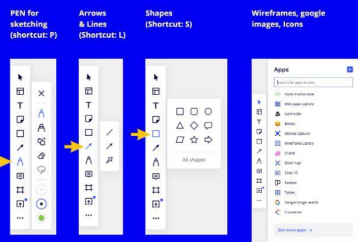
1. Try to concretise your idea.

1.1 Add a description of your idea:

Briefly describe what the idea could contain and what it is used for.

1.2 Add a visualization of your idea.

E.g. Sketch on paper upload a photo, if you have a graphic tablet you can also sketch directly here in Miro, you can also use shapes, arrows, post-its, pictures, wireframes or pictures from the Miro tools.



TEAM 1

STOP STEREOTYPING 1

We want to collect stereotypes we should avoid using in digital products.

STOP STEREOTYPING

DON'T USE THESE STEREOTYPES WHEN YOU CREATING CONTENT!

ABOUT CHILDREN

GIRLS SHOULD PLAY WITH DOLLS AND BOYS SHOULD PLAY WITH TRUCKS

BOYS SHOULD BE DIBECTED TO LIKE BLUE AND GREEN; GIRLS TOWARD RED AND PINK

BOYS SHOULD NOT WEAR DRESSES OR OTHER CLOTHES TYPICALLY ASSOCIATED WITH "GIRL'S CLOTHES"

ABOUT TEENAGER

GIRLS ARE BETTER AT READING AND BOYS ARE BETTER AT MATH

GIRLS SHOULD BE WELL BEHAVED; BOYS ARE EXPECTED TO ACT OUT

BOYS SHOULD ENGAGE IN "SPORTS" AND AVOID FROM MAKE CREATIVE PRODUCTS

GIRLS AND ARE NOT AS INTERESTED AT BOYS IN STEM SUBJECTS

A BOY THAT DOESN'T USE VIOLENCE OR AGGRESSION IS AN UNDERSTANDABLE TRAIT FOR BULLYING

BOYS AND MEN ARE EXPECTED TO USE VIOLENCE AND AGGRESSION TO PROVE THEIR

GIRLS SHOULD BE THIN AND BEAUTIFUL TO MAKE THEM APPEALING TO MEN

GIRLS AND ARE NOT AS INTERESTED AT BOYS IN STEM SUBJECTS

ABOUT ADULTS

VICTIMS OF INTIMATE PARTNER VIOLENCE ARE WEAK BECAUSE THEY STAY IN THE

THESE IT SOMETHING UNWAGS WITH A WOMAN WHO DOESN'T WANT "FHM DUFF"

ASSERTIVE WOMEN ARE UNFEMINE AND ARE "BOSSY" "BITCHES" OR "UNWAGS"

WOMEN ARE NATURAL INVETURES; MEN ARE NATURAL LEADERS

WOMEN WITH CHILDREN ARE LESS DEVOTED TO THEIR JOBS

WOMEN DON'T NEED EQUAL PAY BECAUSE THEY ARE SUPPORTED BY THEIR HUSBANDS

BOYS AND MEN ARE EXPECTED TO USE VIOLENCE AND AGGRESSION TO PROVE THEIR MANKLINESS

WOMEN WHO APPEAR LESS FEMINE OR RETECT ADVANCES FROM MEN ARE LESBIAIN

WOMEN WHO SPEND TIME WITH FAMILY ARE LESS MASCULINE AND POOR BREADWINNERS

A TRANSGENDER OR GENDER NON-COMFIRMING PERSON IS UNDESIRABLE TO HUSBANDS

IN HETEROSEXUAL COUPLES, WOMEN SHOULD TAKE TIME OFF TO CARE FOR CHILDREN OR ELDERLY

BOYS AND MEN ARE EXPECTED TO USE VIOLENCE AND AGGRESSION TO PROVE THEIR MANKLINESS

WOMEN WHO ARE NOT AGGRESSIVE AND/OR ASSERTIVE ARE UNMANNLY AND LIKELY GAY

WOMEN ARE TOO EMOTIONAL TO UNDERTAKE CERTAIN KINDS OF WORK, ESPECIALLY WHILE PREGNANT

SAME-SEX COUPLES CANNOT MAKE GOOD PARENTS

WOMEN ARE TOO IMPRESSHIAL AND NOT EMOTIONALLY APT TO TAKE ON TASKS "BETTER DONE BY MANKEN"

Figure 49: Collection of stereotypes

CAN DO - SKETCH YOUR IDEA

50 min.

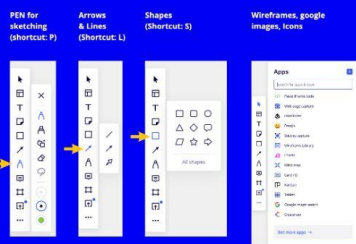
1. Try to concretise your idea.

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Briefly describe what the idea could contain and what it is used for.

1.2 Add a visualization of your idea.

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TEAM 1

TEAM ACTIVES FOR GENDER EQUALITY

We want to find team activities or ice-breakers in which one creates awareness for stereotyping.

I AM ... BUT I AM NOT

Examples:

- I am an (Asian woman) but I am not [...]
- I am a (mother) but I don't (work part time)
- I'm a (software developer) but I don't like (computer games)

Activity cards (P1-P4):

- P1: I am [...] but I am not [...]
- P2: I am [...] but I don't [...]
- P3: I am [...] but I don't [...]
- P4: I am [...] but I don't [...]

HOW GENDER?

Assign a term card to each participant. Each participant has their own Miro board. Ask the participants to describe the term in 2 minutes. Then everyone presents their description. Ask the participants not to google the term. Then the definition under a black square wire is made free on each board.

GENDER	CIS-GENDER	GENDER BIAS	TRANSGENDER	NON-BINARY
The socially constructed characteristics that a person is given by society, such as norms, behaviours and relationships. Most societies define gender as binary, where a person is either a man or woman. However, our gender is irrespective of whether a person is born male or female.	Cisgender is the term used for people whose gender identity matches their sex at birth. For example, a person who identifies as a woman and was born female. This term is used as an opposite to transgender.	Actions or thoughts that are prejudiced (consciously or unconsciously) because of preconceived ideas of what women and men's attributes, characteristics and roles should be based on their gender.	Describes a person whose gender identity and assigned sex at birth do not correspond. Also used as an umbrella term to include gender identities outside of male and female. Sometimes abbreviated as trans.	Most people - including most transgender people - are born either male or female. But some people don't neatly fit into the categories of 'man' or 'woman', or 'male' or 'female'. For example, some people have a gender that blends elements of being a man or a woman, or a gender that is different than either male or female. Some people don't identify with any gender. Some people's gender changes over time. Related terms: trans, transgender
GENDER IDENTITY	GENDER BALANCED LANGUAGES	SEXISM		
Gender identity is each person's internal and individual experience of gender. It is their sense of being a woman, a man, both, neither, or anywhere along the gender spectrum. A person's gender identity may be the same as or different from their sex at birth.	Language that is not gender specific and which considers people in general, with no reference to women and men or at least equitable representation of women and men.	Attitudes and actions that discriminate against people based solely on their gender		

GUESS WHAT..

<p>How many times more often do men interrupt women than other men?</p> <p>Almost 3 times more often.</p>	<p>In a study of performance reviews, men who stayed late to help prepare for a meeting got a 14% increase in their rating.</p> <p>What increase did the women get when they stayed late to help?</p> <p>No increase at all. Research shows that when men help out with office tasks they are rewarded, while women are not. Conversely, women are penalized if they refuse.</p>	<p>In a study of performance reviews, what % of women received negative feedback on their personal style such as "You can sometimes be abrasive"?</p> <p>And what % of men received that same type of feedback?</p> <p>66% of women and 1% of men.</p>
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Figure 50: Collection of ice-breaker to address the topic of gender equality in team meetings

CAN DO - SKETCH YOUR IDEA

🕒 50 min.

1. Try to concretise your idea.

1.1 Add a description of your idea:

Briefly describe what the idea could contain and what it is used for.

1.2 Add a visualization of your idea.

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TEAM 2

GENDER SENSITIVE LANGUAGE MAP

We want to put together a map for the international UX community with resources for gender-sensitive writing with as many national languages as possible.

GENDER SENSITIVE LANGUAGE MAP

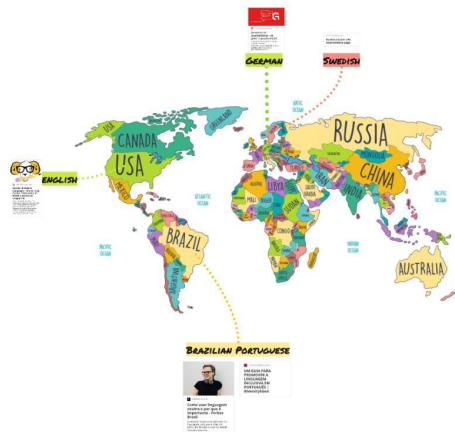


Figure 51: Collected resources for gender sensitive language for different countries