

# **Sensitizing Users in Generative Research**

Researching the influence of sensitization on  
self-reflection and memory-sharing

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## Abstract

To successfully bring a new product or service on the market, it needs to fit well in the lives of the targeted users to enable everyday use of the product. Generative research is often used at the beginning of a design process and aimed to get insight in the context and needs of the user. To prepare participants for a generative session, they often get sensitized, which means they get small exercises which they use in their home environment two weeks before the session. Sensitization aims to stimulate self-reflection and the collection of memories so that participants are more aware of their own values and needs and can share their memories during the generative session. The main researchers in the area of generative design research claim that self-reflection and memory-sharing would give access to the participant's deeper values and needs, which is valuable for design researchers to design new products. It has not yet been scientifically proven that sensitization indeed has these effects, so the current study compared two groups of which one was sensitized before a generative session and the other was not. The generative session used in this research was an individual interview which was conducted with 14 participants. The transcripts of the interviews were thematically analysed and suggest that sensitization does not influence self-reflection and memory-sharing. However, the participants in the non-sensitization condition showed more signs of discomfort and seemed less self-conscious. Therefore, the question raises whether it is necessary to make elaborate sensitizing toolkits, or that a simple preparation could also achieve the wanted effects of accessing one's deeper values and needs. Future work could investigate this and conduct the research on a larger scale, with more interviewers and participants. In addition, it could be interesting to conduct a pre-test to get insight in the personality traits and reflective capabilities of participants. Future research can try to get insight in how these factors affect how much participants reflect on themselves and share memories during generative sessions.

*Keywords:* generative design research, generative interviews, sensitization, self-reflection, memory-sharing

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## 1. Introduction

To successfully bring a new product or service to market, it needs to fit well in the lives of the targeted users so that they will actually make use of the product in their everyday lives (Horvat et al., 2019). To design something that lives up to this requirement, a user-centred approach is often adopted, which aims to let the designers and researchers get informed and inspired by the users themselves (Dandavate et al., 1996; Pao et al., 2012; Sanders & Dandavate, 1999). This user-centred process often starts with generative research, aimed at getting a deeper understanding of the context, needs, wishes and experiences of the user, in order to meet their needs and wishes in future products or services (Baek et al., 2007; Hanington, 2007; Patnaik & Becker, 1999; Sanders & Stappers, 2012).

Generative research is an explorative step of the design process, mainly used to get a deeper understanding of the needs and values of the user (Sanders & Stappers, 2012). Design researchers want to get insight in the user's future needs to try and respond on these and get insight in people's future experiences with future products. However, people have difficulties expressing their (future) needs and values verbally since these are abstract and users might have difficulty expressing their needs and values. Thereby, people can have difficulties with predicting what they need when they have not experienced a certain situation yet (Patnaik & Becker, 1999). These future needs are called "latent" needs, which refer to needs that people are not yet aware of (Sleeswijk Visser et al., 2005). For example, a user might have trouble imagining their needs in case of a car accident when they lack the experience of having one. You might need an app that can easily reach your kids, but there can also be needs that you are not yet aware of. It is not easy for people to discover these latent needs since they can be very unobvious (Otto & Wood, 2001). However, meeting the user's latent needs would result in long-lasting solutions for future scenarios (Pao et al., 2012; Patnaik & Becker, 1999).

For designers to get insight in the latent needs of their target group, tools and methods have been developed that help people to express these needs. Generative sessions are claimed to give access to latent needs (Sanders & Dandavate, 1999). In these sessions, generative

techniques are often used, which aim to guide participants in reflecting on and exploring their experiences. Participants are for example asked to create artefacts, such as a collage or drawing, and tell a story about what they have made (Sleeswijk Visser et al., 2005). The creative process of making an artefact aims to enable participants to reflect on their experiences and express these, and their story after making the artefact is claimed to give useful insights for designers about the latent needs of their users (Stappers & Sanders, 2003). Section 2.1 and 2.2 elaborate on the working and claims about generative research.

Before a generative session, participants are often primed. These primer activities are also known as immersion activities (Sanders & William, 2001), or the most recent term: sensitization (Sanders & Stappers, 2012). Sensitization aims to make participants more sensitive to their past or current experiences and aims to allow them to collect memories which would then be told during generative sessions. (Sanders & Stappers, 2012; Sanders & William, 2001; Sleeswijk Visser et al., 2005). Sensitization is claimed to enable participants to access and reflect on their experiences, which would give the designers insight in their user's latent needs. Design researchers can sensitize participants by sending them sensitization toolkits a few days or weeks before the generative session. These toolkits contain small exercises which the participant can do in their home environment (Sanders & Stappers, 2012; Sleeswijk Visser et al., 2005). Examples of tools in such a sensitization toolkit are a disposable camera, diary, and a workbook. By observing and documenting their daily lives through photographs, diaries or workbooks, participants would be stimulated to document their thoughts and feelings (Gellis, 2009; Sanders & Stappers, 2012).

Although sensitizing participants has become an important step in generative research, it is not clear to what extent it achieves the claimed effects. The three main researchers in this field are Elizabeth Sanders, Pieter Jan Stappers, and Froukje Sleeswijk Visser, and their claims about the effectiveness of sensitization are taken over by other researchers (e.g., Gellis, 2009; Kaptein et al., 2007; Kwiatkowska et al., 2015).

To give advice for future generative research and the use of sensitization in future studies, it is important to get insight in whether, and to what extent, sensitization achieves the claimed effects. Therefore, the current study conducted generative sessions and compared two groups of participants, of which one group was sensitized and the other group was not sensitized.

Sensitization mainly aims to help participants reflect on themselves and collect memories which they can share during generative sessions (Sanders & William, 2001; Sleeswijk Visser et al., 2005). To quote the three main researchers: “the main objective of the sensitizing tools, is to establish *self-reflection* on the part of the participants, which is then harvested during the generative sessions.” (Sleeswijk Visser et al., 2005, p. 126), and “[by sensitization, participants] can become sensitive to their awakened *memories* [...] and have the opportunity to gather stories that illustrate things they find interesting or worthwhile” (Sanders & Stappers, 2012, p. 55). This research focuses on these two claims to research whether, and to what extent these can be confirmed.

Since sensitization is a quite labour-intensive activity which is used regularly in generative research although it has never been researched whether it achieves the claimed goals, research is needed to investigate this. Therefore, the current research performed a comparative study with the goal to get insight in whether participants who are sensitized expressed more signs of self-reflection and whether they shared more memories than the participants in the non-sensitization condition. The research question that this study tries to answer is the following: *To what extent does sensitizing participants before a generative session influence how much they reflect on themselves and how many memories they share during the generative session?*

## 2. Theoretical background

The current study aims to research the current claims about sensitization to explore whether they can be scientifically substantiated. To do this, it is important to understand the theoretical background of needfinding and generative research and get insight in the claims that are being made about the effectiveness of sensitization.

### 2.1 Needfinding

In the early 1970s, McKim, a designer from Stanford University, hypothesized that it would be beneficial to involve users early in the design process to discover their unmet needs (Patnaik & Becker, 1999). This early involvement would prevent researchers from solving superficial problems instead of the deeper, underlying issues that would need to be solved. Finding the user's needs and meeting those would result in longer-lasting solutions than solutions made for a specific situation. McKim developed a qualitative research approach for finding people's needs and called this method "Needfinding". This approach means that researchers observe and interview their users or consumers in order to get insight in their needs. Interviewing and observing users became often-used methods in user-centred design processes, which often starts with generative research aimed at finding the needs of the targeted users (Lu & East, 2003; Patnaik & Becker, 1999).

Although interviewing and observing users are traditional methods for finding the needs of users, these methods only reveal what the users do and tell. However, people are often unaware of their *real* needs, or things they might need in the future: their tacit or latent needs (Otto & Wood, 2001; Sanders, 1992). For example, a user might have trouble imagining their needs in case of a car accident when they lack the experience of having one. Anticipating on future needs is a reoccurring topic of importance, which also seems to be the struggle of other researchers such as Gulati & Oldroyd (2005) and Yang (2013): it seems hard to predict people's future behaviour and what they need in the future (i.e., latent needs).



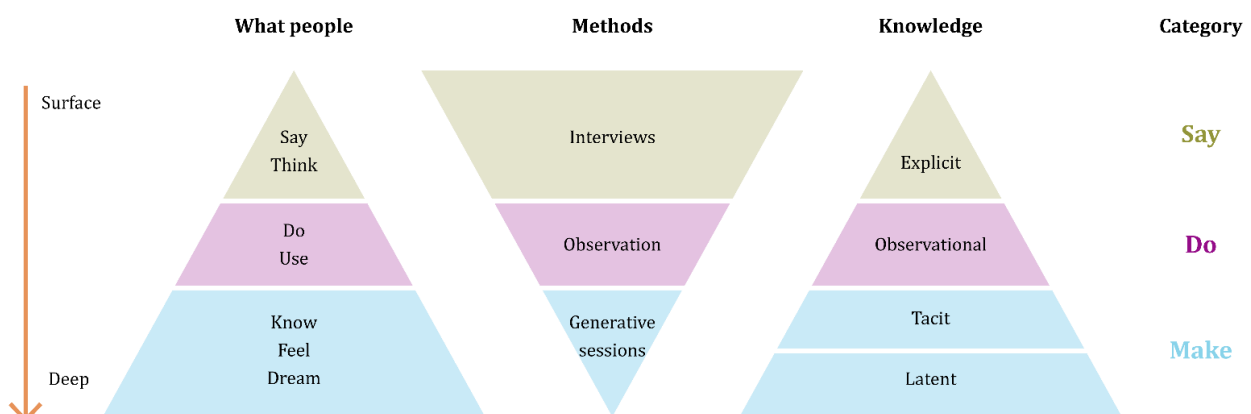
To get insight in the latent needs of users anyhow, more generative techniques have been developed. One of the main researchers in this field, Sanders, introduced new generative research tools and guidelines on how to conduct generative studies. These are documented in the book *Convivial Toolbox*, which she wrote together with Stappers (Sanders & Stappers, 2012). These tools and guidelines aim to help designers and researchers to get insight in the needs and wishes of their users.

## 2.2 Generative sessions

To get more insight into the user's latent needs, Sanders suggests to use multiple methods and proposes three perspectives to look at generative tools and methods, which are put in the categories of what people Say, Do, or Make (Sanders, 1992; Sanders & Dandavate, 1999). Sanders claims that all three methods can be very beneficial for design research and that it depends on the focus of the study which one can be used. Figure 1 shows an overview of the different categories with their methods and which type of knowledge would be accessed with these. Conducting interviews and observations are two of the three methods, which were also part of the Needfinding approach (Patnaik & Becker, 1999). These methods aim to give insight in what people say, think, do, and use.

**Figure 1**

*Different levels of knowledge are accessed with different techniques*



*Note.* Figure based on Figure 3 of (Sleeswijk Visser et al., 2005, p. 123) after (Sanders, 2002)

### 2.2.1 *Make Tools*

Next to interviews and observations, Sanders adds a third perspective which involves what people make (Sanders & Dandavate, 1999). This is based on Illich (1973) who claims that people need the freedom to create and that without this freedom, people's needs can never be satisfied. Sanders and Stappers extend this statement to generative research and introduce "Make Tools" as a method to access user's latent needs (Sanders & Dandavate, 1999). These tools are meant to be used during generative sessions and contain for example tools to let participants make a prototype or collage themselves. When such an artefact is made, the participants are stimulated to talk about it and explain why they made certain choices. This would reveal what people know, feel, and dream, and give access to their tacit and latent needs.

Telling stories about an artefact is an important part of the use of Make Tools during generative sessions. Sanders and Stappers (2012) claim that it is easier for people to access their values and needs when those are connected to a specific event or story. Although most claims of Sanders and Stappers are not scientifically proven, this use of storytelling is also in line with Denning (2007), who explains that the values of a person are reflected in their actions, and when people tell stories to make sense of their actions, their values and needs can be revealed. This therefore seems fitting for generative sessions since they aim to give insight into these deeper needs.

### 2.2.2 *Path of expression*

Next to the Make Tools, Sanders and Stappers developed the path of expression: a model that adds more guidelines to the format of generative sessions, the model can be found in Figure 2. Sanders and Stappers claim that when generative sessions follow the path of expression, participants would be guided in their awareness about their experiences, which would make them understand these better (Sanders & Stappers, 2012). Regarding to Sanders and Stappers, this would result in revealing deeper needs and values in the stories of the participants during a generative session.

The experience domain model (also shown in Figure 2) served as a base for the path of expression and aims to give insight to researchers in how to guide a person's awareness of their experiences in steps, still with the higher aim to understand the user and access their deeper needs and values (Sanders & Stappers, 2012). Although the working of this model has not been scientifically proven, it is being used for many generative studies that aim to get insight in the future needs of their users, such as for making new products (Carlgren, 2013).

The path of expression is often used in generative research, and most steps take place during the immersion period: during the weeks before the generative / workshop session takes place (Sanders & Stappers, 2012). This immersion period is also called sensitization and aims to prime participants to help them to gather memories and stories which can be told during generative sessions (Sanders & Stappers, 2012; Sanders & William, 2001; Sleeswijk Visser et al., 2005).

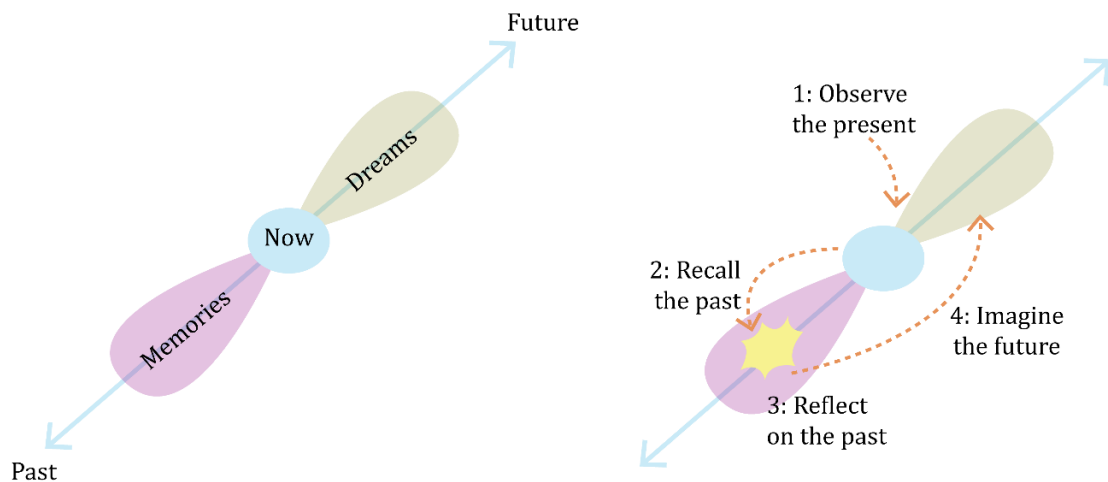
During the sensitization period, participants are asked to observe and reflect on their current experiences (step 1 in Figure 2). This is often guided through activities such as photo-taking or by keeping a diary (Gellis, 2009; Sanders & Stappers, 2012). This first step aims to allow the participant to explore their current situation which would make them conscious of their current experiences.

After becoming aware of the present, the second and third step are meant to let participants look back on their past and gather memories and past experiences, for example by answering (reflective) questions about the past. Sanders and Stappers claim that this step would result into shared memories during the generative session which reveal participants' deeper values and needs. This assumption was not scientifically proved, although other sources such as Wendlinger (1995) confirm that reviewing past experiences would help people to understand their underlying motivations and values.

The last step would arise from the previous steps, as Sanders and Stappers state that the sharing of experiences would give access to deeper values and needs and would lead to imagining and exploring future desires (Sanders & Stappers, 2012).

**Figure 2**

*Left: the experience domain model; Right: the path of expression*



*Note.* Visualisation based on (Sanders, 2001) and (Sanders & Stappers, 2012, p. 55)

### 2.3 Claimed effects of sensitization

As has been mentioned in the previous section, participants are often sensitized before a generative session. The goal of sensitizing participants is to let them access and reflect on their experiences and memories, which would give access to deeper levels of knowledge and would then give the designers context and insight in their user's and their latent needs (Sanders & Stappers, 2012). Sengers, Boehner, David and Kaye (2005) define "reflection" as "bringing unconscious aspects of experience to conscious awareness, thereby making them available for conscious choice" (Sengers et al., 2005, p. 50). In the context of generative research this could mean that if participants would be triggered to reflect during sensitization, this could bring unconscious needs to their conscious awareness and make them available to share them during generative sessions.

Participants can be sensitized by giving them toolkits with small exercises that participants can perform in their home environment a few days or weeks before the generative session (Sanders & Stappers, 2012; Sleeswijk Visser et al., 2005). Examples of tools in such a sensitization toolkit are a disposable camera, diary, and a workbook. During the sensitization

period, participants observe and document their daily lives through photographs, and fill in the diaries or workbooks which enables them to document their thoughts and feelings (Gellis, 2009; Sanders & Stappers, 2012).

Although sensitizing participants has become an important step in generative research, it is not clear to what extent it achieves the claimed effects. As has been mentioned in the introduction, the three main researchers in this field are Elizabeth Sanders, Pieter Jan Stappers, and Froukje Sleeswijk Visser, and their claims about the effectiveness of sensitization are taken over by other researchers (e.g., Gellis, 2009; Kaptein et al., 2007; Kwiatkowska et al., 2015).

The most frequently mentioned claims about the effects of sensitization are that it would help participants reflect on themselves and gather memories to share during generative sessions (Sanders & William, 2001; Sleeswijk Visser et al., 2005). To quote the three main researchers: “the main objective of the sensitizing tools, is to establish *self-reflection* on the part of the participants, which is then harvested during the generative sessions.” (Sleeswijk Visser et al., 2005, p. 126), and “[by sensitization, participants] can become sensitive to their awakened *memories* [...] and have the opportunity to gather stories that illustrate things they find interesting or worthwhile” (Sanders & Stappers, 2012, p. 55).

### 2.3.1 *Self-reflection*

One of the main effects that sensitization is claimed to achieve is self-reflection. By sensitizing participants, they would be able to reflect on their own experiences, which would reveal their deeper values and needs, which would then be shared during generative research (Sanders & William, 2001; Visser, 2005).

To get insight in the stimulation of self-reflection in generative research in practice, Kwiatkowska et al. (2015) conducted generative (group) sessions and explored the influence of the use of generative techniques (e.g., sensitizing the participants) on the participants. The researchers found that reflection was stimulated by sensitizing participants: participants that they were more open to their emotions and accessed their experiences and reflected on them in

the stories they told during the generative sessions. Although the participants only received the sensitizing materials right before the research which means they were not able to engage in the materials in their home environment, it still seems to influence their self-reflection.

In addition to this finding, Sengers, Boehner, David and Kaye (2005) also seem to value reflection as they argue that reflection should be a core theme in Human Computer Interaction (HCI) since it can help both the user and the designer to become aware of their values and act upon them by making conscious choices in future scenarios. By doing so, this would give the freedom to consider other options and see new possibilities which can result in interesting changes in HCI. Sengers et al. view reflection as a way to become aware of the world and of oneself, experiencing both in a different way: even reflecting on mundane activities would be able to make people aware of the implications of their actions. This seems to be in line with Boud, Keogh and Walker (1985) who emphasize that reflection is a personal process, arguing that only the person themselves can reflect on their own experiences. Someone else (such as a teacher) can help, but ultimately, reflection is personal.

Besides the fact that that reflection is personal and linked to one's own way of seeing and experiencing the world, Boud et al. also define reflection as a conscious process which has a clear and intentional purpose: to learn from it. Sas and Dix (2009) seem to agree that a main benefit of reflection is that it improves learning, since it enables people to understand their experience and based on this, they can change their future choices. Just as Sengers et al. (2005), they argue that underlying values and beliefs can be accessed by reflection, just as certain behavioural patterns in one's life are also accessed by reflection.

This is in line with Boud et al. (1985) who argue that when people have to describe their experiences and work through their emotions and attitudes, experiences can be reconstructed, and people make sense of their experience and the accompanying ideas and information they gathered. Most of these claims from the literature seem to support the claims of Sanders and Stappers about that sensitizing participants could trigger reflection, which would give access to underlying values and needs.

### 2.3.2 *Memory-sharing*

Besides triggering self-reflection, another claim about sensitization is that it would help participants to collect memories which they would then share in a generative session (Sanders & Stappers, 2012; Sanders & William, 2001). Sleeswijk Visser, van der Lugt, Sanders & Stappers (2005) claim that sensitization would increase both the quality and quantity of the shared memories of participants (without operationalising what the “quality” and “quantity” involve). Sensitization would help participants gather memories so that the memories would be shared easier during a generative session. In addition, the researchers claim that these memories would give access to the underlying values and needs of participants (Sanders & Stappers, 2012).

To get insight in what type of memories are shared and whether they reveal values and needs, was investigated by Mols, van den Hoven and Eggen (2014) who conducted a study where the participants reported and reflected on their week in their home environment, a week before the generative sessions. The exercises are similar to sensitizing materials: participants had to capture the day, do different exercises that made them recall and reflect on past experiences and reflect on their everyday life. Then the researchers conducted interviews with them in which they tried to find out why certain memories were considered valuable insights for researchers, and what people remember from everyday life.

The findings of Mols et al. (2014) show that most memories of everyday life were memories about events that occur repeatedly, such as going to the gym every Tuesday. The memories that were found most valuable, were events that had an important influence on one’s life, or events that showed something of a person’s character. These types of memories might reveal underlying values, which can support the claims of Sanders and Stappers about sensitization. Another interesting thing that Mols et al. show with their study is that human values can be found in one’s memories, and that these memories can be triggered by mementos such as photographs.

Mementos seem to be important for the aim of sensitization as Kirk and Sellen (2010) show that mementos often elicit memories and invite people to tell stories about their past. Together with the finding of Mols that these stories contain values, these claims can be applied to sensitization materials, which are often also focused on sharing mementos, for example when participants have to submit photographs of certain events or memories. However, Kirk and Sellen (2010) also found that mementos oftentimes do *not* spark memories or invite people to share them. It seems to depend on which mementos are collected and shared by the participants.

## **2.4 Current study**

The current study aims to research the current claims about sensitization to explore whether they can be scientifically substantiated. It seems that the claims of Sanders and Stappers about that sensitization would trigger self-reflection and memory-sharing and that this would give access to the participants' deeper needs and values can partly be supported by the literature. There were no studies yet that compare participants that were not sensitized and participants that were sensitized for a week before the generative session, so the current study compares these conditions. The focus was on self-reflection and memory-sharing and considering the literature and claims from Sanders and Stappers, the following hypotheses were formulated and researched:

*H1: Participants who have been sensitized show more expressions of self-reflection during a generative session than participants who have not been sensitized.*

*H2: Participants who have been sensitized share more memories in a generative session than participants who have not been sensitized.*



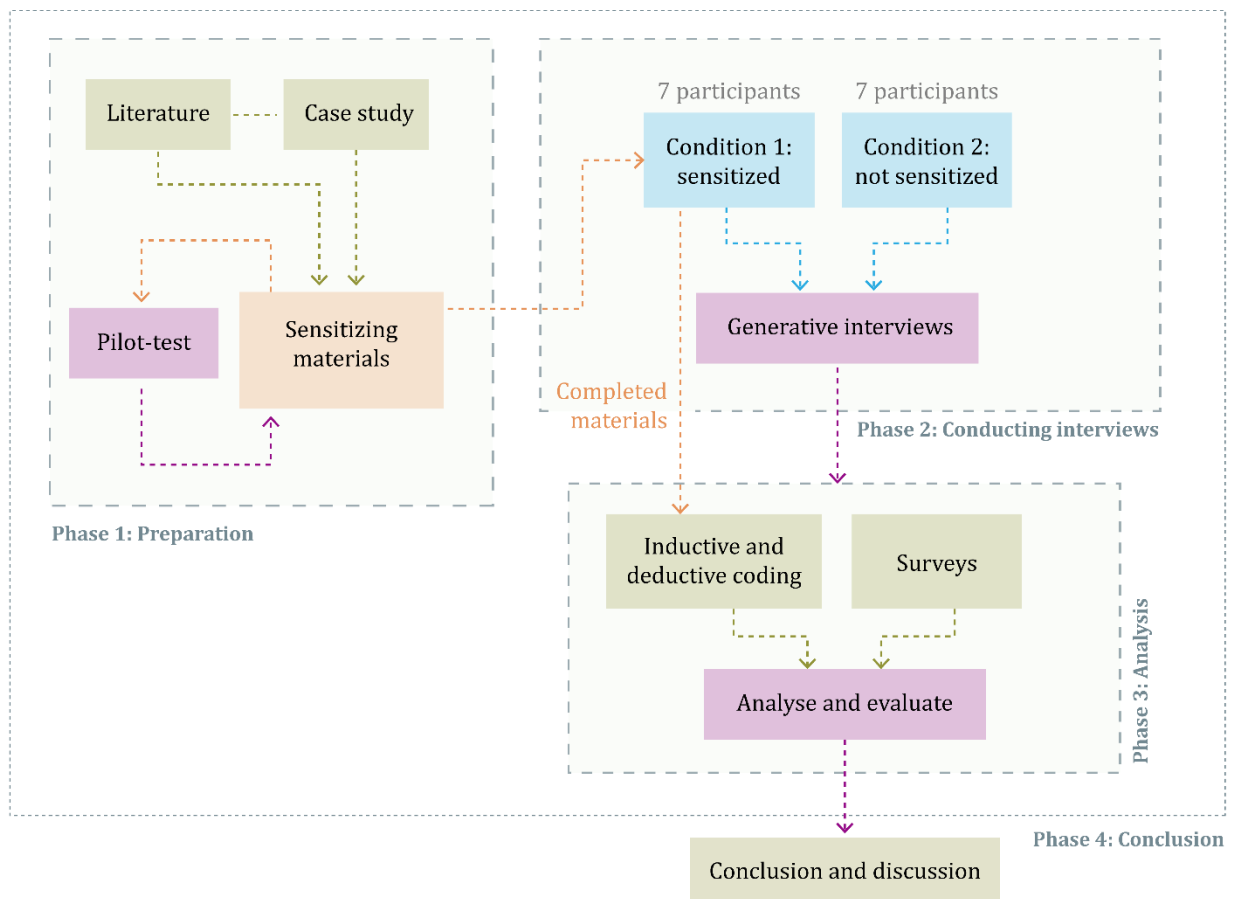
### 3. Method

#### 3.1 Study design

The current study was an experimental research which contained two conditions in a between-subjects design: a sensitization condition and non-sensitization condition. A visualisation of the research procedure of the entire study can be found in Figure 3. This figure visualises the different phases and steps of the research and how they relate to each other. Firstly, the sensitization materials were made, based on the findings in the literature and the chosen context of a case study (this gets elaborated in section 3.2). The materials were pilot tested and sent to the group in the sensitization condition. The participants in the second condition were not sensitized. In both conditions, a generative session in the format of an individual interview was conducted in which participants had to make a collage.

**Figure 3**

*Study Procedure*



The interview was structured following the laddering method of Reynolds (1988) with the leading question “why is that important to you?”. The idea of this method is that the researcher goes down the metaphorical ladder of the participants’ mind and unravels his attributes, then the consequences and finally their values. Since the goal of the generative session was to get insight in the deeper values and needs of the participants, using this technique seems like a suitable and controllable way to structure the generative session.

The interviews were also pilot tested to get insight in the length of a session and to practice such conversations. All interviews were audio-recorded, transcribed and then analysed with inductive and deductive coding with the focus on self-reflection and memory-sharing. The completed sensitization materials were also used as a reference during the analysis, and all participants completed a survey to give additional information about their demographics and how they experienced the interview.

### **3.2 Context**

To provide context for a generative session, a fictitious design case was used. The target group of this case study is university Master’s students who are working on their thesis, and the topic is how they think about their professional and personal future. The study was presented to participants as if it were part of a design project focusing on getting insight in the needs and wishes of the students and getting insight in their lives and experiences. The participants were told that with the results, a new product or service could be invented which could help them in this transition phase of finishing studying and standing at the beginning of a new life phase. However, as stated before, this study focuses on the effect of sensitization. Since no real product of service will be designed, the quality of the findings and documenting these for future use were a secondary concern.

### 3.3 Participants

The participants for this study were university Master's students who were graduating from their Master between February and July 2021. Which specific program the students were following was not taken as an exclusion criterion. The total sample (excluding the pilot testers) consisted of 14 participants (4 males, 10 females;  $M_{\text{age}} = 23.36$ ,  $SD = 1.39$ , ranging from 22 to 27 years). The participants were selected via convenience sampling, and they were randomly assigned to one of the two conditions. Data saturation was used to determine how many participants were interviewed, interviewing new people was stopped when no new themes occurred in the interviews (Morse, 2000; Sandelowski, 2000). Both conditions contain seven participants.

### 3.4 Materials

The materials needed for the sessions were consent forms (appendix A), sensitization toolkits (appendix B), the plan and materials for the generative interview (appendix C), and a survey to gather additional quantitative data (appendix D).

#### 3.4.1 Sensitization toolkits

Since sensitization is central in this study, the sensitization materials were carefully developed with the focus on self-reflection and memory-sharing in mind, and were pilot tested (see 3.4.2 for more information about the pilot tests). The materials that were included in the sensitization toolkits were mainly based on the recommendations of Sleeswijk Visser et al. (2005) and Stappers & Sanders (2012) that are based on their experiences with using sensitization in generative research. For example, these researchers recommend that the materials should look playful and professional, should stimulate reflection on a daily pattern, and the activities should be provocative and inspirational (Gaver et al., 1999; Sanders & Stappers, 2012; Sleeswijk Visser et al., 2005). Furthermore, the activities should not take more

than 5-10 minutes a day and has to contain enough white space for spontaneous comments (Sleeswijk Visser et al., 2005).

The sensitization toolkit was made digitally via the online tool Milanote (milanote.com). The decision to perform the study online and also use an online tool for the sensitization instead of a physical one was mainly due to the Covid-19 pandemic. Fortunately, Kaptein et al. (2007) show that a digital workbook is a suitable method for sensitizing participants.

The digital toolkit consisted of a few assignments each day. Every day had one diary question, asking to describe and reflect on the day. The diary questions were included because research mentions such a question as a way for participants to self-reflect, which is connected to one of the focus areas of this study (Mattelmäki, 2008; Sleeswijk Visser et al., 2005; Stappers & Sanders, 2003). Additionally, the participants were asked every day to insert a photo of different things, e.g., their study place or a certain memory. This is based on the use of disposable cameras, which are frequently used for sensitization purposes (Gellis, 2009; Hemmings et al., 2002; Sanders & William, 2001). The current study did not make use of disposable cameras, but allowed participants to use the camera of their phone or use an image from the internet.

Furthermore, the sensitization materials include a “fill-in question” every day of the week. This is an open-ended question that participants answer. This idea is partly based on the postcards of Gaver (1999), who sent their participants a postcard each day. Thereby, as Sanders and Stappers describe incompleteness as a form of ambiguity, this can be seen as a tool that is also used in these types of questions. An open-ended sentence invites for a wider variety of responses than a closed-question (Sanders & Stappers, 2012).

The toolbox aims to guide the participants in their awareness, based on the path of expression as described by Sanders and Stappers (2012). Table 1 shows the final version of the content of the toolbox and their relevance referring to the path of expression; the last two columns explain the reason behind the question, to which step of the path of expression it

belongs and why this step is important regarding Sanders and Stappers. This table includes the (small) changes that were made after the pilot tests.

**Table 1**

*Sensitization materials with reference to the path of expression*

| Day | Fill-in-question   | Photo   | Photo question   | Step  | Why  |
|-----|--|---|--|-------|--|
| 1   | I am currently working on ... for my thesis.                               | Post a picture of where you are currently studying              | Where is this and what do you think of this place?                                   | 1     | Describe current situation                             |
| 2   | Besides my thesis, I am also busy with ...                                 | Post a photo of where you like to relax                         | Where is this and how do you like to relax?  | 1     | Describe and reflect on current situation              |
| 3   | My experience with writing my <u>bachelor's</u> thesis was ... because ... | Post a picture of something that sometimes distracts you        | What is this and how come you get distracted by it?                                  | 2     | Reflect on previous experience                         |
| 4   | Compared to a year ago, I have changed in ...                              | Post a photo of an annoying memory from your college days       | What is the situation and why did you find this a negative experience?               | 2     | Reflect on past memory                                 |
| 5   | I gained insight into how I could do things differently by ...             | Post a photo of a dear memory of your college days              | What is the situation and why is this dear to you? And why is that important to you? | 3     | Access underlying needs and values                     |
| 6   | I would like to become a ... because ...                                   | Post a photo of a dream situation for you                       | What is this dream and why do you want this?   | 4     | Exploring dreams                                       |
| 7   | This week I learned that ... and next week I will change ...               | Post a picture of something you would like to do in the future. | Why would you like to do this and why is this important to you?                      | 2 / 4 | Reflecting on past experience and imagining the future |

Figure 4 shows the look of the sensitization materials in Milanote, it is meant to be simple yet professional and personal due to the simplicity and simple use of colours. This is in line with the recommendations of Sleeswijk Visser et al. (2005). They also recommend adding space for the

participants to leave comments, which is also included on each day of the toolkit. The checklist was added to help the participants not to skip a certain step.

#### Figure 4

##### *Day 1 of the sensitization*

The figure displays a digital toolkit interface for 'Day 1 of the sensitization'. It consists of several interconnected components:

- Checklist:** A box at the top left contains three items:
  - Answer fill-in-question
  - Post picture and answer question
  - Answer diary question
- Diary:** A large text area below the checklist with the prompt: "Diary: How was your day? Describe and reflect." At the bottom left, it indicates "8 words".
- Fill-in-question:** A box containing the text: "Fill-in-question: I am currently working on ... for my thesis."
- Photo Upload:** A box at the top right says "Post a picture of where you are currently studying". Below it is a large grey area with a cloud and an upward arrow icon, representing a photo upload zone.
- Location Question:** A box below the photo upload area asks: "Where is this and what do you think of this place?"
- Comments:** A large empty box on the far right labeled "Space for comments".

The other tool in the toolkit was a timeline, which is another frequently used tool in generative research which aims to support thinking about the flow of time and attach feelings and experiences to this (Gielen, 2005; Lu & East, 2003; Sanders & Stappers, 2012). This timeline is the “day-in-a-life” exercise which involves looking and reflecting at the past and collecting memories. Since Sanders and Stappers (2012) state this exercise as an example of an activity that stimulates people to share their memories during generative sessions, it was considered suitable to use for the current study to check to what extent it achieves this claimed effect. The timeline was an exercise that the participants could do over the week, so not every day. It was included on the home page, as can be seen in Figure 5.

## Figure 5

*Home page of the sensitization toolkit, including the timeline exercise*

**Assignment to be completed by the end of the week as well:**

1. Take a paper and draw a horizontal line on it, this is the timeline of a self-selected day of the past week.
2. From that day, write down the different things you did then (such as having breakfast, studying, visiting a friend, cooking, etc.) below the timeline.
3. Which of these things did you enjoy, and which did you enjoy less? Below your steps, add a smiley face that shows how you felt at the time.
4. For each high and low point of that day, add a reason why you felt that way then.

**When it is finished: upload a picture of your timeline on this page :)**

**Sample timeline:** (may be a lot more elaborate)

Start \_\_\_\_\_ End

Breakfast - Go to town - Study - Cook dinner - Have a drink - Sleep

:(                    :)                    :/                    :|                    :D                    :)

(reasons for an emotion, e.g. "The food burned even though I had put a lot of effort into it")

Filling in the questions and adding the photos would not take more than 5-10 minutes a day, as recommended. Since people might refer to their sensitization materials during the generative interviews, the materials were also read by the interviewer after they were filled in, so that the sensitization materials could also be considered during the discussion (Sleeswijk Visser et al., 2005).

### 3.4.2 Pilot test

The materials and interviews were pilot tested by three people (2 males, 1 female) who belonged to the same target group and had the same inclusion criteria as the participants of the main study. The people who pilot tested the materials were not included as participants in the rest of the study. The pilot test is recommended to check whether the materials work as

expected (Sleeswijk Visser et al., 2005). The focus of the pilot tests was whether participants understood how to use the materials and how to work with the included questions and activities.

The pilot tests showed that it was not clear at what part of the day the participants should fill in the materials and that they would like to be reminded. Therefore, for the research, the participants were informed that they were also allowed to reflect on the day before when this was more convenient and that they could fill in the materials when they wanted. They were also informed that they would be reminded if necessary. Additionally, following the pilot tests, a few formulations were unclear and were therefore altered. Furthermore, the pilot testers thought that Milanote was an easy-to-use tool and thought the interview was comfortable and they could express their needs.

### 3.4.3 *Generative interviews*

The set-up of generative sessions differs among studies, and although group sessions seem to be the most common, pair sessions and individual sessions are also possible (Sleeswijk Visser et al., 2005). For the current study, it was decided to organize individual sessions instead of group sessions, mainly because it would be hard to control group dynamics which might influence the results too much. The individual sessions were generative interviews, which are interviews “with the purpose of uncovering opportunities for innovation and for illuminating solutions to problems” (*Build the Right Product with Generative Interviews*, n.d.). The schedule of the interview can be found in Table 1 and consists of an introduction, making a collage, discussing the collage and a debriefing. The phases that are bold are the ones that were transcribed and analysed. For people that were sensitized, the materials that the participants pointed out as important were shortly discussed. This was done to stay close to the “normal” approach of dealing with sensitization materials in a generative session. Due to the constraints of Covid-19, the interviews were conducted online via Zoom (zoom.us). The collage that



participants made was thus also online, with the use of Microsoft PowerPoint. The participants could make use of all stock images that PowerPoint offers and were also allowed to add words.

**Table 2**

*Timetable generative interview, the bolded texts are the phases that were transcribed and analysed*

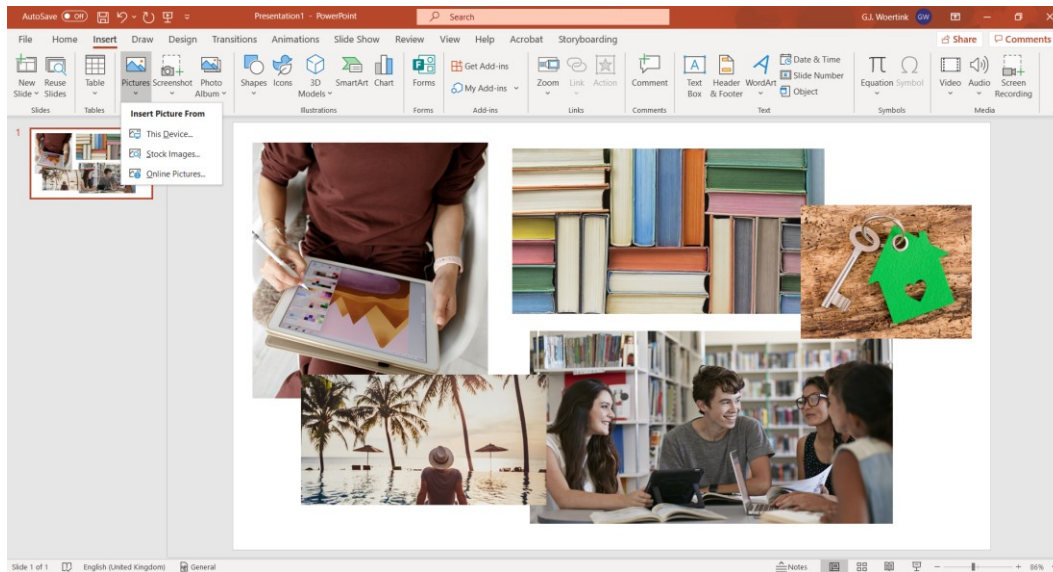
| <b>Time</b>   | <b>Action</b>  | <b>Explanation</b>  |
|---------------|--|---|
| 5 min         | Introduction and chitchat                                    | Goal is explained and talk about the present  |
| 5 min         | <i>Only for sensitization condition: talk about toolkits</i> | Shortly discuss the experience of filling in the sensitization materials                    |
| 5 min         | Explain exercise: make a collage of the near future          | Use these pictures and words to express how you feel about the upcoming half a year         |
| 10 min        | “Make part”  | Make the collage via PowerPoint   |
| <b>5 min</b>  | <b>“Say part”</b>  | <b>Present collage</b>  |
| <b>30 min</b> | <b>Discussion</b>  | <b>Talk about the collage and the participant’s experience and thoughts about the topic</b> |
| 1 min         | Distribute questionnaire                                     | Questionnaire is given and filled in  |
| 4 min         | Debriefing   | Real goal of the study is explained   |
| ≈ 60 min      |  |   |

The participants had to make a collage about the upcoming half a year and this collage was used as a base for the rest of the interview. Making a collage is a frequently used technique to help people access their needs and values (McKay et al., 2006; Visser, 2005). As is explained in section 2.2, generative studies often contain generative techniques belonging to “Say”, The “Make” and “Say” parts are generally followed by each other and this is also the case in this study, by letting the participants make a collage (“Make”) and then presenting it to the interviewer (“Say”). The Make tools are claimed to reveal the deeper levels of knowledge and

access latent knowledge about the participants, which is an important goal of generative research (Sanders & Stappers, 2012). An example of how such a collage can look can be found in Figure 6.

**Figure 6**

*Example of a collage in Microsoft PowerPoint*



#### 3.4.4 Questionnaire

To get insight in possible other differences between the conditions and get additional insights in the results and hypotheses, an online questionnaire was made and distributed after every generative interview. The questionnaire was made with Qualtrics (qualtrics.com) and can be found in Appendix D. It contained mainly statements about the experience of the participants, did they find it uncomfortable, did they have the feeling they were prepared well for the session, and did they have the feeling they came in with an open mind. Additional questions were about whether they had the feeling they were able to express themselves and their needs. The statements were answered with a 5-points Likert scale so that the data was quantifiable. After these closed questions, there was some room left for comments. The goal of the questionnaire was to get additional insights about the participants and how they went into

the interview and whether there was a difference between the two groups in their perception of their self-reflection and memory-sharing.

### **3.5 Procedure**

The procedure of this study roughly follows the standardized plan for generative design research, as stated in the Convivial Toolbox (Sanders & Stappers, 2012) (appendix E). When the participants were recruited and informed, they received and signed a consent form via Qualtrics (qualtrics.com) which let them agree to and audio-record the interviews and record the collage-making and use this data and the answers to the questionnaire in this study. For the group in the sensitization condition, this also included the consent to use the data from the sensitization toolkits. Both forms can be found in Appendix A.

However, participants were not fully informed about the study at this point, which means they did not all information prior to signing this “informed” consent. Since the goal of the study was something else than it had to seem, it involves incomplete disclosure; the real intentions of the study are not shared with the participants beforehand to prevent a bias (McNallie, 2017). The study in the consent form at the beginning is explained as a study with the goal to get insight into the future plans of master’s students by discovering their needs and wishes. The real goal of the study, to get insight in the effects of sensitization, was told to the participants at the end of the research, with the debriefing.

After the consent forms were returned signed, the generative interviews were scheduled. One week before the interviews, the group in the sensitization condition received the sensitizing materials in Milanote. The other group did not get any additional information or materials. The group in the sensitization condition filled in the questions of the sensitization of the 7 days in their own time and environment. The materials were saved for use during the analysis. Using sensitization materials for analysis is still discussed in literature since the goal of these materials is not necessarily meant to acquire data from, but it can give useful insights (Sleeswijk Visser et al., 2005). For this study it was considered important to also get insight in

the completed sensitizing materials since it might give insight in whether self-reflection or shared memories (or other expressions) were inspired by the sensitizing materials. For example, if the memories that participants shared during the generative session were the same as they mentioned in the sensitizing materials, this could imply a connection.

The generative interviews were conducted one-on-one by the same researcher. All interviews were audio-recorded for transcribing the interviews. The interview started with a small chitchat to try to get the participant comfortable and then the participant was asked to open PowerPoint and make a collage about how they felt about the upcoming half a year. They were made clear that this was free to interpret, and could contain study-related events, but also things they were expecting to encounter in their personal lives. After the participant made the collage, they were asked to present it and tell why they chose certain imagery. The rest of the interview consisted of using the laddering technique to get more insight in why the imagery that was chosen was important to the participant, and why that is important to them.

The focus of the interviews was on the stories of the participants and it aimed at developing an understanding of the context and experiences of the participant. The plan and timetable of the interviews is described in the materials section. At the end of each interview, the participant filled in a questionnaire and finally they were elaborately debriefed about the real goal of the research. The sensitization toolkits and interviews were conducted in Dutch, so the mentioned quotes are translations.

## **3.6 Analysis**

### *3.6.1 Approach for analysing the interviews*

The approach for analysing the transcripts of the interviews was a combination of an inductive and deductive analysis. Since the current study has two hypotheses based on expectations from the literature, codes were made beforehand and deductive analysis was used to get insight in these hypotheses about self-reflection and memory-sharing. The codebooks can be found in Appendix F.

To stay open-minded to new insights and differences between the conditions, inductive / open coding was also conducted, guided by the data. These codes were later added to the codebooks. The codes from the codebook used for deductive coding were based on indications of expressions of self-reflection and memory-sharing. This is elaborated in the sections 3.6.2 and 3.6.3. The coding was done using the qualitative data analysis tool ATLAS.ti (atlasti.com).

A scheme of the analytical approach is shown in Figure 7 and shows the different phases of the analysis. As can be seen in this figure, the sensitizing materials were also considered during the analysis. The completed materials were returned and used to compare to the codes and findings of the analysis. By keeping the materials next to the transcripts, several expressions of self-reflection and shared memories could be found back in the sensitization materials. These cases were considered during the discussion of the results. Of course, the materials could only be used for the condition that was sensitized.

#### 3.6.1.1 *Self-reflection codes*

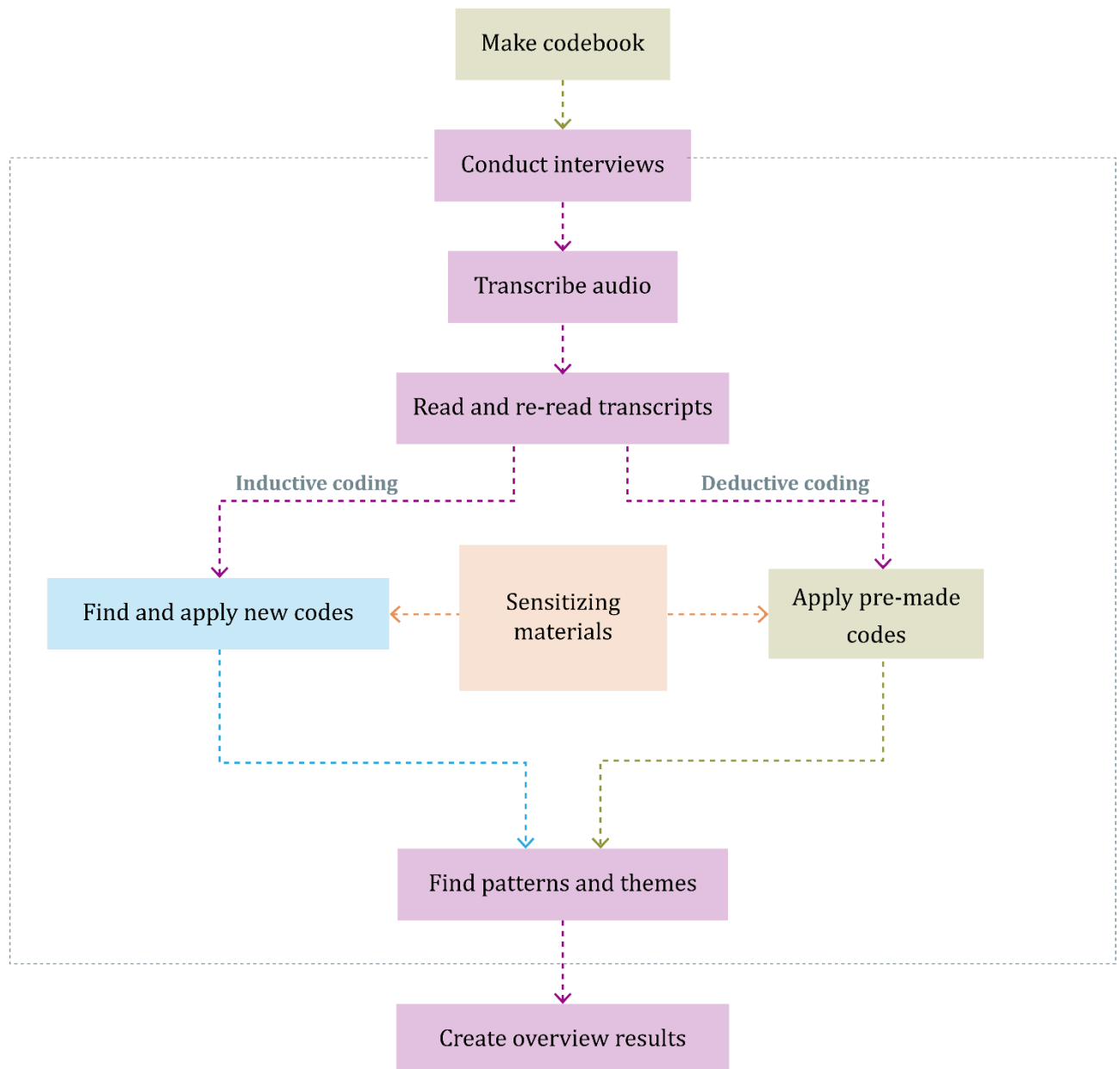
To get insight in how many times the participants expressed signs of self-reflection, several codes were decided on beforehand. Sleeswijk Visser, Sanders & Stappers (2005) describe in their study how self-reflection can be recognized during interviews or group sessions with the following example: “... *Well, in the workbook I have drawn what my kitchen looks like and I realised that there is just too much stuff, but I like it, because it is my stuff*”. In this example, the participant refers to the sensitization package and reflects on their own experience of the place. For recognizing expressions of self-reflection, a list of expressions was made and included in the codebook (Appendix F). Examples include using the word “realize” or phrase “this got me thinking”. Besides this list, the aim was to keep an open mind during the interviews and analysis and also consider expressions of self-reflection that were not considered beforehand, such as *reflection in general*, and *reflecting by comparing*.

### *3.6.1.2 Memory-sharing codes*

Next to formulating codes that show self-reflection, there were also codes made to get insight in how many times participants shared memories. Sanders & William (2001) state that sensitization toolkits evoke and activate memories of participants. In the generative session, the collected memories would then likely be shared (Sanders & Stappers, 2012). To get insight in whether participants share their memories, a list of codes for this category were also added to the codebook (appendix F). Examples include phrases such as “I remember that ...” or talking about experiences in the past time. These are indicators that people are sharing their memories (Neumann et al., 2017). However, coding is more of an interpretative act than a precise science (Saldaña, 2013). So, just as with self-reflection, this analysis will also be open to consider codes that were not considered beforehand, such as when a memory contained emotional content.

### *3.6.2 Approach for analysing questionnaire*

The results of the Likert scale questionnaire were exported from Qualtrics to Excel and visualised in simple graphs. The data was analysed with a descriptive analysis and compared to the findings of the interviews and sensitizing materials. Especially the answers on the questionnaire of participants that stood out were retrieved to find explanations or compare whether they also confirmed this themselves. For example, when participants showed many signs of discomfort during the interview, their results were retrieved from the questionnaire data to get insight in whether they also felt uncomfortable during the interview themselves.

**Figure 7***Scheme of analytical approach*

## 4. Results

The main goal of the current study was to get insight in the effects of sensitization. More specifically, it focused on whether participants that were sensitized expressed more signs of self-reflection and whether they shared more memories than the participants in the non-sensitization condition.

### 4.1 Questionnaire

Before looking at the qualitative analysis, the questionnaire is shortly discussed. Table 3 shows the descriptive results with the means and standard deviations of the data. These are the means of the Likert scale, considering that 1 = totally disagree and 5 = totally agree. The condition with the highest mean is marked yellow.

In general, the sensitization condition scored higher for most statements. Only for the statements about discomfort and self-reflection, the non-sensitization condition scores higher. It seems that all participants went into the study with an open mind: the means and standard deviations for this statement were the same for both conditions. The non-sensitization condition seemed to feel less prepared than the sensitization condition. However, it has to be mentioned that the data is spread out for most statements, which means that the individual differences are big. Thereby, comparing the means of the two conditions, it can be seen that the differences are quite small, which means that the survey did not show significant differences between the conditions for most statements.



**Table 3**

Results questionnaire: mean and standard deviation of both conditions. 5-point Likert scale: 1 = totally disagree, 5 = totally agree. The condition with the highest mean has been marked yellow.

|                       | Condition 1 (non-sensitized) | Condition 2 (sensitized) |
|-----------------------|------------------------------|--------------------------|
| Topic of statement    | Mean (SD)                    | Mean (SD)                |
| Discomfort            | 2.14 (1.25)                  | 1.71 (0.45)              |
| Well prepared         | 3.14 (1.46)                  | 3.57 (0.73)              |
| Open mind             | 4.71 (0.45)                  | 4.71 (0.45)              |
| Able to express needs | 4.29 (0.70)                  | 4.57 (0.73)              |
| Self-reflection       | 4.71 (0.45)                  | 4.57 (0.49)              |
| Recall memories       | 4.43 (0.49)                  | 4.71 (0.45)              |
| <i>Share memories</i> | <i>4.29 (0.70)</i>           | <i>4.57 (0.49)</i>       |

## 4.2 Reflection

One of the themes that came forward from the analysis of the interviews was *Reflection*. This theme contains several types of reflection which are elaborated to give some more context on how these types were coded. The concise codebook for the category *Reflection* which also includes an example for each code can be found in Appendix 7.6.1.

### 4.2.1 Codes of reflection

The interview fragments that contained reflection in general could be characterised by participants reflecting on a certain topic or something else. An example of an interview fragment that was coded as *Reflection in general* is the following answer on why it is important for this participant to have social contacts: "I think that that is a feeling of belongingness". This fragment shows that the participant has a general thought about why a person would need

social contacts, not necessarily applied on herself. Therefore, this was recognized as a reflection in general.

*Reflecting by comparing* is comparable to *Reflection in general*, only for this type, a participant would reflect on a topic or situation by comparing it to something else. An example is: “My parents are not that structured, so that shows who I got that from”. In this case, the participant reflects on her own trait (not being structured) by comparing herself to her parents who are also unstructured.

The type that was recognized as *Self-reflection* came forward from the literature, which suggests that the sensitization condition would show more signs of self-reflection than the non-sensitization condition. This type was identified most often from all types that show signs of reflection. In total, 366 fragments were coded with this type. Two examples are: “I am really a procrastinator, also in my studies”, and “I am a companion animal, so I like to have people around me.” Characteristics of this type of reflection is that it is about the participant themselves instead of a reflection on a topic or situation in general.

Another sign of reflection is when participants realised something. This shows that they can reflect, sometimes even in the moment. This type is called *Realisation*. Interview fragments were for example coded with *Realisation* when they concluded something from their own story (“so actually, my life satisfaction depends on other people”), but also when they realized something in the past (“when I went to Russia, I realised that it was not as incomprehensible as I expected it to be”).

Participants also reflected by talking about their deeper values, which is the fifth type of reflection. This did not happen often as in all interviews only 25 fragments were coded with this type of reflection. An example is “I find it important that people know they can come to me with their struggles and that they feel comfortable when they are with me.”

The last type of reflection is characterised by people reflecting on what they tell by saying that others probably also do or think this and is called *Thinking that other people also do this*. In this way, they are reflecting on their answers during the interview. For example: “the

main reason for me to work is to earn money, I think that everyone would say this". It could also be a search for recognition with the interviewer, for example "I am going to miss doing things on my own time, you might recognize that yourself."

#### 4.2.2 *Results reflection*

Table 4 shows how many fragments from the interviews in both conditions were traced back to these six types of reflection. The first column of the conditions shows the count and row-relative frequencies. On the left are the absolute numbers of the amount of interview fragments that were coded with the specific types of reflection, and on the right are the percentages which show how these numbers relate to the other condition percentagewise. The total of the row-relative frequencies is therefore always 100%. The second column shows the mean and standard deviation to give insight in the distribution and variation of the data. This is meant to get some insight in the individual differences in the count of the interview fragments per type. The mean is the total count per type divided by seven participants, and the standard deviation shows the distribution of the data. The larger the standard deviation, the more varying the data set. Due to the small sample size, there were no statistical analyses conducted. To still give insight in more remarkable differences, the cells of the condition that has a row-relative frequency higher than 60% is marked yellow. This means that well over half of the interview fragments for that code belongs to that condition.

Since a part of the interview fragments were coded with more types of reflection (e.g., when a fragment contained signs of self-reflection, but also showed a deeper value), the totals of the rows count the same fragment multiple times. To also give a clear insight in the count of interview fragments for this category, the last row omits this overlap.

**Table 4**

*Results category Reflection; showing the count, row-relative, mean and standard deviation of both conditions*

| <b>Codes</b>                               | <i>Condition 1 (non-sensitized)</i> |                     |                          | <i>Condition 2 (sensitized)</i> |                     |                          |
|--|-------------------------------------|---------------------|--------------------------|---------------------------------|---------------------|--------------------------|
|  | <b>Count</b>                        |                     | <b>M (SD)</b>            | <b>Count</b>                    |                     | <b>M (SD)</b>            |
| Reflecting in general                      | 54                                  | 28,1%               | 8 (2.96)                 | 138                             | 71,9%               | 20 (5.60)                |
| Reflecting by comparing                    | 14                                  | 42,4%               | 2 (2.78)                 | 19                              | 57,6%               | 3 (1.98)                 |
| Self-reflection                            | 168                                 | 45,9%               | 24 (14)                  | 198                             | 54,1%               | 28 (8.92)                |
| Realisation                                | 138                                 | 45,6%               | 20 (9.21)                | 146                             | 51,4%               | 21 (6.71)                |
| Deeper value                               | 7                                   | 28,0%               | 1 (1.69)                 | 18                              | 72,0%               | 3 (2.26)                 |
| Thinking other people also do so           | 10                                  | 52,6%               | 1 (2.13)                 | 9                               | 47,4%               | 1 (1.28)                 |
| <i>Totals</i>                              | <i>391</i>                          | <i>42,5%</i>        | <i>56 (22.68)</i>        | <i>528</i>                      | <i>57,5%</i>        | <i>75 (17.32)</i>        |
| <b><i>Reflection (overlap omitted)</i></b> | <b><i>285</i></b>                   | <b><i>45,2%</i></b> | <b><i>41 (17.14)</i></b> | <b><i>346</i></b>               | <b><i>54,8%</i></b> | <b><i>49 (11.39)</i></b> |

*Note.* Cells are marked yellow when a condition has a row-relative higher than 60%.

When grouping the Reflection codes and omitting the overlapping cases, it seems that the participants that were sensitized show overall more signs of reflection (55%) with reference to the participants that were not sensitized (45%). However, for most types, the differences between the two conditions seem to be too small to interpret and draw conclusions from.

The two types that have larger differences between the conditions are the expressions of reflection in general and participants expressing their deeper values. For both types, more than 70% of the fragments that indicated these types of reflection were obtained from the sensitization condition. It seems that the participants in the sensitization condition reflected on things in general and share their deeper values. However, interpreting the standard deviation, it can be seen that the data is widely spread out from the mean, which implies that the individual differences were large.

Since the literature seems to expect an effect of sensitization on self-reflection, it is interesting that there is no clear difference between the conditions for this type of reflection. Just a bit more than half of all interview fragments that contain an expression of self-reflection was coming from the sensitization condition. However, the individual differences in the non-sensitization were big; one participant only made 4 self-reflective statements, while two others made more than 40 statements that showed signs of self-reflection. In comparison, the participant from the sensitization condition with the most statements that were coded as self-reflection also had around 40 statements.

One of the two participants from the non-sensitization condition that had the most statements that showed self-reflection, shared that she had been in therapy in the past, where she learned to reflect on herself. In the survey, she commented that she could not say she was well prepared for the interview, but that she did not find that “a must”. She comments that the story during the interview was clear and that she was guided well through the conversation.

### **4.3 Memory-sharing**

To get insight in the way and amount that participants shared memories, two codes were defined beforehand and were not changed during the analysis. The concise codebook can be found in Appendix 7.6.2, and the descriptive data in Table 5.

#### *4.3.1 Codes of memory-sharing*

When participants talked about their memories or about the past during the interviews, this was coded as *Memory / Past*. This could be memories from a few years ago, such as “I once thought about going to Utrecht for work, but I did not do that because I realised that I could not get a nicer house or place there.”, and “When I was in Moscow before the Covid-19 pandemic, I planned to go to a drink of my student association when I would be back.” It could also be memories from their childhood, such as “As a child, I used to be pretty fat and I lost 15 pounds

due to engaging in sports.”, or fragments where participants talk about the near past, such as “I noticed that I did not really settle down mentally last weekend”.

In some cases, participants were very open about their memories and enriched them by linking them to their emotions. For these memories, the code *Memory (emotional content)* was added. For example, one participant shared that she “used to feel very much like I couldn't meet other people's expectations, especially towards my parents. Because I was oldest child, they had very high expectations of me and that I would receive good grades in school, in all subjects.” Oftentimes, the addition of emotional content revealed something about the deeper feelings and values of the participant. In the example above, the feelings of the participant were that she felt like she could not meet the expectations from other people. Another example from a participant who shares a memory with an emotional load that also reveals her values and feelings is the following: “I think friendship is very important. When I was a child, I have often moved, and I had to start over every time, making new friends at every new place, while everyone there had known each other for years. [...] So, yes, I think that fostering friendships is very important.”

#### 4.3.2 *Results memory-sharing*

Looking at the counts in Table 5, the differences between the two conditions are very small. It seems that the difference for the memory with emotional content is bigger, although this differs largely on a personal level. The results cannot prove a clear difference between the two conditions, although more memories of the non-sensitization condition seem to contain emotional content. The content of the memories was also explored, but it seemed that the memories that were shared during the generative sessions were not necessarily based on the memories that were shared in the sensitization toolkits: in most cases people shared different memories than they mentioned in Milanote.

**Table 5**

*Results codes Memory-sharing; showing the count, row-relative, mean and standard deviation of both conditions. Cells are marked yellow when a condition has a row-relative higher than 60%.*

| Codes                           | Condition 1 (non-sensitized) |       |           | Condition 2 (sensitized) |       |           |
|---------------------------------|------------------------------|-------|-----------|--------------------------|-------|-----------|
|                                 | Count                        |       | M (SD)    | Count                    |       | M (SD)    |
| Memory / Past                   | 73                           | 50,7% | 10 (3.95) | 71                       | 49,3% | 10 (4.52) |
| Memories with emotional content | 26                           | 61,9% | 4 (2.11)  | 16                       | 38,1% | 2 (1.03)  |

*Note.* Cells are marked yellow when a condition has a row-relative higher than 60%.

#### 4.4 Lack of preparation

Besides self-reflection and memory-sharing, it was also interesting to see whether the preparation had impact on how comfortable the participants were during the interviews. Since the participants in the sensitization condition had the chance to prepare themselves and already answered some personal questions during the sensitization period, they might be more prepared for an interview that would go in depth about their personal values and needs than the non-sensitization condition, who might not be aware how personal the interview would be. The codebook can be found in Appendix 8.6.5 and the descriptive data in Table 6.

One sign that showed a lack of preparation was when participants asked for clarification. For example: “I don’t quite understand the question. Do you mean whether I think that that is important to do?”. It must be noted that asking for clarification does not directly mean that someone was not prepared well, but it was coded to see whether there were visible differences between the conditions that might indicate this.

The other code belonging to the theme *Lack of preparation* was *Discomfort*. An example of an interview fragment that shows that the participant felt uncomfortable during the interview is: “[Silence] Ehh Yes I... Have the feeling that I just answered this question... [...] Ehh I am wondering whether this is something you are curious about, or whether you are looking for

a particular answer, or whether you are..." Whether an interview fragment was recognized as an uncomfortable moment was decided by the interviewer with the subjectivity of the situation and conversation.

An interesting finding of this data in combination with the data from the questionnaire is that the three participants from the non-sensitization condition that showed signs of discomfort during the interview all reported back in the survey that they did not feel as they were prepared well at all or slightly. This is the reason why the discomfort might be linked to the preparation and that this was the chosen theme for these codes. In this case, the sensitization might act like a preparation, although one participant that was sensitized also reported back in the survey that she was not very well prepared for the interview. However, this might also be linked to her personal chaos and lack of preparation in general, for which she apologised numerous times during the interview.

Participant 1D and 1F showed most signs of discomfort, and participant 1D also confirmed this in the survey by admitting that the interview made him feel a bit uncomfortable. He commented that "the method of Socratic questioning is nice, but it feels one-sided. As a result, it doesn't really become a dialogue/discussion, but a kind of questioning fire. You actually want both sides in a conversation to open up". For the interviewer herself, this particular interview also felt quite uncomfortable since the participant arrived the point that he seemed to understand the method of laddering (keeping asking "why is that important to you?") which backfired into that he was not able or willing to answer the questions to a deeper or personal point. This blocked the openness in the rest of the interview which made it hard to access the deeper values and needs of this participant.



**Table 6**

*Results codes Lack of preparation; showing the count, row-relative, mean and standard deviation of both conditions. Cells are marked yellow when a condition has a row-relative higher than 60%.*

| <b>Codes</b>                               | <i>Condition 1 (non-sensitized)</i> |              |                 | <i>Condition 2 (sensitized)</i> |              |                 |
|--|-------------------------------------|--------------|-----------------|---------------------------------|--------------|-----------------|
|  | <b>Count</b>                        |              | <b>M (SD)</b>   | <b>Count</b>                    |              | <b>M (SD)</b>   |
| Ask for clarification                      | 9                                   | 50,0%        | 1 (1.03)        | 9                               | 50,0%        | 10 (4.52)       |
| Discomfort                                 | 13                                  | 81,3%        | 2 (2.85)        | 3                               | 18,8%        | 2 (1.03)        |
| <b><i>Lack of preparation (totals)</i></b> | <b>22</b>                           | <b>64,7%</b> | <b>3 (3.00)</b> | <b>12</b>                       | <b>35,3%</b> | <b>2 (1.48)</b> |

*Note.* Cells are marked yellow when a condition has a row-relative higher than 60%.

#### **4.5 Future needs**

An important goal of generative research is getting insight into the user's (future) needs. During the analysis, it was coded when participants talked about their future and expressed certain needs or hopes. The results can be found in Table 7 and show that the participants that were sensitized referred slightly more to their future during the interview than the participants that were not sensitized. However, as can be seen in the standard deviations, the data is widely spread out from the mean, which means that the individual differences were large. Thereby, the differences between the two conditions are relatively small: no condition had more than 60% of the weight.

**Table 7**

Results codes Future needs; showing the count, row-relative, mean and standard deviation of both conditions.

| Codes                                 | Condition 1 (non-sensitized) |              |                  | Condition 2 (sensitized) |              |                  |
|---------------------------------------|------------------------------|--------------|------------------|--------------------------|--------------|------------------|
|                                       | Count                        |              | M (SD)           | Count                    |              | M (SD)           |
| Future                                | 79                           | 47,6%        | 11 (4.46)        | 87                       | 52,4%        | 12 (4.78)        |
| Need or wish                          | 42                           | 43,8%        | 6 (1.69)         | 54                       | 56,3%        | 8 (3.06)         |
| Totals                                | 121                          | 46,2%        | 17 (5.95)        | 141                      | 53,8%        | 20 (6.64)        |
| <b>Future needs (overlap omitted)</b> | <b>109</b>                   | <b>47,4%</b> | <b>16 (5.58)</b> | <b>121</b>               | <b>52,6%</b> | <b>17 (5.50)</b> |

Note. Cells are marked yellow when a condition has a row-relative higher than 60%.

## 4.6 Self-consciousness

One of the goals of sensitization is to make people reflect on themselves, but also to make them aware of their actions and feelings (Sanders & Stappers, 2012). This would be seen back into generative sessions and help the design researcher to get more insight in their target group. During the analysis, the theme of *Self-consciousness* came forward from added codes, which covers this topic of being aware of one's own actions and feelings. The concise codebook for this category can be found in Appendix 8.6.3. The codes *Self-reflection* and *Realisation* were added to the theme since these two codes also show that a participant is self-conscious.

### 4.6.1 Codes of self-consciousness

The theme of *Self-consciousness* consists of different codes. When participants talked about their own actions, this was coded as *Own actions*. This did not have to contain a reflection on the action but would show the awareness of one's own actions. For example: "In my student house, I also am quite busy with networking and connecting with my fellow roommates and friends from my student", or "I am now also quite involved with the youth of the ChristenUnie

[political party], to discover that and try it out. I am currently busy with that and planning on continuing with it." Often, the interview fragments that included *Own actions* also contained signs of self-reflection ("I am currently joining the feedback meetings of my study [...] because I think it is important to contribute to that; if I only complain to the wrong people, nothing will change.") or feelings ("I currently play volleyball a lot, and I am very happy about that.").

The interview fragments where people expressed their feelings were coded with *Feelings*. When they expressed their feelings, this showed they are aware of them, which shows a certain self-consciousness. Whether these feelings were positive or negative was not noted, the focus was on whether they showed awareness of their own feelings. For example: "I am currently applying for a job at Lidl, and I am super enthusiastic about that", or "to be honest, I am struggling with the transition from student to the working life".

The feelings participants expressed were often accompanied with one's thought process and questions. This was another category and was coded separately to see whether one condition would consider more questions or have another thought process. An example of an interview fragment which shows a thought process guided by questions is the following: "I am also thinking about the following: imagine that you stop studying and you leave, or you get a job. Who are then important in your network? Who would you want to keep in contact with? And who are the friends of your study with whom the contact will disappear? In which friendships will you put effort into?"

Another sign of self-consciousness was when participants used an example to explain something. By using an example, they could express a certain situation more clearly, which shows a certain amount of self-consciousness about a situation or feeling. An interview fragment that shows this is the answer on whether the participant had gained insights from her student days, she said that she did not really know something specific, and that "I do not really know the difference, because for example at my work, it also feels like a big group of students, while some people are already around 30 years old".

#### 4.6.2 Results of self-consciousness

Looking at the results (see Table 8), it can be seen that for almost every code, the results of both conditions are close to each other. It only stands out that it seems that the participants in the sensitization condition talked more about their own actions than the participants in the non-sensitization condition. However, the means and standard deviations show that the data is widely spread out from the mean, which means that the individual differences were big.

**Table 8**

*Results codes Self-consciousness; showing the count, row-relative, mean and standard deviation of both conditions. Cells are marked yellow when a condition has a row-relative higher than 60%.*

| Codes  | Condition 1 (non-sensitized) |                     |                          | Condition 2 (sensitized) |                     |                          |
|--|------------------------------|---------------------|--------------------------|--------------------------|---------------------|--------------------------|
|  | Count                        |                     | M (SD)                   | Count                    |                     | M (SD)                   |
| Own actions  | 26                           | 35,1%               | 4 (2.66)                 | 48                       | 64,9%               | 7 (5.44)                 |
| Feelings   | 79                           | 44,1%               | 11 (6.88)                | 100                      | 55,9%               | 14 (3.49)                |
| Questions / own thoughts                               | 105                          | 42,5%               | 15 (4.72)                | 142                      | 57,5%               | 20 (6.92)                |
| Example  | 30                           | 40,5%               | 4 (1.98)                 | 44                       | 59,5%               | 6 (2.60)                 |
| Self-reflection  | 168                          | 45,9%               | 24 (14.00)               | 198                      | 54,1%               | 28 (8.92)                |
| Realisation  | 138                          | 45,6%               | 20 (9.21)                | 146                      | 51,4%               | 21 (6.71)                |
| <i>Totals</i>  | <i>546</i>                   | <i>44,6%</i>        | <i>78 (33.05)</i>        | <i>678</i>               | <i>55,4%</i>        | <i>97 (22.42)</i>        |
| <b><i>Self-consciousness<br/>(overlap omitted)</i></b> | <b><i>348</i></b>            | <b><i>46,4%</i></b> | <b><i>50 (21.05)</i></b> | <b><i>402</i></b>        | <b><i>43,6%</i></b> | <b><i>57 (10.13)</i></b> |

*Note. Self-reflection and Realisation also belong to the theme Reflection (see 4.3.1), and cells are marked yellow when a condition has a row-relative higher than 60%.*

#### 4.7 Referring to the sensitization materials

To get more insight into the effects of sensitization, it is interesting to consider how many times participants referred to the sensitizing materials during the interviews. The analysis showed that 5 out of 7 participants referred to Milanote once or twice in their interview and the other two participants did not refer to Milanote at all.

The references to the sensitization materials were often done explicitly, by saying that they are referring to Milanote (“Last week I put in Milanote that...”). Once it was also implicitly, talking about “that broken friendship”. Most sensitized participants asked whether the interviewer had read the things they submit to Milanote, and then referred to that. The times that participants referred to the sensitization materials, they often talked about the past and/or reflected on themselves.

It also seemed that participants realized things due to the reporting of their actions in the sensitization materials. For example, one participant reflected on himself due to the sensitization, in the interview he told that “the scary part is that I don’t know exactly what I am going to do. I did, in Milanote, write down “okay, these are things that I may want to do”, because at that moment I had the feeling I wanted to do that. However, in general I think that that will become difficult, to ultimately see what I want to do.” Another example is a participant who asked whether the interviewer had read the sensitization materials and said that “you probably noticed that I have been doing a lot of random things in between stuff. So, that I was studying, but suddenly thought about doing sports and then I had the feeling I had to do that first before going back to studying. But actually, I would prefer a separation between work and relaxation.”

## 5. Discussion

The main goal of the current study was to get insight in the effects of sensitization to get insight in to whether the claims about sensitization can be supported. The main focus was on whether participants that were sensitized expressed more signs of self-reflection and whether they shared more memories than the participants in the non-sensitization condition. Other differences between the two conditions were also explored to get insight in possible other effects of sensitization.

### 5.1 Self-reflection

Looking at the literature, it was expected that participants that participants who had been sensitized show more expressions of self-reflection than participants who had not been sensitized. This hypothesis comes forward from the claim from Sleeswijk Visser, Sanders & Stappers who say that “the main objective of the sensitizing tools, is to establish *self-reflection* on the part of the participants, which is then harvested during the generative sessions.” (Sleeswijk Visser et al., 2005, p. 126).

Despite the hypothesis that sensitized participants would show more signs of self-reflection, this was not clear from the results of the current study. The differences between the two conditions are too small to interpret and draw clear conclusions from. Although it seemed like the sensitization condition reflected more in general and shared more of their deeper values, the data was widely spread out from the mean, which means the individual differences were big.

The current study offers a possible explanation for the individual differences for the theme of *Reflection*. The non-sensitization condition contained two participants who were outliers and reflected a lot relatively to the other participants from this condition. After the interview of one of those two participants, the participant shared that she had been in therapy in the past, where she learned to reflect on herself. She explained that she already considered and formulated answers for these types of questions before. This might be explained with the

claims of Sas and Dix (2009) who explain that reflective skills can differ among people since this capability can be trained. Although reflection has many benefits, many people would have underdeveloped reflective skills. Hence it might be discussed whether the participants who reflected a lot during the interview would have better developed reflective skills, for example by going to therapy in the past.

Reflective capabilities seem to be personal, which could explain the individual differences for this category. To research the impact of the sensitization materials on reflection and self-reflection, it might help to first get insight in the reflective skills of the participants. After the generative sessions, the participants with comparable reflective skills could be compared which might offer a more objective result to the effect of sensitization on reflection.

The current study also conducted a survey, in which the participants were asked whether they felt like they were able to reflect on themselves during the study. The results of this question did not show differences between the two conditions: all participants felt like they were able to reflect on themselves. This result would imply that sensitizing participants or not does not have an impact on their own view on whether they are able to reflect.

## **5.2 Memory-sharing**

Besides the hypothesis that sensitized participants would reflect more on themselves than non-sensitized participants, it was also expected that sensitized participants would share more memories because they would have collected them during the sensitization period. Looking at the results of the current study, this hypothesis is rejected. The results suggest that people that are sensitized do not necessarily share substantially more memories, and the memories with more emotional content are even shared more by the non-sensitized group. It seems that the assumptions of Sleeswijk Visser, van der Lugt, Sanders and Stappers (2005) about that collecting memories during sensitization would be shared easier during a generative session are not supported.

For the sensitized participants, the memories that were shared were not necessarily the memories that they collected during the sensitization period. This is in line with Kirk and Sellen (2010) who found that participants do not always share their memories, even if they collected them with the help of momentos. This means that trying to collect memories with the use of sensitization materials might not add to how many memories participants share during generative sessions.

Although the memories often did not contain emotional content, it seemed that the memories that *did* contain emotional content also contained deeper feelings and values. This seems to be in line with Mols et al. (2014) who claim that human values are often found in one's memories. They suggest that values often come forward in memories when a certain memory has a big influence on someone's life or when it shows something about their character. This could be an explanation of the times that the memories with emotional content showed the deeper values of a participant. However, it is interesting to notice that this does not seem to be influenced by the sensitization period, since the participants in the non-sensitization condition shared more memories with emotional content. Therefore, although memories might indeed reveal human values, sensitization does not seem to influence this.

### **5.3 Lack of preparation**

Although the results do not show clear differences between sensitized and non-sensitized participants for self-reflection or memory-sharing, there seems to be a difference in how comfortable and well-prepared participants felt. The participants in the non-sensitization condition showed more signs of discomfort and the survey showed that they were less prepared in comparison to what the sensitized participants indicated.

Preparing participants for generative sessions is also one of the goals of sensitization, but the question is whether this is in proportion with time and effort. Researchers and designers as well as the participants spend time and effort by developing or engaging with the sensitization materials. The question raises whether participants can also be prepared for



generative sessions in a less labour-intensive way. The participants could for example receive a simple instruction about what to expect during the generative session, that it can become quite personal. This might take away some of the discomfort already because participants could have more realistic expectations. Future work could investigate different ways of preparing participants before generative sessions to get insight in the effects and to explore whether there is a more effective and less labour-intensive way of preparing participants than sensitizing them.

#### **5.4 Self-consciousness**

Besides the lack of preparation, another theme came forward: self-consciousness. The results seem to suggest that participants who are sensitized are more aware of themselves and their actions than non-sensitized participants. It could be discussed whether this difference has to do with the sensitization. The current research did not find clear signs that this would be the case, and the individual differences were big.

Another point of discussion is whether self-consciousness adds value to the information design researchers want to know about their target group, and whether it reveals their deeper values or needs. This can be a topic for future research where it could be investigated whether deeper values or needs are revealed in the descriptions of participants' own actions. Since Sanders and Stappers seem to focus on self-consciousness and the sensitization materials also often focus on becoming aware of one's own actions (e.g., by keeping a diary), they might also expect that this helps to access participants' deeper needs and values.

## 6. Limitations and future work

To get insight into what extent the current research can be generalized to generative research in general, the limitations and possibilities for future research are discussed. The current study chose to conduct individual sessions while generative sessions are also often conducted in groups. This might influence the effects of sensitization that the current study did not consider. Therefore, the results of this study might not be totally representative for generative research in general. However, since the current study could not confirm the claims of Sanders and Stappers, future research could investigate their claims in the context of generative group sessions. This could have a similar structure as the current study, but then with small groups of participants instead of individual sessions.

Besides the researching the same for group sessions, it could also be interesting to conduct the current research on a larger scale. Although the study stopped interviewing when data saturation was reached, the results often showed many individual differences. Most data were widely spread out from the mean. Future research could conduct the current study with more participants and try to generalize these individual differences. The results could also be quantified and statistically analysed to get insight in possible significant differences between the conditions.

Another research direction could be researching the same study for a different target group and focus. The current research focused on university Master students and their view on the future, but the results might be different for another group and/or topic of study. For example, if elderly people were sensitized and had generative sessions about how they feel about their lives up until now, the results might differ. Elderly people might have different reflective skills or more memories to collect and share. The emotional content of memories and how aware they are of their deeper values and needs might also differ. Future research could investigate the impact of the target group and focus of study and its influence on the effects of sensitization.

As shortly discussed in the discussion, the current study did not have insight in the reflective capabilities of the participants although this seems to have an influence on how much they are able to reflect on themselves and in general. Future research could investigate the effects of participants' reflective skills by conducting a pre-test to get insight in these skills. After the generative sessions, the participants with comparable reflective skills could be compared. This might offer a more objective result to the effect of sensitization on (self-)reflection.

Considering the results and discussion of the current study, an interesting step for future research is to investigate the effects of other types of preparation for generative sessions. Different ways to prepare participants on interviews can be used and compared to each other to explore whether there is a more effective and less labour-intensive way of preparing participants than sensitizing them.

## **7. Conclusion**

The main goal of the current study was to get insight in the effects of sensitization. More specifically, it focused on whether participants that were sensitized expressed more signs of self-reflection and whether they shared more memories than the participants in the non-sensitization condition. In general, the current study cannot confirm the claims about the effects of sensitization. For both self-reflection and memory-sharing, no clear differences were found between the condition. However, in the condition that was not sensitized were less comfortable with the sessions and they also seemed somewhat less self-conscious about their own actions. Since the most important claims about sensitization were not confirmed, the question raises whether it is necessary to make elaborate sensitizing toolkits, or that a simple preparation could also achieve the wanted results. Future work could investigate this and conduct the research on a larger scale, trying to generalize individual differences. Future work could also work with a pre-test to get insight in the reflective capabilities of participants.

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## **8. Appendices**

### **8.1 Appendix A: Consent Form**

#### *8.1.1 Non-sensitization condition*

Dear reader,

Thank you for your interest in my research. As agreed, this research consists of an online interview. I would like to explore the needs and desires of graduating master's students regarding the upcoming semester by having a conversation with them. During the interview, you will be asked to make a collage and we will talk about this. The session will last from an hour to an hour and a half. After my graduation you can ask for the results and the research. I would like to ask you to read and sign this consent form.

As a participant in this study:

- you will be asked to participate in an online interview via Zoom
- You will be asked to use PowerPoint on your laptop.
- You will be asked to complete a questionnaire.

Participation in these sessions is entirely voluntary. There will be audio recordings of the interview which will be transcribed upon completion. These recordings will be kept on Tilburg University's secure servers; only the researcher will have access. After transcribing, the recordings will be deleted and only the transcription will be used for further processing and analysis.

Anonymous quotes or excerpts from the audio recordings can be taken to add to the thesis report. You can withdraw your consent at any time and then your participation will be terminated immediately. You are free to discontinue your participation in the study at any time



and for any reason. If you have any questions, please contact me, or for further questions my supervisor or the ethics committee.

Kind regards,

Geanne Woertink

g.j.woertink@tilburguniversity.edu

Supervisor: Karin Slegers, k.slegers@tilburguniversity.edu

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In this informed consent form we kindly ask you to confirm the following:

- I have read and understood the information provided in the information letter. I have had the opportunity to ask questions and have had sufficient time to think about my participation.
- I understand that my participation in this study is completely voluntary and that I may withdraw from the study at any time, without adverse consequences and without giving a reason.
- I give permission for my data to be processed without linkage to my personal data for the research described in the information letter.
- I consent to the retention of my research data for a period of ten years.
- I voluntarily agree to participate in the current study.

By selecting 'I agree', I declare that I have read and agree to the terms and conditions above:

### *8.1.2 Sensitization condition and pilot testers*

Dear reader,

Thank you for your interest in my research. As agreed, this research consists of an online interview and some preliminary assignments that you will complete in the week before the interview. I would like to explore the needs and desires of graduating master's students

regarding the upcoming semester by engaging in conversation with them. During the interview, you will be asked to make a collage and we will talk through this. The session will last from an hour to an hour and a half. After my graduation you can ask for the results and the research. I would like to ask you to read and sign this consent form.

As a participant in this study:

- You will be asked to use the webapp Milanote in the preparation of the interview.
- You will be asked to participate in an online interview via Zoom.
- You will be asked to use PowerPoint on your laptop.
- You will be asked to complete a questionnaire.

Participation in these sessions is entirely voluntary. There will be audio recordings of the interview which will be transcribed upon completion. These recordings will be kept on Tilburg University's secure servers; only the researcher will have access. After transcribing, the recordings will be deleted and only the transcription will be used for further processing and analysis. The preparation for the interviews consists of answering questions and adding pictures in Milanote. These questions and photos are particularly about retrieving and reflecting on your personal experiences and memories. The answers and photos from Milanote will also be kept on those secure servers. After ten years of storage on the secure servers, all of this research data will be deleted. In Milanote itself, the data is encrypted, and they also work with secure servers.

Anonymous quotes or excerpts from the audio recordings or from Milanote can be taken to add to the thesis report. You can withdraw your consent at any time and then your participation will be terminated immediately. You are free to discontinue your participation in the study at any time and for any reason. If you have any questions, please contact me, or for further questions my supervisor or the ethics committee.

Kind regards,

Geanne Woertink

g.j.woertink@tilburguniversity.edu

Supervisor: Karin Slegers, k.slegers@tilburguniversity.edu

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In this informed consent form, we kindly ask you to confirm the following:

- I have read and understood the information provided in the information letter. I have had the opportunity to ask questions and have had sufficient time to think about my participation.
- I understand that my participation in this study is completely voluntary and that I may withdraw from the study at any time, without adverse consequences and without giving a reason.
- I give permission for my data to be processed without linkage to my personal data for the research described in the information letter.
- I consent to the retention of my research data for a period of ten years.
- I voluntarily agree to participate in the current study.

By selecting 'I agree', I declare that I have read and agree to the terms and conditions above:

## 8.2 Appendix B: Sensitizing Materials

### 8.2.1 Sensitization Materials in Milanote

Vraag van de dag invullen  
 Foto maken en vraag invullen  
 Dagboek vraag invullen

Dagboek:  
**Hoe was je dag? Wat heb je vandaag allemaal gedaan?**

Ik heb vandaag eerst rustig ontbeten en daarna een planning gemaakt om vervolgens te beginnen met studeren. Ik ben nu bezig met het maken van sectie 2.3 van mijn paper en probeer de literatuur over generatieve research op een rij te zetten. Vanmiddag ga ik tennissen en eten koken (of eigenlijk het eten van gisteren opnieuw opwarmen).

66 words

**Vraag van de dag: Waar ben je op dit moment mee bezig in je thesis proces?**

Ik ben nu bezig met de voorbereidingen van de data collectie. Ik maak de materialen die ik nodig heb en ga bezig met de instructies voor de deelnemers en met hen afspraken maken voor de interviews. Verder probeer ik de feedback in mijn verslag te verwerken en een theoretisch kader te schrijven.

**Plaats hier een foto van waar je vandaag hebt gestudeerd**

*Waar is dit en wat vind je van deze plek?*

In de woonkamer van mijn studentenhuus, vind dit wel een fijne plek om te studeren omdat hier 's ochtends de zon op staat. Maar als m'n huisgenootjes thuis zijn is het soms niet zo handig omdat het dan wel afleidend kan zijn.

Ruimte voor opmerkingen

Het is fijn dat de zon nu schijnt, doet me goed!

Day 1 filled in (custom)

## 8.3 Appendix C: Materials Interview

### 8.3.1 Outline interview

- How are you? What are you working on at the moment?

The purpose of my research is to gain insight into the experiences and desires of Master's students to find out what they need in the near future.

- What is your current status in terms of graduation and what are your experiences now?

Then you may open Powerpoint and use stock images and words to make a collage about how you feel about next semester. Take your time and let me know when you are ready.

- Will you present the collage to me and explain why you chose these images and words?

Guideline questions:

Why did these pictures appeal to you?

"Why is this important to you?"

- What are you looking forward to?
- What are you looking forward to?
- Are there things you are still uncertain about in terms of plans?
- What things would you like in the future but are putting off right now?
- How do you feel about this whole process of transitioning from student to citizen?
- What are you going to miss about your student days?
- What will you take with you into the coming year?
- Are there things that you currently miss, but have a need for? A particular platform or app, for example?

When saturated (no new themes come up):

Closing: questionnaire

[https://tilburghumanities.eu.qualtrics.com/jfe/form/SV\\_8kpwHJm9ChJPOxE](https://tilburghumanities.eu.qualtrics.com/jfe/form/SV_8kpwHJm9ChJPOxE)

Debriefing

## 8.4 Appendix D: Questionnaire

Demographics (gender, age, nationality, degree, degree program)

Likert scale 1-5: Totally disagree – Disagree – Neither agree nor disagree – Agree – Totally agree

1. The interview made me feel uncomfortable
2. I felt like I was well prepared for this interview
3. I came in this interview with an open mind
4. I was able to express myself and my needs
5. I reflected on myself due to joining this study

6. I collected memories due to joining this study
7. I could share my memories during this interview

You can leave additional comments here: \_\_\_\_\_[empty space]\_\_\_\_\_

## 8.5 Appendix E: Workplan generative design research

1. Find and review what is already known
2. Initiate the team(s)
3. Understand the current context of use/experience
4. Screen and recruit the participants
5. Plan what the participants will go through
6. Create the materials (e.g., sensitizing materials, session script, toolkits and checklist)
7. Pilot test the plan and the materials
8. Revise and produce the research materials
9. Sensitize the participants
10. Conduct the interviews or workshops
11. Document the data

## 8.6 Appendix F: Codebook deductive coding

### 8.6.1 Codes Reflection (hypothesis 1)

| Code                    | Description/definition   | Example   |
|-------------------------|--|---|
| Realisation             | The participant shares a realisation that they had about themselves                  | “I realise now that it is hard because of the pandemic”         |
| Reflecting by comparing | The participant compares something to their own experience or characteristics        | “My parents are not that structured, so I got it from somebody” |
| Reflection (in general) | The participant reflects on something in general, e.g., on a situation or an insight | “I think that that is something that has grown over the years”  |
| Self-reflection         |  |   |

|                                  |   |   |
|----------------------------------|---|---|
| Thinking other people also do so | The participant reflects by thinking that other people also do or feel the same | “I think that everyone would say this”                          |
| Deeper value                     | The participant reveals a deeper value of themselves                            | “I find it important that people know that they can come to me” |

### 8.6.2 Codes memory-sharing (hypothesis 2)

| Code                          | Description/definition                             | Example   |
|-------------------------------|--|---|
| Memory                        | Participants shares a memory                       | “This picture really makes me think about last New Year’s Eve”  |
| Memory with emotional content | Participants adds emotional feelings to the memory | “During my study, I have had a lot of stress because it was really hard and I experienced a lot of time pressure” |

### 8.6.3 Codes Self-consciousness (added during analysis)

| Code                     | Description/definition   | Example   |
|--------------------------|--|---|
| Example                  | Participant uses an example to express themselves                | “For example, by doing a board year”  |
| Feelings                 | Participant shares a feeling about something                     | “I do feel very good about that at the moment”                                  |
| Own actions              | Participant describes their own actions, how they did or do this | “I watch a lot of Netflix at the moment and a lot of tv. Or tv? Mainly series.” |
| Questions / own thoughts | Participant shares their thoughts or asks rhetorical questions   | “Then I am thinking about: What do I want? What do I want for the future?”      |
| Realisation              | See 7.6.1  |   |
| Self-reflection          | See 7.6.1  |   |

### 8.6.4 Codes Present-Future (added during analysis)

Present

| Code    | Description/definition                                | Example   |
|---------|---|---|
| Present | Participant shares something about their current life | “Studying now with the corona virus is totally garbage” |

Future

| <b>Code</b>  | <b>Description/definition</b>   | <b>Example</b>  |
|--------------|---|---|
| Future       | Participant shares something about their future life                  | “When I work in the future, I think I will have a different rhythm” |
| Need or wish | Participant shares something they need or hope for the (near) future. | “I also hope to graduate”   |

#### 8.6.5 *Codes Lack of preparation (added during analysis)*

| <b>Code</b>           | <b>Description/definition</b>                                       | <b>Example</b>                         |
|-----------------------|---|--|
| Ask for clarification | Participant asks to elaborate on question                           | “In which area?”                       |
| Discomfort            | Participant experiences discomfort with a question or the interview | “Ehh.. That is a difficult question..” |

#### 8.6.6 *Additional codes*

| <b>Code</b>                        | <b>Description/definition</b>  | <b>Example</b>   |
|------------------------------------|--|--|
| Reference to sensitization toolkit | The participant makes a reference to the sensitizing materials they made | “I also put this in Milanote last week.”                                     |
| Example                            | Participant shares an example to elaborate on a statement or story       | “there are many ways to develop yourself, for example by doing a board year” |