



The user experience of menstrual residues on feminine hygiene products

Master's thesis in Industrial Design Engineering

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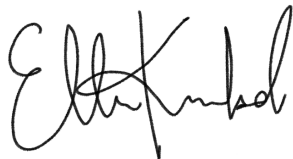
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Ellen Karnblad



Emma Wallin

Abstract

Many women experience issues with menstrual residues staying on top of their feminine care products, such as blood clots, lumps or tissue particles. This has not been studied from a user experience perspective. Thereby, this thesis aimed at investigating the user experience of menstrual residues staying on top of sanitary pads and pantyliners, with the hope to enhance it by proposing design solutions. The user experience perspective applied in the project covered the emotional aspects evoked by objects. Desmet and Hekkert's (2002) model of product emotions was used where the model aided in studying emotional responses to consumer products throughout the project.

User research was performed to generate a holistic view of the user experience of menstrual residues. The participants of the user research contributed with insights that led to the identification of several improvement areas. It was palpable that the majority of the users experience menstrual residues on sanitary pads, whereas not on pantyliners. Therefore, the decision was made to only proceed with sanitary pads. The user research resulted in a UX goal to *enhance security* when experiencing residues on sanitary pads. The UX goal contained three subcategories; *control*, *comfort* and *awareness*. Approaching the subcategories helped in meeting the UX goal.

Concepts were generated targeting each of the subcategories which were evaluated. Based on this, a decision to combine several of the concepts was taken. This generated a final concept consisting of three parts; a sanitary pad, a product wrap and an app. The sanitary pad is designed with a recessed middle part with an embossing and a printed pattern. The wrap has printed quotes on the inside of it, lifting women's experiences of menstrual residues. The app provides three main functions; a period tracker, a forum and a library of articles. All three solutions target different subcategories of the UX goal and are therefore ideally used together to complement each other and further *enhance security*.

Keywords: User experience, Menstruation, Menstrual residues, Sanitary protection, Feminine hygiene products, Sanitary pads, Pantyliners, Essity, Libresse

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Glossary

UX - User experience

GEW - Geneva Emotion Wheel

Liner - Pantyliner

Pad - Sanitary pad

Menstrual residues - Parts of the menstruation that have a thicker character and reveal themselves as blood lumps, clots, membrane etc.

Embossing - A recessed pattern to create surface texture.

V-zone - The vagina and the area around it.

1. Introduction

Approximately half of the population on earth are female and most women are menstruating at some point in life. Commonly, women get their first menstruation when being around 11 to 14 years old and enter menopause around 50 when the menstruation stops (Essity, 2021b). Menstruation lasts for an average of three to five days and comes once a month (1177 Vårdguiden, 2021). To be able to live a normal life when menstruating, women are dependent on feminine care products, where the most used variants are tampons, sanitary pads and pantyliners.

Essity's feminine care brands are the world's sixth largest within feminine care, the third largest in Europe and the market leader in Latin America (Essity, 2021c). For many years, Essity has conducted research globally and gathered insights and expert voices on topics around menstruation. By doing so, Essity aims to; *"generate awareness around the challenges and opportunities [...] to improve hygiene and health standards for people and society."* The research has presented that V-zone taboos related to menstruation hold women back in everyday life and that 42% of women worldwide that participated in a study conducted by Essity have refrained from going to school or work due to matters concerning menstruating.

In line with this, Dahlqvist (2018) explains that the shame about menstruation is universal, while the silence around it is global. There is a constant worry about being exposed about menstruation which makes women try to cover it. Due to the silence that is present, women are being blocked from demanding more knowledge and expressing their needs and desires of products (Dahlqvist, 2018). The United Nations (2019) is one of many organizations working towards breaking the taboo and stigma around menstruation. In addition to this, one of Essity's feminine care brands, Libresse, has been at the forefront of breaking these barriers to create an open culture where sharing and listening can bring about individual, cultural and institutional change (Essity, 2021d).

During the first days of the period, many women experience characteristics of menstrual residues within their menstruation (Johnson, 2018). Following this, Essity has performed consumer research that has shown that women experience issues with "clotted" menstrual blood and residues on their sanitary pads and pantyliners. This could for instance be blood clots, lumps or tissue particles, staying on top of the sanitary protection. This has not been studied from a user experience (UX) perspective which means that the holistic view of the topic has not been considered. Thereby, this thesis will investigate European women's experience with menstrual residues staying on top of sanitary pads and pantyliners with the hope to illuminate the existing and desired user experience and enhance it by proposing design solutions. This, to make women live a fully normal life when menstruating and instil confidence while doing so.

1.1 Aim & objectives

This study aims to investigate women's experience of menstrual residues on sanitary pads and pantyliners. The objectives are to understand the existing user experience and define factors that can improve it. Furthermore, to design potential product improvements or new product concepts based on the found user needs and desired experiences.

1.2 Research questions

The following research questions will be investigated within the study:

- How do users of sanitary pads and pantyliners experience menstrual residues on the surface of their used product?
 - How do users describe the experienced menstrual residues?
 - What kind of problems related to menstrual residues do women experience with today's products and especially Essity's feminine hygiene products?

- What possible improvement areas are there and how can design be implemented to solve this?

1.3 Process & Disposition

The process applied in the project is an iterative Double Diamond design process by the Design Council (2021). It is a process made up of two diamonds that widely explores an issue by adopting divergent thinking in the first diamond, followed by taking focused action by adopting convergent thinking in the second diamond. Menstrual residues are a rather unexplored area, which makes it important to start discovering it from a broad perspective with divergent thinking to obtain a holistic view. Convergent thinking will aid in defining the core of the identified problem areas.

The process consists of four stages; discover, define, develop and deliver (see Figure 1). Discover relates to understanding the problem by collecting information from users. Define includes analysing the insights collected from the discovery stage and defining the challenge in a new way. Develop is about coming up with solutions to the problems defined. Deliver focuses on evaluating the solutions and further developing the ones that are promising (Design Council, 2021).

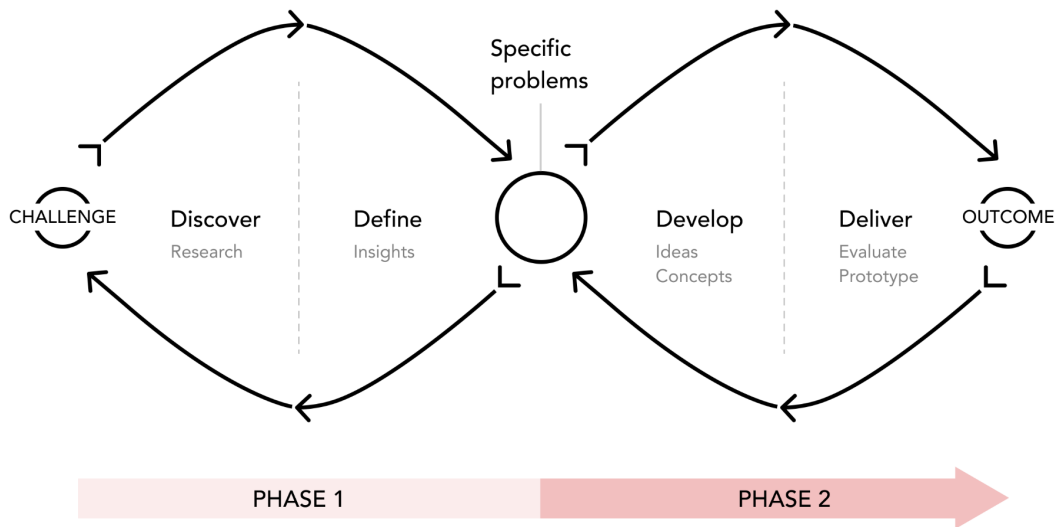


Figure 1. The Double Diamond design process applied in the project.

The report starts by presenting the theoretical framework. Then follows the main part of the report, which is divided into two phases representing each of the diamonds in the Double Diamond process (see Figure 2). The first phase focuses on understanding the current user experience of menstrual residues on sanitary pads and pantyliners, and how it can be improved by adopting and working towards a UX goal. The second phase illuminates how the information from the first phase was used and turned into ideas and concepts. Furthermore, how the concepts were evaluated and further developed into the final concept. The report ends with a discussion and conclusion of the project.

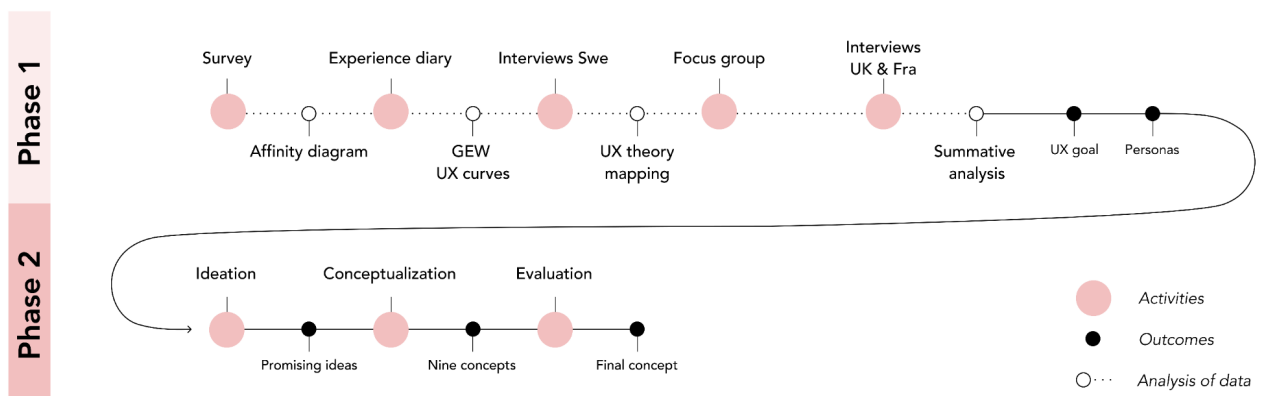


Figure 2. The process of the project with the two phases.

Phase one

The first phase began with conducting a survey to gain a general understanding of menstruation. This was followed by an experience diary that was sent out to 25 menstruating women in

Sweden, which generated an understanding of problems related to the topic. Six interviews and a focus group with four users in Sweden gave deeper knowledge about the subject. The user research resulted in identifying areas of issues in an affinity diagram. A few areas of interest from the affinity diagram were investigated further during interviews with a total of five users from the UK and France. The data from the user research was analysed continuously throughout the first phase, to make sure any gaps were filled with information.

All of the collected data were mapped in Desmet and Hekkert's model of product emotions (2002) to build an understanding of the existing and desired user experience in a structured way. Finally, a UX goal and three personas were defined based on the result from the analysis.

Phase two

The UX goal, consisting of three subcategories, and the personas from the first phase were used as the foundation for the second phase. This phase started with ideation around the UX goal and the issues that were found prominent during the user research. The ideas were turned into nine concepts targeting the three different subcategories of the UX goal. The concepts were evaluated by five of the users that participated in previous user research, which led to further development and refinement of the final concept.

2. Theoretical framework

This chapter provides a background of the theory applied during the project. Information about menstruation is provided as well as the user experience perspective, usability, sensory experience design and semiotics. Finally, the interplay between the theories is described.

2.1 Menstruation

The menstrual cycle consists of three stages, the follicular - the stage before egg release, the ovulatory - during egg release, and the luteal - after egg release (Knudtson & McLaughlin, 2019). Menstruation is bleeding from the uterus (see Figure 3) that occurs once a month from puberty until menopause around the age of 50. During puberty, the ovaries in the uterus start to mature and the first ovulation occurs (1177 Vårdguiden, n.d.). When ovulating, the mucous membrane in the uterus becomes thicker to be able to receive the fertilized egg (RFSU, 2018). Most often, there is no fertilization which means that the thick mucous membrane is no longer needed. This results in bleeding, which is called menstruation or menses (RFSU, 2018).

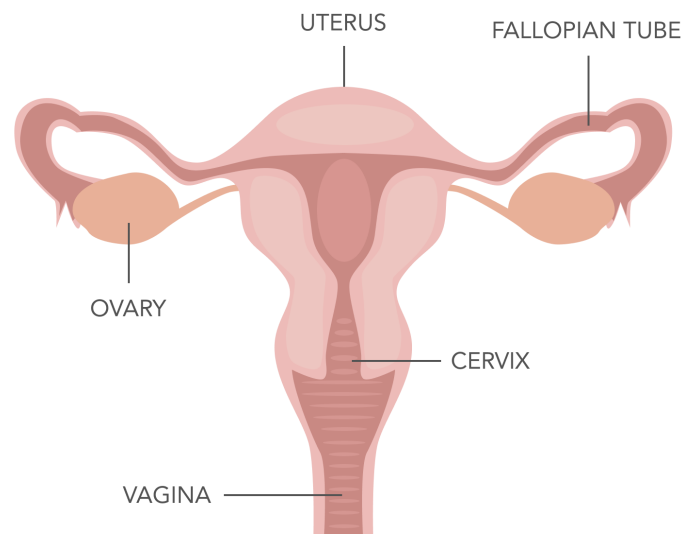


Figure 3. The female reproductive system.

Menstruation is composed of both blood and tissue solids in a serum and cervix fluid. More specifically, menses contain blood, endometrial tissue, vaginal epithelial cells, cervicovaginal secretions and endogenous vaginal microbes. Red blood cells and tissue residues also appear in the fluid (Farage & Maibach, 2017).

The menstrual fluid during the period can differ in flow, volume, structure and how often it occurs. This leads to experiences that vary from person to person. The period lasts for a median

of five days where it is most common to have heavier bleeding at the beginning of the menstruation, around day one to three (Dasharathy et al., 2012). During these days, many women also experience characteristics like menstrual residues that contribute to the experience of a heavy flow. Residues show up as the uterine lining sheds an increased amount of blood. The residues can be bright red or more of a deeper dark colour depending on when during the period it appears (Johnson, 2018).

2.2 User experience design

The user experience of menstrual residues on sanitary pads and pantyliners is a rather unexplored area. Thereby, this study focuses on understanding the overall user experience to gain a holistic view of the situation, covering the whole process of using a product and how this is influenced by menstrual residues.

The term user experience (UX) was coined by Donald Norman in the early 1990s. However, UX can be seen from many different perspectives (Roto, Rantavuo, & Väänänen-Vainio-Mattila, 2009). According to Hassenzahl (2011), experience is personal events that are meaningful rather than something that generates knowledge. Further, Hassenzahl (2011) explains that UX is a type of experience that is elicited through a mediating object, a product. Jordan (2000) builds on the definition by mentioning that UX is a more holistic way of observing the interaction between people and products. Desmet and Hekkert (2002) add that UX also covers the emotional aspects evoked by objects. The latter definition is the one applied in this project to obtain an emotional assessment of experiencing menstrual residues since emotions play an important role when it comes to menstruation.

Desmet (2003) states that the term emotions is extensive and unlimited, i.e. products can elicit numerous types of emotions. Emotional responses towards products are personal, hence, differ between humans. Furthermore, products can lead to a composition of several emotions, instead of evoking one particular emotion. Thus, a mixture of emotions can be evoked at the same time because it is elicited by many different factors. Such factors can for instance be the aesthetics, functions, behaviour and brand of the product. The designer can affect the emotions evoked by their products, even though emotions are individual. This, because it is argued that the underlying conditions that evoke emotions are universal (Desmet, 2003).

Desmet and Hekkert (2002) have suggested a model for product emotions to aid the study of emotional responses to consumer products (see Figure 4). This will be used as a foundation in the project to make the process of investigating and understanding the user experience more structured and to find underlying emotional factors that affect the user experience, apart from the functionality and the aesthetics of feminine hygiene products. The model consists of four

main parameters that are part of the process of eliciting emotions: 1. appraisal, 2. concern, 3. product and 4. emotion. The first three parameters and the interplay between them establish if a product evokes emotions and what emotion is elicited (Desmet & Hekkert, 2002).

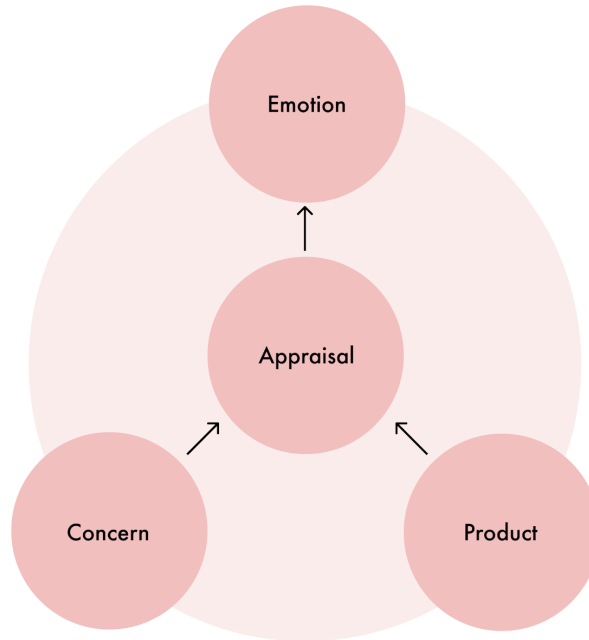


Figure 4. Desmet & Hekkert's model of product emotions.

Each parameter can be viewed in several ways, which also influences what type of emotion is elicited by the product. The product parameter can be interpreted in three ways, namely a *product as an object, an agent or an event*. Viewing a product as an object is simply by seeing a product, or aspects of a product, for what it is. A product as an agent refers to things that can cause or contribute to a certain event. The third branch, product as an event, indicates that people can imagine a future usage or possession of a product once encountering it.

Based on the type of product that the user encounters, a concern is evoked. In Desmet and Hekkert's model of product emotions, concerns refer to preferred states of the world, where some concerns can be general and some more context-dependent. There are three types of concerns within the model; *goal, attitude and standard*. Goal refers to states of affairs that are desired to be obtained, i.e. what goals the user has with the product which can range from abstract to concrete ones. Attitude is connected to our liking or disliking for objects or aspects of objects. Humans have many attitudes, some being innate and some being learned throughout life. The third type of human concern is standard, which is connected to how things should be and how people should act.

The product together with the user's concern leads to an appraisal that is responsible for evoking a certain emotion. An appraisal has three possible outcomes where the product is either *beneficial,*

harmful or not relevant for personal well-being. The three outcomes respectively result in a *pleasant emotion, an unpleasant emotion or an absence of emotion*

2.3 Usability

The theory of usability is also included in the project. This, since it is a subcategory of user experience and centres around how easy the product is to use (Interaction Design Foundation, 2020). This is of importance for feminine hygiene products since women are dependent on them to be able to live a normal life while menstruating.

The definition of usability is “*the extent to which a product can be used by users to achieve specific goals with effectiveness, efficiency and satisfaction in a specified context of use*” (ISO, 2018). Effectiveness relates to achieving specific goals accurately and completely while efficiency considers the resources that are used with regards to the goals reached. Satisfaction refers to what degree the user’s needs and expectations are met with the user’s physical, cognitive and emotional reactions from using a product, system or service.

Interaction Design Foundation (2020) suggests five areas to target for usability; *effectiveness, efficiency, engagement, error tolerance* and *ease of learning*. The ones that are most relevant for the context of this project are *engagement* and *ease of learning*. Engagement is about the product being used with pleasure and is suited for its subject. Ease of learning means that it is easy for new users to achieve goals and it becomes even easier for experienced users. Both these areas are essential factors to consider to ensure that the design fulfills the user’s needs and thereby, making the user continue using the product.

2.4 Sensory experience design

The theory of sensory experience design is used in the project to understand to what extent the senses influence the experience of menstrual residues on sanitary pads and pantyliners. Moreover, sensory experience design is applied to gain knowledge about what sensorial product properties users appreciate or disapprove.

Sensory experience design takes the different senses into account. The human senses are crucial for the outcome of users’ understanding and experiences of products. Further, the senses are used to acquire knowledge about products and to experience the sensations (Dagman, Karlsson & Wikström, 2010). The senses also affect the evoking of emotions. However, emotional responses also depend on memory and knowledge for an adult (Rouby, Fournel & Bensafi, 2016).

When experiencing products, the most important senses are determined based on the product type used. Though, it is important to not only focus on the senses separately when designing products because of the interplay between them (Rouby et al., 2016).

The senses investigated in this project are mainly haptics and sight, but hearing and smell will also be considered. Haptics and sight are the most common senses used in the context of menstrual residues on sanitary pads and pantyliners and therefore, the most relevant ones to focus on. Haptics refer to touch and what can be experienced by the sensory receptors in the skin, muscles, joints and tendons (Dagman et al., 2010). Sight is described as the visual sense which is about the ability to discover electromagnetic energy by the eye and interpreting it by the brain as an image (New World Encyclopedia, n.d.). The sense of hearing collects sounds by the outer ear and transforms them into electrical impulses in the inner ear. The impulses are sent to the brain for interpretation (The Dana Foundation, 2021a). The smell is triggered by odour molecules entering the body through the nose and mouth and binding to the receptor cells in the mucus membranes placed back in the nasal cavity (The Dana Foundation, 2021b).

2.5 Semiotics

The last theory applied in the project is semiotics. Semiotics is used to investigate the understanding and the perceived meaning of the expression of sanitary pads and pantyliners, as well as how this evokes certain emotions.

Semiotics consists of three parts, namely, semantics, syntax and pragmatics. While semiotics is the study of signs as a whole, semantics is to understand the meaning of the sign, the syntax is the relation and interaction between signs and pragmatics is the study of the usage of the sign (Monö, 1997). When people explore a product, reactions towards it arise almost immediately, as a result of semiotics. Occasionally, these reactions elicit deep emotions that are part of the user experience. By having an understanding that signs can lead to emotions, semiotics can be used when designing user experiences (Van der Meulen, 2019).

Product semiotics is to study signs by applying meaning to what our senses interpret. The visual sense plays a leading role in perceiving products, but not to forget the other senses; haptics, hearing, feeling, smelling and tasting. By communicating meaning to what we perceive through all of our senses, the usage of products gets easier and more efficient and thereby, simpler to understand. The products shape, colour, structure and sound are vital factors to analyse when understanding the product. In addition to this, temperature, taste and smell could be interesting properties to look into (Monö, 1997).

When experiencing products, the elements of it, such as colour, material and shape, are experienced as a composition and affect each other. This relates to the product gestalt, which is when components work together as a whole and appear as something other than each unique part does for itself. Further, it is about the relation between the elements and how the meaning of the product changes depending on their arrangement.

According to Jordan (2000), there are six factors of design building product gestalt; colour, form, material, product graphics, sound and interaction design. The first four were taken into account in this study. Studying each factor individually can make it easier to find opportunities to build parts of the experience of the product (Jordan, 2000).

Colour is a factor that can elicit powerful associations, remarkably dependent on culture and product domain. Furthermore, it can be used as an element with a practical purpose. For example, it can express how one should interact with the product or indicate when something is not right (Jordan, 2000).

Form can express the emotional, sensorial and practical values of the product. The likings or dislikings for the form of the product are often individual. However, basic symmetrical forms usually appeal to a larger group of people while extreme asymmetric forms are attractive to a narrow market. Sometimes, extreme forms can be prosperous, leading to a change in the design of the specific product category. Moreover, a form can determine the pleasurable of using the product and show how the product is used (Jordan, 2000).

Materials is another factor that can decide if the product is pleasurable or not, affecting the senses and the perception of the product. What properties of a material is seen as pleasurable for the product is highly dependent on what usage it is for. Further, the perception of materials is influenced by textures (Jordan, 2000).

Product graphics can be applied to convey the functions of the product, how it works and show the user how it is supposed to be used. Additionally, it can provide the product with an expression (Jordan 2000).

2.6 The interplay between the theories

The interplay between the theories applied in the project is seen in Figure 5. The emotional aspect within the user experience perspective is what relates the theories. The underlying emotional factors that affect the user experience, apart from the functionality and the aesthetics

of feminine hygiene products, are captured with Desmet and Hekkert's (2002) model of product emotions.

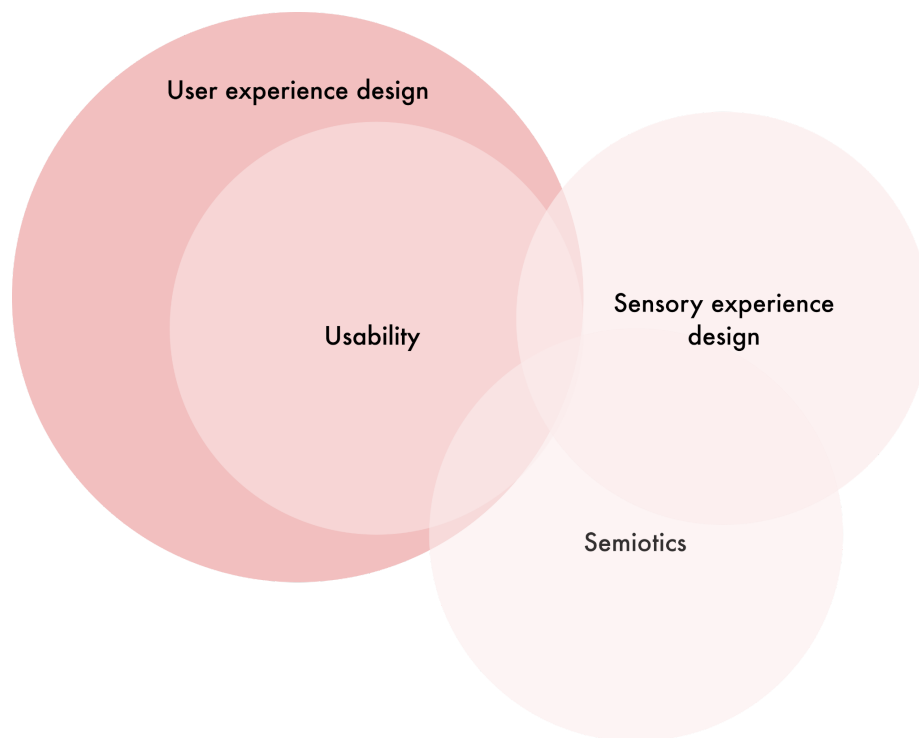


Figure 5. The relation between the theories used in the project.

Usability relates to user experience by understanding to what extent the user's needs and expectations are met with the user's physical, cognitive and emotional reactions from using a product. Moreover, when exploring a product, reactions towards it arise almost immediately, as a result of the semiotics of a product. These reactions elicit emotions that are part of user experience. Sensory experience design also affects the evoking of emotions.

Semiotics and sensory experience design correlate since product semiotics is to apply meaning to what our senses interpret, which is part of sensory experience design. Furthermore, semiotics and sensory experience design also relate to usability since communicating meaning to what people perceive through the senses makes the usage of products easier and more efficient.

3. Presentation of the examined products

The project targets pantyliners and sanitary pads, and more specifically it focuses on investigating two of Libresse's most popular products, the pantyliner Libresse Dailies Fresh Regular and the sanitary pad Libresse Ultra+ Wings. The following chapter presents the two feminine hygiene products from Libresse which are described based on construction and functionality. Furthermore, the products' aesthetics are specified, i.e. the shape, pattern and texture.

3.1 Libresse Dailies Fresh Regular

Libresse Dailies Fresh Regular is a non-fragranced pantyliner designed to provide a feeling of freshness by being absorbent and keeping dry throughout usage (see Figure 6). The pantyliner is breathable and has a CurveFit design developed to follow the shape of the body and for the liner to stay in place during usage (Libresse, 2021).

The liner has a light purple pattern with soft shapes printed on the top layer. A heart is printed to illustrate the front of the product, while the back is indicated with a round shape. The pattern also has small circles spread over the entire surface. In addition to this, the liner has embossing, which is a recessed pattern to create surface texture. The embossing consists of tiny dots and is placed throughout the top layer of the liner.



Figure 6. The Libresse Dailies Fresh Regular pantyliner.

One package (see Figure 7) consists of 30 pantyliners, where each one has a protective paper on the back. The package presents information about the product's functions and the level of

absorbance possible to obtain. The product is marketed as taking care of discharge to protect the customers and their underwear.



Figure 7. The package of Libresse Dailies Fresh pantyliner.

3.2 Libresse Ultra+ Wings

The Libresse Ultra+ Wings is a non-fragranced, thin sanitary pad with wings (see Figure 8). The pad obtains two types of technologies developed by Libresse, namely, SecureFit and AirTech. First, the surface layer has a material design called Airtech to provide a fresh feeling during the period by being breathable. Second, the SecureFit design is developed to be comfortable for the body and to keep the pad in place throughout usage. The fit is designed with a unique front and back, to decrease the risk of leaks. Furthermore, the pad is held in place using the wings that are constructed to be attached to the outside of the underwear (Libresse, 2021).

The printed pattern on the surface layer is light purple with soft shapes that follow the shape of the pad. A heart indicates the front of the pad together with an arrow curve pointing forward. The back is shown with wave-shaped lines and small arrows directed towards the back in the pattern. In the middle of the pad, an oval shape filled with small triangular shapes are present. This illustrates the centre of absorption.

As with the pantyliner, the sanitary pad has embossing. It is made up of numerous small round dots placed all over the top layer. The embossing is not that deeply marked which makes the pad have a smooth textured surface.



Figure 8. The Libresse Ultra+ Wings sanitary pad.

A number of 14 pads comes in one package (see Figure 9). The packaging provides information about the product's functions and the specific absorbency level, in this case, the pad is constructed for regular flow.



Figure 9. The package of Libresse Ultra+ Wings sanitary pad.

Each product is individually wrapped in plastic film with a Roll Press Go function (see Figure 10), meaning that it can be self-sealed on all sides to enable the user to place the used pad in it before disposing of it. The idea behind the wrap is also to protect it before use, to make it easy to bring with you and to allow for storing the used pad in the bag if a sanitary bin is not available nearby.



Figure 10. The wrap of Libresse Ultra+ Wings sanitary pad.

01. Phase one

Understanding the user experience of menstrual residues on sanitary pads and pantyliners

The first phase focuses on understanding the current and desired user's experience of menstrual residues on sanitary pads and pantyliners. Here, the methods and implementation of the user research and the analysis are presented, as well as the result of the user research which generated a UX goal.

4. Methods and implementation of user research

This chapter presents the methods and the implementation of the user research and the following data analysis performed during the project. The process of the user research and analysis is illustrated below where the different activities are presented together with the outcomes, as well as the starting points of the different analyses (see Figure 11).

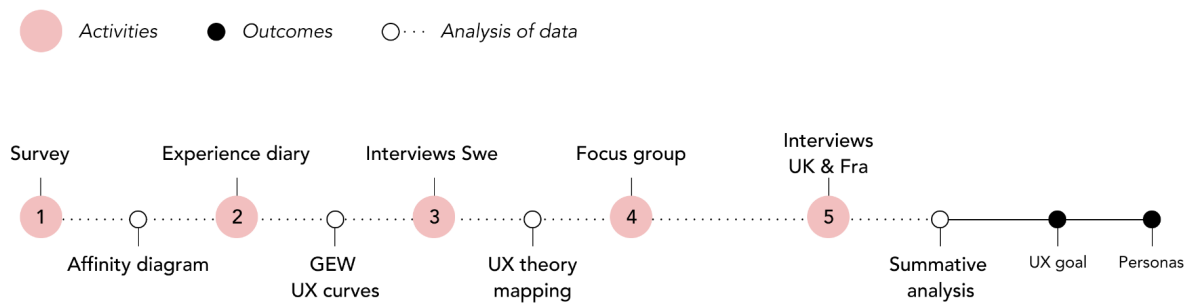


Figure 11. Process of the user research performed.

4.1 Survey

The survey was the first part of the user studies conducted to gather information from users about menstruation. In this project, the goal of the survey was to create a general picture of how menstruation is experienced and how users of sanitary pads and pantyliners perceive the products whilst menstruating.

Method

According to Karlsson (2007), a survey is an indirect question method where quantitative data can be collected from a considerable number of people to provide an overview of who the users are and how products are interpreted by the users.

Karlsson (2007) explains that open and/or closed questions can be used when conducting a survey. Open questions give the respondent more freedom in their answer while closed ones include predetermined answers to choose between. Only using open questions can be demanding for the user while only closed questions can provide a too basic foundation. Therefore, a combination of open and closed questions is to be preferred (Karlsson, 2007).

Implementation

The survey was shared in the female Facebook group *Teknikkvinnor* where 232 menstruating women between the ages of 18-45 took part. The survey consisted of a mix of open and closed questions to obtain both quantitative and qualitative data (see Appendix 1). The questions within

the survey were divided into four sections. The first section was devoted to the respondent's personal situation while menstruating. This section included questions about the respondents' social attitudes towards menstruation, touching areas regarding how comfortable one is to talk about menstruation in different situations.

The second and third sections touching sanitary pads and pantyliners were designed to understand the usage of these products and why people choose them as menstrual protection. Moreover, questions regarding how the menstrual fluids act on the product were of interest, followed by questions aiming at understanding why the respondents change to a new product during the day. The fourth and last section of the survey concerned if the respondents were interested in participating in further user studies within the project.

4.2 Experience diary

The project group found it important to conduct a user study where the participants were menstruating during the time of the study since emotional responses are dependent on memory and knowledge (Rouby, Fournel & Bensafi, 2016). Therefore, an experience diary was created to investigate the users' experience of using the project-specific sanitary pad and pantyliner during one menstrual period. Also, to understand the characteristics of residues and when they appear during the menstrual period. The experience diary included a self-observation, Geneva Emotion Wheels and user experience curves.

Method

Jordan (2000) explains that experience diaries can be used to understand how experiences of products change over time. The experience diary can be compared to a small questionnaire, where users are asked to compile certain information and thoughts about the product during a time. Such information can be, for example, positive and negative things about the product, problems faced and feelings about the product in general (Jordan, 2000).

The diary included a natural self-observation where the participants should reflect on how the menstruation acted on the used products and the characteristics of the menstrual flow. According to Karlsson (2007), a self-observation is conducted by the user studying a specific task or area of interest with the intentions of understanding behaviours and handling of products. Observations provide knowledge about how the product is used by the customer and eventual problems faced during usage. Observations can be performed in natural situations or constructed ones. Natural observations can be used at the beginning of a project to build an image of the customer and the usage of the product (Karlsson, 2007).

Furthermore, the experience diary included a Geneva Emotion Wheel (GEW) which is a subjective tool to obtain a self-report of felt emotions evoked by events, situations or objects (Scherer, 2005). The GEW is structured as a wheel with 20 predetermined emotion families incorporated within it (see Figure 12). Furthermore, it consists of an x-axis for valence and a y-axis for control, which divide the wheel into four quadrants (Sacharin, Schlegel & Scherer, 2012). Six degrees of intensity are evident for each emotion family that allows the users to freely choose what emotional response is felt and in what intensity. There is an option in the middle of the wheel where the users can respond that no emotion was evoked by the object, or that another emotion was elicited than the 20 ones listed (Scherer, 2005).

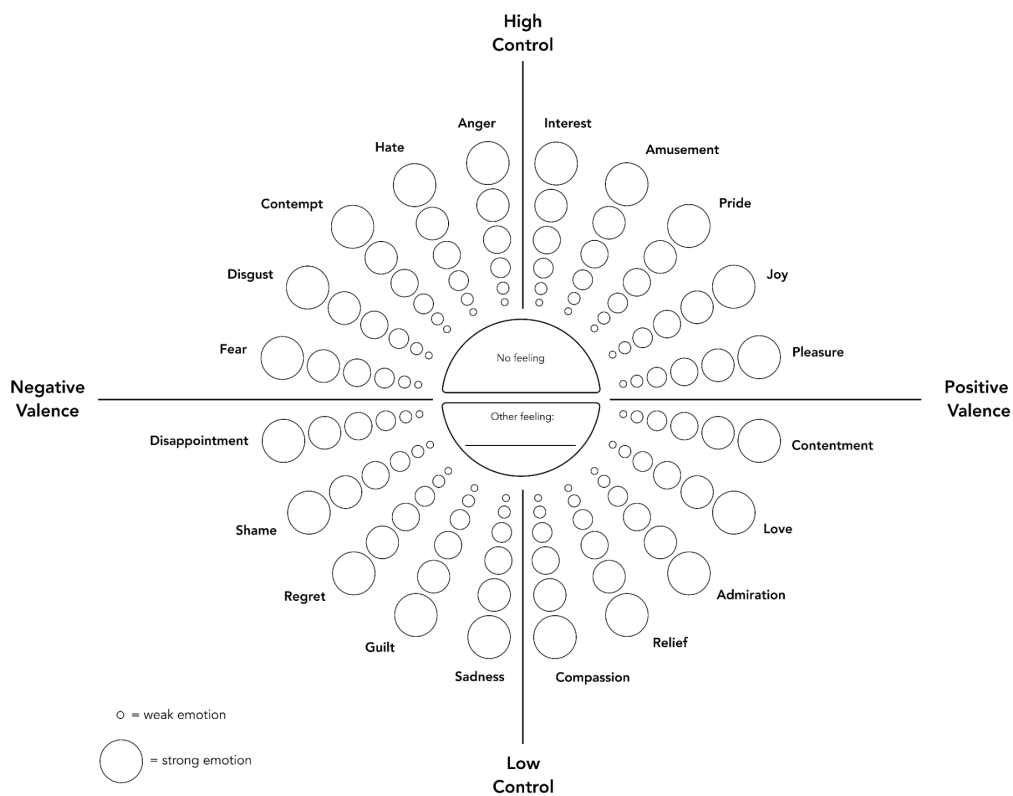


Figure 12. Geneva Emotion Wheel (GEW).

In addition to this, a user experience (UX) curve was used as a way of understanding and evaluating how the user's experience with the products evolves. Further, the UX curve assists the users in retrospectively reporting how and why the experience with a product changes over time, either to improve or to deteriorate. Hence, it is a method for understanding the reasons why the user experience improves or worsens while using a product and how this relates to the loyalty of the users (Kujala et al., 2011).

Implementation

The experience diary was sent out to 25 menstruating women, where 22 of them returned it to the project members (see Appendix 2). The diary study lasted for five weeks to ensure that the

participants received their menstruation during the time of the study. The participating women were between the ages of 23-49 and were either frequent users of sanitary pads and/or pantyliners or willing to test those products. The diary was sent together with one package of Libresse Ultra+ Wings sanitary pads and one package of Libresse Daily Fresh Regular pantyliners to use during the menstrual week. Also, a return envelope to send the diary back to the project group was added to the package.

The diary included four chapters where the participants were first asked to fill in their emotions towards menstruation, pantyliners and sanitary pads in GEW diagrams (see Appendix 3). The GEW was used to capture the emotional aspect within Desmet and Hekkert's UX theory and to understand the intensity of each elicited emotion (see Figure 13).

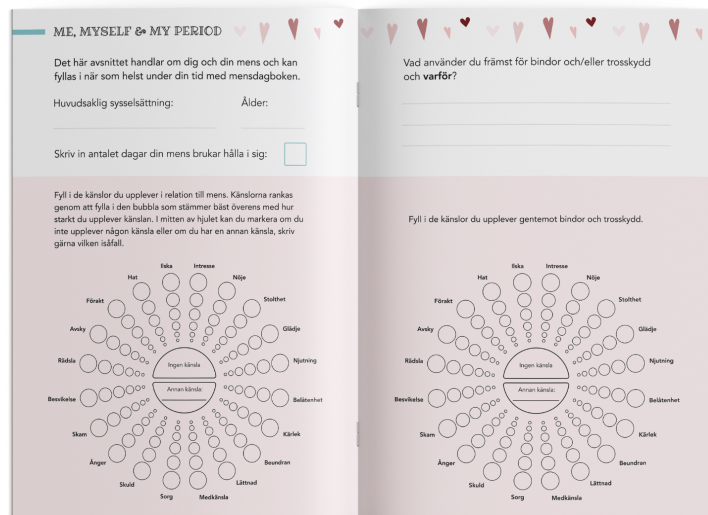


Figure 13. The introductory section of the experience diary, with general questions about the participants period and two GEW.

The second chapter was dedicated to when the participants were menstruating. The chapter was designed as seven spreads to fill in each day of the period, where the participants were to use the products received in the package (see Figure 14). Each day the participants were asked to analyse the nature of their menstruation in terms of the amount of flow, colour, shape, smell and texture. Further, state what the specific product used had done good and bad during the day.

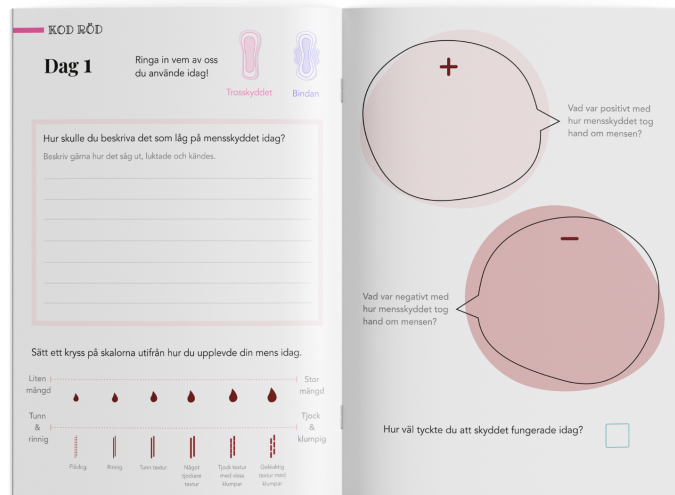


Figure 14. The section in the experience diary where the participant filled out information during their period.

Two UX curves made up the third chapter in which the participants mapped how their experience had changed over time (see Figure 15). In this study, it was used to investigate how the users' specific experiences with feminine care products guided the users' behaviour. The first UX curve targeted the usage of one sanitary pad or pantyliner, while the second UX curve was dedicated to the experience over an entire day of using sanitary protection. The experience diary ended with the participants writing an open and honest letter to feminine care products to have the possibility to lift other aspects on their mind.

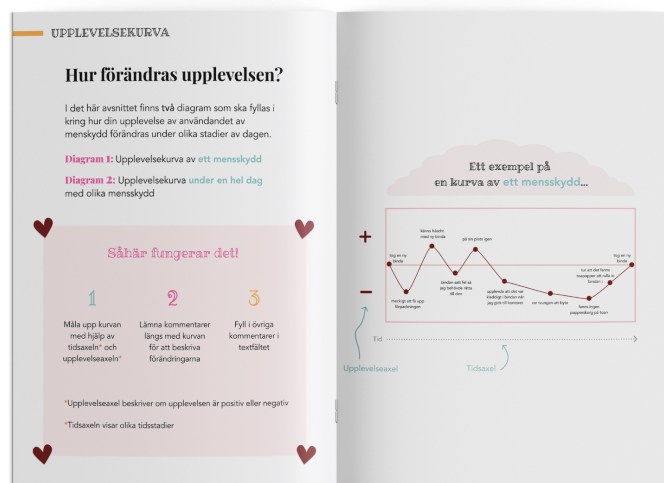


Figure 15. The UX curve section in the experience diary.

4.3 Interviews with users in Sweden

The interviews with users from Sweden were conducted to gather qualitative data and deeper insights into the users' problems and needs connected to sanitary pads and pantyliners concerning menstruation.

Method

Karlsson (2007) describes interviews as a question-based technique to gather information about the user's thoughts around a product, perceptions of specific issues or the experience of a situation. It is a method used to generate problem understanding in product development by asking several questions (Karlsson, 2007).

The interviewer often compiles an interview guide beforehand that consists of questions that should be addressed during the session. Interviews can have different characteristics, either structured, semi-structured or unstructured, which refers to how detailed the interview guide is and how carefully it is followed. It is recommended that interviews are structured like a funnel, i.e. starting from more general topics and then move into more specific ones (Karlsson, 2007).

Implementation

Six semi-structured digital interviews of 45 minutes each were performed. All interviews were recorded with the participants' permission. The interviewees were recruited through the previously performed survey (see section 4.1) and were menstruating women between the ages of 23-35 living in Sweden (see Table 1).

Table 1. The participants of the interviews in Sweden.

Participant	Age
1	23
2	24
3	25
4	28
5	34
6	35

A semi-structured interview guide was created, addressing three main areas; residues staying on top of the sanitary protection, the choice of products and elicited emotions (see Appendix 4).

The questions were open-ended to collect a large amount of qualitative data and the questions moved from being general to more specific during the sessions.

The interviews started with a few general questions about menstruation as a warm-up. Following area touched residues staying on top of the sanitary protection, where the goal was to understand the general experience of it, to establish at what time residues are apparent, understand how residues look and feel, as well as problems related to it.

The second area about the choice of product was investigated to understand how the user chooses a product, what factors are prioritized and whether the choice of a product is conscious or not. Some of the most popular pantyliners and sanitary pads on the market were acquired to be used as mediating tools during the interviews. Several images of the products were presented to the participants in different ways, first the products without packaging (see Figure 16), then the package of the product, and lastly the product package displayed on a shelf in a store. This, to understand the underlying factors that guide the users in choosing a specific product based on how it is displayed.

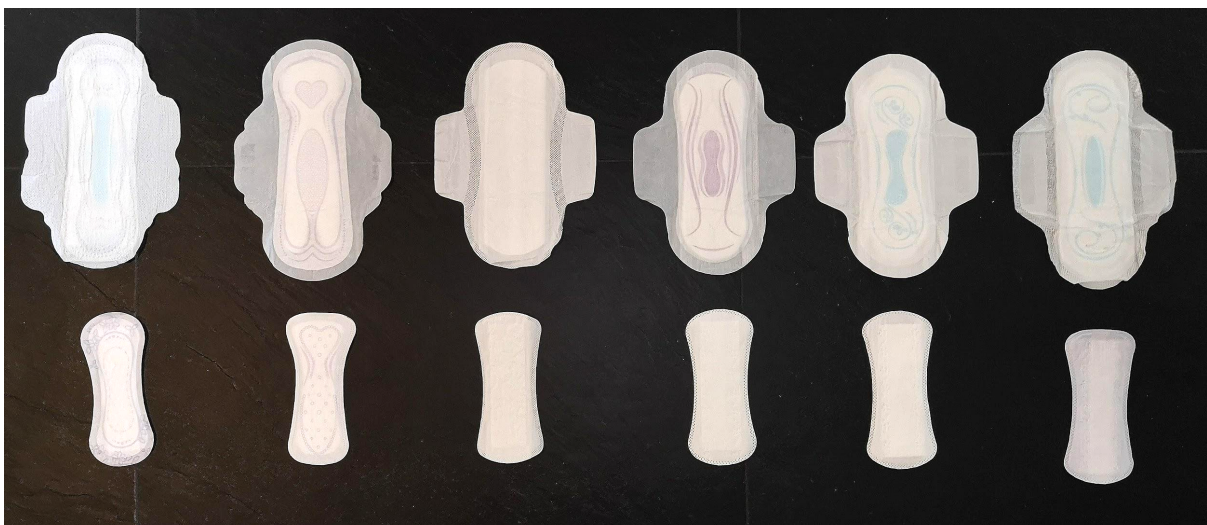


Figure 16. The mediating products without packaging.

The last area about emotions was found important to understand in regards to the chosen UX theory which focuses on emotions and what contributes to evoking them. The participant was asked to report their emotions felt towards menstruation, pantyliners and sanitary pads within GEW diagrams, described in section 4.2.

4.4 Focus group

The following part of the user research was a focus group aiming to study how sanitary pads are perceived from a sensory experience perspective. The focus group included a method focusing

on the sensory experience of sanitary pads and a questionnaire with semantic differential scale items.

Method

A focus group is performed by gathering a few people related to the subject to discuss a specific question or the topic at hand (Wikberg Nilsson et al., 2015). According to Johannesson, Persson and Pettersson (2013), focus groups can lead to unpredictable arguments or ideas as users are allowed to build upon others' reasoning. Participants can thus be inspired and influenced by each other, which is not possible by only performing deep interviews with an individual. The discussion is controlled by a moderator whose task is to let all members speak while at the same time directing the conversation towards the intended subject (Johannesson et al., 2013).

The following method performed was inspired by Sensotact (Lerma, De Giorgi & Allione, 2013) and was executed to understand users' sensory experiences related to haptics and sight, which were relevant senses to address within this project. The method was developed to understand how the perception of a product changes with regards to the senses used to explore it, which in this study was by only touching or seeing the object, or by combining the senses to discover the products.

To understand users' perspectives and attitudes towards the semantics of an object, a semantic differential scale was used as a method in the focus group. The scale is constructed by several adjective pairs of antonyms that are graded by the user on a weighted scale. The semantic differential scale is often performed as a questionnaire, either digitally or with pen and paper (Zakharenko, 2020; Bradley & Lang, 1994).

Implementation

Four menstruating women between the ages of 25-28 years participated in the focus group. The focus group was recorded with the participants' permission. During the session, one of the project members acted as a moderator, controlling the discussion, while the other member acted as a secretary, taking notes.

The focus group consisted of four parts (see Appendix 5). The first part had a general focus, with discussions around menstruation and the usage of sanitary protection. Moreover, scenarios created based on previous user studies were illustrated and discussed to understand how the user would act and feel in different situations.

The next part of the focus group was performed with the self-developed method related to haptics and sight. For this, six sanitary pads from various best selling brands in Sweden were used as a mediating tool to investigate the sensory experience of sanitary pads from a general

perspective. Also, to understand what features the users appreciate based on the senses. The first part of the method consisted of the participants getting to know the different products by only touching them. The products were hidden behind a screen to ensure that the participants did not see the pads (see Figure 17). While investigating the products, the participants filled a table with comments about the specific pad based on their perception retrieved from only touching it.



Figure 17. The participants touched the sanitary pads without seeing them.

After this, the participants got to see the products, but not touch them. They were asked to describe their impression of the product and how it differed from what they thought it looked like during the first part of the exercise. Lastly, the participants were allowed to both feel and view the products and discuss their sensory experience with each other.

Another aim of the session was to get insights into how the project-specific sanitary pad Ultra+ Wings from Libresse was interpreted from a semantic point of view. This was done by using a semantic differential scale, with 12 adjective pairs of antonyms. The adjectives were graded by the user on a scale of six points based on the user's impression of the product.

To round up the session, a co-creation exercise was conducted. The users worked in groups of two, where they were presented with commonly mentioned words from previous user studies that describe how many women feel about menstruation and sanitary pads. The participants got ten minutes to choose a few of these words and brainstorm ideas that could improve women's experience. The goal of the co-creation was to initiate the generation of spontaneous ideas to bring to the ideation phase of the project.

4.5 Interviews with users in the UK and France

As a complement to the Swedish user studies, three interviews in France and two interviews in the UK were performed. These interviews were the last part of the user research, intending to obtain more qualitative data from users based on the areas that had been found prominent during the previous user research. The project group also wanted to validate the Swedish respondents' insights with the ones from respondents from the UK and France to understand if there were any cultural differences.

Method

The method used was semi-structured interviews with an interview guide, which is described in section 4.3.

Implementation

The interviews were conducted via the video platform discuss.io. The platform helped to recruit participants for the interviews based on a screener. The screener searched for participants within the ages of 25-45. Furthermore, the screener allowed for participants both with or without children to take part. Participants that did not have regular menstruation and that did not use sanitary pads during the menstrual period were excluded. Based on this, four participants were originally recruited. However, participant 1 turned out to not have a regular menstruation, therefore, another participant was also recruited (participant 3), see Table 2.

Table 2. The participants of the interviews in France and the UK.

Participant	Nationality	Age	Children
1	French	25	A son
2	French	37	Three daughters
3	French	31	A son
4	UK	38	A son & a daughter
5	UK	28	A son

During the interviews, one of the project members acted as moderator asking the questions and the other as a secretary taking notes. The interviews were scheduled for one hour. Two semi-structured interview guides with a mixture of open and closed questions were created beforehand, one for the UK interviews and one for the French ones (see Appendix 6 & 7). During the French interviews, a translator was present. Due to this, the project group eliminated some follow-up questions in the interview guide because of the time needed for translation. Yet,

both interview guides were made up of the same three sections. The first section targeted general questions about the respondent's menstruation and social attitudes towards menstruation. Following was the largest section of the interview, namely about residues on the surface of sanitary pads, their characteristics and the experience of it. Lastly, some open questions were asked to round up the session, e.g. about what to include in a future sanitary pad solution.

4.6 Analysis of data

The data from the user research was analysed continuously throughout the project. The initial step in structuring the data was to conduct an affinity diagram to build an image of how the different parts of the situation correlated. After that, the GEW diagrams and the UX curves were analysed to identify patterns around emotions experienced concerning pantyliners, sanitary pads and menstruation, and how these change over time. The next step was to apply the UX theory of Desmet and Hekkert (2002) to the previously analysed data and identify the product, concern and appraisal that elicits the emotions. Finally, a UX goal consisting of three subcategories and three personas were generated based on the analysis.

Method

The first step of the analysis was to conduct an affinity diagram. An affinity diagram is developed to compile and structure large amounts of data. This results in an effectively communicated overview of a whole situation and its connections between different parts (Karlsson, 2007).

The analysis resulted in a UX goal with subcategories that were displayed by three personas. According to Wikberg Nilsson et al. (2015), a persona is a fictional character that belongs to the target group of the performed study. Personas are created based upon the results from previous research to speak for the different types of users that might use the product, service or system. By creating personas, a greater understanding of the users' needs, behaviours, goals and experiences arise, hence, help to build empathy towards the users (Friis Dam & Siang, 2021). Further, personas guide the ideation process to the less complex and can help to achieve good user experiences for the target users (Wikberg Nilsson et al., 2015).

Implementation

The affinity diagram was divided into three sections, namely, pantyliners, sanitary pads and menstruation, with regards to menstrual residues. Quotes and insights from the user studies were printed out on paper and placed into each of these sections on a wall (see Figure 19). When several quotes touched the same area, they were placed together in a category. By doing so, several categories within each section were created which helped obtain an overview of the collected data from the user research.

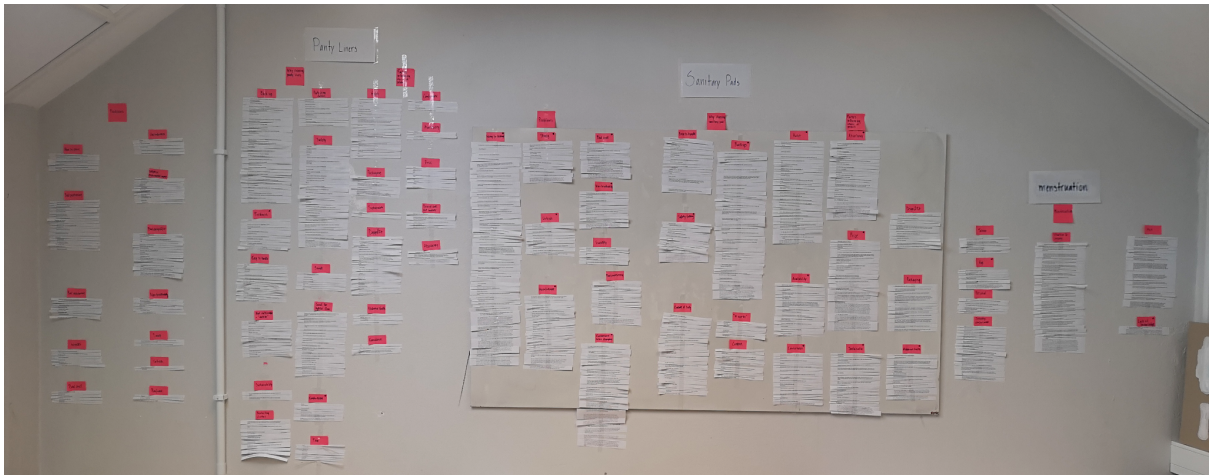


Figure 19. The affinity diagram.

The following step of the analysis was to interpret the emotional aspect reported by the users. This was done by analysing the GEW diagrams from the experience diaries and the interviews, together with insights from the rest of the user research. This resulted in that the project members could map the most intense and most frequently expressed emotions into three summarized GEW diagrams targeting menstruation, sanitary pads and pantyliners. This, to get an overview of the emotions elicited towards each subject and to understand which emotions that were most prominent within the user research.

After this, the UX curves from the experience diary were analysed by mapping negative aspects reported in the curves into a table to understand what the main reasons are for the experience to change from positive to negative over time. Furthermore, the project members searched for patterns among the UX curves to see if there were any mutual experiences among the participants.

The final part to analyse was the data in regards to Desmet and Hekkert's model of product emotions and to identify the *product*, *concern*, *appraisal* connected to the elicited *emotions* (see Figure 20). The emotions were derived from the summarized GEW diagrams and from the user research where it was possible to identify the product behind each emotion. Furthermore, the product was connected to concerns that were evident within the established categories from the affinity diagram. The product and concern were linked to an appraisal that had been stated by the users as quotes or scenarios, which in turn generated the emotion.

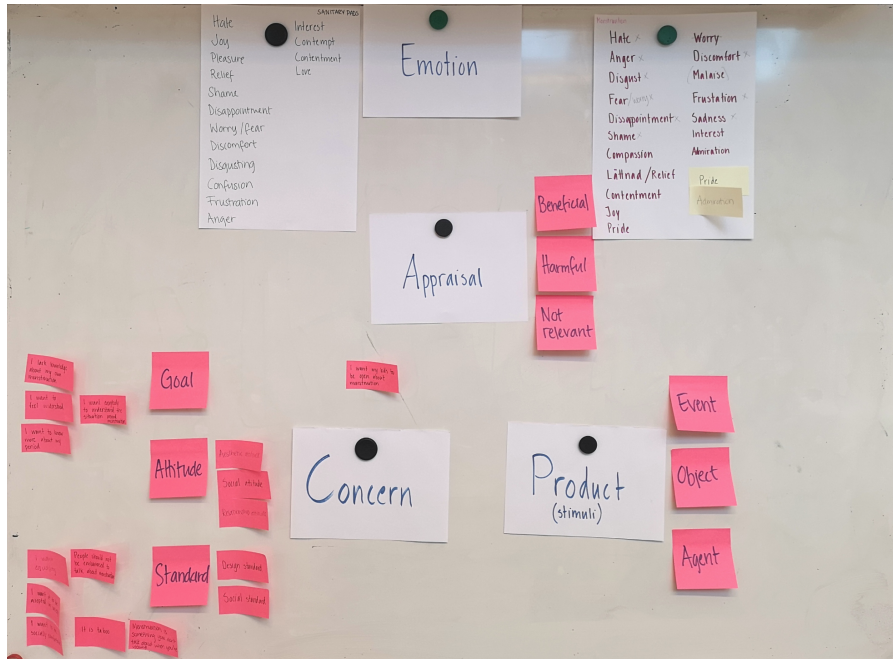


Figure 20. The UX theory applied to the result from the affinity diagram.

The analysis of the data resulted in a UX goal divided into three subcategories. Each of the subcategories was represented in three personas. These were described from their motivations, pain points and needs, to act as inspiration for the ideation phase.

5. The result of the user research

This chapter presents the result from the analysis of the user research and maps the users' existing experience of pantyliners, sanitary pads and menstruation. Desmet and Hekkert's UX theory of product emotions with the *product, concern, appraisal* and elicited *emotions* has been taken into account, where the emotional aspect was supported by the performed GEW. At the end of this chapter, the characteristics of the experienced menstrual residues are presented.

5.1 Pantyliners

The first part of the result is devoted to pantyliners where the most evident data is presented in this chapter. The data showed that pantyliners are most frequently used in combination with other menstrual protections, such as tampons or menstrual cups, to act as a backup to prevent leakage. Yet, the data also presented that pantyliners can be used solely when having a lighter flow. Moreover, pantyliners were appreciated for being discreet during usage and for having a flexible design. The users commonly choose pantyliners based on habit. They select the type that they are familiar with and have used for a longer period.

Two major problem areas were found for pantyliners. The first being bad positioning since many users experienced that pantyliners do not remain in the same position during usage. Secondly, the project members saw an unawareness amongst the users about the pantyliners absorption capacity. It was compared with the absorption capacity of sanitary pads, even though sanitary pads have a higher tolerance towards larger volumes of menstrual fluid.

However, the research questions of the project aimed at understanding if residues remain on the surface of sanitary pads and pantyliners and if so, the experience of it. Early in the user research, it was evident that the majority of users did *not* experience residues remaining on the surface of pantyliners. When asking the question: *Do you experience menstrual residues on the surface of your pantyliner?* in the survey, 87.5% out of 160 participants answered that they do not experience residues on pantyliners (see Figure 21). This was complemented with information from the Swedish interviews where none of the users mentioned it as a problem. Therefore, the project group decided to *not* proceed with pantyliners during the project. Hence, the next section will target sanitary pads.

Do you experience menstrual residues on the surface of your pantyliner?

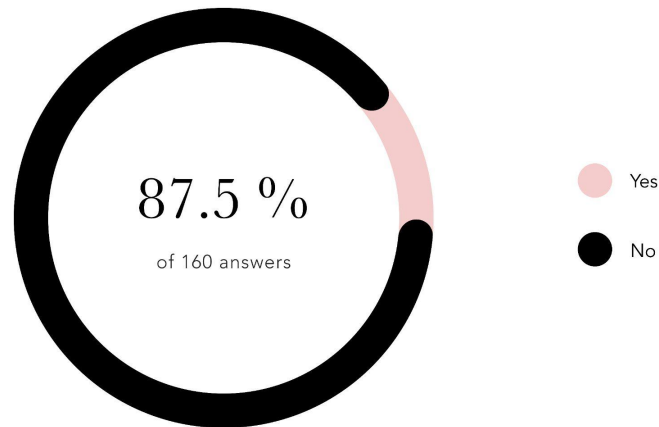


Figure 21. Diagram from the survey of users that experience residues on the surface of pantyliners.

5.2 Sanitary pads

The following part of the analysis is devoted to sanitary pads. In contrast to the results targeting pantyliners, the user research showed that residues do remain on the surface of sanitary pads. When asking the question “*How well do you experience that the following parts of the menstruation have been absorbed by the sanitary pad when changing?*” within the survey, it demonstrated that 78% of the users experience that the residues are not fully absorbed by the sanitary pad (see Figure 22). However, a majority answered that menstrual liquid is absorbed by the pad.

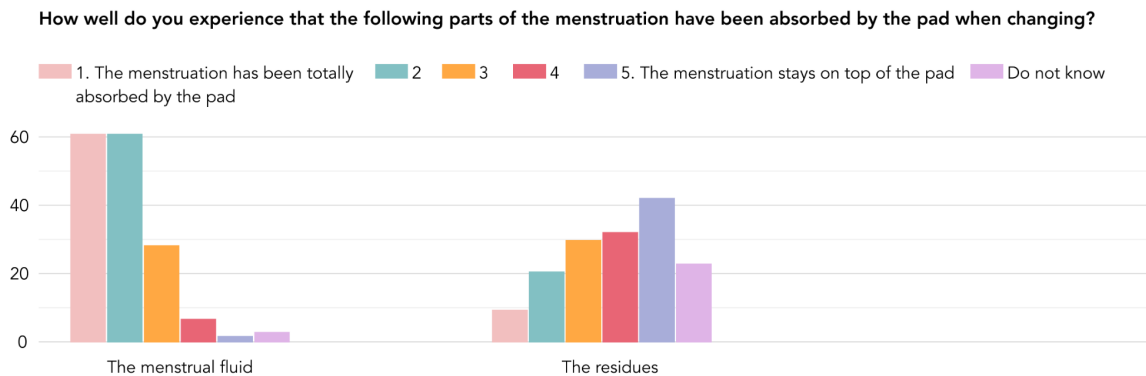


Figure 22. The result of the users’ answers regarding the survey question: *How well do you experience that the following parts of the menstruation have been absorbed by the sanitary pad when changing?*

Furthermore, the user research revealed the most regular and intense emotions elicited concerning sanitary pads. These were compiled in an overall Geneva Emotion Wheel (see Figure 23). The result indicated that the participating users reported strong emotions in all four

quadrants of the GEW. In the first quadrant targeting high control and positive valence, *interest* and *joy* were the most frequently expressed and intense emotions felt towards sanitary pads, whereas in the second quadrant of low control and positive valence, the emotions of *contentment*, *love* and *relief* were of most significance. For low control and negative valence in the third quadrant of the GEW, the most distinct emotions elicited were *shame* and *disappointment*. The fourth quadrant targeting high control and negative valence showed many intense emotions felt towards sanitary pads, namely; *fear*, *disgust*, *contempt*, *hate* and *anger*.



Figure 23. GEW of users' emotions towards sanitary pads.

Each of the reported emotions was associated with the underlying parameters of *product*, *concern*, and *appraisal* in Desmet and Hekkert's model of product emotions (see Appendix 8), where the *product* is the sanitary pad. To understand the *concern* and *appraisal* behind each emotion, the information from the user research was used as a basis. This revealed five areas targeting sanitary pads starting from the semiotics and the sensory experience, followed by usability, lack of control, discomfort and lastly, making a habit-based choice. These areas will be presented in the following paragraphs, presenting the evoked emotions with support from the data from the user research.

5.2.1 The semiotics & sensory experience

The first area of the analysis targets the semiotics and the sensory experience of sanitary pads. Here, the semiotics and sensory experience of sanitary pads, in general, are lifted, as well as towards Libresse Ultra+ Wings.

During the focus group, the participants were asked to explore the sensory experience of six regular sanitary pads with wings in terms of haptics and sight (see Chapter 4.4). The result indicated that they preferred thinner sanitary pads with a soft top layer that seemed gentle towards the intimate area. This was also addressed in the Swedish interviews when the interviewees were asked to choose a sanitary pad by only seeing it. Here, many stated that the pads that looked the softest were the most appealing for the same reason as above. This was revealed to generate *contentment* and *love* towards the sanitary pad since it corresponds to the goal of wanting the material to be of softness (see Figure 24).

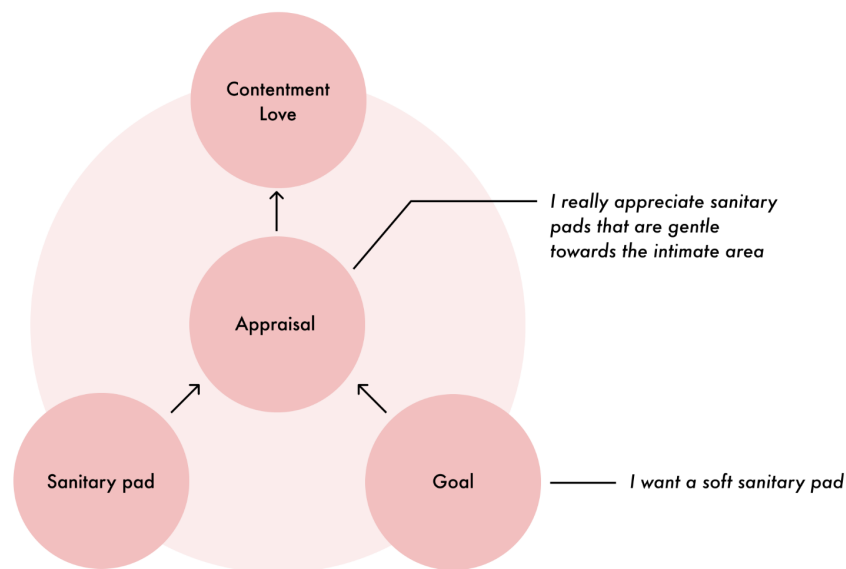


Figure 24. The UX mapping of the emotions of *contentment* and *love*.

Moreover, the participants in the focus group expressed that they did not enjoy it when the sanitary pads had a top layer that felt like plastic. One of the presented pads had that characteristic, together with a rougher surface that made one user state that it felt like a plastic net. Although, some of the presented sanitary pads had a subtle embossing on the top layer, which the participants thought could be good to absorb the menstruation, as long as it was combined with a soft material.

“There are a lot of small recessed parts on this pad, like a pattern on the surface. Maybe this is where the menstruation should be absorbed.”

Furthermore, a thicker sanitary pad was perceived as bulkier and non-discreet and was compared to the feeling of wearing a diaper. Throughout the user research, it was generally mentioned that thicker pads evoke a worry about the pad being visible through clothes. Therefore, many users shared that they avoid wearing tight clothes while using sanitary pads since they felt *shame* towards it being detectable by others (see Figure 25). Moreover, the participants in the focus group perceived the thicker models displayed as being from a cheaper brand. Thus, some of the participants mentioned that it would probably not do the job as good as those that felt more compact, i.e. thinner, since they were presumably more well developed. This corresponds with the answers from the survey where it was palpable that thin sanitary pads with wings are most commonly used and preferred.

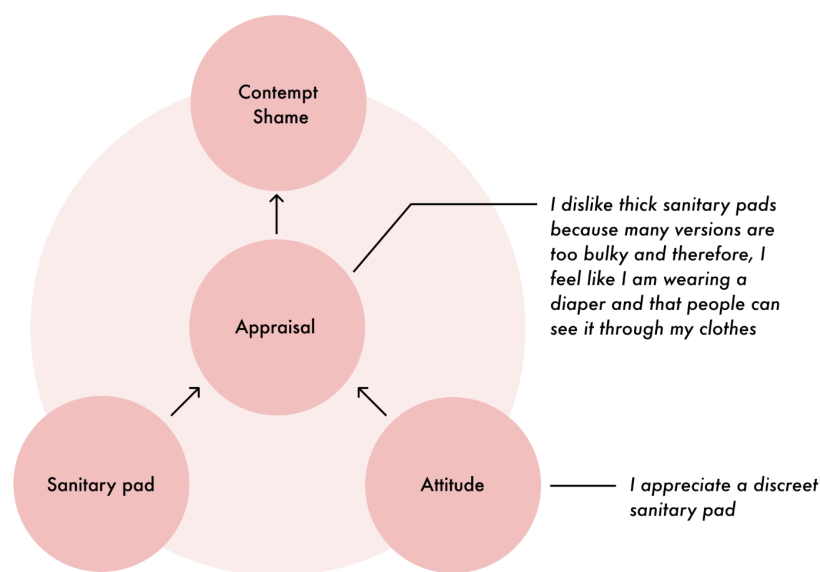


Figure 25. The UX mapping of the emotions *contempt* and *shame*.

All of the participants within the focus group and the Swedish interviews observed that the Libresse Ultra+ Wings was the only sanitary pad displayed with a clear shape and print that differentiated the front from the back, whereas the other sanitary pads were acknowledged as fully symmetrical in shape. Their prints were also seen as symmetrical at first glance. However, when examining the prints further, two of the pads had small details in the print that separated the front from the back.

The participants within the focus group discussed whether symmetrical or asymmetrical prints and shapes would be the best. By having an entirely symmetrical sanitary pad, the pad could be placed in either direction which liberates the user from having to think about the correct placement. Yet, having a clear print and shape that differentiate the front from the back indicates that there is a technology behind it being placed in a certain direction, which was perceived as

trustworthy. What was evident during the interviews with some of the Swedish users was that they saw no reason in having a symmetrical shape of the pad with a print that only has a small detail that portrays that the sanitary pad has a front and a back, unless being very obvious. According to them, it would be better with a sanitary pad that is either fully symmetrical or asymmetrical to ease the understanding.

Furthermore, many of the exhibited sanitary pads had prints that were most distinct in the middle area because it was filled with more colour. Thus, the participants perceived that the middle part was the safest and most absorbing part of those pads. Colourwise, the majority of prints were blue, while the Libresse Ultra+ Wings had a purple colour. Both colours worked well on the sanitary pads according to the participants, since being easy to separate from the menstrual fluids.

The result from the semantic differential scales performed on the Libresse Ultra+ Wings during the focus group is presented in Appendix 9. It revealed that the Libresse pad is perceived as very comfortable because it is soft and light, as well as due to the SecureFit design that differentiates the front of the pad from the back and shapes the pad towards the body (see Figure 7). The SecureFit design was also why many users reported that the pad looked safe, but also more expensive. Additionally, the pad was regarded as more aesthetic than other sanitary pads on the market. It was stated that the aesthetic works for people of all ages, even though some comments were made about the heart being a bit childish.

5.2.2 Usability

The usability of sanitary pads was also illuminated in the user research. The usability area of *engagement* was frequently touched upon by the users, meaning that sanitary pads were stated to be used with pleasure since it goes in line with the preferences of the users. Many users preferred sanitary pads over other sanitary protections that are inserted into the body, such as menstrual cups and tampons since they felt like those protections prevent something natural from happening. This was frequently touched upon by the French interviewees, who had been influenced by the media saying that diverse chemicals or toxic material are present within e.g. tampons. Using sanitary pads was by many perceived as safer and therefore aroused *relief* and *contentment* (see Figure 26).

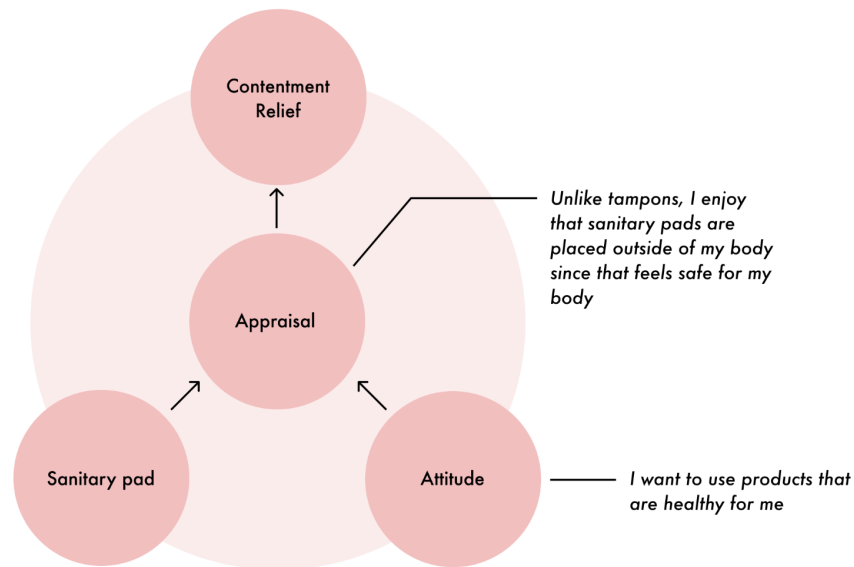


Figure 26. The UX mapping of the emotions *contentment* and *relief*.

Furthermore, the usability area of *ease of learning* was evident within the analysis. Users appreciated that sanitary pads with a clear shape and pattern are very easy to understand how to use. In this sense, the attachment of sanitary pads was specifically targeted as intuitive which was translated into the model of product emotions as eliciting *joy* and *love* among the users since it aids the, by many, cumbersome process of having menstruation (see Figure 27).

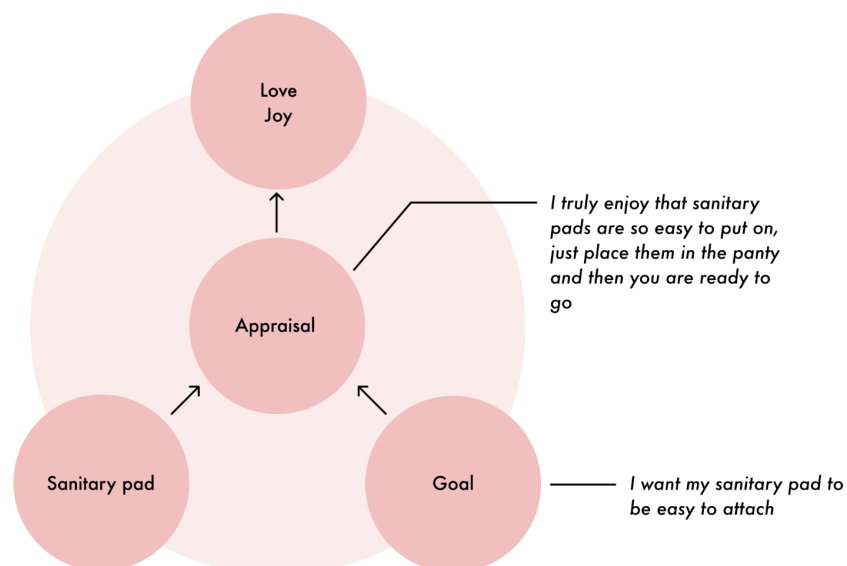


Figure 27. The UX mapping of the emotions *love* and *joy*.

For the Libresse Ultra+ Wings, the wrap with the Roll Press Go technique was highly valued among the participants in the user studies. In a very intuitive way, the wrap simplifies the disposing of the sanitary pad. Although, for many sanitary pads of other brands, the sanitary pads were not seen as easy to dispose of since users are required to roll the saturated pad into paper after usage. This has been reported to be cumbersome which makes the users feel strong *frustration* and *disappointment* since knowing that it can be made more effortless.

5.2.3 Lack of control

The most prominent problem faced during the usage of sanitary pads was the experience of lack of control. When using sanitary pads in combination with other menstrual protections, such as tampons or menstrual cups, the users perceive control since the sanitary pad works as a backup to ensure security. However, this feeling diminished drastically when using sanitary pads solely. This, because there is a constant *fear* of leakage with sanitary pads (see Figure 28). Due to this, it has also been evident that the users adopt a behaviour where they visit the toilet more frequently to check that everything is fine.

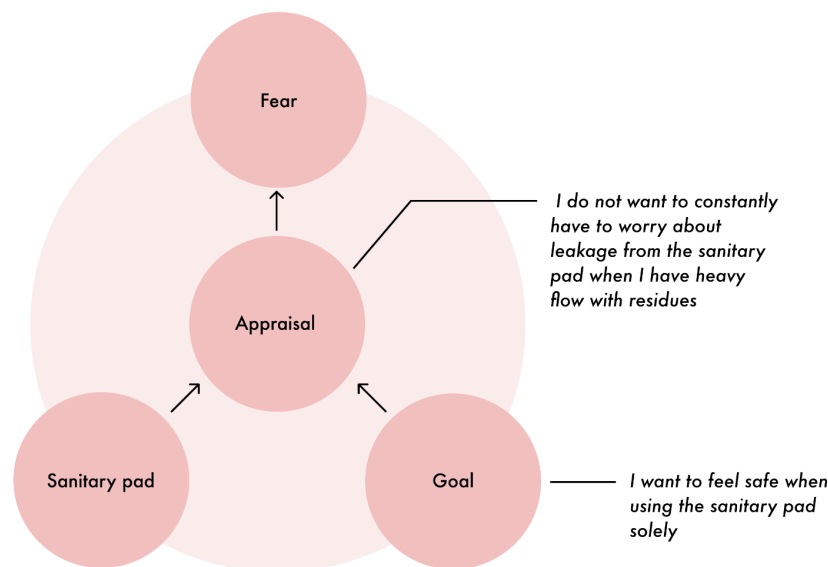


Figure 28. The UX mapping of the emotion *fear*.

The *fear* about leakage is especially strong when experiencing the heaviest flow during the menstrual period, and the data has shown that it is further increased when residues are apparent within the menstrual fluid. However, when the project members asked if the users have experienced leakage due to the residues staying on top of the sanitary protection, very few directly said that it is due to the residues, but rather due to heavy flow and that the sanitary pad is full. Furthermore, it has been explained that the residues regularly end up in the middle of the pad, which is experienced as a safe area of the pad. Yet, a majority of users stated that the sanitary pad is changed immediately when the residues can be felt on the pad since they do not

know if the residues will be absorbed or not. Thus, they strive to be in control over the situation and therefore change the sanitary pad before being entirely saturated. Apart from *fear*, the users also expressed *confusion* and *disappointment* towards the sanitary pad in this sense because they believe that the sanitary pad could better indicate when it is full or what it actually can absorb (see Figure 29).

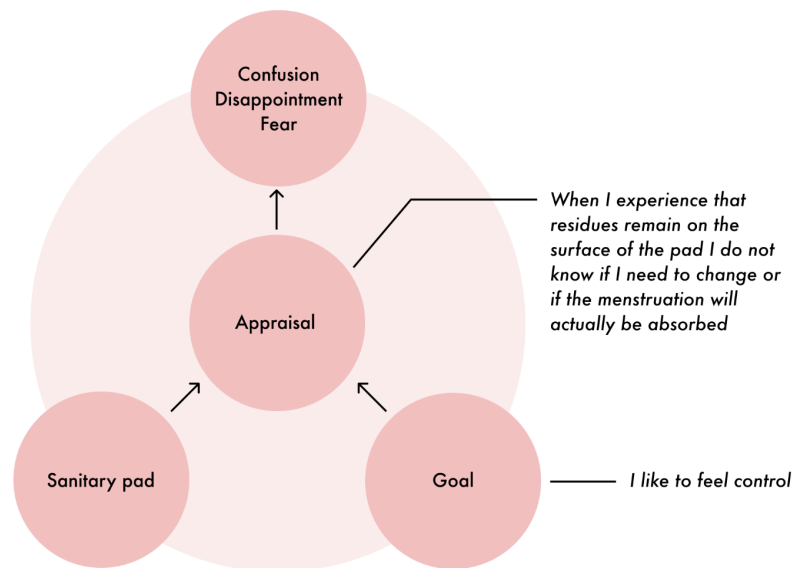


Figure 29. The UX mapping of the emotions of *confusion*, *disappointment* and *fear*.

Changing the sanitary pad before it is full has been proven to contradict the fact that many users have stated that they strive towards being more environmentally friendly, also concerning the usage of sanitary protection. Throwing away a not fully used sanitary pad means that it has not completed its full life cycle. When asking about this during the interviews with users from the UK and France, many admitted that they knew this and felt *shame*, but they still did it because being in control and comfort were stated to be prioritized.

5.2.4 Discomfort

Even though many people describe sanitary pads as comfortable compared to other sanitary protection, there are still numerous users that experience discomfort when using sanitary pads. The UX curves from the experience diary indicated that the main reason for the experience to change from positive to negative during the day is when the users can feel the menstruation on the sanitary pad which is perceived as uncomfortable and thereby unfresh (see Figure 30). Another reason for the curve being negative was that the pad becomes uncomfortable after a while of use because it loses its shape.

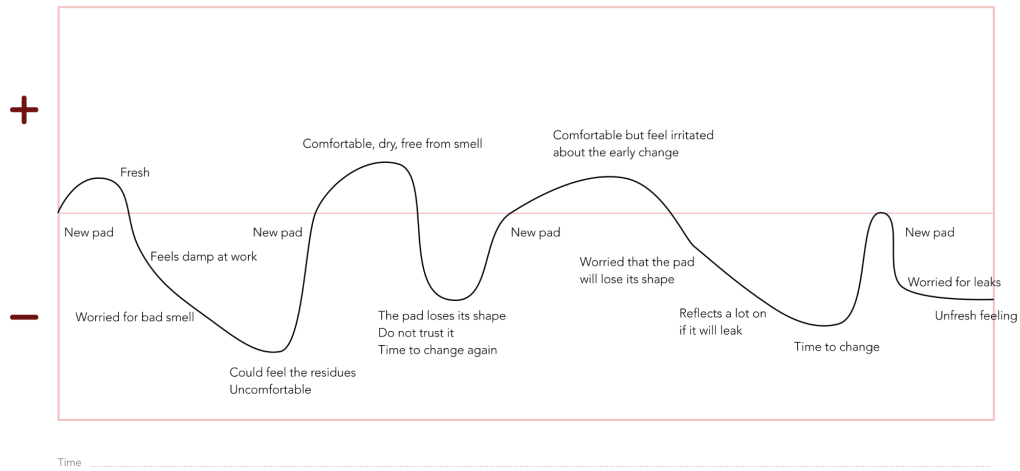


Figure 30. One of the UX curves from the experience diary showing when the experience changes over time between positive and negative.

When asking the users of sanitary pads about the experience of residues remaining on the surface, a majority stated that it is experienced as disgusting and unfresh precisely because the residues can be felt in the pad during use. This is influenced by the sticky and wet characteristics of the residues. Because of this, the users get very uncomfortable and self-conscious about the residues being on the pad, which evokes both *disgust* and *hate* towards feeling that way (see Figure 31).

"I think the clots remaining on the surface of the pad are a contributing factor to it feeling unfresh. I think it is the feeling that it almost feels like I have peed myself. It is like it is not completely tight and it is on me instead of on the pad. I think it is the sticky feeling of the pad that I do not like."

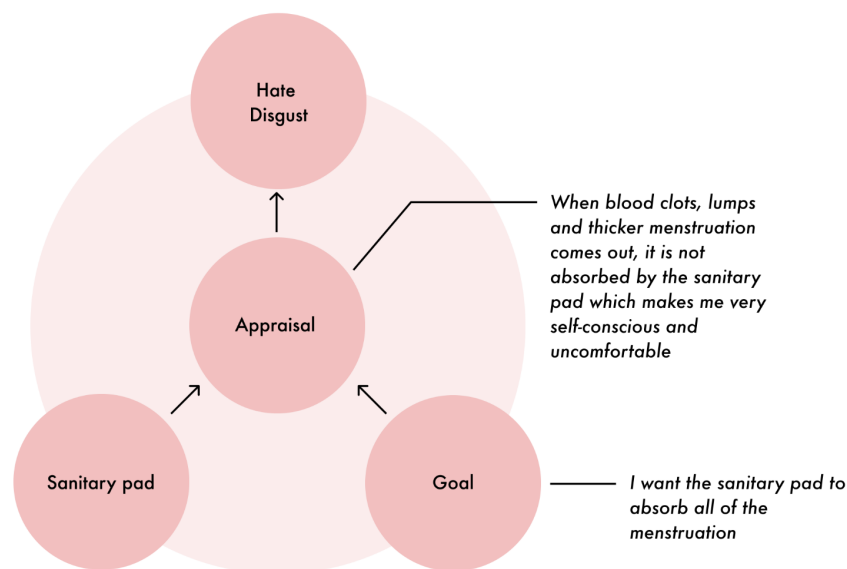


Figure 31. The UX mapping of the emotions *hate* and *disgust*.

One of the questions in the survey targeted the main reasons for changing to a new sanitary pad during the day, where the answers indicated that the main reasons are; how much menstruation has been gathered in the pad, how long it has been since the previous change and to feel fresh (see Figure 32). The data has shown that sanitary pads are often experienced as somewhat dense, thus, giving the user an unpleasant feeling where the intimate area feels sweaty and confined. Therefore, the users experience that when having menstruation and wearing sanitary pads, they feel much less fresh than while not having menstruation. This was also reported to provoke *disgust*.

What are the main reasons for changing to a new sanitary pad during the day?

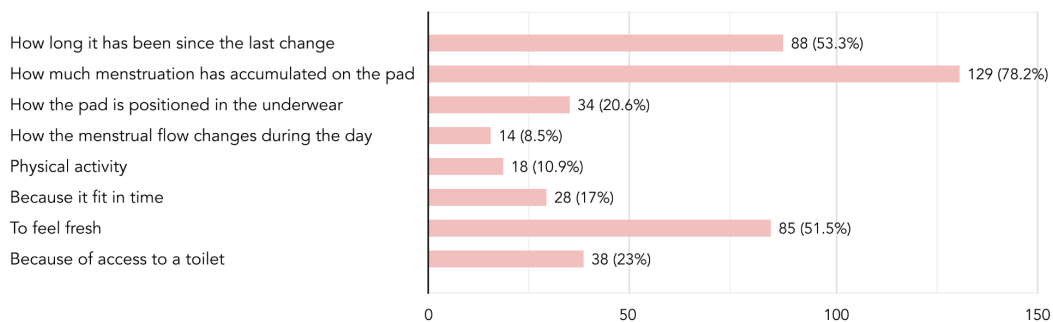


Figure 32. The result of the survey question: *What are the main reasons for changing to a new sanitary pad during the day?*

Hate, disgust and *fear* were elicited due to the bad smell that sanitary pads can bring, which makes the users uncomfortable. This was experienced as something that leaves the user very self-conscious and worried about others noticing it. This was translated into the UX theory as a goal, where the users want to smell nice (see Figure 33). However, the research made it palpable that a fragranced sanitary pad is not something that is wanted since most Swedish users were against adding perfume in the intimate area. They believed that it would both be irritating for the skin, but also create a strange smell of the mixture between perfume and menstruation.

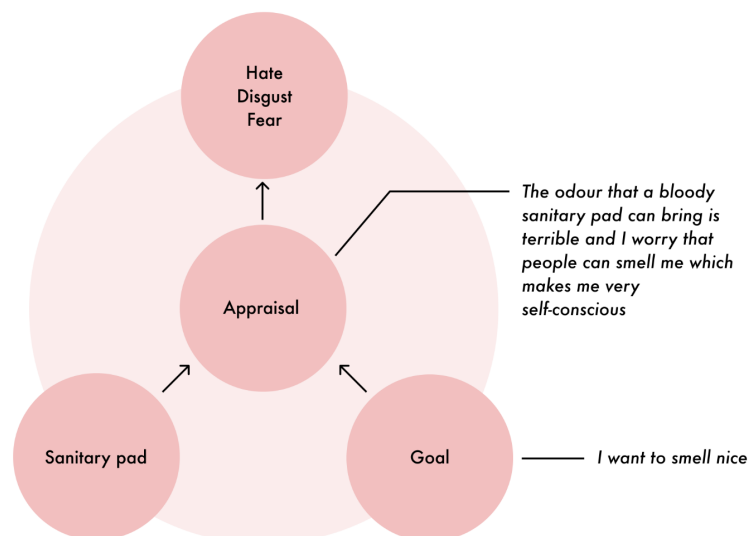


Figure 33. The UX mapping of the emotions *hate, disgust* and *fear*.

5.2.5 Habit based choices

Although some users stated that the price, availability and absorption capacity were factors that influenced the choice of a specific sanitary pad, the most influential factor was to choose a sanitary pad that one was familiar with in advance. The data collected has shown that users mainly choose a specific sanitary pad based on habit, thereby, somewhat making an unconscious choice when selecting the product and not based on actual needs. The users select a sanitary pad that has been used for the majority of life. This is often influenced by what their relatives have presented to them during the early ages of menstruation, and most commonly what their mother has suggested.

This made it evident that many users lack knowledge about what sanitary pad suits them and their needs during menstruation. When presenting various sanitary pads to the users during the Swedish interviews and the focus group, many expressed interest in trying something new. Therefore, a goal based on the UX mapping was created which says that the user wants to be able to make a conscious choice based on their needs (see Figure 34). The appraisal shows that the user lacks knowledge about the products and how to match them with their needs. This leads to both *confusion* and *interest* since there is too little information available but at the same time something that one has an interest in learning more about.

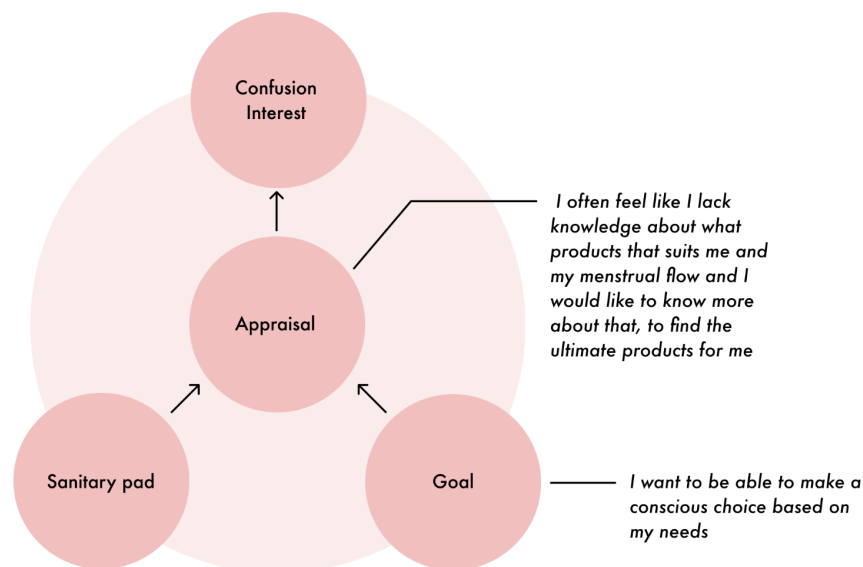


Figure 34. The UX mapping of the emotions of *confusion* and *interest*.

Habit based choices was the last area from the user research touching sanitary pads. The next section will focus on the found areas addressing menstruation.

5.3 Menstruation

The following part of chapter 5 is devoted to presenting the result targeting menstruation. During the Swedish interviews and the experience diary, the participants were asked to fill in a Geneva Emotion Wheel with regards to the felt emotions towards menstruation. The most frequently self-reported and intense emotions were compiled in an overall GEW targeting menstruation (see Figure 35).



Figure 35. GEW of users' emotions towards menstruation.

The result showed that users experience strong emotions in all of the four quadrants of the GEW. In the first quadrant of the diagram, targeting high control and positive valence, *interest*, *pride* and *joy* were the most frequently reported and intense emotions towards menstruation. In the second quadrant of low control and positive valence, a majority of users stated that they feel strong *admiration*, *relief* and *compassion* to menstruation. For low control and negative valence in the third quadrant of the GEW, the most distinct emotions aroused were *shame* and *disappointment*, whereas, in the fourth quadrant of high control and negative valence the emotions of *disgust*, *hate* and *anger* were of most significance.

Each of the reported emotions was connected to the underlying parameters of *product*, *concern*, and *appraisal* in Desmet and Hekkert's model of product emotions (see Appendix 10), where the menstruation is seen as the *product*. The information from the user research was used as a

foundation to identify the *concern* and the *appraisal* to each elicited *emotion*. This process revealed four different areas targeting menstruation, namely; social comfortability towards menstruation, appreciation of the woman’s body, knowledge about menstruation and discomfort during menstruation. These areas will be presented in the following paragraphs, illuminating the elicited emotions with support from the collected user research data.

5.3.1 Social comfortability towards menstruation

The biggest area targeting menstruation is the social comfortability around it, meaning how comfortable users are with talking about menstruation in different situations. Figure 36 provides an overview of the users’ answers from the performed survey when asking how socially comfortable they are in different situations connected to menstruation. The survey generated 232 answers and the result showed that the majority are comfortable telling a partner or close friend that you are on your period and many stated that they are also somewhat comfortable discussing experiences or problems related to menstruation with friends. However, asking a colleague to lend sanitary protection is not something that comes naturally. Furthermore, to talk openly about menstruation with people outside the circle of close friends is by the majority of users perceived as socially uncomfortable to different degrees.

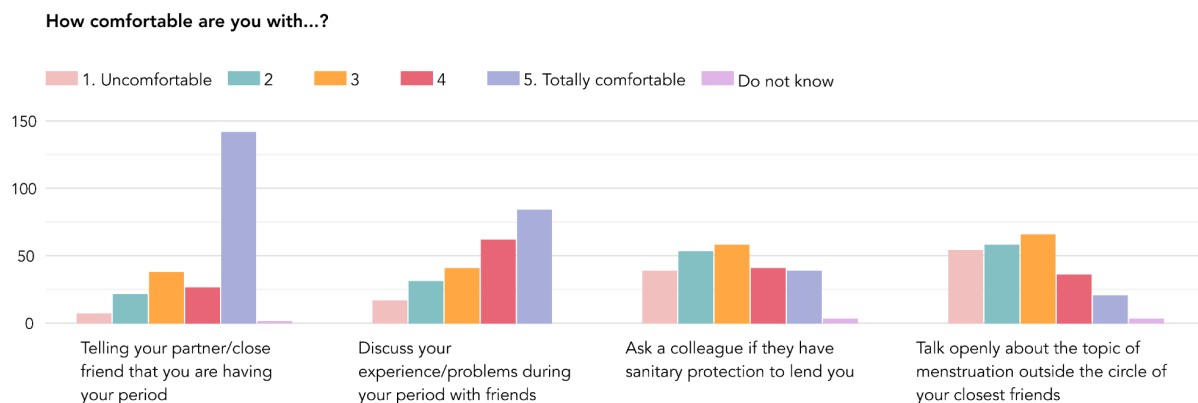


Figure 36. The result from the question in the survey about how socially comfortable the users are towards menstruation in different situations.

When investigating this further during the user studies, it showed that some users think that menstruation is completely natural to talk about, hence, making them very comfortable to discuss the topic with anyone at any time. However, even if most users think that it is a natural topic that everyone should be able to talk about, the data has indicated that a majority of users are not fully comfortable talking about menstruation in all situations since it can be perceived as a too private or intimate topic. This has been recognized to evoke a strong feeling of *shame* among the participating users (see Figure 37).

“Trying to live by the motto that it should not be taboo for anyone to talk about menstruation.”

“A natural topic that is also private.”

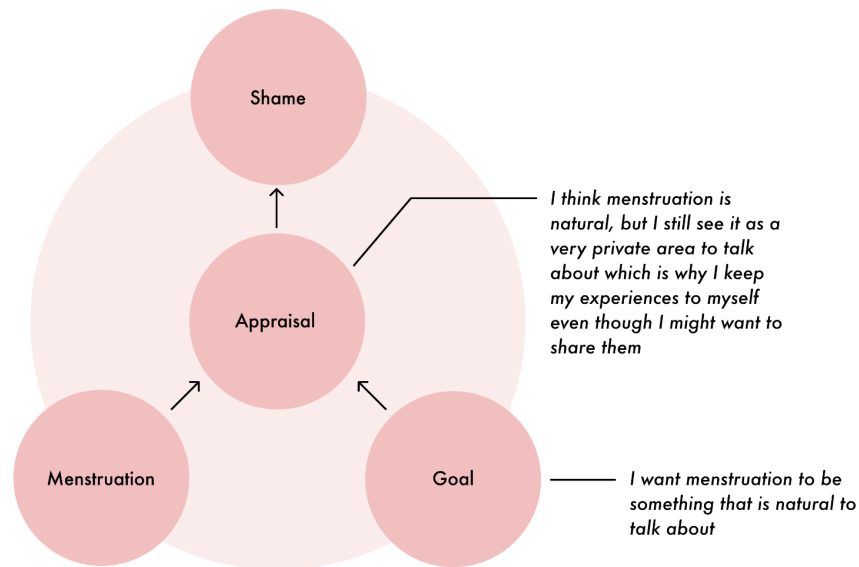


Figure 37. The UX mapping of the emotion of *shame*.

Why many feel uncomfortable with the topic of menstruation has its basis in different reasons. Firstly, because menstruation is still seen as something that is not suitable to mention during all times. Users have equated it with snot, urine, and bodily “struggles”, which are considered improper or not relevant areas to mediate to others in some situations. This is notably the case for residues. Secondly, the social comfortability changes depending on the company. As seen previously, a majority of users are fully comfortable addressing menstruation in the closest circle of friends or family, whether being a person that is fully open about menstruation or being a person that thinks it is a private matter. However, the data has shown that the majority of users have stated that the less you know the other company, the less comfortable and open you feel to discuss menstruation. This is because many worry about how the other company will react. The uncertainty of their reaction results in that the topic is often avoided to prevent uncomfortable situations.

“The reason for sometimes feeling uncomfortable is because of knowing that others can think that the topic of conversation is “disgusting”. Therefore, you can become uncomfortable even if you do not think that yourself.”

“It is quite taboo to talk about menstruation with people you do not know and especially in an open or public place. Feels like the same category to talk about pee or poop openly among people.”

Although, what has been prominent in the research is that women often feel more comfortable talking to other women about menstruation since knowing that they understand the situation. Even if some users experience that it is a private topic that they would not lift themselves, it has been stated that if another woman would address the topic, they would be glad to share their own experiences. This has its basis in the standard for showing empathy towards others in Desmet and Hekkert’s model of product emotions. Being able to help other menstruating women arouses *compassion* (see Figure 38). However, when asking the users in the interviews if they talk to female friends about residues, many said that it feels too detailed to share even with fellow women. Yet, the study was an eye-opener for many of them where someone mentioned that she will probably address it in the future.

“I would not bring up the topic spontaneously with people outside my circle of acquaintances. Though, if someone else would have, I would be okay with it and willing to share my advice if I have any.”

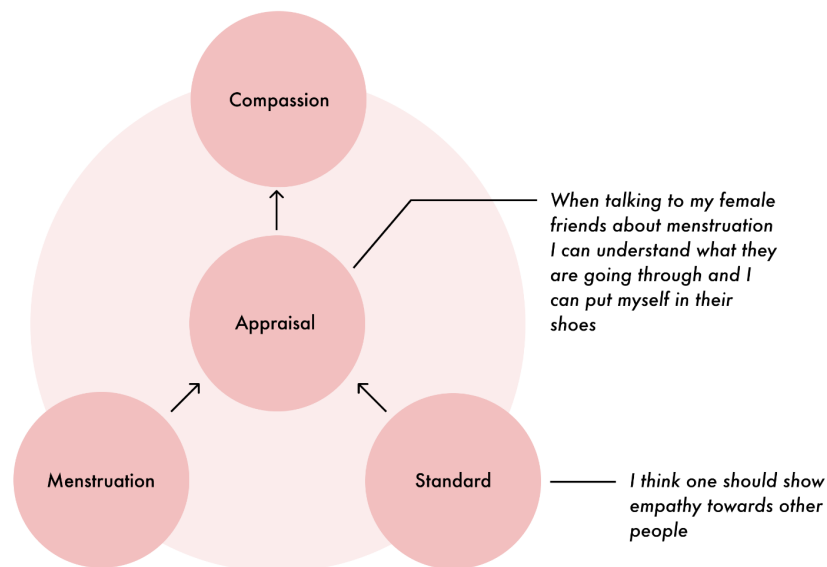


Figure 38. The UX mapping of the emotion of *compassion*.

However, while it seems like many women are somewhat comfortable talking about their menstruation with other women, it was often expressed that they at the same time felt uncomfortable and challenged to discuss it with men. It has been pointed out that there is a worry about making men uncomfortable by touching the topic, which happens to lead to an awkward position where the women can feel *shame*.

“[...] I have spent a lot of time with men in recent years. Partly at my job in a metal factory and partly as a student. I experience that it is much harder to talk about menstruation with men because you do not know how they will react. For some men, it is disgusting and they become very uncomfortable and stiff when talking about anything related to menstruation, while others are completely chill with it because it is a natural thing that happens to basically all uterus carriers.”

Furthermore, users have reported intense *disappointment* towards the fact that some people, mostly men, do not understand the situation around having menstruation with the physical and physiological changes that it can bring (see Figure 39).

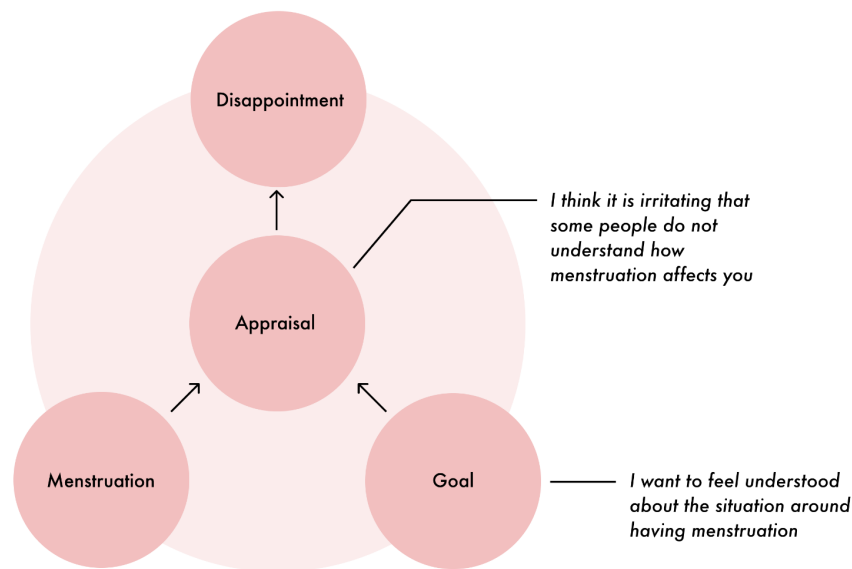


Figure 39. The UX mapping of the emotion of *disappointment*.

Another area discussed during the interviews in France and the UK was the user’s social comfortability towards talking with their children about menstruation. All of the interviewees said that they would talk to their children about it, regardless of gender, since it is an important topic that needs to be lifted to generate awareness. They were also planning on talking about residues with the female children since many of the interviewees experienced residues themselves and it was something that they had been worried about during life. Thus, they empathized the need to normalize the topic of residues among society to avoid women being unnecessarily concerned.

“I visited the gynaecologist to check that the residues were a normal part of menstruation.”

However, they were not planning on addressing the subject of menstruation themselves, instead, they would wait until the children asked about it. Contradictory to this was that the women in the

interviews in France and the UK mentioned that their mother had never brought up the topic of menstruation, which made the participants self-conscious and insecure about their menstruation. Due to this, they felt like they could not talk to their mother about it and still today, they refrain from doing it. This area was also lifted in the Swedish interviews where several users indicated that they felt *disappointment* towards their parents for not bringing up the topic. The users wished for an open atmosphere towards menstruation in all of its forms, for the sake of their children. This was translated into Desmet and Hekkert's model of product emotions (see Figure 40).

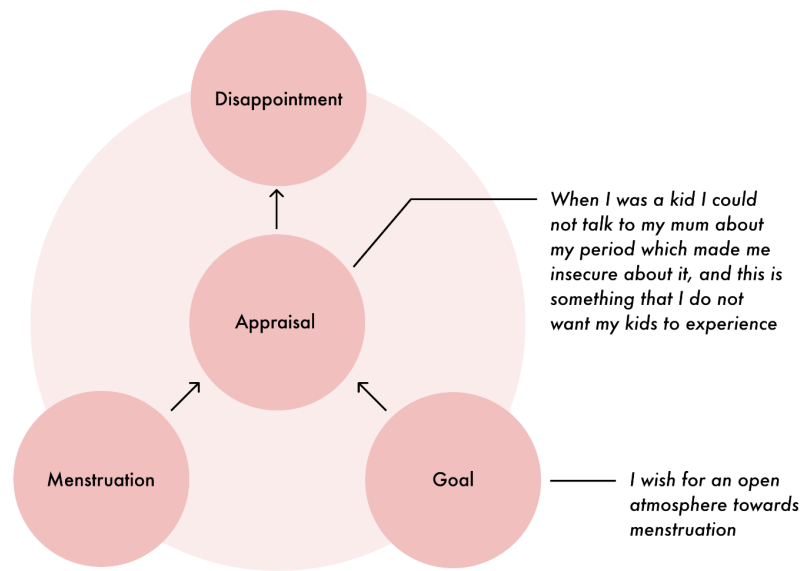


Figure 40. The UX mapping of the emotion of *disappointment*.

5.3.2 Appreciation of the woman's body

What was prominent in the data surrounding menstruation was the appreciation of the woman's body. Even though users stated that they experience *sadness* during the menstruation due to the physical and physiological discomfort experienced, e.g. period pain, swelling or mood swings, the emotions of *pride*, *interest* and *admiration* were reported as stronger and more frequent by the users. Users feel great *pride* in being a menstruating woman. They also feel *admiration* with regards to all the aspects that the female body manages to do. Furthermore, this has also been stated to elicit *interest* in the women's body and the anatomy behind making all the actions possible (see Figure 41).

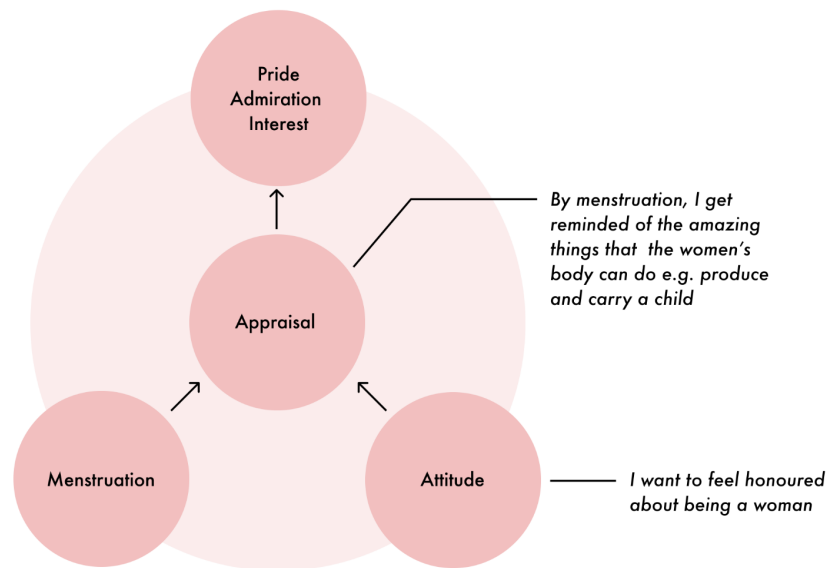


Figure 41. The UX mapping of the emotions *pride, admiration and interest*.

Furthermore, people strive to know that the body works as it should, which was formulated into an attitude in Desmet and Hekkert’s model of product emotions. In the user research, many users have stated that menstruation works as a confirmation that everything is okay within the body. This has been reported to evoke strong *relief* and *joy*, as well as *contentment*.

“When my menstruation is late I often start worrying, but when it finally arrives I get very relieved and happy since I know that my body works as it should and nothing is wrong.”

5.3.3 Knowledge about menstruation

Knowledge about menstruation has been distinguished as an area that the participating users commonly referred to in the study. In the focus group and the Swedish interviews, many users mentioned that they did not receive any proper guidance or lectures about menstruation when being younger, apart from some information from their parents.

“I remember that my math teacher held a class in sex education where he displayed some sanitary protection for the girls and that was it.”

The users in the focus group discussed that they were somewhat *disappointed* that they had not been given enough knowledge about what is normal around menstruation and how it can differ between persons (see Figure 42). Especially about residues that appear within the menstrual fluids. Until today, they still experience that they have been somewhat self-taught with regards to their menstruation and do not know what differentiates their menstruation from others. When

the participants within the focus group discussed each individual's menstruation many also seemed to arouse great *interest* towards one another's situation.

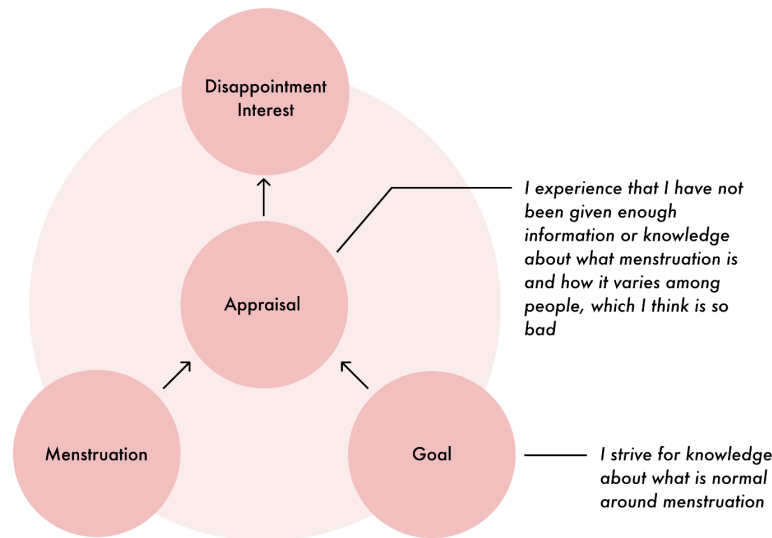


Figure 42. The UX mapping of the emotions of *disappointment* and *interest*.

5.3.4 Discomfort during the menstruation

Another established area that targets menstruation is discomfort during the menstrual period. What permeated the entire user research was that the users typically feel unrefreshed during their period which leads to discomfort. This is largely related to the fact that the characteristics of menstruation, and especially residues, are seen as somewhat repelling, which evokes the emotion of *disgust* among the users (see Figure 43).

“It looks more disgusting with thick and lumpy menstruation than when it is liquid, I do not know why but it does.”

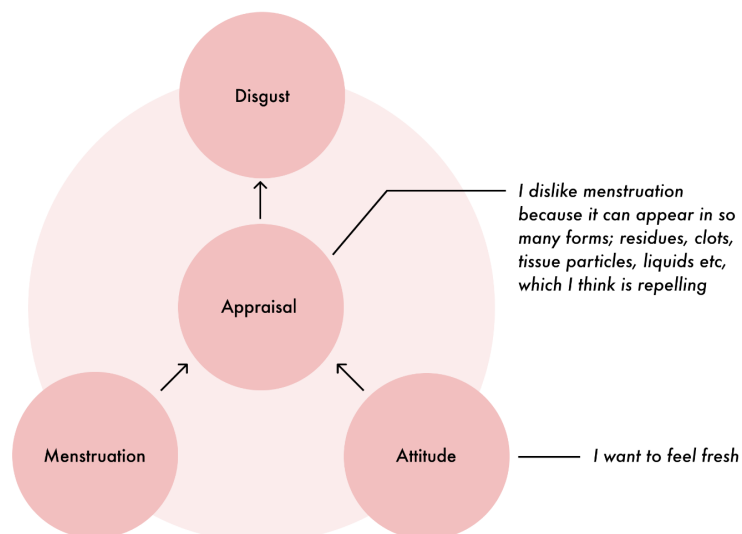


Figure 43. The UX mapping of the emotion of *disgust*.

As previously stated, discomfort is also related to the users experiencing e.g. period pain, swelling or pimple breakouts during the menstrual period. Furthermore, it was also revealed that discomfort correlates to the cumbersome circumstances around having menstruation and how it complicates life according to many users. The user research showed that this provokes strong *hate* and *anger* since menstruation somewhat limits life (see Figure 44).

“It is always something that you have to keep in mind when being on your period, you have to bring sanitary protection, be aware of a nearby toilet and you might not be able to do all the activities that you want.”

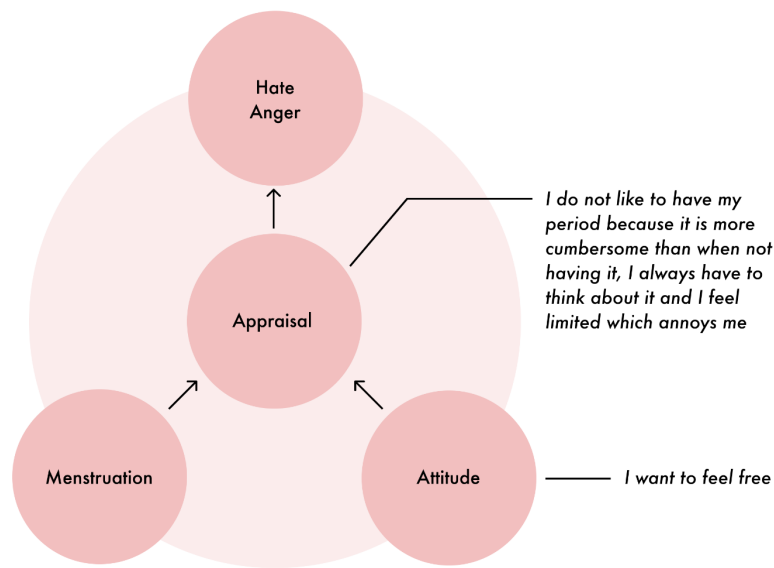


Figure 44. The UX mapping of the emotions *hate* and *anger*.

Discomfort during menstruation was the last area connected to menstruation. The next section will be about the characteristics of residues.

5.4 The characteristics of residues

Since the first research question of the project targets how users describe the experienced residues, a part of the analysis was devoted to the characteristics of the residues. This chapter presents when the residues commonly appear during the menstrual period, the shapes and sizes of them, as well as the colour and smell of the residues.

5.4.1 When the residues appear

As previously presented, the data has indicated that many users experience that residues are not fully absorbed by sanitary pads and thus, remain on the surface of them. What has been

prominent in the analysis is that heavy bleeders with menstruation that lasts for four or more days are commonly the ones that experience these residues. It is also more common to experience residues in the middle of the menstrual week or when the flow is at its heaviest, and it can occur both during day and night time. However, the data has also shown that light or moderate bleeders can encounter residues within the menstrual fluids, however, this is more frequent at the end of the menstrual week when the menstrual fluid is referred to as “older”.

5.4.2 Shapes and sizes of the residues

Menstruation can vary from being a thin liquid to having a thicker texture. When being of thicker texture, the data has shown that many users experience that it can contain different types of residues. These residues are described as clots, clusters, lumps or membranes with a gel-like and sticky texture that is somewhat elastic when the users try to remove them. The residues can appear in different sizes where the data has indicated that some users experience smaller residues from around 0.5 cm in diameter, while others experience bigger ones up to 5 cm in diameter.

“Small, dark red lumps that behave as slime and are elastic when I try to remove them.”

“Like blackcurrant jelly”

“Irregular shapes like a cluster. Sometimes more clotty, sometimes more like a membrane. Big as a middle fingernail, sometimes smaller. Sticky and dark red.”

5.4.3 Colour of the residues

When analysing the colour of the menstrual fluid, the data has shown that the colour can vary from red to brown, depending on where in the menstrual cycle the users are. Commonly, the menstrual fluid gets darker during the end of the menstrual week, while it starts as more bright red. Before the actual menstruation, users have also stated that they can experience brown spotting. Since the residues often occur when the flow is at its heaviest and in the middle of the menstrual period, the colour of the residues has frequently been described as of darker red colour. When the light or moderate bleeders encounter residues at the end of the menstrual week, the residues are often more brown or black. This corresponds to the investigated theory about menstruation (see Chapter 2.1).

“It depends on what day it is during my period, in the beginning, it is more bright red, then more dark red and towards the end of the period it gets browner.”

5.4.4 Smell of the residues

After having asked the users about the smell of the residues, the answers have indicated that the residues in themselves do not smell more than menstrual fluid does in general. It is rather other factors that can influence the smell, such as sweat or if wearing a protection with residues and menstrual liquid for a longer period. The general perception about the smell of the menstrual fluid is that it smells bad with the scent of iron. However, a few participants in the diary study described the smell as sweeter and one participant stated:

“It smells sweet, almost like rhubarb?!”

5.5 Compilation of identified problem areas

The result made it evident that there were several recurring problem areas related to residues, where improvements could be made to enhance the user experience. This is summarized in this chapter, together with the presentation of the users’ common denominator influenced by the problem areas.

For sanitary pads, the lack of control when experiencing residues on the surface of the pad was established as a problem area (see Figure 45). Many users change the pad immediately when residues can be felt on the pad since being unaware of if the residues will be absorbed by the pad or not. Furthermore, the discomfort was also related to residues since the users felt very unrefresh when residues are present on the pad. Another problem area identified was the lack of knowledge about what type of sanitary pad is suitable for the individual’s menstrual needs. This, because the majority of users made a habit-based choice when selecting sanitary pads.

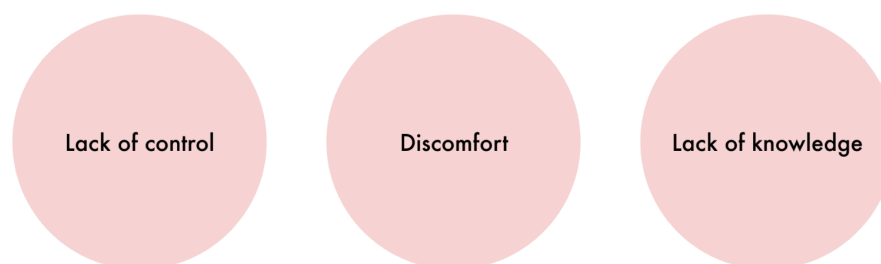


Figure 45. The problem areas found related to sanitary pads.

The largest problem area concerning menstruation where the user experience could be enhanced was that users are often uncomfortable talking about menstruation in different situations, especially about residues, even though they have stated that it should be normalized (see Figure 46). Moreover, the result showed that there is a lack of knowledge about what is normal around

menstruation and how it differs between individuals, making the users somewhat confused. Discomfort during the menstrual period was also a problem area of importance where the characteristics of the residues were mentioned, as well as the cumbersome process of having menstruation.

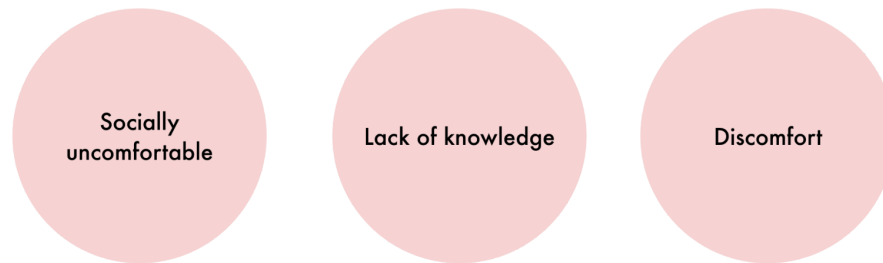


Figure 46. The problem areas found related to menstruation.

Based on the results, the project group could identify the users' common denominator that is largely influenced by the presented problem areas related to residues. This being the feeling of *security*.

6. Outcome of phase one

This chapter declares the outcome of phase one which was a UX goal with three subcategories and personas that figuratively illustrate the UX goal. This will be used as a foundation in the second phase of the project.

6.1 UX goal

Based on the results from the user research, the project group generated one UX goal; *Enhancing security*. The UX goal will aim at creating a better user experience when using sanitary pads and experiencing residues on the surface of the product. The UX goal contains three subcategories; *control*, *comfort* and *awareness* (see Figure 47). These subcategories were extracted from the problem areas found in the user research and were seen as of great importance to improve the user experience. By approaching the subcategories it will support the achievement of the UX goal.

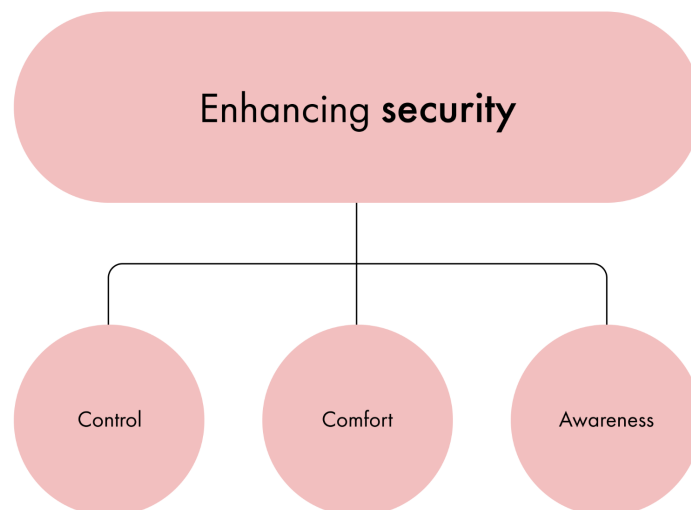


Figure 47. The UX goal and the underlying subcategories.

The subcategory of *control* refers to increasing the users' control over the situation of residues remaining on the surface of the sanitary pads. It aims at improving the user experience by including aspects that make the user more aware of when to change sanitary pads when residues are obvious, which also includes the aspect of avoiding wasting non-saturated products to be in control over the sustainable impact. Moreover, the subcategory of control intends to indicate that residues can be present on the sanitary pad and be safe there. These aspects of control will contribute to the user feeling more secure with the residues.

Comfort focuses on enhancing the user's mental and physical comfort when residues appear on the surface of sanitary pads. The comfort can be increased by making the sanitary pad take better care of the residues to ensure that the users feel fresh when this occurs. This will in turn improve the users' experience by improving the perceived security.

Awareness relates to providing knowledge about menstrual residues and making it more widespread. This, to make users understand what residues are and that it is normal to encounter them during the menstrual period. The subcategory also intends to bring information about menstruation appearing in many forms and that it differs between persons, which is of importance when choosing sanitary protections. Thus, awareness aims at making menstruation and residues normalized topics to assure that the users are secure in their own menstrual experience.

6.2 Personas

With the UX goal as a foundation, three personas were created to symbolize each subcategory. The personas are described from their driving forces, the issues found with residues and today's sanitary pads, as well as what would be needed for the future to enhance the experience of feeling secure. The personas act as a foundation for the second phase.

6.2.1 Users that value awareness

The persona of Lily was created to represent the users that value awareness around menstruation and the different forms that it can appear in (see Figure 48). Lily is a woman that loves spending time with her family. She is an advocate for women's rights and aims for her daughters to be raised in an equal society. Lily is always striving to know more, to get the best prerequisites in every situation.

Lily



ABOUT

Age	42
Job title	Business Developer
Household	Husband and two daughters
Location	London, UK

"I am tired of that menstruation is such of a taboo subject. I want my daughters to be comfortable with talking about it, even though I have never been."

MOTIVATIONS

- Values equality in society
- Likes knowing how things work and appreciates when information is available
- Openness and transparency are highly important

PAIN POINTS

- Disappointed that her mum never talked to her about menstruation when she was young
- Hard to know which products that suits her
- Unsure about how to teach her daughters about the different forms of menstruation

NEEDS

- Guidance of what is normal regarding residues
- Being able to talk openly about menstruation and all of its forms with any company
- Matching her menstrual flow with products

Figure 48. The persona Lily represents users that value awareness.

6.2.2 Users that value being in control

The persona of Sarah speaks for the users that want to be in control of the situation around menstruation (see Figure 49). Sara's biggest dream is to become a good doctor. Therefore, she spends most of her time studying with her friends. She is a person who likes to be in control which makes her always plan the things she wants to get done during the day.

Sarah



ABOUT

Age	23
Job title	Medical student
Household	A cat named Bob
Location	Nice, France

"I constantly worry for leakage and avoid putting myself into public situations where I could be embarrassed by leaks that shows"

MOTIVATIONS

- Keeping the planet as healthy as possible
- Values being in control which also makes her feel secure
- Appreciates when things run smoothly

PAIN POINTS

- Cannot trust the sanitary pad when experiencing residues on the surface of it
- Finds it difficult to understand when the sanitary pad is full or not
- Gets exhausted when thinking about the negative impact disposable items have on the environment

NEEDS

- Indication of when to change to a new sanitary pad
- Knowledge about leakage and how residues relates to it
- Feeling safe when experiencing residues on top of the sanitary pad

Figure 49. The persona Sarah represents users that value being in control.

6.2.3 Users that value comfortability

The users that appreciate feeling comfortable during the menstrual period are represented by the persona of Jessica (see Figure 50). Jessica loves her job as a teacher and enjoys that one day is never the same as another where anything can happen! She enjoys working out and likes having different spare time projects. The latest is that she and her family are renovating a house.

Jessica



ABOUT

Age	31
Job title	Teacher
Household	Partner and a son
Location	Malmö, Sweden

"I feel uncomfortable when the pad is sticky and wet. I wish there was a way to feel fresher"

MOTIVATIONS

- Appreciates when things are clean and tidy
- Values feeling comfortable when living an active life

PAIN POINTS

- Experiences that the sanitary pad feels wet and sticky which makes her feel unrefreshed and self-conscious
- Has little time to spend on changing sanitary protection during her working days
- Gets uncomfortable when she can feel the residues on the surface of her sanitary pad

NEEDS

- A sanitary protection that makes her feel fresh longer
- A practical way to change sanitary pad quickly without it getting messy
- Wants to feel comfortable and normal during her menstruation

Figure 50. The persona Jessica represents users that value comfortability.

02. Phase two

Creating new design concepts that enhance the user experience by creating security when using sanitary pads.

The second phase describes how the information collected in the first phase was turned into ideas and concepts. The UX goal and the personas were used as a foundation for the creation of ideas, which were later merged into concepts. Each concept was evaluated and a selection of which concepts to further develop was made. As a last part of the chapter, the final concept is presented.

7. Methods and implementation of concept development

This chapter explains how the phases of ideation, conceptualization and evaluation were performed to develop concepts. Figure 51 provides an overview of this, together with the outcome of each phase. Each section of the chapter consists of a description of the methods used followed by how it was implemented in this project.

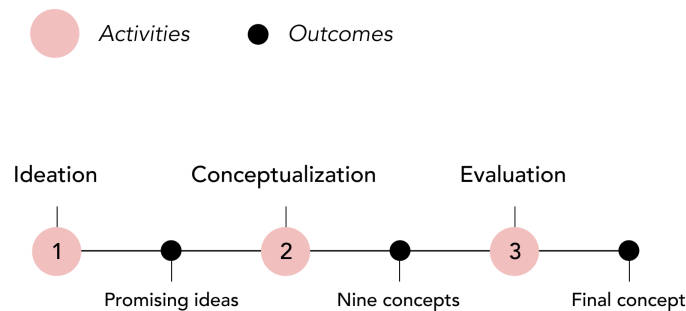


Figure 51. Process of the concept development with the outcome of each phase.

7.1 Ideation

The first step of the concept development was ideation. The ideation aimed to come up with solutions to help achieve the UX goal and thereby create a better user experience while experiencing menstrual residues. Two methods were applied during the ideation, namely, brainstorming and SCAMPER.

Method

The initial method used during the ideation was brainstorming. According to Johannesson, Persson and Pettersson (2013), brainstorming is a method used during ideation in a project to generate a large number of various ideas (Österlin, 2016). Further, Österlin (2016) claims that it is advantageous if the participants of the brainstorming session have various interests and knowledge, as well as to establish a positive and relaxed atmosphere to facilitate the generation of interesting ideas.

Within brainstorming, there are some existing rules that the group should adhere to, to keep the idea generation alive. Firstly, that all participants must be allowed to speak. Secondly, that no criticisms or valuation of the ideas are allowed during the process. Further, the participants should think outside the box when developing new ideas. However, it is also allowed to combine and supplement ideas. Ultimately, idea quantity weighs heavier than idea quality within brainstorming (Johannesson et al., 2013; Österlin, 2016).

To come up with new ideas, or to further develop the ideas created during the brainstorming session, the SCAMPER method was used. SCAMPER is a creative method where each letter stands for a question that can be posed to guide creative thinking and further ideation. The questions being: *Substitute? Combine? Adapt? Modify? Put to other use? Eliminate? and Reverse?* (Johannesson et al., 2013; Wikberg Nilsson et al., 2015). The method is often supplementing the ideas collected through other ideation methods for further development. The questions are used to ensure that nothing is forgotten or missed (Wikberg Nilsson et al., 2015).

Implementation

Two brainstorming sessions were performed during the ideation where pen and paper were used to quickly sketch or write down the ideas (see Figure 52). At first, the project group generated ideas openly around the whole user journey, from buying a product to disposing of it, where wild and crazy ideas were welcome, without any limitation. The second session of brainstorming aimed at creating ideas that targeted the UX goal. More specifically, ideas were created from each of the three subcategories; control, comfort and awareness, where new executions of sanitary pads were explored, as well as new product ideas that targeted the subcategories. This made the session more structured than the previous one.

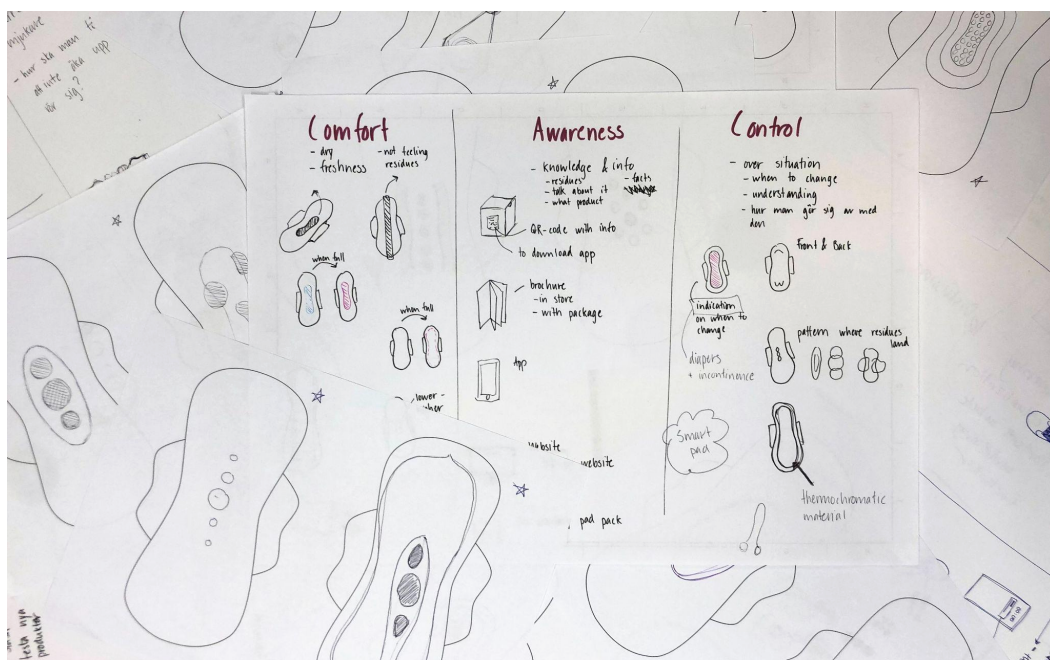


Figure 52. Sketches from the brainstorming session.

Thereafter, the project members applied SCAMPER to the ideas from the brainstorming sessions. The proposed SCAMPER questions were gone through, one by one, which led to altering the ideas or diving deeper into the execution of them. Moreover, the SCAMPER questions helped the project members to think outside of the box and develop new ideas.

The brainstorming sessions, together with the SCAMPER, resulted in a large number of ideas. The ideas were screened concerning the UX goal and its subcategories, as well as towards the research questions of the project. This resulted in the ideas that targeted menstrual residues were further developed into concepts.

7.2 Conceptualization

During the conceptualization, the SCAMPER method was applied once again to turn the ideas into concepts. Furthermore, the concepts were prototyped to communicate and visualise them, as well as to understand their feasibility.

Method

The SCAMPER method, described in Chapter 7.1, was the first part of the conceptualization to further develop the ideas into concepts and was followed by prototyping. Prototyping is a method performed to visualize ideas and concepts during development. By using this technique, a deeper understanding of concepts and their properties can be established (Wikberg Nilsson et al., 2015).

Sketch prototypes can be an advantageous method for visualizing imagined products and their functions to clients but also for creating a clearer picture for the creator. Physical prototypes are constructed in optional size, material and complexity and are beneficial to present and evaluate products and solutions. By making physical prototypes, solutions can be examined in a particular context, by both users and clients (Wikberg Nilsson et al., 2015).

Implementation

The most promising ideas from the ideation were further developed and turned into concepts. By applying the SCAMPER questions, it helped in iteratively exploring and creating different executions of the concepts. Sketch prototypes were created to make the concepts tangible and thereby, for the project members to review the feasibility of the concepts. This process resulted in nine promising concepts, four concepts targeting the subcategory of control, two concepts for comfort and three concepts for awareness. These concepts were prototyped more in detail, which was done digitally by using the photo editing software Photoshop, the vector graphic software Illustrator and the collaborative interface tool Figma. The project members aimed at making the concepts visually equivalent, to be able to compare the concepts fairly. This was seen as of importance when later communicating the concepts to the users who participated in evaluating the nine concepts.

7.3 Evaluation

The evaluation of the nine concepts was made through interview sessions with users. Within the interviews, GEW was used to capture the user's emotions about the concepts. In addition to this, the concepts were evaluated with the supervisors at Essity to get input on the development of the concepts. Ultimately, PNI matrices were compiled to structure the information from the evaluation.

Method

The first method used during the evaluation was interviews (see Chapter 4.3), which incorporated GEW (see Chapter 4.2). The following method adopted was PNI. PNI stands for Positive, Negative, Interesting. The method is about defining the pros, cons and interesting aspects of a concept to decide to eliminate or retain it. Thus, PNI is good for evaluating concepts against each other. The winning concept is the one with the most positive marks (Österlin, 2016).

Implementation

Five users who participated in the user research took part in the evaluation of the created concepts (see Table 3), which were held both digitally over Zoom and in presence. It was of value to gather users who had previously been a part of the user research since the project members wanted to confirm that the concepts targeted their needs to create a better user experience.

Table 3. The participants of the user evaluation.

Participant	Age	Previous user research participation
1	25	Focus group
2	24	Focus group
3	28	Interview
4	35	Interview & diary
5	42	Diary

During the evaluation with users, the concepts were displayed one by one followed by several questions related to each concept (see Appendix 11). The questions were focused on the understanding and perception of the concepts and their functions to ensure that the user had enough information on how to use the product. Moreover, questions were asked about how well the user thought the concept targeted the specific subcategory it was developed for, along with

the UX goal of enhancing security. The last part touched the liking or disliking of the aesthetics of the concept. Finally, GEW was used for the users to express their emotions evoked by the concepts. The diagrams were filled by the users and notes were taken about the users' comments. This, to be able to compare the emotional experience elicited by the concepts with the emotions for today's sanitary pads.

Furthermore, an evaluation with the supervisors at Essity was conducted. This was executed by showing the concepts and discussing them together. The supervisors possess knowledge about Essity's feminine care products on other markets, as well as technical knowledge about the functions of the sanitary pads and could therefore assist in evaluating the functionality and feasibility of the proposed concepts.

The users' feedback and the insights from the discussion with Essity were converted into a PNI table, where the data was divided into three areas; positive, negative and interesting. This was a way of putting the concepts against each other and to easily get an overview of which concepts were seen as most positive or negative. This resulted in the concepts with the most positive marks being further developed into a final concept. Later, the final concept was also evaluated with the three personas to ensure that it fulfilled their needs, thus, fulfilling the subcategories of the UX goal.

8. Ideation and creating concepts

Based on the performed methods, many ideas were created to target the UX goal and the subcategories of; *control*, *comfort* and *awareness*. For each subcategory, the project group generated ideas where the most promising ones were further developed into concepts. The concepts for each UX goal subcategory; *control*, *comfort* and *awareness* are presented in this chapter, as well as the insights from the evaluation together with users and Essity regarding elicited emotions and the perception about each concept. It ends with presenting the decision on which concepts were further developed into final concepts.

8.1 Control

Four concepts were generated with regards to the subcategory of control. The first one is related to the patterns on the sanitary pad, the second one is about the embossing on the top layer of the sanitary pad, the third concept includes an additional indicator on the sanitary pad and the last concept incorporates sensors in the sanitary pad.

8.1.1 Printed Patterns

The first concept includes nine different patterns printed on the middle part of the sanitary pad (see Figure 53). All patterns are illustrated in a grey colour to be equivalent in their comparison, focusing on the expressions of the shapes. The patterns are meant to provide control by indicating that residues can appear in that area and will be acceptable even if staying on the surface of the pad. Therefore, the patterns are made up of bigger shapes of different sizes and numbers in the middle that are encaptured by another shape. This symbolizes that the residues can be contained within the pad.

From the analysis, it was clear that the residues end up in the centre of the pad, which is why the pattern has its placement in the centre. The surrounding pattern was decided to be kept as it is since it was shown that it indicates the front and the back of the pad. Furthermore, when experiencing residues, there is an increased worry for leakage. Yet, no data from this study has indicated that it is due to residues that leakages happen, rather due to heavy liquid flow and a saturated sanitary product. The concept was therefore made to create an illusion of the residues being safe on top of the pad through the pattern to enhance the users' feeling of control.

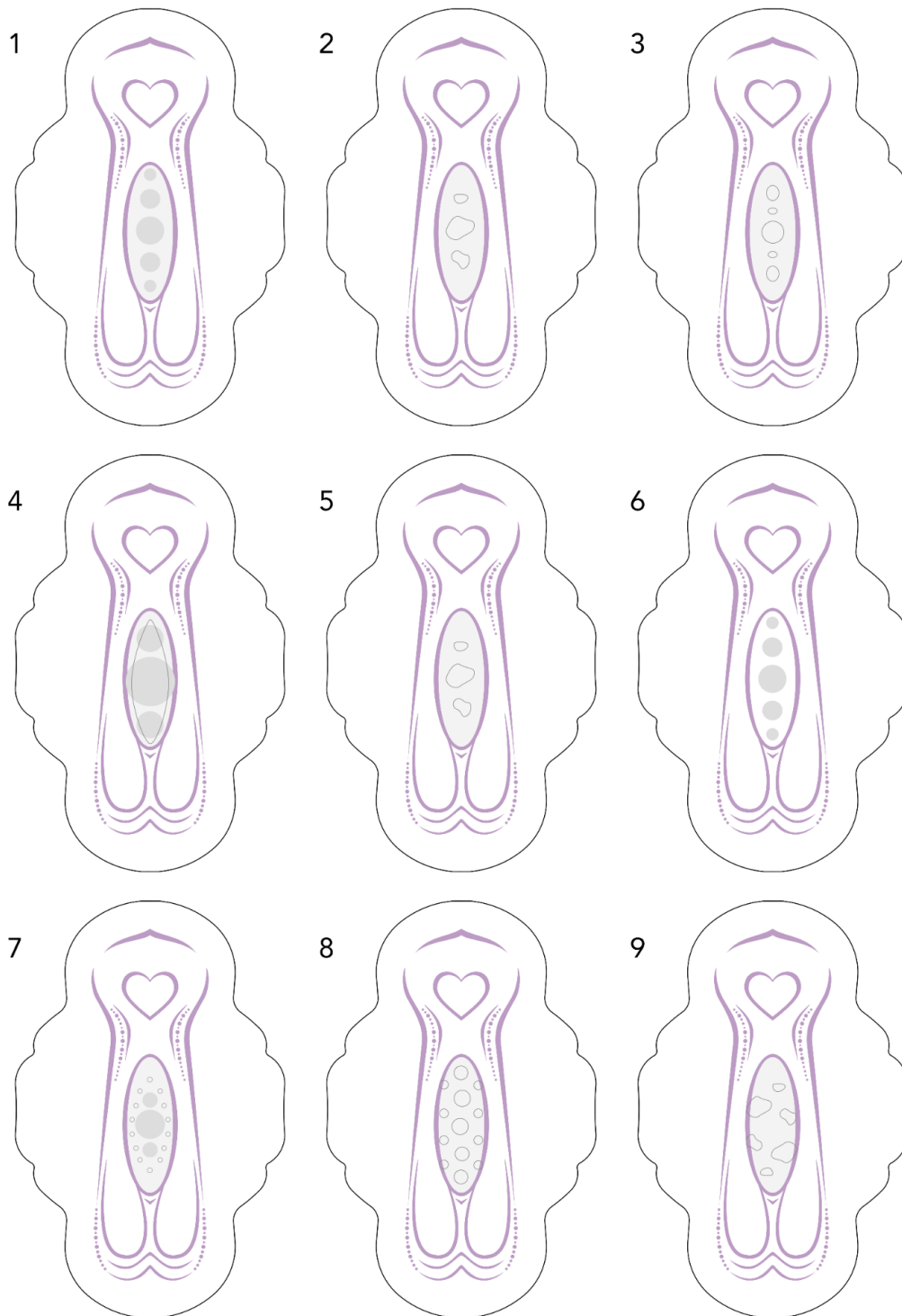


Figure 53. Different patterns indicating that residues can show up and be secure on the surface.

During the evaluation with users the emotions evoked by the concept were mapped into a GEW diagram (see Appendix 12). In general, the evaluation showed that they would feel more in control of the situation with the patterns. The concepts were seen to indicate that residues can appear and that it is common among women, which touched the feelings of *pleasure, pride, relief*

and *compassion* but also the UX goal subcategory awareness. On the negative hand, it was commented that *fear* appears to a small extent, as it is difficult to fully eliminate with a solution that only targets the visual expression.

When it comes to the specific patterns, it was mentioned that patterns with a dark shape covering the middle were perceived as safer as they looked like they encaptured the residues. Furthermore, symmetrical patterns and shapes were more aesthetically pleasing for the eye, eliciting *amusement* and *joy*. In contrast to this, users explained that asymmetrical shapes, such as in pattern 2, 5 or 10, were seen as unpleasant and even frightening since they became too realistic. A softer approach in the pattern was therefore appreciated. The most popular proposals were pattern 1, 3, 4 and 6.

The overall impression of the concept was very positive. It was evident that it would increase the feeling of security and control by providing a well-thought-out pattern and by approaching the mental part of the problem, which is about users being unaware of if the residues will stay safely on the surface of the pad. The idea behind the pattern evoked *interest*, *love*, *contentment* and *admiration* for the user.

8.1.2 Embossing

The following concept introduces eight different embossings in the middle of the top layer of the sanitary pad (see Figure 54). This, because the middle area is where the residues commonly land. Four of the embossings are recessed outlines (A-D), while the other four are entire shapes that are recessed (E-H).

Today, the Libresse Ultra+ Wings has a soft top layer, with a uniform small embossing that is constant throughout the pad (see Chapter 3.2). By having a bigger embossing the texture in the middle of the pad will be more robust, which will make the users experience more control when residues are evident on the surface of the sanitary pad. This, since the texture will promote a perception that the residues will stay in the same place on the pad, almost like a preventive grid.

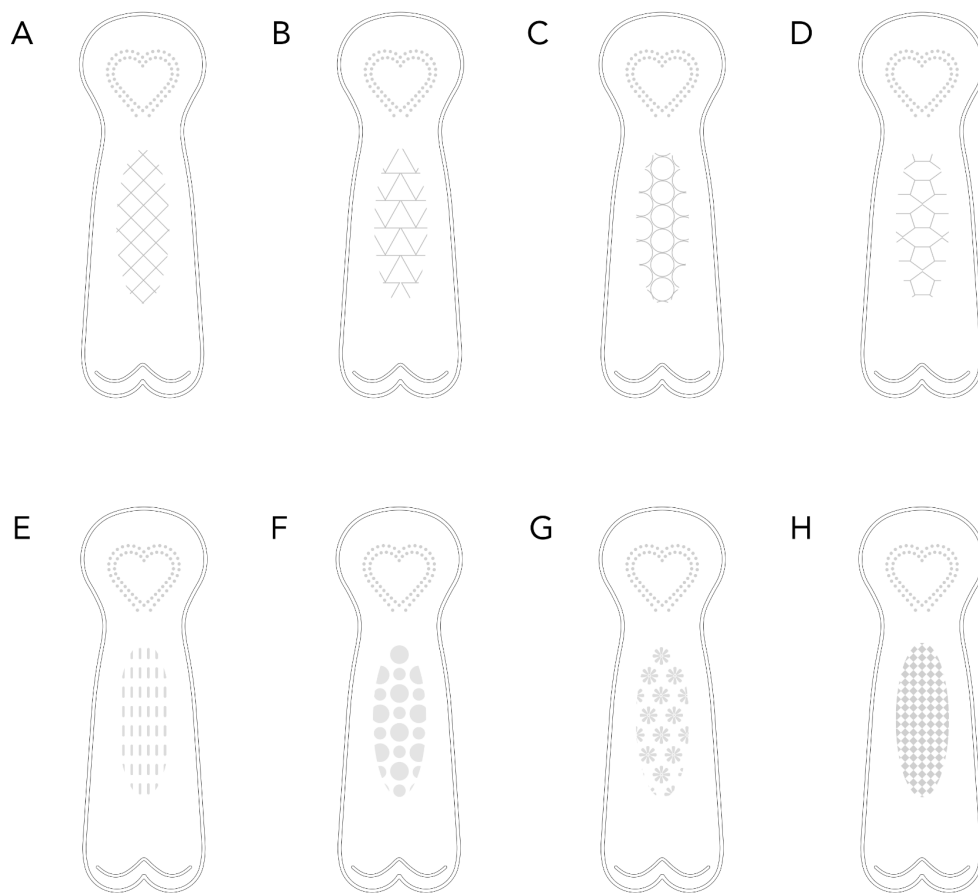


Figure 54. Different embossings enhance control when residues appear on the surface.

The users' reactions towards the concept were mostly positive, which can be seen in the GEW diagram in Appendix 12. It was stated that the texture would be valuable when experiencing residues as it could keep them in place and thereby, create a feeling of security and control. Moreover, it would lead to *relief* from not having to constantly worry about the residues. Another positive aspect was that the texture would create better hygiene since the pad's surface would not be as tight against the intimate area.

When it comes to the design of the embossing, rounder shapes were seen as gentle and soft, eliciting *joy* for the users. Contrasting to this, the edgy shapes were not associated with the intimate area. Tiny shapes in the pattern were seen to be making the surface texture too flat, which was experienced as less safe in comparison to bigger shapes. The most popular patterns were C, F and G.

On the negative side, too much embossing was perceived as irritating for the intimate area, leading to an emotion of *fear*. It was evident that the soft feeling of the pad's surface is important to maintain to succeed with this concept.

8.1.3 Colour Indicator

The third concept targeting the subcategory of control is for the sanitary pad to have an indicator that shows when the pad is full. The idea is to use thermochromic material in the sanitary pad, which changes colour when the pad is full and needs to be changed. The thermochromic material is included within the edges of the sanitary pad's top layer, as lines (see Figure 55). When the sanitary pad is not filled, the lines appear in purple, whereas when the sanitary pad is full the lines change colour to blue. The purple colour is the one used on the Libresse Ultra+ Wings today, whereas the decision of the blue colour was based on that it should be able to be separated from the colour of the menstruation. Therefore, different shades of red, brown and black were eliminated.

Having an indicator within the pad will help the user feel in control over the situation and make the user aware that even if residues are present on the surface of the pad, the pad still has absorption capacity left. In turn, the worry for leakage can decrease which enhances the security of using the sanitary pad. Furthermore, it is a great way to make the user reflect on the environmental impact of wasting products that are not entirely saturated which was a frequently stated concern in the user studies.

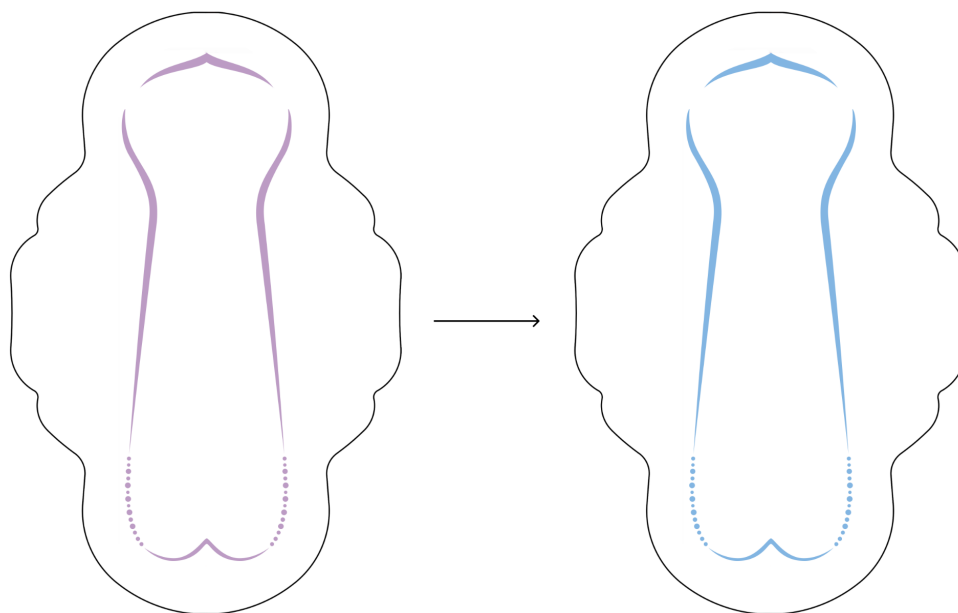


Figure 55. The indication line on the sanitary pad changes from purple to blue when the pad is saturated and needs to be changed.

The evaluation with users showed many positive emotions in the GEW diagram towards the concept (see Appendix 12). Even if users think they know when to change the pad, it was seen as difficult to know how well the material absorbs. The users also pointed out that it is not as clearly communicated when today's pad has to be changed due to residues, but that the indicator could help with this. The users explained that the indicator can, in this manner, help them determine

when it is full and indicate that the residues are safe on top of the surface layer of the pad, which evokes *admiration, joy* and *relief*. This was seen to be positive from a sustainability perspective since changing the pad will probably occur less often. The concept was stated to be contributing to both control and security, by making the user aware of the status of the absorption capacity. This minimizes the stress around the situation of not knowing when to change.

Negative comments towards the concept were about how reliable the indicator is, which resulted in *fear*. Moreover, fear was expressed towards how the indicator would work, if it would be some kind of chemical substance embedded in the product.

8.1.4 Smart Pad

The Smart Pad is the last concept related to control (see Figure 56). The Smart Pad includes small sensors that keep track of when the sanitary pad is saturated. These sensors are the same kinds already used in incontinence products or diapers, that alerts the users or caregivers when the product is wet and needs to be changed. In this case, the sensors in the Smart Pad will send a notification to the user's phone that the pad is about to be full and needs to be changed shortly.

Equivalent to the previous concept with the indicator, the Smart Pad makes the user feel in control by providing information about when the pad is dry or when it is saturated with regards to the residues that remain on the surface of the pad. Thereby, it also enhances the security for the users of sanitary pads.

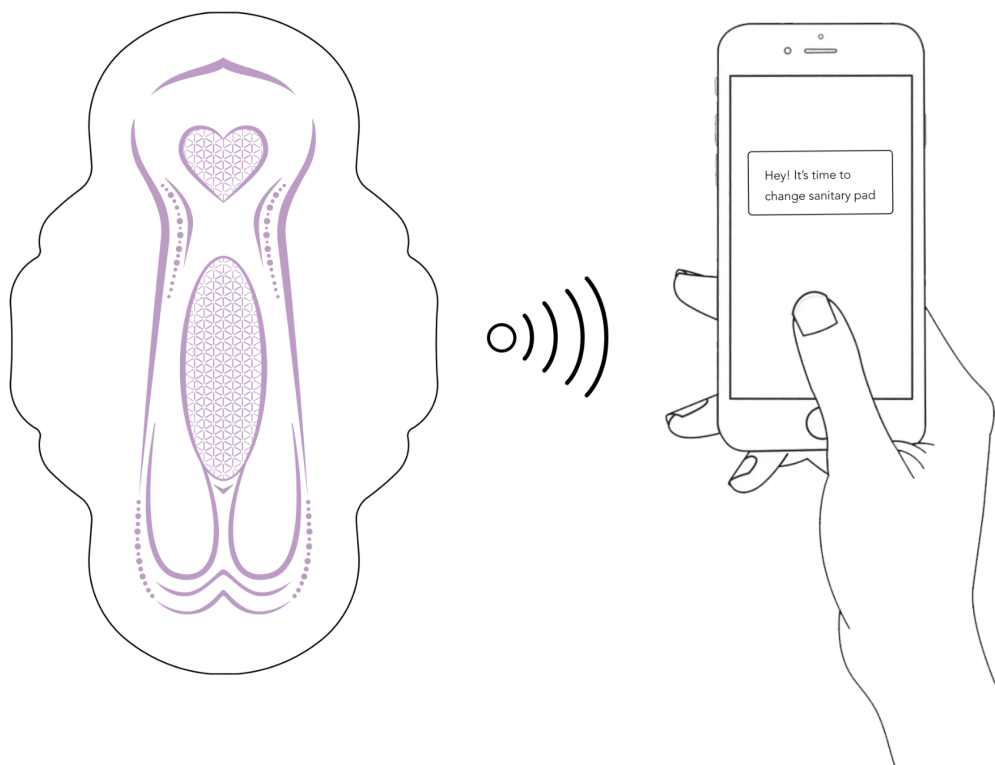


Figure 56. The Smart Pad sends a notification to the user's phone when the pad is almost full.

Similar to the previous Colour Indicator concept, the users thought the Smart Pad would contribute to a situation where the user feels more in control by indicating when the pad is full. Though, the users had divided emotions in the GEW diagram regarding this solution (see Appendix 12). On the positive hand, comments about it being an innovative, smart concept that could be of high use in the digital world of today were expressed. The emotions reported related to this were *interest*, *pride* and *admiration*. Moreover, *pleasure*, *amusement* and *joy* were felt since the concept indicates when the pad is full. The users were also positive and felt *relief* towards having a digital indicator since this would make them not have to go to the toilet to see the status of the absorption capacity.

On the other hand, the Smart Pad was a bit worrying with regards to the sensors and the placement close to the intimate area, leading to *fear* and *contempt*. Also, comments around the concept being expensive due to the integrated sensors were brought up as a negative point, as the user already thinks that sanitary pads are costly. In total, the users were not convinced that the concept would enhance the security of today's situation. Though, if putting much focus on working on the acceptance of the concept, it could be a solution for the near future.

8.2 Comfort

Two concepts were developed to meet the subcategory of comfort. The first concept includes an additional layer on top of the pad, while the second one has an elevated or recessed middle part of the pad.

8.2.1 Additional Layer

The first concept developed to provide comfort for the user consists of two parts. The first one is the Libresse original sanitary pad while the second one is an additional layer of material placed on top of the centre of the pad (see Figure 57). The second part of the concept can be removed from the pad for a refresh during usage and the first part can continue to be used.

Since residues remaining on the surface of the pad leads to an unpleasant, sticky feeling, the idea of this concept is to give the user the possibility to remove the residues and refresh when needed. This, in comparison to changing the pad directly when experiencing residues. An extra layer can therefore also prevent the pad from being used less than its capacity, which is something that users have frequently mentioned as an important aspect during user studies.

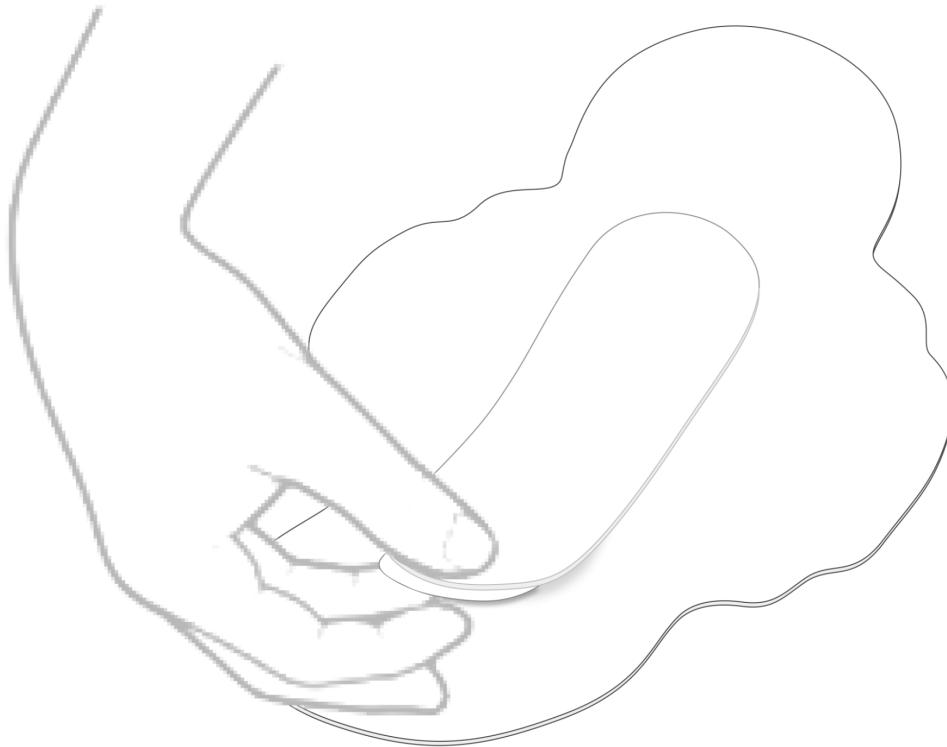


Figure 57. The existing pad with an additional layer that can be detached to remove residues.

During the evaluation of the Additional Layer, users expressed both positive and negative emotions in the GEW diagram (see Appendix 13). What was positive was that the solution would enhance security by allowing the user to remove the residues from the surface of the pad. It would also evoke *relief* and *joy* by making it possible to remove residues. Further, it was seen as a simple solution that could make the usage longer which was of value since the users want to be sustainable, thus, eliciting *interest* and *contentment*. In addition to this, the concept was explained as contributing to a fresh feeling, increasing comfort throughout usage.

On the negative side, users pointed out that it felt unsafe and was perceived to be a risk for leaks if the additional layer had a smooth texture because the residues can move outside of the layer. Moreover, some of the users mentioned that sanitary pads can feel bulky and thus, it is important that the additional layer is thin to not add to this feeling.

Several users also highlighted that the additional layer was too small. This, since it can be a messy situation when the additional layer is to be removed. The user thought it could be cumbersome to remove it without leaking the residues from the additional layer, or without touching the rest of the pad with the menstruation in it. This was described to be *disgusting* and *disappointing*, and a wish for a larger additional layer was expressed.

When discussing the concept with Essity, the supervisors mentioned that Essity Feminine Care had similar products on the market in Central and South America, where the pad was covered by another layer that could be removed. The additional layer on this pad covered the whole pad and was not targeted at removing residues in specific. Though, the construction of this pad showed that the concept was possible to implement with today's technique.

8.2.2 Elevated or Recessed

The second concept targeting the subcategory of comfort is two different designs. The first design has additional material in the middle part, which elevates the surface towards the intimate area, seen in the left illustration in Figure 58. In contrast to this, the second one has a recessed middle part which makes it recessed from the existing surface level, see the right illustration in Figure 58. Since the user studies showed that residues often end up in the middle of the pad, this was a natural placement of the elevated and recessed part.

The elevated or recessed part of the sanitary pad will help to create a feeling of keeping the residues in place. If elevated, residues come closer to the intimate area which will decrease the feeling of rubbing against the residues and thereby, making the user feel more comfortable. By recessing the middle part, the distance between the intimate area and the residues will be increased. Then the residues will not be felt to the same extent, which will lead to better comfort and feeling fresh.

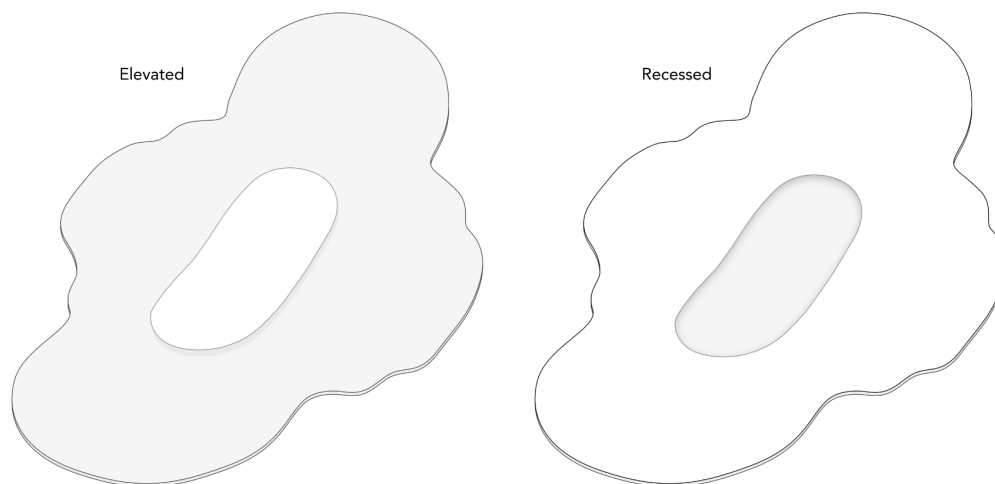


Figure 58. An additional elevated middle part to the left and a recessed middle part to the right.

The evaluation with users clearly showed that the recessed design was the favourite, therefore, the emotions elicited were mapped in a GEW diagram towards this solution (see Appendix 13). This is because the residues would end up in the recessed part and stay there, which was

experienced as *amusing*, *admirable* and *relieving*. The users also thought it would feel stable and secure that the residues were gathered in one place.

Another positive aspect mentioned was that the recessed design would lead to better intimate health and hygiene, thus, *comfort* and *pleasure* due to the increased distance between the body and the pad. Furthermore, *pride* and *joy* were felt around the concept and its well-developed function.

The elevated design was met with negativity because users thought it would increase leaks. The elevation was perceived to be making the residues slide down the sides and end up outside the underwear.

8.3 Awareness

Three concepts were developed to increase awareness around residues and normalize it. One concept was a product compass developed for the Libresse website, another concept was a period app and the third one was a design on the wrap.

8.3.1 Product Compass on Libresse website

As a first concept to the subcategory of awareness, the project group created a concept where the users can receive guidance regarding what products are suitable for themselves and their menstrual flow. This, since the user research showed that many users select products based on habit and not based on personal needs related to their menstruation.

The concept is a filtration tool called Product Compass on the existing website for Essity's feminine brand Libresse, where the user can enter information about their menstruation and its characteristics (see Figure 59 & 60). For instance, how much they bleed and for how long, what texture the menstruation commonly has e.g. if it is liquid or if it has residues in it, and what type of sanitary protection that they prefer using. By filling in this information, the compass will generate recommendations about what products would suit the users and their menstrual flow. The compass will also provide the user with facts about menstruation. Having this concept on the website of Libresse generates awareness that menstruation can appear in different forms and differs from person to person. It lifts the subject of residues in a way that makes the users understand that it is normal.

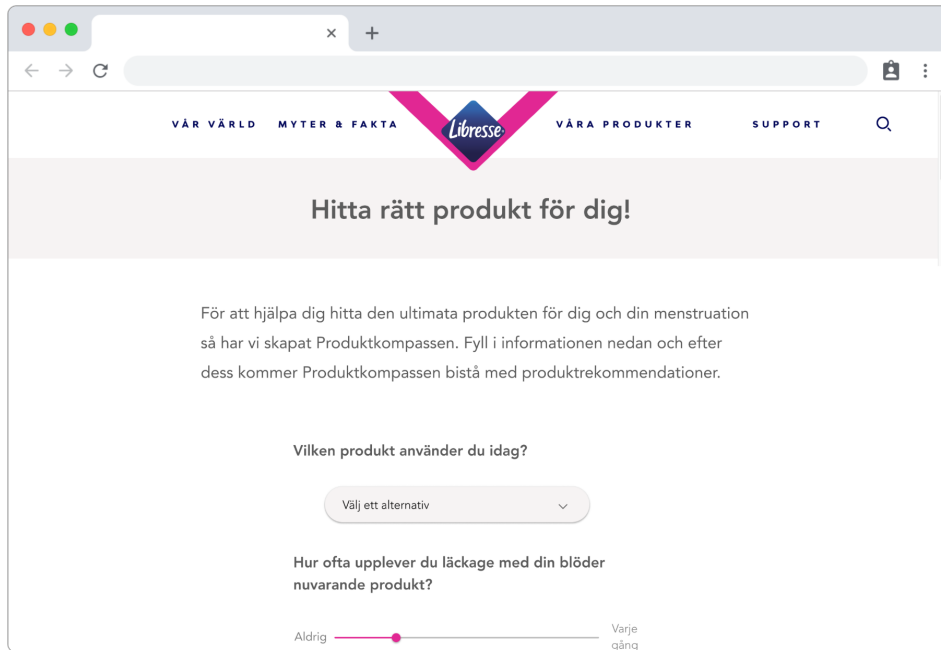


Figure 59. The first view of the product compass on the Libresse website.

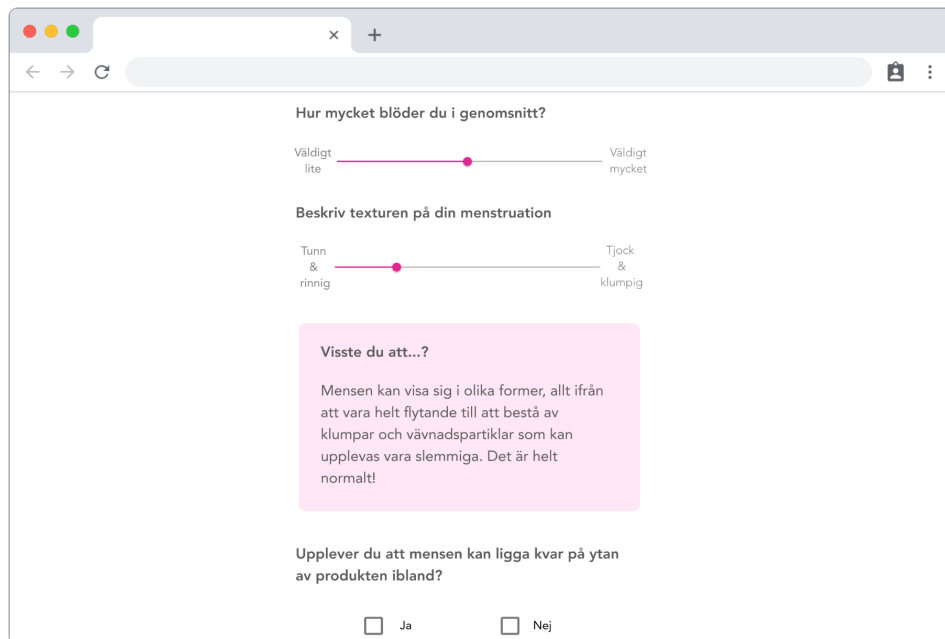


Figure 60. Questions and information in the product compass on Libresse website.

The evaluation with users showed positive emotions in the GEW diagram towards the concept (see Appendix 14). The facts provided around menstruation in the concept made the users feel emotions such as *pride* and *interest*. This, since lifting a topic that is rarely mentioned. *Compassion* was another emotion evoked connected to this, specifically related to the concept highlighting that other people experience the same things as you during menstruation.

The Product Compass was also seen to be a fun way to learn more about one's menstruation and the sanitary protection that match one's needs, which made the user feel *pleasure, joy, amusement* and *contentment*. Moreover, *relief* was reported to be experienced due to that the concept helps out finding a suitable protection.

What was critical according to the users, was that the concept used Libresse's website as a platform. Users thought it would be more useful to have a mobile app with the same purpose, with the motivation that websites are not visited as often as apps. Another alternative would be to work on a solution to make the webpage more easily accessible.

The general impression of the concept was that it would enhance awareness around residues and make it feel normal. It would also increase security by knowing what products suit the user's needs.

8.3.2 Quote-wrap

To raise awareness around residues, the project group compiled a concept that provides information on the wrap of the Libresse sanitary pads (see Figure 62). In the user studies, the wrap was frequently mentioned as very appreciated and used when disposing of the sanitary pad after usage. Thereby, it was viewed as a part of the product that could be taken further advantage of since it has no essential information on it today. The proposal to place the information inside of the wrapper was decided because this is the side that the user faces after having detached the new sanitary pad from the wrap and before inserting the used pad in it.

The information on the wrap could be quotes, statements or facts regarding menstruation, more specifically, regarding the subject of residues. These insights could be collected from users, experts or other people with menstrual experiences.

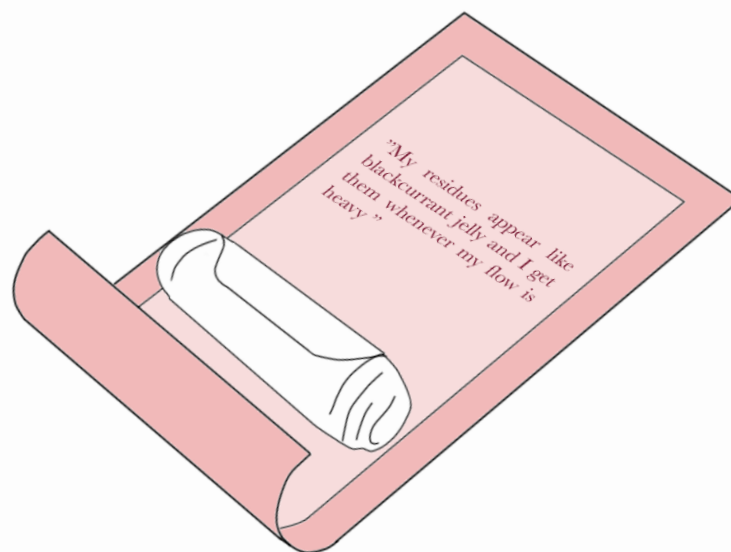


Figure 62. The wrap with additional information inside.

The reactions towards the Quote-wrap in the GEW diagram were highly positive (see Appendix 14). The users understood the thought behind it and expressed that it would make them feel *pleasure* to see these quotes when changing the pad. Furthermore, it was commented that displaying other peoples' experiences would lead to *compassion* and *interest*. In addition to this, shame would disappear and *relief* would enter. The concept would increase awareness and knowledge around menstruation for the users, leading to further security.

8.3.3 My Period mobile application

A mobile application was developed with the purpose to generate awareness around residues (see Figure 61). Further, the intention was to make the user more aware of their choice of product. Within the application, users can track their period in detail over time. One can also read articles about menstruation that, among other things, focuses on normalizing the topic around residues. Lastly, the user can review the products used to make a conscious choice of product. The user's previous reviews and their tracked menstruation will be used as a foundation for introducing new products for them.

In the research performed, many users mentioned that residues are normal but that it is not something that they talk about with a close company. Therefore, the project group found it important to normalize the subject through the article function and by enabling alternatives connected to residues when tracking the period.

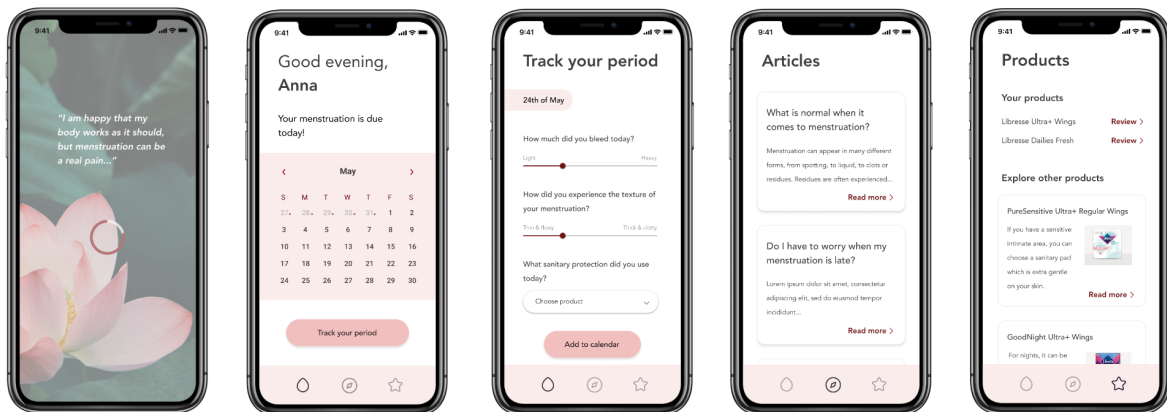


Figure 61. The mobile application.

The GEW diagram from the evaluation of the concept is presented in Appendix 14. The users expressed that it is appreciated to track the period and to be able to go back and see how it was before. This enhances control and thus, security for the user. It also evokes emotions like *love*, *pride* and *amusement*.

The app was seen to increase awareness of residues through the articles and by enabling options regarding residues in the period tracked. *Relief, pleasure and joy* were also elicited by this. Another thing that was lifted by several users that would add to the experience was to include a forum where women could talk about problems and provide each other with tips.

When it comes to the product function of the app, the opinions were divided. *Interest* was felt in regards to the introduction of products to the user. Though, it was seen as a function that would be used only a few times, since it would be tiresome to read the same information over and over again. Reviewing used products was something that the users were sceptical towards as the purpose behind it was not fully understood.

8.4 Summary of the concept evaluation

Each concept was evaluated in a PNI matrix based on the insights gathered during the user evaluation, comments from Essity and the project groups perception (see Appendix 15). The PNI together with the GEW diagrams for each concept was used for making a decision about which concepts to proceed with in the project.

The evaluation showed that the concepts within the subcategory control that were scored the best by the users were the Printed Patterns and Embossing. These concepts were seen as simple solutions that are easily applicable to today's sanitary pad. Further, the concepts would create trustworthiness in the pad and make the user feel more in control of residues. Even though the users were positive towards the innovation behind the concepts Colour Indicator and Smart Pad, the fear still took over and it seemed difficult to convince the user to use such a product. This, based on the negative attitude towards a new chemical or technology in the pad.

When it comes to the subcategory of comfort and the concept Elevated or Recessed, the design of the recessed part was seen to be eliciting the most positive emotions and interesting aspects. This because it made the user feel secure by providing an area devoted to the residues. Moreover, the comfort was enhanced by increasing the distance between the intimate area and the pad. The concept was also seen to be realistic since similar constructions have been applied to incontinence products. The Additional Layer was considered cumbersome when it came to removing the layer from the pad without leading to a messy situation. If making the layer bigger and solving the problem of the removal, there would still be a problem connected to the thickness and comfortability of the pad. This was negative since the concept was created to increase comfort.

Lastly, in the subcategory of awareness, the My Period mobile application and the Quote-wrap received high scores since they increased awareness and normalization around residues. In

addition to this, the users felt like they would be in more control of residues from the app which was another highly valued point in the project. When it comes to the Quote-wrap, it was also an easily applicable concept that could be implemented directly on the wrap of each sanitary pad. The Product Compass on Libresse website was not targeting residues to the same extent as the other concepts. Also, the users did not find a website as easily accessible as a mobile app.

Based on the project group's evaluation and dialogues with Essity, the potential was seen in combining several concepts to strengthen each other and enhance the experience further. Therefore, the concepts that were further developed and turned into the final concept were one sanitary pad solution, one digital solution and a wrap solution. The pad solution combines the recessed middle part with a printed pattern and embossing. The digital solution is a development of the My Period mobile application concept and the wrap solution is developed from the Quote-wrap concept.

9. Presentation of final concept

This chapter presents the final concept developed to meet the UX goal of enhancing security, which has been further developed from the concepts with the most potential from the evaluation (see Chapter 8.4). The final concept consists of three parts; one solution on the sanitary pad, one solution for the wrap and one digital solution (see Figure 63). The solutions complement each other by approaching different subcategories of the UX goal and are therefore ideally used together to enhance security.



Figure 63. The final concept consists of a sanitary pad, an app and a wrap.

9.1 Sanitary pad solution

The first part of the final concept is a sanitary pad that consists of a recessed middle part, an embossing and a printed pattern (see Figure 64). This enhances the feeling of comfort, control and awareness when residues are present on the surface of the sanitary pad. The sanitary pad solution was prototyped at Essity's prototype laboratory, where the project members received professional help from a prototype specialist with the execution. This gave a deeper understanding of how the different parts of the solution work together.



Figure 64. The final concept of the sanitary pad with a recessed middle part with the cooperating embossing and print.

The sanitary pad is designed to increase the distance between the intimate area and the residues to avoid the constant feeling of stickiness, which results in more *comfort*. Also, the pad's recessed middle part will make sure that residues stay in place and prevent leakage, thus, targeting *control*. The transition between the surrounding surface and the recessed part is smooth to avoid friction and an uncomfortable feeling.

The recessed middle part is also designed with embossing. The embossing has round shapes of different sizes placed in an even pattern following the larger oval shape in the middle of the pad (see Figure 65). This is a way of creating an illusion that the residues will stay in place, thereby, not leak, and making the user feel in *control* of the situation. The embossing also creates a grid with friction that can make the residues stick to the area. Although, the surface will still be smooth against the intimate area as this was understood to be an important aspect regarding sanitary pads.

The embossing is complemented with a printed pattern following the design language of the embossed part. Parts of the original print surrounding the middle part of the pattern are kept in the new design since it indicates the front and the back of the pad. The pattern in the recessed

part is designed with five, light purple, filled circles of different sizes to indicate that residues could appear in the area, which leads to the user feeling *aware* and in *control* of the situation (see Figure 65). During the evaluation of the patterns, it showed that round shapes were associated with residues and it was explained that it gave a soft impression. Moreover, a symmetrical placement of the shapes was preferred, which is why the pattern has this design. The five circles are enraptured by a filled, purple, oval shape to highlight that the area is absorbent, which is something that the user's expressed appreciation of. Furthermore, the middle part of the heart has been replaced and filled with a purple colour that goes along with the pattern design in the oval shape.

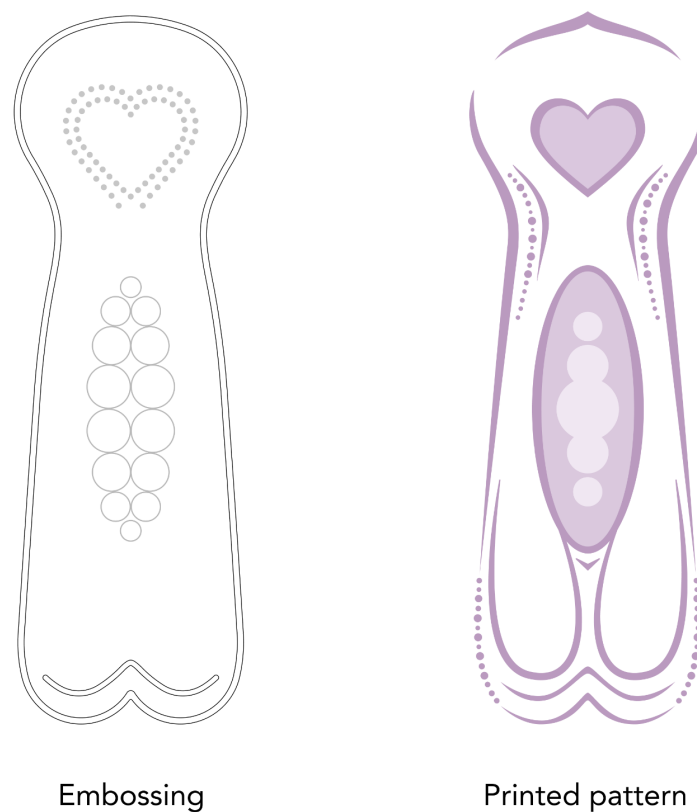


Figure 65. The embossing and printed pattern of the sanitary pad solution.

The comfort that the concept creates is of high value for the persona of Jessica to live a normal, active life. Moreover, the persona of Sarah will be more relaxed with this solution since she will know that the residues will stay on top of the sanitary pad and be safe there. Lily will also be targeted since she will understand that it is common to experience residues on top of the pad.

9.2 Wrap solution

The second part of the final concept is a wrap solution designed to enhance the *awareness* and *control* of residues, but also as a step in the direction of normalizing it. The solution includes printing quotes on the inside of the wrap (see Figure 66). Quotes will be collected from menstruating women of all ages, focusing on their experiences of residues, but also from gynaecologists explaining what residues consist of, and from statistics about how common it is to experience residues. The quote is presented along with the woman's or the gynaecologist's first name and age to create credibility and personalization, something that proved to be important based on the evaluation. For statistical information displayed on the wrap, references are provided with it.



Figure 66. The final concept of the wrap with quotes.

The quotes create compassion and make the appearance of residues feel normal, leading to awareness and mental comfort. This would help guide the persona of Lily towards understanding what is normal regarding residues. It would also assist Sarah in feeling safe when experiencing residues, since she can read about others experiencing the same things, or by providing her with information about how residues relate to leakage.

9.3 Digital solution

The third part of the final concept is an app developed to create awareness and control around residues. The app provides three main functions; a period tracker, a forum and a library of articles, which are introduced through onboarding when first using the app (see Figure 67). The digital prototype was visualized with the collaborative interface tool Figma. Furthermore, it was prototyped in such a way that it was interactive, thus, could be navigated through. This was valuable to test the flow of the app and to get a more realistic view of the concept.

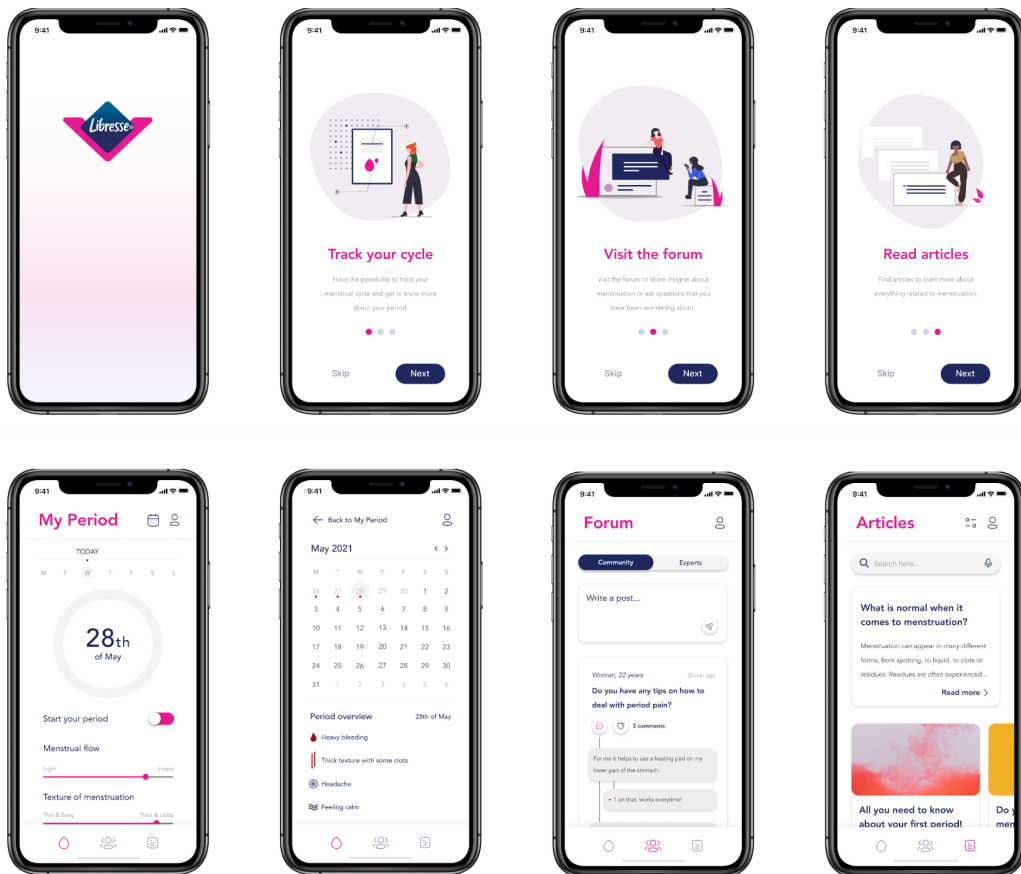


Figure 67. The digital solution.

The design language of the application is in line with Libresse’s website, to create a strong connection to the brand. Therefore, the colours used were dark blue, magenta, dusty pink and purple (see Figure 68).

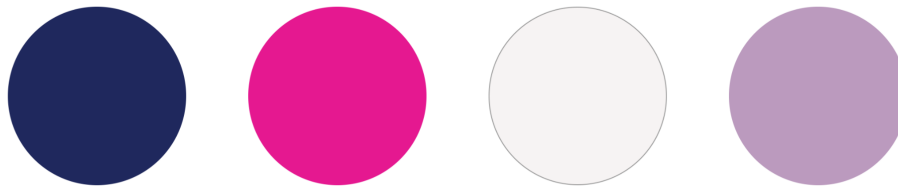


Figure 68. The colours used in the digital solution, from Libresse’s design language.

The first main function, the period tracker provides possibilities to track your period by filling out detailed information about it each day during the time (see Figure 69). One can track the flow volume, texture type, symptoms and moods elicited during the period. By adding data regarding the texture of the menstruation, including residues, the user gets more aware that it is normal.

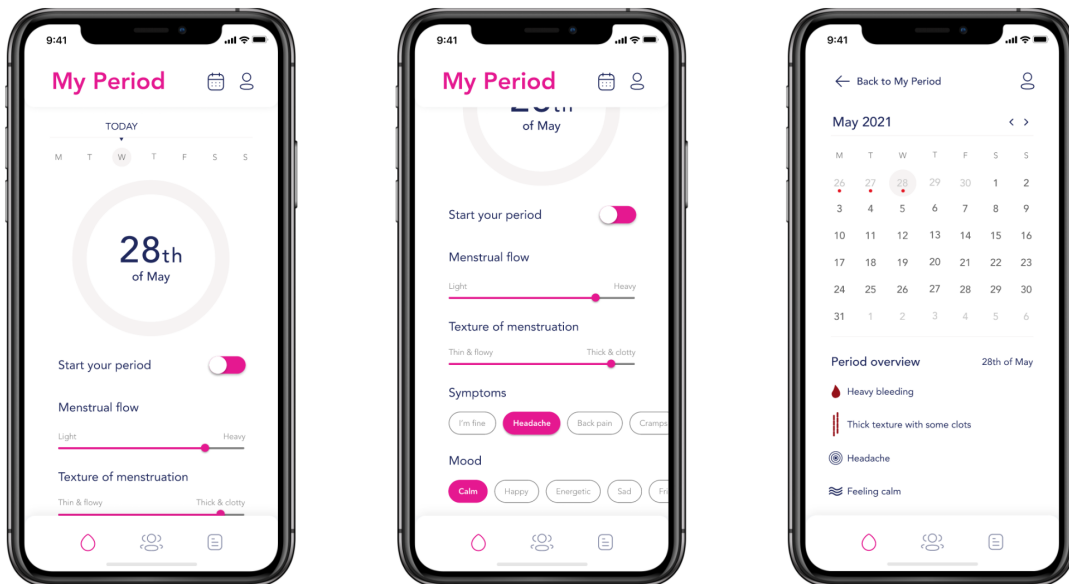


Figure 69. The period tracker function.

The second main function of the application is a forum where one can create posts about personal experiences and ask questions about menstruation (see Figure 70). Users can comment on other posts and help others by sharing their experiences and tips. It will also include a question and answer (Q&A) function where questions can be directed to experts within the field, e.g. midwives or gynaecologists. The user is always anonymous in the community since menstruation can be seen as a private matter. The community will provide numerous women’s perspectives that will lead to awareness about the differentiating experiences that exist around menstruation.

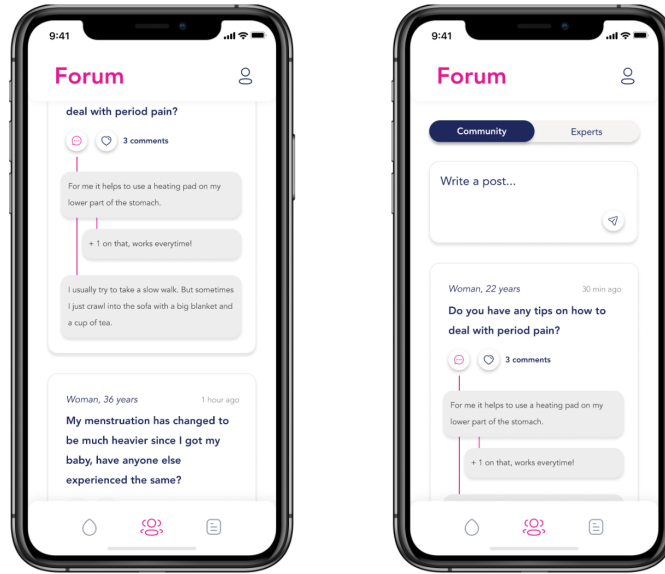


Figure 70. The community function.

The third and last main function of the application is the articles (see Figure 71). These will be published by Libresse and highlight a variety of subjects concerning menstruation, which also lifts the topic of residues. By giving the user the possibility to filter to find articles of interest, the experience can be personalized to fit every user's needs.

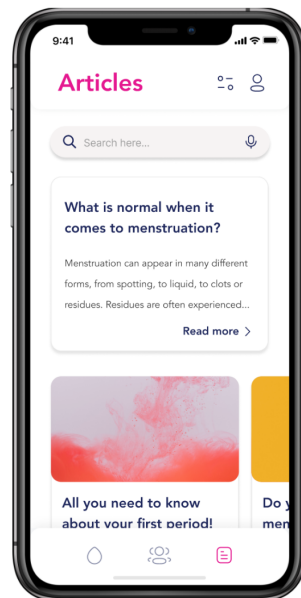


Figure 71. The article function.

The app supports the persona Lily by providing information about what is normal around residues and by having an open atmosphere where she can communicate with other people

about experiences and thoughts concerning residues. Furthermore, Sarah is targeted by allowing for a way to be in control of her menstruation and track how it evolves.

In the future, the application can also be a way for Essity to collect data about the characteristics of the users' menstruation. The purpose of this is to initiate a process of developing products that better absorb residues. Sharing the information should be optional for the user, due to the information being private to share. For the users who want to share their data, a suggestion would be to award users with points that can be used as a discount on Libresse products.

Another idea is to add a function where the user can read about and buy Libresse products, thus, make a conscious choice of product. This can also be aided by a function similar to the Product Compass where the user gets recommendations of what sanitary protection matches their needs.

However, the proposals about collecting data and implementing the product function were not included in this concept since the project was directed towards enhancing the experience of residues on sanitary pads. In addition to this, the project members found it important to create an app without advertisement, since it has been understood from the evaluation that there is a risk that the user perceives it as controlling.

10. Discussion

Previous consumer research has shown that women experience issues with “clotted” menstrual blood and residues on their feminine care products. Therefore, this study aimed at investigating the user experience of menstrual residues on sanitary pads and pantyliners. The study made it evident that many women experience menstrual residues within their menstruation that appear on the surface of sanitary pads, while not on pantyliners. Through broad user research, it has been seen that this diminishes the users’ security during the menstrual period. Hence, the UX goal formulated was to enhance the security to increase the user experience when residues remain on the surface of sanitary pads. The UX goal was supplemented with three subcategories; control, comfort and awareness, that were seen as of importance to enhance security. Concepts were generated based on the subcategories of the UX goal which were evaluated together with users and Essity. This resulted in a final concept consisting of three parts; a sanitary pad, a wrap and an app.

10.1 How the UX perspective influenced the outcomes

The theoretical framework by Desmet and Hekkert (2002) was used as a foundation in the project to understand the notion of user experience and to assist the process of investigating the user experience. The model of product emotions by Desmet and Hekkert was used as a helping tool to cover the emotional aspects evoked by objects. The model aided the study in interpreting and analysing the interplay between the parameters of appraisal, concern and product and how it elicits certain emotions.

By adopting a user experience perspective within the study, it was possible to explore the situation from a holistic viewpoint. It was evident that to enhance the user experience, the authors had to go in-depth about what lies beyond only the usability and semiotics of the product that contributes to the user experience, i.e. the physical characteristics of a product. The emotional aspect weighed heavily in this sense, since it included subjective emotional assessments of the overall situation, not solely limited to the product used (Desmet, 2003). This resulted in a large amount of data considering menstrual residues and the experience of it. It is considered of great importance since women’s experience of menstrual residues on feminine hygiene products have not been explored from a user experience perspective before and thus, as the result with the largest impact for future work related to menstrual residues. Without the user experience perspective, the depth of the project would not have reached the same level.

The user experience approach also helped in revealing that small changes can make a big difference in the users’ experience over a situation. In this project, it was evident within the design of the final concept. The final concept of the sanitary pad presents a way to enhance the

security for users that experience menstrual residues by adopting small changes to the present Libresse Ultra+ Wings pad. The proposed design of the sanitary pad with its new recessed part, print and embossing subconsciously approach both the physical and cognitive part of the problem with menstrual residues by making it more understandable, through the design, that menstrual residues can appear within the menstruation and that it is safe for the residues to land on the sanitary pad.

Yet, the new sanitary pad has features that are already known on the market today. Many sanitary pads, as well as pantyliners, have a printed pattern and embossing. Furthermore, TENA has an incontinence protection called TENA Discreet Maxi with a recessed middle part that quickly absorbs the fluid (2021). When evaluating the user experience of the nine created concepts, it was evident that the concepts that were a re-design of existing sanitary pad solutions were most positively perceived and evoked most emotions in the positive valence area of the GEW. This might have been influenced by the fact the users were already familiar and comfortable with these types of features. The more innovative sanitary pad concepts, e.g. the Colour Indicator and the Smart Pad, were also experienced as being good concepts. However, the users expressed more worry towards those since not being comfortable with integrating technology or new substances so close to the intimate area. If having proceeded with these concepts, the project group would have needed to continue investigating how it could be accepted by the users.

With this said, there is a possibility that one might question the innovation behind the final concept of the sanitary pad due to the features already being applied to other products on the market. However, the users appreciated the known features and by adopting the user experience approach it was possible to understand that the cooperation of the features was something original that aids the facilitation of menstrual residues on sanitary pads. Edana (2019) states that present feminine care products intend to solely capture menstrual fluids. This is what differentiates the proposed sanitary pad solution to the ones of today.

10.2 Transferability of results

The project members aimed at having a variety of participants within the study. The participants in the user research varied in age from between 18-49 and were in different stages of life. Some had children, whilst others did not. The majority of participants within the user research were from Sweden. Five participants from the UK and France were also present within the study to validate the Swedish participants' statements and understand possible cultural differences related to menstrual residues. Even though the countries are nearby, Essity (2021) has performed research showing that there are cultural differences in how women view menstruation between these countries. However, this study has not shown any significant differences among the countries. Most likely, this is because the number of participants from the UK and France was

considerably less than the ones from Sweden, that the differences imperceptibly passed. Due to the low number of participants from outside countries, the authors of this paper can not conclude that women in these countries experience menstrual residues in the same way. Therefore, to be able to transfer the result from this thesis to other countries, the authors recommend further user research in the specific country.

Furthermore, the participants of the user research were users of different sanitary protections from different brands. The majority of participants were regular users of sanitary pads and pantyliners since that was the main intent to investigate. However, users of tampons and menstrual cups were also present within the study since wanting to know why they do not use sanitary pads and pantyliners and to understand their experience of residues. This contributed to obtaining a holistic view of the problem.

The user research revealed that a majority of users of pantyliners do seldom experience menstrual residues remaining on the surface of the protection. When analysing the result it was evident that this is mainly because pantyliners are used in combination with other menstrual protections, or solely when having lighter flow or experiencing discharges. However, to target the minority of users that stated that they have experienced residues on pantyliners, the project group see a great possibility in transferring the final design of the sanitary pad with the recess, embossing and printed pattern to a solution for a pantyliner. Yet, this would require further research to adapt the features to the execution of a pantyliner. For instance, the present pattern of the liner needs to be analysed to understand the placement of the new print and its size. This also applies to the embossing. Based on the user research, it was evident that pantyliners are appreciated for their flexibility and discreet design. Therefore, it is of importance to not jeopardise these characteristics when including a recess.

10.3 Validity and reliability of methods

Dahlqvist (2018) states that the shame around menstruation is universal, which leads to globally silencing the topic. This study made it palpable that menstruation is still somewhat related to taboo for many and experienced as a private area. The data showed that the user's social comfortability towards menstruation is dependent on how well you know the other company and the situation in which you are talking about it. This might have led to some aspects being left unspoken by the participants in the user research since not knowing the project members enough to be fully transparent with their experience. Mentionable is also that this project was conducted during the pandemic of Covid-19. This resulted in a majority of the user research being performed from distance, meaning that it might have influenced the interaction and communication with the participating users. To facilitate the users with the right means to express themselves more easily, the project group used several methods and tools. For instance,

the GEW, the survey, the experience diary with a UX curve, interviews and a focus group with the semantic differential scale.

The model of product emotions by Desmet and Hekkert (2002) was supported by GEW to measure the users' evoked emotions from weak to strong. The GEW is a tool that relies on the user's verbal capacity to report emotions. It consists of 20 groups of emotions that should help the user to recognize emotions connected to their experience (Sacharin, Schlegel & Scherer, 2012). However, emotional responses also heavily rely on memory and knowledge for an adult (Rouby, Fournel & Bensafi, 2016). What was noticeable within the study was that the emotional experience was somewhat glorified or forgotten about when not being in the specific situation at the moment. The project group noticed that e.g. fear was a strong and recurrent emotion referred to throughout the entire user research, however, this emotion was seldom self-reported by the users in the GEW. Thus, the GEW was combined with the insights found by the researchers to cover the full spectrum of the users' elicited emotions.

Furthermore, the experience diary worked as a tool to explore the experience of sanitary protections over time and the characteristics of the residues. This method was specifically targeted at investigating the Libresse Ultra+ Wings and the Libresse Dailies Fresh Regular. The participants were frequent users of sanitary pads or pantyliners or asked to try these during the diary study. As previously stated, it has been evident within the research that when the users were not menstruating and referred to their experience it was somewhat embellished. Therefore, the experience diary was an appreciated study since the users were menstruating during the time and used the project-specific sanitary protections. Hence, the data collected were seen as of high reliability.

Moreover, the interviews were shown to give the most valuable information about menstrual residues that remain on the surface of sanitary pads. This since it was possible to use probing during the time and deepen the interviewees' responses by asking why and how. Another factor for the interviews to be so successful might have been since they were performed during different stages of the project. The Swedish interviews were performed early in the project to obtain an understanding about residues and if it is a widespread problem, whereas the interviews in France and the UK was the last method performed during the user studies where it was possible to have a dialogue about all the previously established improvement areas which made it more validating.

10.4 Further research and development

The final concept is made up of a sanitary pad, an app and a wrap that presents a way to enhance the security for users by targeting the subcategories of control, awareness and comfort. However,

there is a need for further development and research about how the sanitary pad can maintain its functionality with the proposed features. Thus, technical requirements are needed to specify the execution of features, e.g. the depth and material of the recess to ensure that the absorbency capacity is not reduced. Furthermore, the application requires additional development for a potential launch. To succeed with the wrap solution there is a demand to reach out to specialists and menstruators to collect relevant quotes and statistics that should be uplifting for the users of the product. All parts of the final concept also require thorough testing and validation with numerous users to ensure that the user experience is made better.

The thesis presents the first step towards enhancing the user experience when women experience residues remaining on the surface of the sanitary pads. The project shows how various methods can be implemented to investigate the area from a user experience perspective to generate broader knowledge and understanding. This can act as inspiration for Essity when collecting data around topics that might be related to taboo. Further, the project members also believe that this thesis will be of inspiration for other user experience projects in the future. Ultimately, it can also be interesting for people wanting to know more about menstrual residues where the thesis can be a starting point of normalizing it.

11. Conclusion

The users of sanitary pads experience residues on the surface of their used product. It is perceived as uncomfortable, unfresh and not safe when the residues remain on top. Furthermore, the users experience a lack of control when the residues are evident on the surface. Residues are an area where little knowledge exists, leading users to become worried about it not being normal.

The menstrual residues have been described as clots, clusters, lumps or membranes with a gel-like and sticky texture that is somewhat elastically expanded when the users try to remove them. The residues can appear in different sizes from around 0.5 cm to 5 cm in diameter and are commonly darker red.

The improvement areas found during the user research was to generate control and comfort concerning sanitary pads with residues on top, and awareness towards the notion of residues in general. All these areas influence the feeling of security. Thus, the UX goal formulated in the project was to enhance security.

Design has been implemented to solve this by focusing on creating an illusion of the residues being safe on the surface of the sanitary pad. Also, design has been used to increase comfort by presenting a new design of the middle part of the Libresse Ultra+ Wings sanitary pad. Another approach has been to address the social aspect around awareness by providing the user with information around the topic through an app.

References

- 1177 Vårdguiden. (2021). *Mens*. Retrieved from:
<https://www.1177.se/liv--halsa/sa-fungerar-kroppen/mens/>
- Bradley, P. J., Lang, M. M. (1994). MEASURING EMOTION: THE SELF-ASSESSMENT MANIKIN AND THE SEMANTIC DIFFERENTIAL. *Journal of Behavior Therapy and Experimental Psychiatry*, 25 (1), 49-59. [https://doi.org/10.1016/0005-7916\(94\)90063-9](https://doi.org/10.1016/0005-7916(94)90063-9)
- Dagman, J., Karlsson, M. A., & Wikström, L. (2010). Investigating the Haptic Aspects of Verbalised Product Experiences. *International Journal of Design*, 4(3), 15-27.
- Dahlqvist, A. (2018). It's Only Blood: Shattering the Taboo of Menstruation. In Google Books. Retrieved from:
https://books.google.se/books?hl=sv&lr=&id=Bb2rDwAAQBAJ&oi=fnd&pg=PT7&dq=menstruation+taboo&ots=ClZp4DqTV1&sig=6-4ti8if7wQJN1Nh0tDMerLEbwY&redir_esc=y#v=onepage&q=menstruation%20taboo&f=false
- Dasharathy, S. S. et al. (2012). Menstrual Bleeding Patterns Among Regularly Menstruating Women. *American Journal of Epidemiology* 175,536–545.
- Design Council. (2021). *What is the framework for innovation? Design Council's evolved Double Diamond*. Retrieved from:
<https://www.designcouncil.org.uk/news-opinion/what-framework-innovation-design-councils-evolved-double-diamond>
- Desmet, P. M. A., Hekkert, P. (2002). The Basis of Product Emotions. *Pleasure with Products, beyond usability*, 60-68.
- Desmet, P. M. A. (2003). *A Multilayered Model of Product Emotions*. The Design Journal. In press.
- Edana. (2019). *Absorbent Hygiene Products components Pad/Liners*. Retrieved from:
<https://www.edana.org/nw-related-industry/nonwovens-in-daily-life/absorbent-hygiene-products/feminine-care>
- Essity. (2021a). *Essity at Glance*. Retrieved from:
<https://www.essity.com/company/essity-at-a-glance/>
- Essity. (2021b). *Grundläggande information om mens*. Retrieved from:
<https://www.libresse.se/myter-och-fakta/mens-en-del-av-livet/vad-ar-menscykel/>

Essity. (2021c). *Personal Care*. Retrieved from:
<https://www.essity.com/company/essitys-business-and-operations-worldwide/personal-care/>

Essity. (2020). *Sustainability in Brief*. Retrieved from:
<https://www.essity.com/sustainability/reporting-and-data/sustainability-in-brief/>

Essity. (2021d). *The Hygiene and Health Report 2020-2021*. Retrieved from:
<https://www.essity.com/company/essentials-initiative/survey-and-reports/>

Farage, M. A. & Maibach, H. I. (2017). *The Vulva: Physiology and Clinical Management, Second Edition*. CRC Press.

Friis Dam, R., Siang, T-Y. (2021). *Personas - A Simple Introduction*. Retrieved from:
<https://www.interaction-design.org/literature/article/personas-why-and-how-you-should-use-them>

Hassenzahl, M. (2011). *User Experience and Experience Design*. Retrieved from
<https://www.researchgate.net/publication/259823352>

Interaction Design Foundation. (2020). *Usability*. Retrieved from:
<https://www.interaction-design.org/literature/topics/usability>

ISO. (2018). *Ergonomics of human-system interaction - Part 11: Usability: Definitions and concepts*. Retrieved from: <https://www.iso.org/obp/ui/#iso:std:iso:9241:-11:ed-2:v1:en>

Johannesson, H., Persson, J-G., Pettersson, D. (2013). *Produktutveckling: Effektiva metoder för konstruktion och design*. Stockholm: Liber AB

Jordan, P. (2000). *Designing pleasurable products*. London: Taylor & Francis.

Karlsson, I.C.M. (2007). Kurskompendium "Lyssna till kundens röst". Produkt - och produktionsutveckling. Chalmers Tekniska Högskola. Retrieved from:
<http://www.cse.chalmers.se/research/group/idc/ituniv/kurser/07/analys/Lyssna%20till%20kundens%20r%C3%B6st.pdf>

Knudtson, J., McLaughlin J. E. (2019). *Menstrual Cycle*. Retrieved from:
<https://www.msdmanuals.com/home/women-s-health-issues/biology-of-the-female-reproductive-system/menstrual-cycle>

Kujala, S., Roto, V., Väänänen-Vainio-Mattila, K., Karapanos, E., Sinnelä, A. (2011). UX Curve: A method for evaluating long-term user experience. *Interacting with Computers*, 23 (5), 473-483. <https://doi.org/10.1016/j.intcom.2011.06.005>

Lerma, B., De Giorgi, C., Allione, C. (2013). *Design and materials. Sensory perception Sustainability Project*. FrancoAngeli.

Libresse. (2021). *Dailies Fresh Regular*. Retrieved from: <https://www.libresse.se/vara-produkter/trosskydd/normal-trosskydd/>

Libresse. (2021). *Ultra+ Wings*. Retrieved from: <https://www.libresse.se/vara-produkter/bindor/ultra-thin-normal-wing/>

Monö, R. (1997). *Design for Product Understanding*. Trelleborg: Skogs Boktryckeri AB.

Mugge R., Govers, P.C.M, & Schoormans, J.P. (2009). *The development and testing of a product personality scale*. *Design Studies* 30, 287-302.

New World Encyclopedia. (n.d). *Sight*. Retrieved from: <https://www.newworldencyclopedia.org/entry/Sight>

OHCHR. (2019). *International Women's Day - 8 March 2019 Women's menstrual health should no longer be a taboo*. Retrieved from: <https://www.ohchr.org/EN/NewsEvents/Pages/DisplayNews.aspx?NewsID=24256&LangID=E>

RFSU. (2018). Om mensen. Retrieved from: <https://www.rfsu.se/sex-och-relationer/for-dig-som-undrar/kropp-och-kon/mens/om-mensen/>

Roto, V., Rantavuo, H., & Väänänen-Vainio-Mattila. (2009). Evaluating users experience of early product concepts. INTERNATIONAL CONFERENCE ON DESIGNING PLEASURABLE PRODUCTS AND INTERFACES. Compiegne, France. Retrieved from: https://www.researchgate.net/publication/266495769_Evaluating_user_experience_of_early_product_concepts

Rouby, C., Fournel, A., & Bensafi, M. (2016). The Role of the Senses in Emotion. In *Emotion Measurement* (pp. 65-81) Woodhead Publishing.

<http://dx.doi.org/10.1016/B978-0-08-100508-8.00003-5>

Sacharin, V., Schlegel, K., & Scherer, K. R. (2012). *Geneva Emotion Wheel rating study* (Report). Geneva, Switzerland: University of Geneva, Swiss Center for Affective Sciences.

Scherer, K.R. (2005): *What are emotions and how can they be measured?* *Social Science Information*. Vol.4, No.4. pp. 695-729

TENA. (2021). *TENA Discreet Maxi*. Retrieved from:

<https://www.tena.nu/kvinnor/produkter/bindor/tena-discreet-maxi#>

The Dana Foundation. (2021a). *The Senses: Hearing*. Retrieved from:

<https://dana.org/article/the-senses-hearing/>

The Dana Foundation. (2021b). *The Senses: Smell and Taste*. Retrieved from:

<https://www.dana.org/article/the-senses-smell-and-taste/>

United Nations. (2019). *Break taboo around menstruation, act to end 'disempowering' discrimination, say UN experts*. Retrieved from:

<https://news.un.org/en/story/2019/03/1034131>

United Nations. (n.d.). *THE 17 GOALS*. Retrieved from: <https://sdgs.un.org/goals>

Van der Meulen, M. (2019). *This means this, this means that: Semiotics — the study of meaning*. Retrieved from:

<https://uxdesign.cc/this-means-this-this-means-that-semiotics-the-study-of-meaning-84cd9e800214>

Wikberg Nilsson, Å., Ericson, Å., Törlind, P. (2015). *Design Process och Metod*. Studentlitteratur.

Zakharenko, A. (2020). *Semantic Differential Scale: Definition, Questions, Examples*. Retrieved from:

<https://aidaform.com/blog/semantic-differential-scale-definition-examples.html>

Österlin, K. (2016). *Design i fokus*. Stockholm: Liber AB

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Appendix 1 - Survey

Användarupplevelsen kring bindor och trosskydd

Vi är två studenter som läser vår sista termin på mastern Industrial Design Engineering på Chalmers och genomför under våren 2021 vårt examensarbete tillsammans med Essity där vi undersöker användarupplevelsen av bindor och trosskydd i samband med mens. Mer specifikt riktar sig vår studie mot att undersöka den del av mensvätskan som blir kvar på ytan av dessa sanitetsprodukter och hur detta upplevs i relation till produkterna.

Studien inkluderar menstruerande kvinnor, eller ickebinära, mellan 18-45 år som någon gång använder bindor och/eller trosskydd under sin mens. Därav handlar avsnitt 2 och 3 om användningen av bindor respektive trosskydd.

Denna enkätstudie är en del av våra användarstudier där vi samlar information kring ämnet från användare. Resultatet kommer hjälpa oss att identifiera behov och förbättringsområden. Dina svar kommer att behandlas anonymt.

Om ni har frågor gällande enkäten kan ni kontakta oss på:

XXXX

XXXX

TUSEN TACK FÖR ATT DU DELTAR!

Hur gammal är du? *

Studien riktar sig mot menstruerande kvinnor mellan 18-45 år.

- 18-25
- 26-30
- 31-35
- 36-40
- 41-45

Är det något av följande alternativ som påverkar din mens för tillfället? *

- Ja, preventinmedel
- Ja, sjukdom
- Ja, medicinering
- Ja, hormonpreparat
- Ja, perioden efter graviditeten
- Vet ej
- Nej

Hur många dagar är din genomsnittliga mensperiod? *

Med mensperiod menar vi antalet dagar du har mens, från första dagen med blödning tills blödningen upphör, vilket kan variera från person till person.

- 1 dag
- 2 dagar
- 3 dagar
- 4 dagar
- 5 dagar
- 6 dagar
- 7 dagar
- Fler
- Mensperioden varierar mycket

Hur mycket anser du dig blöda under din mensperiod? *

	1. Lite	2	3	4	5. Mycket
I början av mensperioden	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I mitten av mensperioden	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I slutet av mensperioden	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Hur bekväm är du med att...? *

På en skala mellan 1-5, där 1 är obekvämt och 5 är helt bekvämt.

	1. Obekvämt	2	3	4	5. Helt bekvämt	Vet ej
Berätta för din partner/nära vän att du har mens	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Diskutera din upplevelse/problem under mensens med dina vänner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fråga en kollega om de har ett mensskydd att låna dig	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prata öppet om ämnet mens utanför kretsen av dina närmaste vänner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Utifrån dina svar på föregående fråga, är det något du vill tillägga kring varför du har svarat som du gör? *

Vad använder du främst för mensskydd under din mensvecka? *

- Binda
- Trosskydd
- Tampong
- Menskopp
- Menstrosa
- En kombination av olika mensskydd
- Annat

Innan vi går vidare till produkterna: Använder du bindor någon gång under din mensvecka? *

- Ja \longrightarrow Bindor (avsnitt 2)
- Nej \longrightarrow Trosskydd (avsnitt 3)

Hur bekväm är du med att...?

På en skala mellan 1-5, där 1 är obekväm och 5 är helt bekväm.

	1. Obekväm	2	3	4	5. Helt bekväm	Vet ej
Berätta för din partner/nära vän att du har mens	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Diskutera din upplevelse/problem under menssen med dina vänner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fråga en kollega om de har ett mensskydd att låna dig	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prata öppet om ämnet mens utanför kretsen av dina närmaste vänner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Bindor (avsnitt 2)

Detta avsnitt belyser användningen av bindor under mens.

Vad använder du främst för typ av bindor? *

- Tunna bindor med vingar
- Tunna bindor utan vingar
- Tjocka bindor med vingar
- Tjocka bindor utan vingar
- Nattbindor
- Annat

Använder du något annat sanitetsskydd i samband med bindor under din mens? *

- Ja, tampong
- Ja, menskopp
- Ja, menstrosa
- Nej, jag använder endast bindan för sig
- Annat

Om ja, varför?

Vilket märke på bindor använder du främst? *

- Libresse
- Always
- Handels egna varumärken (t.ex. ICA, Apoteket eller Coop)
- Annat

Varför använder du just det märket? *

Vilka faktorer anser du vara viktigast när du väljer binda vid köp? *

Välj max 3 alternativ.

- Passform
- Storlek
- Märke
- Bindans utseende
- Förpackningens utseende
- Pris
- Absorptionsförmåga
- Tillsatt lukt på bindan
- Tjocklek
- Att bindan sitter på plats
- Att bindan har vingar
- Annat

Vad är de främsta anledningarna till att du byter till en ny binda under dagen? *

Välj max 3 alternativ som stämmer in bäst.

- Hur lång tid som gått sedan senaste bytet
- Hur mycket mens som samlats på bindan
- Hur bindan sitter i trosan
- Hur mensflödet ändras under dagen
- Fysisk aktivitet
- För att det passade i tid
- För att känna mig fräsch
- För att jag hade tillgång till toalett
- Annat

Beskriv färgen på mensresterna du ser i bindan vid byte.*

T.ex. det är klarrött/mörkrött/brunt.

Tidigare forskning har visat att mens som ligger kvar på ytan av bindan ofta är klumpar. Hur skulle du beskriva dessa klumpar? *

T.ex. utifrån form, storlek och konsistens.

Hur väl upplever du att följande delar av mensen har absorberats av bindan vid byte? *

	1. Mensen har absorberats helt av bindan	2	3	4	5. Mensen ligger kvar på ytan av bindan	Vet ej
Mensvätskan	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mensresterna	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Vad känner du kring det du ser i bindan vid byte? *

Det är...

- äckligt
- naturligt
- konstigt
- privat
- obehagligt
- häftigt
- som det ska vara
- Jag tittar inte i min binda
- Annat

Det bästa med bindor är... *

Avsluta meningen.

Det värsta med bindor är... *

Avsluta meningen.



En optimal binda borde vara... *

Avsluta meningen.

Trosskydd (avsnitt 3)

Detta avsnitt belyser användningen av trosskydd under mens.

Innan vi går vidare till produkterna: Använder du trosskydd någon gång under din mensvecka? *

- Ja  Trosskydd (avsnitt 4)
- Nej  Avsnitt 5

Trosskydd (avsnitt 4)

Detta avsnitt belyser användningen av trosskydd under mens.

Vad använder du främst för typ av trosskydd? *

- Tunna trosskydd i normal modell
- Tjocka trosskydd i normal modell
- Tunna trosskydd i stringmodell
- Tjocka trosskydd i stringmodell
- Extra långt trosskydd
- Annat

Använder du något annat sanitetsskydd i samband med bindor under din mens? *

- Ja, tampong
- Ja, menskopp
- Ja, menstrosa
- Nej, jag använder endast trosskyddet för sig
- Annat

Om ja, varför?

Vilket märke på bindor använder du främst? *

- Libresse
- Always
- Handels egna varumärken (t.ex. ICA, Apoteket eller Coop)
- Annat

Vilka faktorer anser du vara viktigast när du väljer trosskydd vid köp? *

Välj max 3 alternativ.

- Passform
- Storlek
- Märke
- Trosskyddets utseende
- Förpackningens utseende
- Pris
- Absorptionsförmåga
- Tillsatt lukt på trosskyddet
- Tjocklek
- Att trosskyddet sitter på plats
- Annat

Vad är de främsta anledningarna till att du byter till ett nytt trosskydd under dagen? *

Välj max 3 alternativ som stämmer in bäst.

- Hur lång tid som gått sedan senaste bytet
- Hur mycket mens som samlats på trosskyddet
- Hur trosskyddet sitter i trosan
- Hur mensflödet ändras under dagen
- Fysisk aktivitet
- För att det passade i tid
- För att känna mig fräsch
- För att jag hade tillgång till toalett
- Annat

Beskriv färgen på mensresterna du ser i trosskyddet vid byte.*

T.ex. det är klarrött/mörkrött/brunt.

Upplever du klumpar på ytan av ditt trosskydd? *

- Ja
- Nej

Om ja, hur skulle du beskriva dessa klumpar?

T.ex. utifrån form, storlek och konsistens.

Hur väl upplever du att följande delar av mensen har absorberats av bindan vid byte? *

	1. Mensen har absorberats helt av trosskyddet	2	3	4	5. Mensen ligger kvar på ytan av trosskyddet	Vet ej
Mensvätskan	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mensresterna	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Vad känner du kring det du ser i trosskyddet vid byte? *

Det är...

- äckligt
- naturligt
- konstigt
- privat
- obehagligt
- häftigt
- som det ska vara
- Jag tittar inte i mitt trosskydd
- Annat

Det bästa med trosskydd är... *

Avsluta meningen.

Det värsta med trosskydd är... *

Avsluta meningen.

Ett optimalt trosskydd borde vara... *

Avsluta meningen.

Vill du dela med dig av mer värdefull information? (avsnitt 5)

Digital Intervju

Vi söker efter deltagare som är intresserade av att delta i en digital intervju för att dela med sig av fortsatt erfarenhet kring ämnet. En intervju beräknas ta ungefär 30-45 minuter.

Dagboksstudie

Vi söker också efter deltagare till en dagboksstudie som förväntas få sin mens någon gång under de kommande 5-6 veckorna. Dagboksstudien innebär att du som deltagare fyller i en kreativ dagbok kring din upplevelse av mensens och användandet av bindor och trosskydd under EN mensperiod.

Vi söker deltagare som vanligtvis använder bindor och/eller trosskydd under sin mens ELLER är villiga att testa dessa skydd under sin mensperiod i samband med dagbokstudien.

Vi tillhandahåller er med dessa mensskydd under dagboksstudien :)



Välj vilken av studierna du är intresserad av att delta i. *

- | | | |
|---|--------|-------------------|
| <input type="radio"/> Digital intervju | —————> | Avsnitt 6 |
| <input type="radio"/> Dagboksstudie | —————> | Avsnitt 6 |
| <input type="radio"/> Både digital intervju och dagboksstudie | —————> | Avsnitt 6 |
| <input type="radio"/> Ingen av studierna | —————> | Skicka formuläret |

Kontaktuppgifter för fortsatt deltagande i våra studier (avsnitt 6)

Ange ditt namn och din mejl *

Så att vi kan nå dig gällande de kommande studierna.

Gällande GDPR: För att kunna kontakta dig för vidare information om kommande studier behöver vi lagra ditt namn och din mejladress. Godkänner du att vi sparar dessa? *

Personuppgifterna, namn och mejladress, lagras i syfte att kunna kontakta dig inför kommande studier. Datan kommer inte att delas till obehöriga och uppgifterna kommer att raderas efter projektet.

- Ja, jag godkänner att ni sparar mina personuppgifter

Appendix 2 - Participants in the experience diary study

Participant	Age
1	23
2	23
3	24
4	24
5	26
6	26
7	28
8	27
9	31
10	31
11	35
12	35
13	37
14	37
15	38
16	38
17	39
18	40
19	41
20	42
21	48
22	49

Appendix 3 - Experience diary



Välkommen till din alldeles egna mensdagbok!

Vilka är vi och vad gör vi?

Vi heter Ellen och Emma och läser sista terminen på mastern Industrial Design Engineering på Chalmers Tekniska Högskola.

Tillsammans med Essity genomför vi under våren vårt examensarbete där vi undersöker användarupplevelsen av **bindor** och **trosskydd** i samband med mens. Mer specifikt så riktar sig vår studie mot att undersöka den del av mensvätskan som blir kvar på ytan av dessa sanitetsprodukter och hur detta upplevs i relation till produkterna.



Ellen Karnblad
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Emma Wallin
emmawallin11@gmail.com
+46 703 11 26 70

Vad kul att just du är med i vår studie!

Denna dagboksstudie är del av våra användarstudier där vi samlar information från användare av bindor och trosskydd. Resultatet kommer hjälpa oss att identifiera behov och förbättringsområden. Dagboken kommer behandlas **anonymt** i vår studie, därav kommer ditt namn ersättas med ett annat.

OBS!

Efter att du har fyllt i dagboken så ber vi dig skicka tillbaka den till oss så vi kan läsa allt spännande du skrivit!

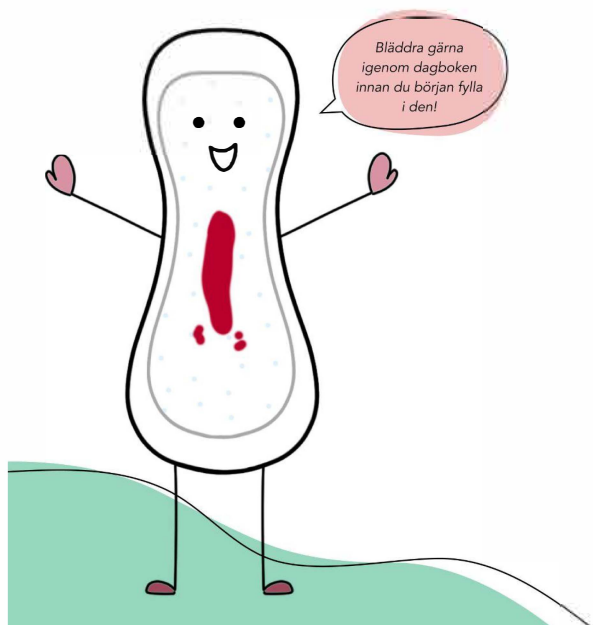
När: gärna så fort du är klar, men senast den **16/4**

Till: xxxxx

Hur använder jag dagboken?

Så här används mensdagboken!

Mensdagboken består av fyra avsnitt som fylls i under tidsperioden. Här kan du läsa om dem och när i tiden du fyller i de olika avsnitten.



1 ME, MYSELF & MY PERIOD

Det första avsnittet kan fyllas i när som helst under din tid tillsammans med dagboken. Det består av frågor kring dig och din mens.

2 KOD RÖD

Det andra avsnittet fylls i under de dagarna du använder mensskydd. Avsnittet påbörjas första dagen du börjar använda mensskydd och avslutas den sista dagen du använder det. Respektive sida fylls i under slutet av varje dag.

3 UPPLEVELSEKURVA

Nästa del består av två olika upplevelsekurvor: en som fylls i efter användning av ett mensskydd och en som fylls i efter en hel dag.

4 ETT BREV TILL MITT MENSKYDD

Det fjärde avsnittet är det sista att fylla i innan dagboken skeppas tillbaka till oss.

ME, MYSELF & MY PERIOD

Det här avsnittet handlar om dig och din mens och kan fyllas i när som helst under din tid med mensdagboken.

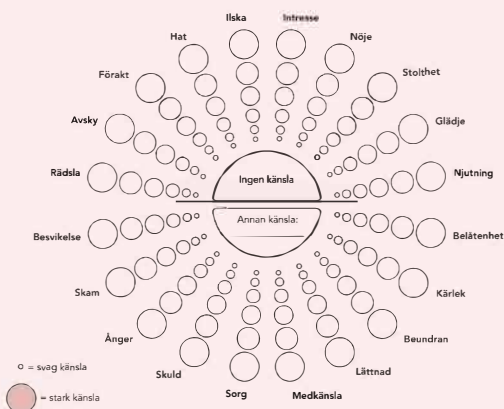
Huvudsaklig sysselsättning:

Ålder:

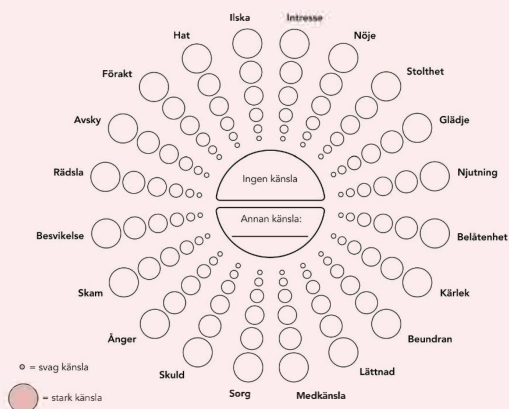
Skriv in antalet dagar din mens brukar hålla i sig:

Vad använder du främst för bindor och/eller trosskydd och **varför**?

Fyll i de känslor du upplever i relation till mens. Känslorna rankas genom att fylla i den bubbla som stämmer bäst överens med hur starkt du upplever känslan. I mitten av hjulet kan du markera om du inte upplever någon känsla eller om du har en annan känsla, skriv gärna vilken isåfall.



Fyll i de känslor du upplever gentemot bindor och trosskydd.



Appendix 4 - Interview guide Sweden

Vi är två studenter som läser vår sista termin på mastern Industrial Design Engineering på Chalmers och genomför under våren 2021 vårt examensarbete tillsammans med Essity där vi undersöker användarupplevelsen av bindor och trosskydd i samband med mens. Mer specifikt riktar sig vår studie mot att undersöka den del av mensvätskan som blir kvar på ytan av dessa sanitetsprodukter och hur detta upplevs i relation till produkterna.

Intervjuerna är del av våra användarstudier där vi samlar information från användare om behov och problem som de upplever idag. Detta kommer vi senare ta i beaktande för att utforma nya designkoncept.

Förklara att detta kan vara privat område att prata om, men att vi inte ser det som något konstigt.

Vi kommer att ta anteckningar och spela in, om du är okej med det? Vi kommer använda ett pseudonym istället för ditt namn i rapport och under presentation.

Uppvärmning (5 min)

- Hur gammal är du?
- Vad är din huvudsakliga sysselsättning?
 - Beskriv hur en vanlig dag ser ut för dig
- Kan du beskriva din menscykel?
 - Hur många dagar är din mensperiod vanligtvis?
- Är det något som påverkar din mens för tillfället? T.ex. preventivmedel eller liknande. Hur har det påverkat din cykel? Hur var den innan?
- Upplever du att din mens har ändrats genom åren?
 - Om ja, hur?

Mensrester (10 min)

Vår studie riktar sig som sagt mot att undersöka den del av mensens, eller mensvätskan, som blir kvar på ytan av sanitetsprodukter.

- Vad är din upplevelse kring det? Dvs. upplever du att vissa delar av mensens kan ligga kvar på ytan av produkterna?
- Hur känner du när du upplever detta?
 - Varför känner du så?
- Upplever du några problem kring detta? Beskriv gärna.

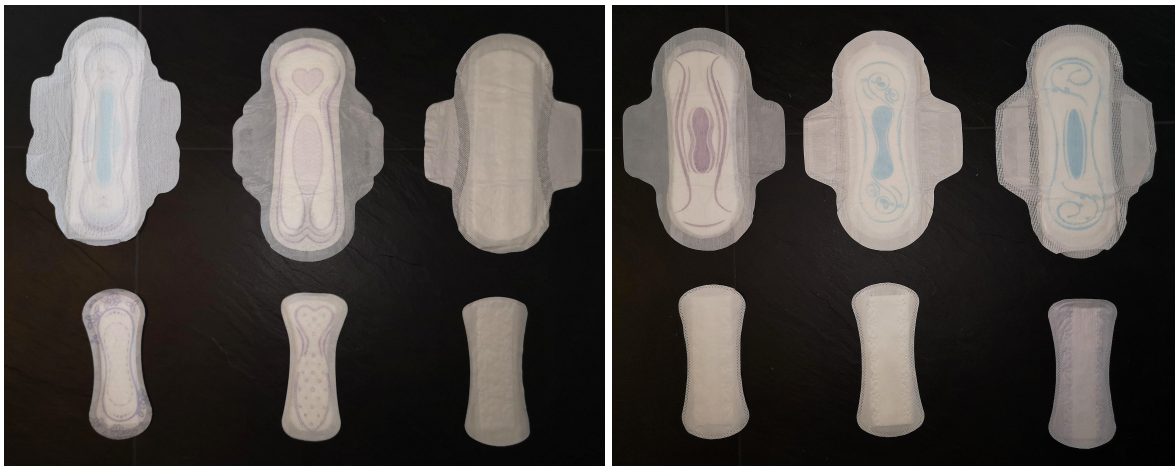
- Om du upplever att mensen ligger kvar på ytan av produkterna ibland under din mens, försöker du anpassa ditt val av mensskydd efter det?
 - Hur då?
- Vilken av dessa bindor anser du skulle ta hand om mensvätskan bäst? (BILD 1 på produkterna nära)
 - Hur resonerar du?
 - Hur tror du att bindorna skulle ta hand om eventuella klumpar?
 - Tror du att någon binda av dessa tre tar bättre hand om klumparna än någon annan av bindorna?



Val av produkt (20 min)

- Vad använder du för mensskydd idag och från vilket märke? Varför? **Visa gärna!**
 - Vilken modell på mensskydd?
 - Väljer du olika mensskydd utifrån vilka aktiviteter du ska genomföra under dagen? Varför & Hur?

- Hur väljer du mensskydd?
- Vad påverkar dig när du väljer mensskydd?
 - Varför just dessa faktorer?
 - Passform: Vad är bra passform för dig?
 - Säkerhet: Vad är säkerhet för dig?
 - Fräschhet: Vad är fräschhet för dig?
 - Pris: Vad är ett bra pris för dig?
 - Absorptionsförmåga: Vad är bra absorption för dig?
 - Förpackning: Vad är en snygg förpackning för dig?
 - Komfort: Vad är god komfort för dig?
- Om du tänker tillbaks till när du började få mens, vilka skydd använde du då? Varför?
 - Var samma faktorer viktiga för dig då som idag?
- *OM val av produkt har ändrats under åren:* Hur kommer det sig att det har ändrats?
- Om du nu får se mensskydden som såhär (BILD 2 med produkter)
 - Vilken binda hade du valt av dessa? Alla är i normal modell med vingar
 - Hur resonerar du?
 - Vilket trosskydd hade du valt av dessa? Alla är i normal modell.
 - Hur resonerar du?



The brands from left to right in the image above (where the sanitary pad and the pantyliner below it are from the same brand): Always, Libresse, Coop, Intuition, Apoliva, ICA.

- Detta är några av de vanligaste märkena som producerar mensskydd i Sverige. (BILD 3 på specifika förpackningar)
 - Vilken binda hade du valt av dessa? Alla är i normal modell med vingar
 - Hur resonerar du?

- Vilket trosskydd hade du valt av dessa? Alla är i normal modell.
 - Hur resonerar du?



- Om du skulle stå i mataffären framför denna hylla med mensskydd, vilket hade du valt? Förklara (BILD 4)
 - Hur resonerar du?



Känslor (10 min)

- Om du tänker på de dagliga aktiviteterna du gör under en vecka, känner du att du någon gång blir begränsad att utföra dessa aktiviteter p.g.a. mens?
 - Är det saker du får välja bort? Varför?
 - Om du tänker på de mensskydd du brukar använda, känner du att de främjar eller begränsar dina dagliga aktiviteter? På vilket sätt?
 - Finns det någon situation idag då du känner dig osäker på hur mensskyddet tar hand om mensen?
- **Geneva Emotion Wheel:** Fyll i de känslor du upplever gentemot mens. Känslorna rankas genom att fylla i den bubbla som stämmer bäst överens med hur starkt du upplever känslan. I mitten av hjulet kan du markera om du inte upplever någon känsla eller om du har en annan känsla, skriv gärna vilken isåfall. Flera känslor kan fyllas i!
 - Vad är dina känslor gentemot mens i sig? **SPARA BILD**
 - Vad är dina känslor gentemot bindor och trosskydd? **SPARA BILD**
- Har det någon gång hänt något kring mens som gör att du känner dig just “rädd” eller “osäker” under perioden? (t.ex. för att det ska läcka)
- **Är det något ytterligare du vill säga?**

Appendix 5 - The focus group

Vi är två studenter som läser vår sista termin på mastern Industrial Design Engineering på Chalmers och genomför under våren 2021 vårt examensarbete tillsammans med Essity där vi undersöker användarupplevelsen av bindor och trosskydd i samband med mens. Mer specifikt riktar sig vår studie mot att undersöka den del av mensvätskan som blir kvar på ytan av dessa sanitetsprodukter och hur detta upplevs i relation till produkterna. Fokusgrupperna är del av våra användarstudier där vi samlar information från användare om behov och problem som de upplever idag. Detta kommer vi senare ta i beaktande för att utforma nya designkoncept. Förklara att detta kan vara privat område att prata om, men att vi inte ser det som något konstigt. Vi kommer att ta anteckningar och spela in, om ni är okej med det? Vi kommer använda ett pseudonym istället för ditt namn i rapport och under presentation.

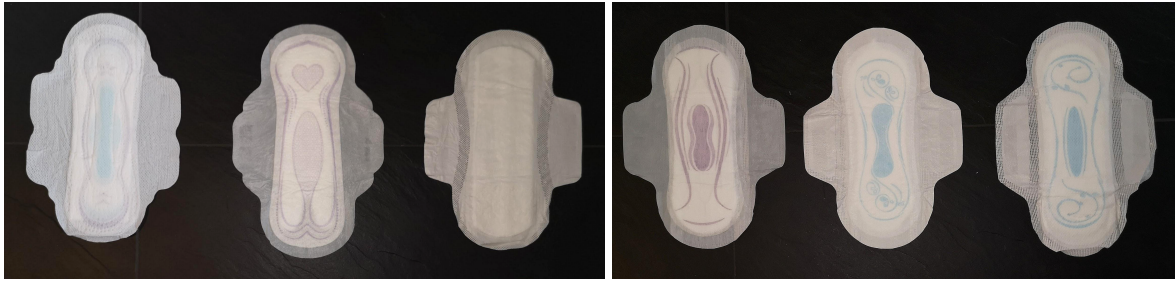
Del 1 - Warm-up + klumpar

- Vad är er upplevelse av mens?
- Vad använder ni för mensskydd idag och från vilket märke? Varför?
- Vår studie riktar sig som sagt mot att undersöka den del av mensens, eller mensvätskan, som blir kvar på ytan av sanitetsprodukter. Vad är er upplevelse av det?
 - Jobbigt att se/känna klumpar eller bara vetskapen om att de är där?

Del 2 - Scenario

- Det är morgon och du har mens och förbereder dig inför en dag på i skolan. Du byter mensskydd precis innan du börjar gå mot skolan. Halvvägs dit känner du att det rinner till.
 - Vad är din reaktion? Hur agerar du? Vad tänker du? Litar du på produkten?
- Du har ingen möjlighet att byta mensskydd inom de tre närmsta timmarna för att du är fast i ett möte.
 - Hur känner du kring det? Hur förändras känslan över tid?
- När mötet äntligen är klart är det läge att gå på toaletten för att kolla hur allting står till. Väl där inser du att du glömt ta med nytt mensskydd hemifrån. Samtidigt ser du att mensens inte absorberats helt utan ligger kvar på ytan av produkten.
 - Hur hanterar du situationen?

Del 3 - Sensory experience exercise



The brands from left to right in the image above: *Always, Libresse, Coop, Intuition, Apoliva, ICA.*

- **Känna, men inte titta på bindorna**
 - Hur tänker du att produkterna ser ut?
 - Vad tror du att produkten för egenskaper?

- **Titta, men inte känna på bindorna**
 - Stämmer det överens med hur du tänkte att det skulle se ut?

- **Känna och titta**
 - Ändras din uppfattning något?
 - Var upplevelsen annorlunda när ni enbart kände gentemot att känna och titta?

- **Diskussion**
 - Upplevde ni några markanta skillnader mellan de olika testen?
 - Vilken är skönast?
 - Vilket material känns bäst och skönast?
 - Hade ni velat ha en binda med lukt?
 - Vilken ser bäst ut?
 - Vilken hade ni valt?
 - Vilken tror ni tar hand om mensvätskan bäst?

- **Semantic differential scale**
 - Fyll i de semantiska egenskaperna hos Libresse Ultra+ Wings på mottaget papper.

Del 4 - Förbättringsområden

- **Samarbeta två och två. VÄLJ 3 ORD och skapa ett enkelt designkoncept utifrån denna kontexten, som på något sätt kan skapa en bra upplevelsen. Diskutera!**
 - Omständigt
 - Jobbigt
 - Äckligt
 - Ofräscht
 - Kladdigt
 - Osäkert

Appendix 6 - Interview guide the UK

Introduction (5 min)

Welcome! I am **XX** and my name is **XX**. We are two students who are studying our last semester at the Master's programme Industrial Design Engineering at Chalmers University of Technology in Gothenburg, Sweden. We are during the spring of 2021 conducting our master's thesis project together with Essity, a global hygiene company with brands such as BodyForm. We are investigating the user experience of sanitary pads in connection with menstruation. More specifically, our study focuses on examining the parts of the menstrual fluid that remains on the surface of sanitary pads and how this is experienced. Today, we also have our supervisors from Essity with us that will act as observers during the interview.

These interviews are part of our user studies where we collect information from users about the needs and problems that they experience today. We will take this information into account and propose new design concepts that aim for a better user experience.

This can be a private area to talk about, so if you ever feel like there is something that is too private to answer just tell us and we will jump ahead with the next question. However, the subject is also very natural, and we hope you will be happy to share your thoughts with us. Your input will be used to improve sanitary protection.

I will ask you the questions and **XX** will take notes during the interview. The interview will also be **recorded**, so we can take part of your insights later. The input that you give us will be treated fully anonymously in the study. We will use a pseudonym instead of your name in the report and during the presentation of our work.

Warm-up (10 min)

- How old are you?

- What is your main occupation?

- How many days does your menstrual period usually last?

- Can you describe how much you bleed?

- If you would place yourself into one category out of light, moderate, heavy or super heavy bleeders, which one would you choose?
 - Why would you place yourself into that category?

- Can you describe the texture of your menstruation? If it is thin, thick or other.

- In general, how comfortable are you with talking about menstruation?

- Do you talk about it with everyone?
- What do you talk about then?
- Have you given birth?
 - How has this affected your period?
 - How old are your children? Boy/girl?
- What sanitary products do you use today and from which brand?
 - Why do you use those products?
 - Has this changed over the years?
- Do you use different types of pads during different situations? Meaning does your selection of pad differ when, for example, being at home, compared to being in the office or exercising.
- Would you appreciate a tailored stash of feminine hygiene products? Meaning that you can customize how many of each product you buy instead of buying a package of one specific product.

Now; back to the products you use today!

- How did you get introduced to the products you use today?
- Do you remember how you got introduced to feminine hygiene products when you first got your period?

If child is a young girl:

- Have you introduced feminine hygiene products to your child?
 - If yes, how?
- Where do you normally buy your sanitary pads?
- Are you comfortable with standing in the store and choosing which products to buy?
 - Why/why not?
- How do you know which sanitary pad to buy that suits you and your menstrual flow?
- Do you look at the packaging to get more information about the specific product?
 - What information on the packaging do you look for?
- Do you feel like you want more knowledge or information about what products that suit you and your menstrual flow?
 - Where would you like to find that information?

Menstrual residues (25 min)

In this following section, we will focus on your experience of menstruation that is not fully absorbed by the pad and therefore, stays on top of the sanitary pad. Here we will refer to sanitary pads as only pads.

- Have you ever experienced that your menstruation has not been fully absorbed by the pad?
- Do you have any perception of when this happens during your menstrual week?
- Do you have any perception of when this happens during the day? Is it during a day with heavier flow or lighter flow?
- How would you describe the menstruation that is not absorbed by the pad and remains on the surface of the pad?
 - *colour, shape, texture, amount, smell*

If hard to describe: Many people describe it as blood clots, thick liquid or gel-like parts that remain on the surface of their used products.

- Do you have any perception about where on the pad it usually ends up?
- Do you also experience that it remains in your intimate area?
- How do you act when you experience that the menstruation remains on the surface of the pad?
- Do you trust the sanitary pad when you experience that the menstruation remains on the surface of the pad/heavy flow?
 - Why/why not?
- When the menstruation remains on the surface of the pad/heavy flow, do you experience leakage?
 - Do you worry about leakage? Why/why not?
- How do you handle your used sanitary pad during a day with heavy flow?
 - How do you avoid it getting messy if menstruation remains on the surface of the pad? Meaning, for example, to avoid touching the blood.
- What is your indication for changing to a new pad?
 - *How do you know how long you can use your pad?*

- When experiencing that the menstruation remains on the surface of the pad/heavy flow, do you feel like it adds extra steps in the process of changing to a new pad?
 - Why/why not?
- When experiencing that the menstruation remains on the surface of the pad/heavy flow, do you feel the need to wipe off your used product before changing to a new one?
 - Why/why not?
- When experiencing that the menstruation remains on the surface of the pad/heavy flow, do you feel the need to wipe your intimate area MORE than usual before changing to a new pad?
- Do you ever talk to others about menstruation that remains on the surface of the products/clots?
 - Why/Why not?
- Do you think people should talk more openly about clots, lumps or thicker menstrual fluids to be able to normalize it?
- Is this something you think that everyone experiences?

Ending (15 min)

Now we will enter the last section of the interview with two open questions.

- What is your overall experience of sanitary pads?
 - How do you feel when using sanitary pads?
- If anything ever worries you when using a sanitary pad, what would that be?
- Based on what we have talked about now during this hour, do you have anything else to add?

Thank you for taking the time to participate in our study, it means a lot! We received many valuable insights from you and we hope you had as much fun as we.

Back-up questions

- What would an ideal pad be for you?
- How would you want a future pad to be?
- Have you ever experienced something that you found shameful or embarrassing related to menstruation?

Appendix 7 - Interview guide France

Introduction (8 min)

Welcome! I am **XX** and my name is **XX**. We are two students who are studying our last semester at the Master's programme Industrial Design Engineering at Chalmers University of Technology in Gothenburg, Sweden. We are during the spring of 2021 conducting our master's thesis project together with Essity, a global hygiene company with brands such as Nana. We are investigating the user experience of sanitary pads in connection with menstruation. More specifically, our study focuses on examining the parts of the menstrual fluid that remains on the surface of sanitary pads and how this is experienced. Today, we also have our supervisors from Essity with us that will act as observers during the interview.

These interviews are part of our user studies where we collect information from users about the needs and problems that they experience today in regards to sanitary pads. We will take this information into account and propose new design concepts that aim for a better user experience. Meaning, that your input will be used to improve sanitary protection.

Menstruation can be a private area to talk about, so if you ever feel like there is something that is too private to answer just tell us and we will jump ahead with the next question. However, the subject is also very natural, and we hope you will be happy to share your thoughts with us.

I will ask you the questions and **XX** will take notes during the interview. The interview will also be **recorded**, so we can take part of your insights later. The input that you give us will be treated fully anonymously in the study. We will use a pseudonym instead of your name in the report and during the presentation of our work.

Warm-up (10 min)

- Can you describe how many days your menstrual period usually lasts and how much you bleed?
- If you would place yourself into one category out of light, moderate, heavy or super heavy bleeders, which one would you choose and why?
- In general, how comfortable are you with talking about menstruation?
 - *Do you talk about it with people?*
 - *What do you talk about then?*
- We understood that you have given birth, how has this affected your period?
 - How old are your children? Boy/girl?
- What sanitary products do you use today and from which brand? And why do you choose those products?

- Would you appreciate a tailored stash of feminine hygiene products that you can use in different situations? Meaning that you can customize how many of each product you buy instead of buying a full package of one specific product.

Now; back to the products you use today!

- How did you get introduced to the products you use today?

If child is a young girl:

- If you have introduced feminine hygiene products to your child, how did you do it?
- Where do you normally buy your sanitary pads?
- How do you know which sanitary pad to buy that suits you and your menstrual flow?
- Do you look at the packaging to get more information about the specific product and what information on the packaging do you look for?
- Do you feel like you want more knowledge or information about what products that suit you and your menstrual flow? And where would you like to find that information?

Menstrual residues (25 min)

In this following section, we will focus on your experience of menstruation that is not fully absorbed by the pad and therefore, stays on top of the sanitary pad. Here we will refer to sanitary pads as only pads.

- Have you ever experienced that your menstruation has not been fully absorbed by the pad?
- Do you have any perception of when this happens during your menstrual week?
- Do you have any perception of when this happens during the day? Is it during a day with heavier flow or lighter flow?
- How would you describe the menstruation that is not absorbed by the pad and remains on the surface of the pad?
 - *colour, shape, texture, amount, smell*

If hard to describe: Many people describe it as blood clots, thick liquid or gel-like parts that remain on the surface of their used products.

- Do you have any perception about where on the pad it usually ends up?

- Do you trust the sanitary pad when you experience that the menstruation remains on the surface of the pad/heavy flow? Why/why not?
- When the menstruation remains on the surface of the pad/heavy flow, do you experience leakage or do you worry about leakage? Why/why not?
- How do you handle your used sanitary pad during a day with heavy flow?
 - *How do you avoid it getting messy if menstruation remains on the surface of the pad?*
- When experiencing that the menstruation remains on the surface of the pad/heavy flow, do you feel the need to wipe off your used product before changing to a new one? Why/why not?
- When experiencing that the menstruation remains on the surface of the pad/heavy flow, do you feel the need to wipe your intimate area MORE than usual before changing to a new pad? Why/why not?
- Do you talk to others about menstruation that remains on the surface of the products/clots? Why/why not?
- Is this something you think that everyone experiences?

Ending (15 min)

Now we will enter the last section of the interview with two open questions.

- What is your overall experience of sanitary pads?
 - *How do you feel when using sanitary pads?*
- If anything ever worries you when using a sanitary pad, what would that be?
- Based on what we have talked about now during this hour, do you have anything else to add?

Thank you for taking the time to participate in our study, it means a lot! We received many valuable insights from you and we hope you had as much fun as we.

Back-up questions

- What would an ideal pad be for you?
- Have you ever experienced something that you found shameful or embarrassing related to menstruation?

Appendix 8 - UX theory mapping for sanitary pads

The bold statements were seen as of most importance.

Concern	Appraisal	Emotion
Goal		
I want my sanitary pad to be easy to dispose	I think it is cumbersome to roll the pad into paper after usage and sometimes, toilets do not have any bin which makes it difficult to handle the pad when it is full of blood	Frustration, Disappointment
I want my sanitary pad to be easy to attach	I really enjoy that sanitary pads are so easy to put on, just place them in the panty and then you are ready to go	Love
I want the usage of sanitary pads to be efficient	When having menstruation and wearing sanitary protection it takes so much more time, you need to change product and it requires more time on the toilet	Anger
I want the sanitary pad to absorb all of the menstruation	When blood clots, lumps and thicker menstruation comes out, it is not absorbed by the sanitary pad which makes me very self-conscious and uncomfortable	Hate, Disgust
I want to be able to make a conscious choice based on my needs	I often feel like I lack knowledge about what products that suits me and my menstrual flow and I would like to know more about that, to find the ultimate products for me	Confusion, Interest
I like to feel control	When I experience that	Confusion

	residues remain on the surface of the pad I do not know if I need to change or if the menstruation will actually be absorbed	
I want to feel safe when using the sanitary pad solely	I do not want to constantly have to worry about leakage from the sanitary pad when I have heavy flow with residues	Fear
I want to feel clean	I experience that when I am on my period and wear sanitary pads I feel much less fresh than while not wearing it	Disgust
I like to feel dry	During heavy bleeding, I can feel the menstruation in the pad, which creates a sticky and wet feeling which I do not enjoy	Discomfort
I appreciate things running smoothly	I get tired of having to relate to the use of sanitary pads during my period, I have to think about buying them and not forget to bring them with me if I have to change	Disappointment
I enjoy feeling extra safe	I find it great that I can use sanitary pads as a back-up when wearing other sanitary protection and that it will make me feel extra secure as well as protects my clothes	Relief, Contentment
I want a comfortable sanitary pad	I really appreciate sanitary pads that are soft and gentle towards the intimate area	Contentment, Love
Attitude		

I want a breathable sanitary pad	If sanitary pads are worn for a longer period of time and it gets warm and sweaty down there, and that makes me feel confined which gives me anxiety	Discomfort
I appreciate discreet sanitary pads	I dislike thick sanitary pads because many versions are too bulky and therefore, I feel like I am wearing a diaper and people can see it through my clothes	Contempt, Shame
I want to smell nice	The odour that a bloody sanitary pad can bring is terrible and I worry that people can smell me which makes me very self-conscious	Hate, Disgust, Fear
I appreciate a quiet sound	I do not like that the sanitary pad is so loud when changing to a new one, I feel like people can hear me changing on the toilet	Shame
I want a sanitary pad that fits well with my underwear	I get irritated when the sanitary pad does not work with different models of panties	Frustration, Fear
I desire a sanitary pad that stays in place	The sanitary pad moves around when I am being active and switch position during any hour of the day	Anger
I want to use products that are healthy for me	Unlike tampons, I enjoy that sanitary pads are placed outside of my body since that feels safe for my body	Contentment, Relief
Standard		
I strive towards being environmentally friendly	Every time I trash a used sanitary pad I get reminded of the negative impact it has	Shame

	on the environment which makes me feel guilty and like I could do better	
I advocate for equality	Sanitary pads should be available for everyone that needs it, I even think it should be free	Compassion

Appendix 9 - Semantic Differential Scale

Ange i skalan till vilken utsträckning de föreslagna semantiska uttrycken svarar på din upplevelse av produkten - bindan. 0 = neutral.

	3	2	1	0	-1	-2	-3		Kommentar
Billig					I	II	I	Dyr	<ul style="list-style-type: none"> • Ser bäst ut men måste inte vara svindyr • Känns väl utvecklad och väl genomtänkt med form och utseende • Dyrare än snittet • Genomtänkt design, mycket "klipp" för att forma utefter kroppen
Säker	I	III						Osäker	<ul style="list-style-type: none"> • Känns säker, den jag brukar ha • Säker vid mindre "flow" • Ganska tjock
Pålitlig	I	III						Opålitlig	<ul style="list-style-type: none"> • Jag litar på den, vet hur den passar mig • Pga bra märke • Ganska tjock
Absorberande		III	I					Icke absorberande	<ul style="list-style-type: none"> • Ibland har den jag haft inte varit helt absorberande men ändå bra • Passar sig bäst i slutet av mens • Hål som ska leda mens
Lätthanterlig	II	I			I			Svårhanterlig	<ul style="list-style-type: none"> • Hatar vingar... Men hade fixat det • Enkel att förstå • Lätt ev. jobbigt med vingarna
Estetisk	II	I	I					Oestetisk	<ul style="list-style-type: none"> • Fin! Gillar kurvor + hjärtat • Detaljer • Gillar inte det lila så mycket

									<ul style="list-style-type: none"> • Tyckte om mönstret iaf i jämförelse med dom andra vi kollat på
Bekväm	III	I						Obekvä m	<ul style="list-style-type: none"> • Gillar passformen både fram och bak och för rumpan • Mjuk & lätt • Mjuk, lagom stor • Ser ut att passa bra
Fräsch	I	II	I					Ofräsch	<ul style="list-style-type: none"> • Känns fräsch för den har en färg och är tunn • Bra kvalité bidrar till känsla av fräsch
Luffig		I		I	II			Töt	<ul style="list-style-type: none"> • Känns alltid instängt med binda • Tunn • Ser ganska kompakt ut
Smidig		II		I		I		Klumpig	<ul style="list-style-type: none"> • Vingarna... • Lätt • Ganska stor • Ser nätt ut
Barnslig			I	I	I	I		Mogen	<ul style="list-style-type: none"> • Hjärtat kanske är lite barnsligt • Mogen • Hjärtat lite barnsligt • Funkar för alla, lite töntig med hjärtat

Appendix 10 - UX theory mapping for menstruation

The bold statements were seen as of most importance.

Concern	Appraisal	Emotion
Goal		
I want to feel understood about the situation around having menstruation	I think it is irritating that some people do not understand how menstruation affects you	Disappointment
I strive for knowledge about what is normal around menstruation	I experience that I have not been given enough information or knowledge about what menstruation is and how it varies among people, which I think is bad	Disappointment, Interest
I wish for an open atmosphere towards menstruation	When I was a kid I could not talk to my mum about my period which made me insecure about it, and this is something I do not want my kids to experience	Disappointment
I want to feel prepared when I get my period	I am self-conscious about my menstruation appearing without notice and prefer to feel in control of it	Fear
I want menstruation to be something that is natural to talk about	I think menstruation is natural, but still seen as a very private area to talk about which is why I keep my experiences to myself even though I might want to share them	Shame
Attitude		
I want to feel free	I do not like to have my period because it is more cumbersome than when not	Hate, Anger

	having it, I always have to think about it and I feel limited which annoys me considerably	
I want to feel fresh	I dislike menstruation because it can appear in so many forms; residues, clots, tissue particles, liquids etc, which I think is repelling	Disgust
I want to feel good	I feel uncomfortable during my menstruation since I experience period pain, feel swollen and get pimples	Discomfort
I want to be happy	I get mood swings during menstruation that influences both me and my surroundings in a negative way	Sadness
I want to know that my body works as it should	When I get my period regularly and it looks like usual I get a receipt that everything with my body is normal	Relief, Contentment, Joy
I strive for being calm in regards to my menstruation	When my period has been late due to different circumstances and it finally arrives, I can go back to being relaxed again	Relief
I want to see menstruation as something good	By menstruation, I get reminded of what the women's body can do e.g. produce and carry a child, which amazes me	Pride, Admiration, Interest
Standard		
I want to be socially comfortable talking about menstruation	I do not like that I am embarrassed to talk about menstruation with men and strangers, but I am not sure	Shame

	how they will react	
I think one should show empathy towards other people	When talking to my female friends about menstruation I can understand what they are going through and I can put myself in their shoes	Compassion

Appendix 11 - Evaluation guide

Subcategory: Control		
Area	Questions	Purpose
1. Understanding & Perception	<ul style="list-style-type: none"> • Do you understand the concept? How does it work? • How do you think that the concept targets our issue of residues staying on the surface of sanitary pads? • Do you think this is a realistic concept? Why/Why not? 	Get an understanding of how the users perceive the concept and their opinions related to the aim of the project.
2. Control	<ul style="list-style-type: none"> • Would you feel more in control over the situation while using this concept? Why/Why not? 	Validate if the concept targets the subcategory and how.
3. Aesthetics & Semiotics	<ul style="list-style-type: none"> • Is it aesthetically pleasing? Why/Why not? • What are your opinions on the semiotic message of the concept? 	Validate the aesthetics and semiotics of the concept.
4. Pattern	<ul style="list-style-type: none"> • Which pattern do you think is most aesthetically pleasing? • Which pattern would 	Identify which of the 12 patterns the users like the most and why.

	<p>indicate that residues can be present in the menstrual fluids and therefore land on the surface of the sanitary pad?</p>	
5. Surface Texture	<ul style="list-style-type: none"> • Which surface texture do you think is most aesthetically pleasing? • Which surface texture would best keep the residues in place on the surface of the sanitary pad? 	Identify which of the eight surface textures the users like the most and why.
6. Security	<ul style="list-style-type: none"> • Do you think that this concept would enhance the user experience by creating security when using sanitary pads? 	Understand how the concept targets the UX Goal.
7. Liking/Disliking	<ul style="list-style-type: none"> • Do you like this concept? 	Distinguish the users overall liking towards the concept.
8. GEW	<ul style="list-style-type: none"> • Which emotions are evoked by the concept? 	Understand what emotions are elicited by the concept and why.

Subcategory: Comfort

Area	Questions	Purpose
1. Understanding & Perception	<ul style="list-style-type: none"> • Do you understand the concept? How does it work? 	Get an understanding of how the users perceive the concept and their opinions related to the aim of the project.

	<ul style="list-style-type: none"> ● How do you think that the concept targets our issue of residues staying on the surface of sanitary pads? ● Do you think this is a realistic concept? Why/Why not? 	
2. Comfort	<ul style="list-style-type: none"> ● Would you feel more comfortable during your menstruation while using this concept? Why/Why not? ● Would you feel more comfortable with residues remaining on top of the sanitary pad while using this concept? 	Validate if the concept targets the subcategory and how.
3. Aesthetics & Semiotics	<ul style="list-style-type: none"> ● Is it aesthetically pleasing? Why/Why not? ● What are your opinions on the semiotic message of the concept? 	Validate the aesthetics and semiotics of the concept.
4. Security	<ul style="list-style-type: none"> ● Do you think that this concept would enhance the user experience by creating security when using sanitary pads? 	Understand how the concept targets the UX Goal.
5. Liking/Disliking	<ul style="list-style-type: none"> ● Do you like this 	Distinguish the users overall

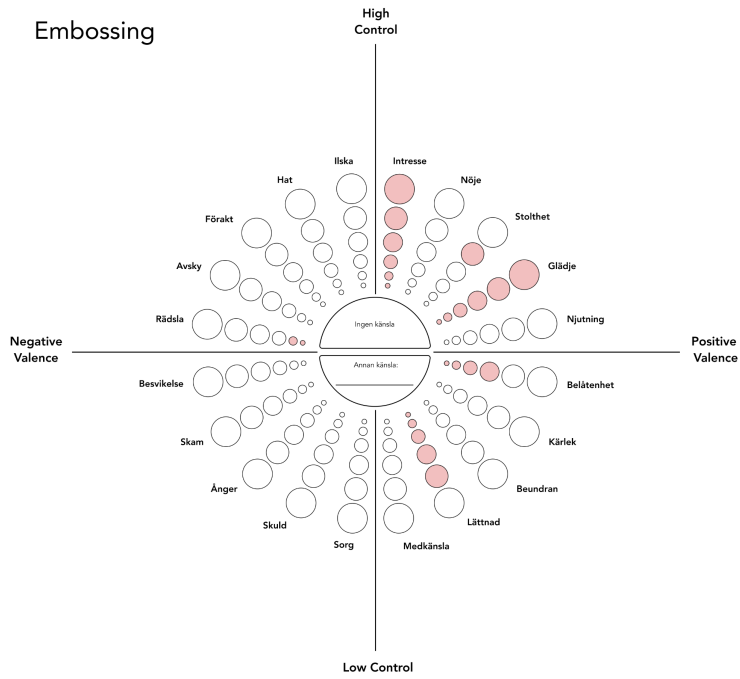
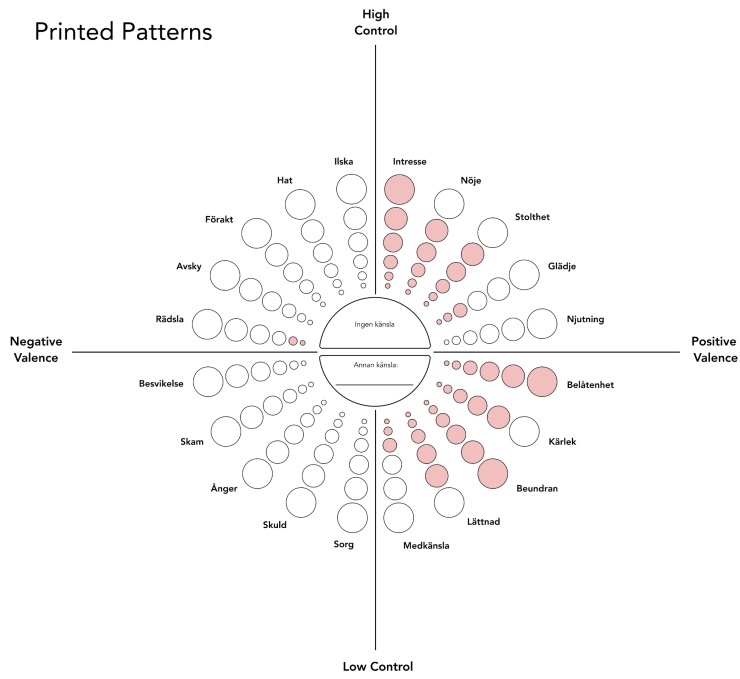
	concept?	liking towards the concept.
6. GEW	<ul style="list-style-type: none"> Which emotions are evoked by the concept? 	Understand what emotions are elicited by the concept and why.

Subcategory: Awareness

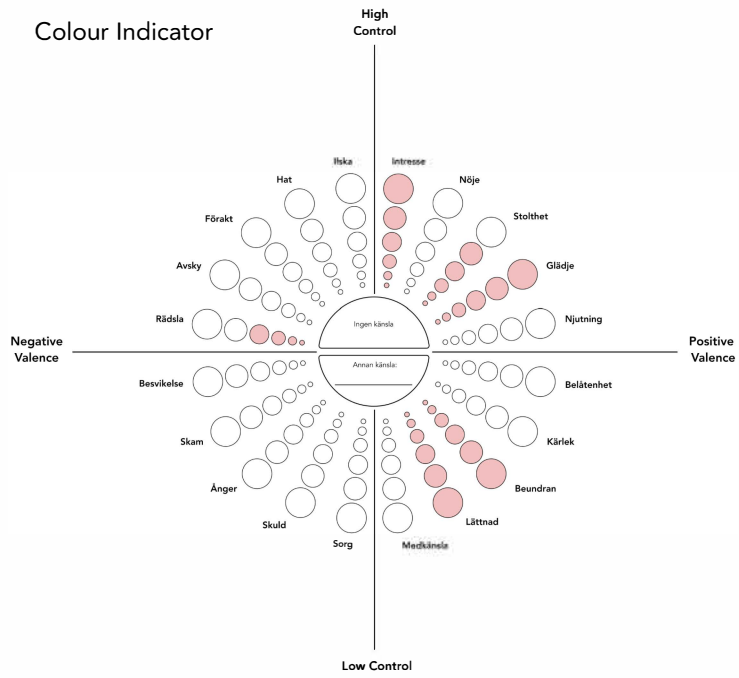
Area	Questions	Purpose
1. Understanding & Perception	<ul style="list-style-type: none"> Do you understand the concept? How does it work? How do you think that the concept targets our issue of residues staying on the surface of sanitary pads? Do you think this is a realistic concept? Why/Why not? 	Get an understanding of how the users perceive the concept and their opinions related to the aim of the project.
2. Awareness	<ul style="list-style-type: none"> Would you feel that you would get more aware/more knowledgeable about residues when using this concept? 	Validate if the concept targets the subcategory and how.
3. Aesthetics & Semiotics	<ul style="list-style-type: none"> Is it aesthetically pleasing? Why/Why not? What are your opinions on the semiotic message of the concept? 	Validate the aesthetics and semiotics of the concept.

4. Security	<ul style="list-style-type: none"> Do you think that this concept would enhance the user experience by creating security when using sanitary pads? 	Understand how the concept targets the UX Goal.
5. Liking/Disliking	<ul style="list-style-type: none"> Do you like this concept? 	Distinguish the users overall liking towards the concept.
6. GEW	<ul style="list-style-type: none"> Which emotions are evoked by the concept? 	Understand what emotions are elicited by the concept and why.

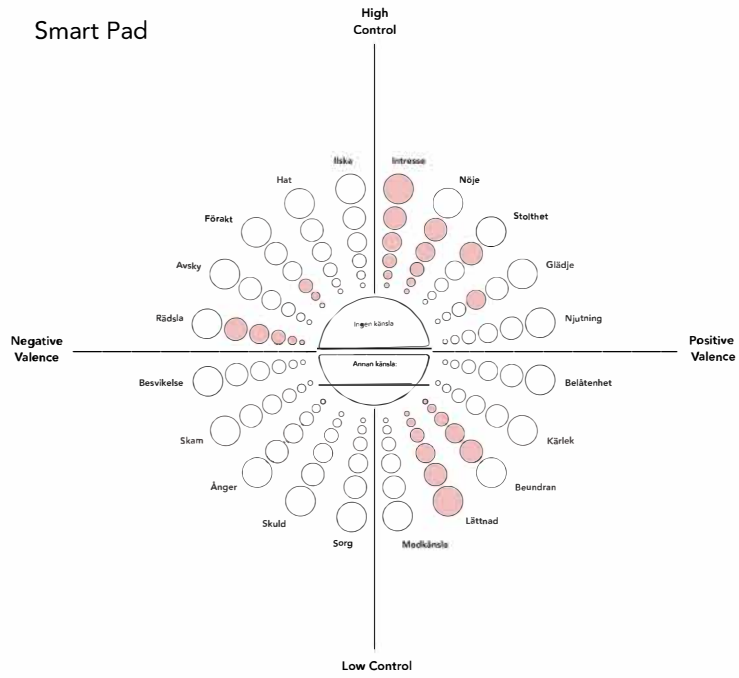
Appendix 12 - Control: Evaluation with GEW



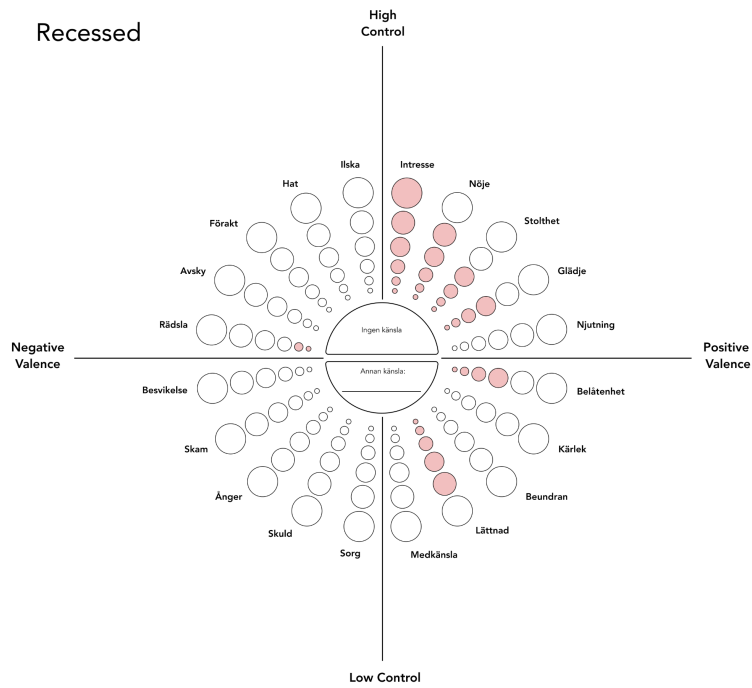
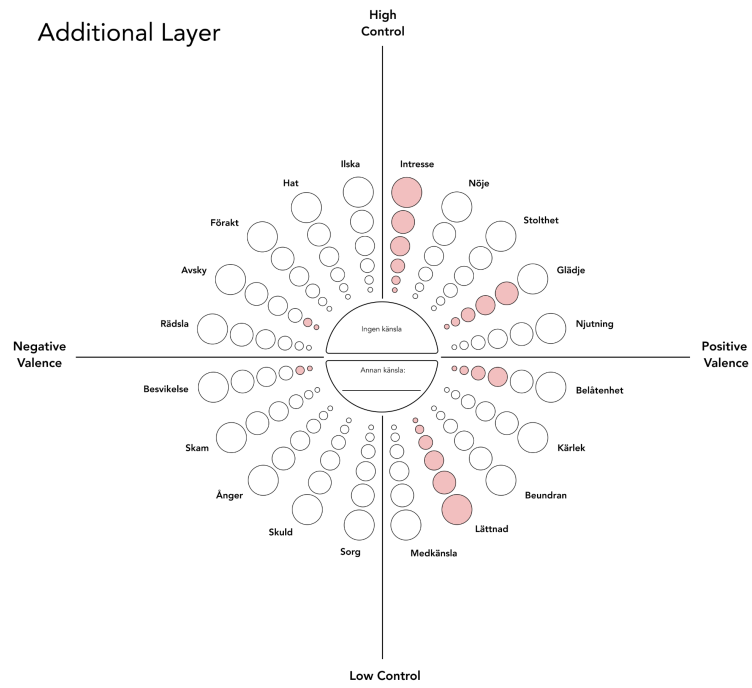
Colour Indicator



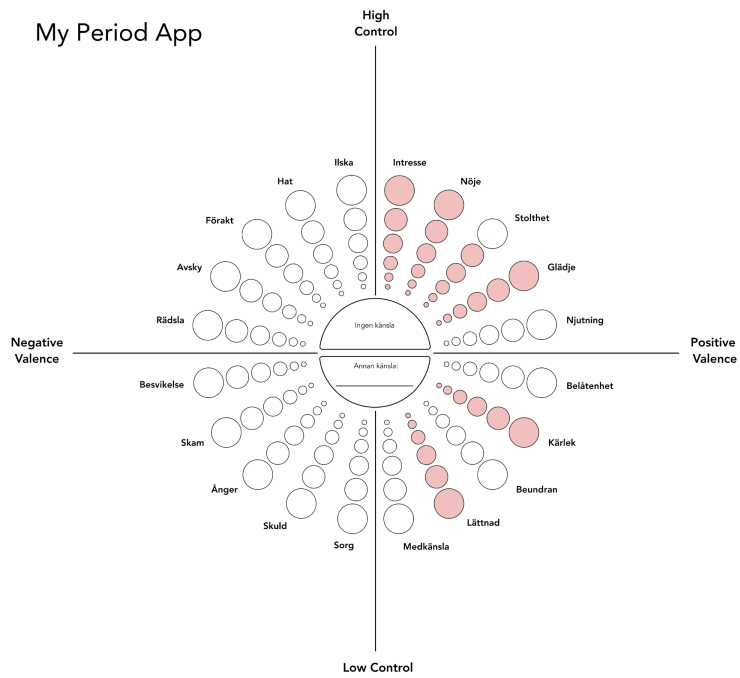
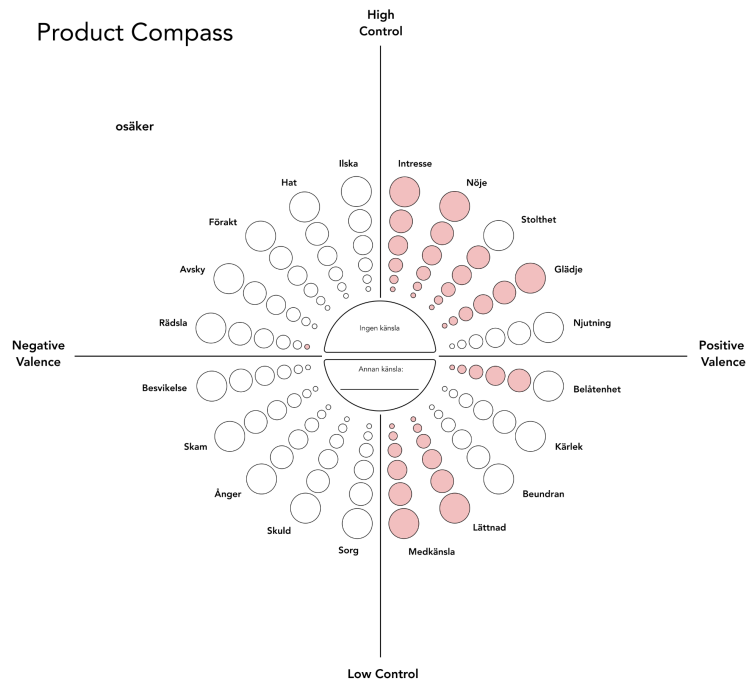
Smart Pad



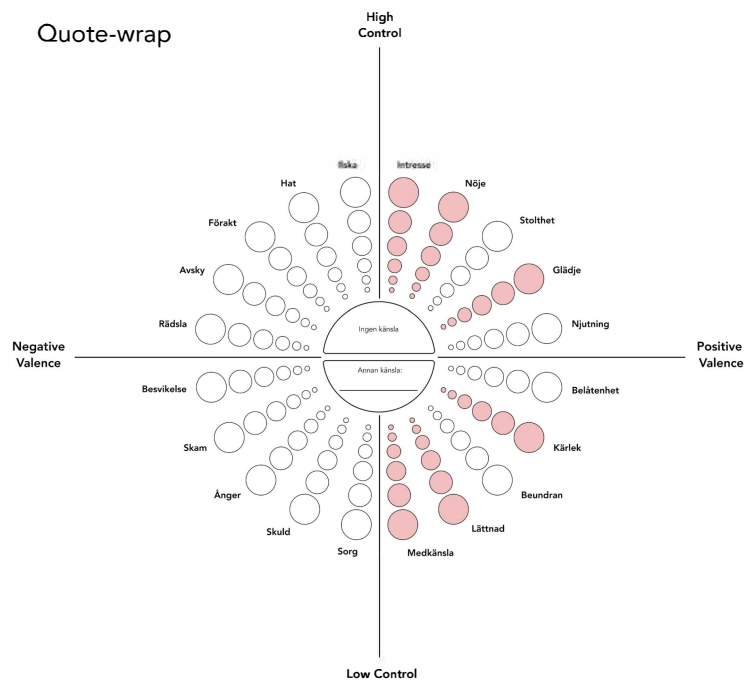
Appendix 13 - Comfort: Evaluation with GEW



Appendix 14 - Awareness: Evaluation with GEW



Quote-wrap



Appendix 15 - PNI-matrix

Concept: Printed Patterns		
Positive	Negative	Interesting
<ul style="list-style-type: none"> • Users feel more in control and aware of the situation when knowing that residues can land on the surface of the pad. • Targets both control and awareness. • Easy applicable and realistic concept. • Provide understanding. • More sustainable. • Enhances security for the users when experiencing residues on the pad. • Normalizes residues. • Creates trustworthiness in the pad. 	<ul style="list-style-type: none"> • It will not actually absorb the residues better. • For how many people does it actually make a difference? • Does not appreciate the patterns asymmetrical shapes. 	<ul style="list-style-type: none"> • What patterns are connected to residues? • How can a simple solution like this change one's perception of a situation? • Especially interesting for younger girls who have not been introduced to residues.

Concept: Embossing		
Positive	Negative	Interesting
<ul style="list-style-type: none"> • The perception of the residues being “safe” on top of the surface 	<ul style="list-style-type: none"> • Too much embossing is perceived as irritating for the intimate area. 	<ul style="list-style-type: none"> • What textures are distinguished as the best ones for keeping the residues in place?

<ul style="list-style-type: none"> ● Easy applicable concept. ● The texture will guide the residues in staying in the recessed areas = more control. ● Secure concept. ● Not as close to the intimate area. ● The user feels more in control when the residues stays in place. ● The patterns with round shapes are seen as more smooth and comfortable to the intimate area. ● Patterns with a big recessed part are perceived to take care of the residues in a better way. 	<ul style="list-style-type: none"> ● Those who commonly wipe their pad from superfluous residues think that the texture makes that process more cumbersome. ● Perception about that a too large recessed part will make the disposing more messy. ● The embossings with too small recessed parts are seen as not as efficient. 	<ul style="list-style-type: none"> ● How to maintain a soft surface of the sanitary pad ● How can we create a good transition from the textural part to the rest of the pad? ● Could be interesting with an elevated middle part with a recessed pattern in it.
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Concept: Colour Indicator		
Positive	Negative	Interesting
<ul style="list-style-type: none"> ● The thermochromic material can be applied in the existing graphics of the Libresse Ultra+ Wings sanitary pad. ● Allows for the user to be in control due to the 	<ul style="list-style-type: none"> ● Requires a learning curve. ● Requires research about the material. ● Still need to look into the product to see if it 	<ul style="list-style-type: none"> ● How can it be accepted by the users as something safe to have in a sanitary product? ● A step towards innovation.

<p>indicator that confirms when to change and when not.</p> <ul style="list-style-type: none"> • More sustainable since using the product longer due to the indicator. • Short learning curve. • The user can utilize the full absorbency capacity. • Good for younger girls who do not know when to change the pad. • Less risk of residues appearing on the surface if you change when the pad is full. • The user gains knowledge about the capacity of the pad. 	<p>is full or not.</p> <ul style="list-style-type: none"> • Longer process before implementation. • Hard to know that the indicator will take the residues into account and not solely the menstrual liquid. • The “chemical” part feels worrying. 	
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Concept: **Smart Pad**

Positive	Negative	Interesting
<ul style="list-style-type: none"> • The user can keep track of when to change the pad without visiting the toilet. • The user can utilize the full absorbency capacity. • Follow the track of digitalization. 	<ul style="list-style-type: none"> • Expensive due to the integrated technology. • Requires research about sensors. • Longer process before implementation. • Sceptical towards 	<ul style="list-style-type: none"> • How can this type of technology be trusted by the users within sanitary protections? • A step towards innovation. • Can the sensors have other functions that

<ul style="list-style-type: none"> • Less risk of residues appearing on the surface if you change when the pad is full. • Leads to more control since it is connected to the mobile, which is commonly used today. 	<p>integrating technology into such an intimate and fragile place of the body.</p> <ul style="list-style-type: none"> • A disposable sensor would increase the expense further, which is not appreciated. 	<p>make it worth the expense?</p> <ul style="list-style-type: none"> • Will it be more sustainable or not? • Where would the sensor be placed? • Should it be a disposable sensor or one that can be moved between pads?
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Concept: **Additional Layer**

Positive	Negative	Interesting
<ul style="list-style-type: none"> • Possibility to refresh during usage of sanitary pads. • The user can utilize the full absorbency capacity. • Better for the environment to remove the additional layer instead of changing to an entirely new pad. • Use it for a longer time. • Perception about it being more material on the pad and therefore more safe with a better absorption. • Toilet visits will not require as long a time. 	<ul style="list-style-type: none"> • A risk that the perception about sanitary pads being bulky will be further enhanced. • More material in one product. • Still requires the users to visit the toilet more frequently than when not having menstruation. • Cumbersome to change the additional layer without touching the menstruation. • Thinking that the liquid menstrual blood will flow over the surface of 	<ul style="list-style-type: none"> • What executions can the additional layer have to work in the best way and be as fresh as possible? • How can the users be made aware that using one of these concepts is better for the environment than using two sanitary pads? • Does it work for both residues and liquid menstruation? • Will it feel like a diaper due to the thickness? • How will the additional layer be attached to the original pad without it

	<p>the additional layer.</p> <ul style="list-style-type: none"> ● Feels like the residues will move out of the additional layer if there is no texture in it. 	<p>being uncomfortable when removing it?</p>
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Concept: **Elevated or Recessed**

Positive	Negative	Interesting
<ul style="list-style-type: none"> ● Creates comfort for the users by making the residues land on the elevated or recessed part which is perceived as more fresh. ● Easy applicable concept. ● The recessed part is seen as more stable for the residues. ● Security enhanced by the recessed part. 	<ul style="list-style-type: none"> ● A risk that the perception about sanitary pads being bulky could be further enhanced due to the elevated part. ● The recessed concept can be observed as with less absorption capacity. ● The elevated concept can be experienced as more negative when it comes to abdominal health. ● A risk that the elevated part will guide the menstruation to the sides that makes it leak more frequently. ● Security <i>not</i> enhanced by the elevated part. 	<ul style="list-style-type: none"> ● What executions can the recessed and elevated part have to work in the best way and be as comfortable as possible? ● Is the elevated or recessed part seen as more secure? ● How to keep the recessed part in shape during different physical activities

Concept: **Product Compass**

Positive	Negative	Interesting
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<ul style="list-style-type: none"> ● Incorporates awareness as well as guidance in the choice of products. ● A smart and fun way to generate awareness around residues. ● Use the current website of Libresse. ● If the company that makes the products are allowed to give me information about what products that suit me and my flow, I would trust it. ● Guidance. 	<ul style="list-style-type: none"> ● The entire concept does not target residues on the surface of the sanitary pad. ● The focus might shift from residues to the guidance of product choice. ● Will probably not rely on the concept too heavily 	<ul style="list-style-type: none"> ● How can it target the residues more? ●
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Concept: **My period app**

Positive	Negative	Interesting
<ul style="list-style-type: none"> ● Great way to track the period, which leads to security. ● Normalizes residues. ● Generates awareness about residues when filling out information to track them. ● Nice to have everything gathered in one place. ● The app distinguishes itself from others by 	<ul style="list-style-type: none"> ● Longer process before implementation. ● Many similar existing services on the market. ● Unsure about what the product part of the app will mediate. ● Does not make it more secure with the physical feeling of residues on the surface of the pad. 	<ul style="list-style-type: none"> ● Essity can use the application to gather data about users menstruation and residues if users have given consent. ● How can the concept be tweaked so that it stands out on the market? ● Could be interesting to also use the app as a platform to talk with other women about

<p>including the part about residues.</p> <ul style="list-style-type: none"> • Would trust an app made by a big company working within the feminine care area. 		menstruation.
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Concept: **Quote-wrap**

Positive	Negative	Interesting
<ul style="list-style-type: none"> • Generates awareness and knowledge around menstruation, which leads to security. • An easily applicable concept. • Use the existing Roll Press Go wrap. • Understands that everyone is different and has their own experience of residues. • Knowledge that others feel in this way too, which is nice. • Fun concept that creates a good feeling when reading such quotes. 	<ul style="list-style-type: none"> • Might require many templates to print different quotes during production. 	<ul style="list-style-type: none"> • Where can the quotes be gathered? • What quotes will the user appreciate?