Service design to improve the contraceptive counseling at youth centers

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ABSTRACT
Sweden has a high rate of unintended pregnancies (UP) despite being a rather open society regarding sexual health education. New technology provides new possibilities to improve access by providing contraceptive consultations online, but will that lower the rate of UP? Very few studies have been done on the people working with the young women to find out what can be done to improve the quality of the contraceptive counseling. That is why this study involved two midwives practicing at a youth center at an early stage of the design process.

Cultural Probes was used as method to better understand what needs midwives experience in their daily work. Three key findings stating the needs of the midwives were knowledge, missed appointments and trust. In addition, a service evaluation was done to investigate when and how midwives and young women interact.

Making the contraceptive consultations available online with a digital care provider would make it more accessible for the young women and the results of this study do not contradict that hypothesis. However, availability is not the sole influencing factor on contraceptive usage. This study shows that encouragement for young women to seek general knowledge and information about contraceptives prior to the consultation is an important factor in order to improve the quality of contraceptive counselling.

Förbättring av preventivmedelsrådgivning på ungodomsmottagning genom service design

SAMMANFATTANING
Trots Sveriges relativt öppna samhälle gällande sex och sexualundervisning så har vi en väldigt hög frekvens av oönskade graviditeter. Ny teknik möjliggör att hålla preventivmedel konsultationer online vilket leder bättre tillgänglighet, men frågan är om det räcker för att sänka frekvensen oönskade graviditeter? Väldigt få studier har gjort på barnmorskorna som jobbar med unga kvinnorna för att få reda på vad mer som kan göras för att höja kvaliteten på preventivmedelsrådgivningen. Därför har denna studie, i ett tidigt stadie av designprocessen, involverat två barnmorskor praktiserande på en ungdomsmottagning.


Genom att möjliggöra preventivmedelsrådgivning online genom digital vård så skulle tillgängligheten förbättras för de unga kvinnorna och denna hypotes är inget som denna studie motsätter sig. Men tillgänglighet är inte den enda faktorn som påverkar användandet av preventivmedel. Denna studie visar att uppmuntran till att få unga kvinnor att söka kunskap och information om preventivmedel innan själva besöket är en viktig del som skulle kunna förbättra kvaliteten på preventivmedelsrådgivningen.
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Author Keywords
Contraceptives, Midwife, Contraceptive Consultation, Digital Health, Young women and Sexual Health, Cultural Probes, Service Design.

INTRODUCTION
Sexual health education in school has been mandatory since 1955 in Sweden [22], and the first youth center opened in 1970 [29]. There are many facilities and actions to provide young women with knowledge regarding sexual health, yet Sweden has one of the higher rates of unintended pregnancies [22]. Many studies have been made from the young woman's perspective or on the efficiency of different contraceptive methods. Some of the digital care providers offer contraceptive counseling online, and that is a great first step. But what more can be done? There are very few studies regarding the perspective of midwives working with the young women and what technology can do to help their work. Young women in this study refers to the female youths visiting the youth centers.

This study was done with a focus to investigate what challenges midwives, practicing at youth centers, experience in their daily work. They face new challenges every day and need to keep up with new technology.

A contraceptive consultation is never just a meeting, it is about building trust and open up about a subject that often is very private. There is a whole service behind the consultation, starting from the first search online of where she can turn to, to after the consultation when it is up to her to have a secure contraceptive usage. That is why this study evaluate the whole service midwives provide to the young women, to see if technology and service design can improve today's way of doing it. The study starts with a more advanced background study to later move on to explain the methodology; analyzing the result and then presenting and discussing the developed design PrevPrepare.

Research question
What aspects on young women’s route to receive contraceptive counseling can be improved through service design?

• What needs are there regarding contraceptive counseling and their work according to midwifes?
• What means are there online to provide young women with information regarding sexual health?

BACKGROUND
In 2017, a startup Lisabella was founded with the goal to provide women with easy access to contraceptive prescription and counseling. The goal was to create an application (app) specialized for contraceptive counseling with proper follow-up care to ensure a healthy and correct use of contraception. The startup was created from a need that the founders felt themselves, and their work over the past year has been focused on checking the market from a user perspective. The idea of creating an app for that end purpose was received with great enthusiasm from the asked women, even though there are a few apps already that offer contraceptive counseling online not many had tried it. The work has been focused on the end-user and it was time to investigate what professionals think of the idea and what they consider are the problems within contraceptive consultations. During the time we (the startup) have worked with the startup we have interviewed women between 23 and 28 years, we have noticed that the first contraception as young women used seldom was something they felt
they decided and therefore felt less in power or resulting in a confusing usage.

**Swedish market**

Sweden can often be portrayed as a pioneer regarding sexual health and its openness towards it, compared to many other countries. Sexual health education in schools has been mandatory since 1955, starting from a relatively young age, middle school up to high school [22]. Studies have shown that youths are less eager to receive new knowledge regarding sexual health if they are not sexually active yet [1]. In Sweden, the median age for the sexual debut is around 16-17 years [9], which means that they have received sexual health education prior to their debut and before they are fully recipient. The information should therefore be repeated over time, this is a key for a sustainable healthy sex life [29]. But during later times sex education in high school gets steadily less space and is often not as prioritized as before [29]. This means that youth centers and other sources of knowledge now have an even more important role in young women’s lives.

**Youth centers**

The first youth center was founded in 1970 in Borlänge, and by 1980 youth centers became widespread in Sweden. The focus was to provide youths with anything that they might need help with, but with a strong focus on sexual health education and contraceptive counseling [29]. It varies a bit regarding the age limit regulations, but usually it is between 12, 13 and 20-25 years [28]. The visits are always free until the age of 18, on most youth centers free for older than 18 too but a few do take a fee [28]. Staffing and opening hours can also vary between youth centers, but all youth centers have at least one working midwife, psychologist and many youth centers also have a doctor [27]. To visit a youth center the youths can call and book a time or go during drop-in hours. Around 85% of the youths visiting the youth center are female [29].

**Unintended pregnancies**

Sweden has a high rate of unintended pregnancies and the highest teen abortion and repeat abortion rate in Europe [20]. In the United States 41% of the unintended pregnancies are due to inconsistent use of contraception [7]. Approximately 40% of unintended pregnancies in the United States end in abortion, and the same rates have been reported in Sweden [6].

Despite Sweden's openness and many instances to improve the access of sexual education and contraceptives there is still an unmet need among young women if you look at the high number of Ups [7]. The age group that has the highest abortion rate in Sweden is women 20-24 years [26]. Many women in Sweden use traditional methods such as fertility calendars or no method at all. This leads to higher risks of having an unintended pregnancy [7].

**Contraceptive usage**

A recent study involving about 1000 women in Sweden in the ages between 16 and 49 showed that about 27% did not use any contraceptives. About 24% used so called LARC (Long acting reversible contraception), such as implant and intrauterine contraception. Out of the questioned women about 30% had experienced at least one unintended pregnancy. The conclusion of the study was that one way of reducing unintended pregnancies could be to promote use of contraceptives and LARC. However, for that to happen women need to know about the different options and how effective they are [14].

An important factor that determines young women’s use of contraceptives is their socioeconomic status and the general cultural view on sexual relationships between teenagers [24]. However, socioeconomic status and culture are not the only determining factors; a study made in North East of England involving professionals within young women’s sexual health showed that a wide array of different factors affect the use of contraceptive. According to the study, two main factors that were connected to contraceptive use were self-esteem and knowledge [18]. Young women that have better self-esteem have a higher chance to seek knowledge regarding sexual health. Kerry McKellar et al. [2017] performed semi-structured interviews with professionals within sexual health. The study showed that young females get influenced by “society and media”; “environment and family”; “peer influences”; and “the self” [18]. These categories were viewed as essential to understanding the participants' knowledge and attitudes towards information seeking practices and barriers. Peer influence was mentioned in a study performed in Norway made by Sundby [25]. The study showed that young women had good general knowledge about contraceptives but still did not use consistently. They were often lacking knowledge of proper use and possible side effects. The knowledge about side effects was often horror stories from peers. They felt a need for more personalized information and not written general information [25]. Media influences young women constantly through social media and can make them unsure of a method they are currently using. A media storm about possible risks connected to a concentrative method can lead young women to stop using a certain method [27].

Information online is not always correct but has a great impact, this shows the need for a channel to follow up through, so midwives can meet concerns before the young women stop using the method.

**Digital care**

Sweden is currently working towards the goal that by 2025 be the best in the world to use new technology in healthcare [23]. Digital care provides opportunities to improve the care service and make it more equal, efficient and accessible, putting the individual first.
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discussion is very misleading, and that the biggest user
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according to the writer, is that it is free for them to use the
service. They are often not that ill and can be seen as ”easy
cases” for the health app company to make money on. This
leads to an increase of total cost for medical expenses for
the society [16].

Whether the views are positive or negative there is an
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Sexual health apps and websites
Taboo and stigma around discussing sexual health makes it
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Internet then becomes a common source for young women
to find information and it is very important that the content
is updated and correct [12]. Other than having the youth
centers and mandatory sexual health education in school
there are a lot of good websites and apps developed to
provide information about sexual health.

Sweden has a great selection of different sites and apps: on
umo.se you can find text-based information, videos and
Q&A’s, everything created with the youths in mind. The
content is varied and is about both psychological aspects of
being a teenager, love and relationships and about different
contraceptives or where you can find a youth center.
Information about where young women can find youth
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preventivguiden.se provides a “contraceptive calculator”
(see Figure 1) where the user gets to answer a few questions
about her lifestyle and what she is looking for regarding
contraceptives. Using a decision support tool (DST) like
this ”contraceptive calculator” is a good way to prepare for
an actual consultation [15]. However, the website does not
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decision support tool (DST), and similar tools are proven to
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Contraceptive DSTs may address patient informational
needs. DSTs ease users’ decision-making by providing
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Teenage girls’ view on websites and apps regarding sexual health
Kerry McKellar and Elizabeth Sil Pence et. al (2017)
performed a study on teenage girls and their use of sexual
health apps and websites in England [19]. The study, based
on focus groups, concluded that the teenage girls preferred
apps over websites but did not use apps. But before the
study the young women did not know of any good apps.
Just like the women ask within the startup very few had
tried the digital health apps. It showed the importance of
marketing and building a trustworthy band with the young
women. If the website or app was recommended in school
or by others of credibility the trust and awareness would be
better [19].

The content also matters, the topics should be of a wide
range and contain information about relationships, sexual
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contain videos, have some kind of interactive function and
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and clear.

Figure 1. Result of DST on www.preventivguiden.se

Views on digital health apps
There is an ongoing debate on whether or not digital care is
a positive or a negative solution. Examples of these apps
are Kry and MinDoktor, to mention two, their idea is to
make it easier for ill people to get help without having to
leave their homes. The consultation with a doctor is through
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Lisabella performed a random sample test on three different
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and clear.
One great example on the Swedish market that has a lot of what participants in McKellar’s [19] study requested is umo.se. The website has videos [17] written information in a simple language and the option of having it in different languages. It is very private and produced by a well-known and trustworthy organization. They do not have an app, but the website is adaptable to mobile browser. There is no DST or other interactive feature that can involve youths more. Youths can post questions or reply on others’ thoughts but there is no interactive part that they can use for themselves to gain knowledge or help organize their thoughts.

Midwives
Midwives work together with psychologists and doctors at youth centers to guide and help all youths with anything they need within sexual health and general wellbeing. They play a very important role in the youth’s independence and their work setting is around trust and privacy. They are professionals within this field with great experiences and close bonds to the youths. They know what is required to have an ideal consultation and that is why this research aims towards them and their profession. However, there is not many studies made on midwives and new technology. Solutions and tools are being produced for the end-user, and not the midwives that will have to use it too and have more of responsibilities. So why are there not any studies evolving midwives early in the process?

The midwives the startup had been in contact with were generally positive towards providing the possibility to have consultations online. But they were never involved in the process of creating the service, it makes you wonder if the solution might miss out on important insights. There might be important parts of a counseling session that gets lost when it is done online and if midwives are not involved in the development. This study will bring insight of their daily work, highlight the needs midwives have and let them give feedback on a potential solution for those needs.

METHOD
Prior to performing the method, background research was performed on the chosen method. This study involved a target group that usually is not common within design tech research. Consent was given from both participants and their manager before the study took place. The outline for this thesis was the Double Diamond methodology [5], the method to collect data was to use Cultural Probes [10], [12].

Double Diamond
The Double Diamond was a way to structure the research and design work. It is structured with four different phases: Discover, Define, Develop and Deliver [5]. The study focuses on the first phase and lets the data collected during that phase decide the outcome in the following phases. The aim was to get to know the target group and understand their perspective on sexual health and contraceptive care. The idea behind the Discover phase is to “look at the world in a fresh way” and not let preconceived hypothesis from working with the startup influence [5].

The startup has been working for over a year and has until now mainly have had a perspective on the possible end-user. The Double Diamond structure was a reminder to look at this with open eyes and find out what the real problem was. No predictions or hypothesis were made about the midwives and their profession, the data would determine the outcome. The subject contraceptive counseling and sexual health comes with constraints since it is a very intimate area and there is high confidentiality around it. This needed to be respected at all times and was closely considered through the whole study. After the service was developed one midwife got the opportunity to give feedback and also comment on the service evaluation.

Cultural Probes
Midwives are considered to be a sensitive target group since the work they do is very intimate and private. The data had to be collected in a way that would not interfere with their daily work or intrude on visitors’ privacy. The purpose of collecting data from midwives was to better understand their profession; what they do and what needs they see. Using Cultural Probes was a way to get inspirational responses from midwives. The data is not always comprehensive information but rather clues about, in this case, the participants’ work and thoughts [11]. Cultural Probes collect data that will provide the research with insights on how people live their lives, their everyday circumstances, their routines and rhythms, their practical concerns, and so on [10]. The data is used to inspire a new design that can help both midwives and the young women seeking advice.

What is Cultural Probes
Cultural Probes collect data by using different artifacts called probes. Each participant gets one kit containing the probes and the tasks that goes with each probe. The probes can vary a bit, for this study each kit contained a disposable camera, six postcards, a map of northern Stockholm, a notebook, markers and stickers.

- **Postcards:** with questions concerning participants’ positive and negative aspects of their profession, to find out more about the value of the profession. Find key points and needs
- **Maps:** asking participants to highlight important areas they reach within their work.
- **Camera:** with instructions asking participants to photograph things they think represent their work space. What do they have that creates a welcoming atmosphere for the young women and employees?
- **Notebook:** asking participants to record the various media they use, when, where and in whose company. It was also a way for them to keep a journal of different appointments and how it went.
The kit should create excitement about the project, and since the participation will require some time and effort the kit should make participants feel like the researcher put in some effort too [10]. The goal was to make the probes provoke the participants to think outside the box and provide the study with inspirational responses. The participants had up to two weeks to work with the kit.

Motivation of method
By using Cultural Probes, it was possible to get close to the midwives and their profession without interfering with anyone's privacy. The method provides data that captures many aspects of a life, in this study the profession of a midwife. The probes with different tasks and the fact that it is performed over a period of time gives the participants time to reflect rather than having them answer a question on the spot without a chance to reflect. The Cultural Probes allows the designer to get a better insight in how it is without intriguing on anyone's private space; to be a fly on the wall and better understand the target group that will be designed for.

Challenges
Participants: The biggest challenge was to get participants to join the study. Out of the five youth centers that were contacted only one participated in the end. The reason for the other four turning it down was not due to them not being interested about the topic but rather due to lack of time. They were very excited about being contacted and were interested in hearing the result of this study. The difficulty in recruiting participants made it even more important to encourage the ones who did participate to finish the study. The participating youth center had been contacted earlier by the startup and had some knowledge about the work. For this study they were asked to look past earlier work.

Probes: It is important to identify the goals of the probes, as well as identifying the tasks that would provide data that fulfill these goals. A key consideration when designing a probe was to balance the need to provide instructions with the risk of being too specific and limiting the insights that may come from the probes [13]. It is important to let the participants feel free to use the probes and not limited by the tasks.

Activity: Since the study was taking place during a longer period of time it could be a challenge to keep the participants active and fulfill the study. There was always a chance of misunderstanding the tasks, and that is why the participants were provided with contact number and email. A pilot study was performed to eliminate as many misunderstandings as possible.

Pilot test
The Cultural Probes kit was first tested with a nurse to see how much time she had to put aside for this and if there was something that was unclear. After the pilot test it became clear that some of the questions tended to ask more about the positive aspects and not the negative, so an additional question targeting the negative aspects was added. There was one question asking if the participants were using any technical solutions in their communication. It was unclear what was meant with that, so some examples were added; telephones, e-mail or websites. Otherwise the response was positive, and she said that although it felt like the data she collected would not be of any use it was still fun to reflect on the professions’ positive and negative aspects. She also mentioned that the tasks never felt difficult but that some of the questions were quite open, and it was hard writing down the answers. To make sure this would not be a problem for the midwives it was important to give them time at the pickup of the kit to go through the answers. If they wanted to add some content it could be done during the session at the pickup. The pick-up session was like a semi-structured interview, but with very few set questions about how it when in general and if there was something that they wanted to add.

ANALYSIS OF RESULT
The aim of this study was to better understand the midwives' needs and what problems they see with today's way of working. To be able to identify these needs an analysis of the data was done. The analysis had an inductive thematic approach on the analysis of the data collected with Cultural Probes. The analysis was inductive and did not involve other literature or any preexisting frames at an early stage to fit the data to. Previous work and literature influenced the design after the themes were established [3]. I, as the designer, had some influence on the final choice of themes and final design. However, the aim was to analyze the data with an open mind and not let the research question or previous work with the startup influence more than what is inevitable.

The process started by reading through the data in the different probes (Figure 2) and look for similarities or interesting thoughts in their responses that later was categorized in three themes; knowledge, missed appointments and trust. These three themes are being presented below. After the three themes are presented, data about how the youth center communicate is presented and later applied in the service evaluation.

Theme 1: Knowledge
One of the tasks the midwives got was to think of an ideal consultation and what it would take in order for it to happen. That task generated similar reflections from both midwives. In short, the ideal consultation is when the young women feel welcomed and are motivated to gain new knowledge, and that the midwives are available if something more is needed afterwards.

“The young woman has some knowledge prior to the visit or know what they want. One hour visit so that all the questions can be asked and answered. Good material to explain contraceptives i.e. pictures, show the contraceptive. Meet the her for a follow-up appointment.” - Written on postcard.
“Many young women have poor knowledge from the start. That can make the contraceptive consultation become very difficult. It is a lot of information where half of it gets forgotten by the her(...).” - Written on postcard.

The reflections show a need to improve the young women's knowledge prior to the consultation in order to have an ideal consultation. If the young women are lacking in knowledge midwives get the feeling that they sometimes throw information at her that she might not be able to receive. Midwives want the young women to feel in charge and that they are doing the consultation on their own terms. Knowledge is a key factor in that, or at least that the young woman has thought about it prior to the consultation.

The women that the startup had been interviewing are not in the right age group but have once been. They might have had a different experience if they as young women would have had the chance to prepare before the consultation. Despite all the websites the Swedish market has there is still something missing to help young women prepare for a consultation.

One pitfall that can happen during a consultation is miscommunication, it can be due to a language barrier but also lack of knowledge.

“One challenge is miscommunication, that they misunderstand each other. So that she feels alone and ignored and does not want to come back” - Written on postcard.

“(..)That they do not understand what I am trying to say, and I do not understand their need. That they feel forced on things and that they do not feel like they got enough room for answers to their questions.” - Written on postcard.

Theme 2: Missed appointments

The preparations also mean to plan the visit; young women today miss their appointment and have to rebook. During this period of time about 10% of the booked appointments were canceled. The reasons for the cancellation varied; either the young woman had forgotten or due to that when the appointment was not urgent it was no longer important. It could be that the young woman had gotten a “day after”-pill one day and when that worked it was not as urgent to talk contraceptives. There is an attitude of “this will not happen again”.

“Yet another one failed to come to the appointment, a 15-year-old who had had unprotected sex and had gotten a ‘the day after’-pill three weeks ago. I have to call her due her young age. She had forgotten the time and we scheduled a new time in two days.” - Written on postcard.

“Failed to come to appointment for the third time now, sigh! have to call and remind.” - Written on postcard.

The question rose; how can midwives attract more young women to come before it is an emergency?

Theme 3: Trust

To have an ideal consultation it is important to have trust. How is trust built and how can midwives encourage young women come to the youth centers and seek advice? In general, youths in suburbs do not seek help to the same extent as youths in the city. That is a problem as well but for the ones who do show up; how can midwives ensure that they are doing okay if they do not really have any follow-up?

The youth center has its pickup area in the suburbs north of Stockholm and one challenge they experience and has to work with every day is the segregation in Stockholm. The midwives can see big differences, the youths in their pickup area do not feel as obligated to the same rights as youths in the inner city. That can be a reason for the youths seeking advice in a less extent than in other places in Stockholm.

“One reason might also be that they do not have the same trust for authorities.” - Written on postcard.

Reaching the young women

One task was to write down different communication channels they use at the youth center and how they reach the young women. One midwife then mentioned that they will start using Stockholms läns landstings app “Alltid öppet” later this fall. The positive part is that it would open up the possibility to be more available for the young women and provide consultations online.

The youth center invites schools in their area to come and visit so that the youths can familiarize with the place. The midwives agreed that youths only are recipient of sexual health information when they have had their debut. That increases the importance of being present and reachable at all times, the midwives keep reaching out using different channels. Being present where the youths and especially the young women is a must and social media plays a big part in that.
SERVICE EVALUATION

The data from Cultural Probes shows how crucial and important it is to provide knowledge to the young women. If the young women have more knowledge they will have better grounds to make positive and informed decisions regarding their sexual health. But the data also shows how midwives feel that the knowledge often fails to reach the young women. The background research shows a great selection of sites online but there is still a knowledge gap. The process behind service evaluation was to think of the customer journey the young woman has to do to get contraceptive counseling. Analyze the touch points between midwives and young women to better understand where the pain points are and how they could be improved. Touch points are, in this evaluation, moments where the young woman and the midwife meet and have some kind of value exchange, either physically or online [4]. The Cultural Probes and background research provided data to compel the service evaluation, shown in Figure 3. The time line of the service evaluation is built on four phases, Prior, Before, During and After. The focus for the service evaluation has been on contraceptive counseling, since it has a relatively central role within sexual health education. Categorizing the customer journey of a young woman shows a disconnection between channels; to improve that there is a need for service design.

Prior: There are a lot of different sites regarding sexual health, but knowledge comes from different sources; friends, school and social media influence as well. The touch points direct connected between midwives and the young women are social media (the youth center's own) and when schools come and visit them. The touch points are not personal to one young woman. The importance is to show what young women can get help with and how young women can reach the young woman centers. As for now there are no connections between the different channels, and there is a need to create stronger presence on social media and start building trust by providing information about the staff and be more personal. The material midwives use and give to the young women is often printed and not ideal for young women. Both midwives mentioned umo.se to refer young women to and their own social media as platforms where they can communicate with the young woman. But they were missing a more interactive tool for young women to use that involves them and illustrates how the body works. But they were missing a more interactive tool for young women to use that involves them and illustrates how the body works.

Before: The touch points are when the young woman contacts the youth center to book an appointment or goes to a drop-in. How they choose to contact the youth center can vary, but it is important that they get answered. Here is where technology opens up more ways for communication, and telephone is not the only answer. A strong social media presence is again a way to open up for communication. When the young woman books an appointment, it can be a good time to encourage the young woman to start thinking of what kind of contraceptive they want. There is a need for an additional touch point where midwives reach out and encourage the young woman to get prepared and also create some excitement about the appointment and that the young woman has made a wise decision.

During: Today it is physical visits but for a future perspective this could also be done by a video call. Preparation is key and might be even more important if it is done online.

After: The only touch point, the midwife and young woman have, after an appointment today is if there is one follow-up appointment booked. Midwives felt a need to be able to follow up after an appointment and to make sure that any questions the young woman might have get answered. There is a need to create a way, so the midwives are able to easily follow up the young woman.

SERVICE DESIGN

The idea with Cultural Probes is to learn using the different probes. The probes themselves were not analyzed in any ways it was the themes that was seen in the data that led to this service design. Different from Gaver et al. (1999) this study does summarize and identify the needs in themes stated it in the “analysis of result” section.

“The probes were not designed to be analyzed, nor did we summarize what they revealed about the sites as an explicit stage in the process. Rather, the design proposals we produced reflected what we learned from the materials.” – Bill Gaver et al. (1999).
Midwives expressed that a key factor for a successful counseling is when the young women have some knowledge about contraception methods or questions before the actual visit. Around 10% of the appointments failed to come and it can be traced back to that the young woman feels it less urgent and therefore less important. There is a big mistrust for authorities, youths in the suburbs do not feel as obligated to help compared to youths in inner city. There is need of the midwives to try and attract more youths to come to the centers. It is important to understand that midwives want the young woman to be the one who decides on what contraception method she should use. But in order for her to feel comfortable about taking that decision knowledge is again key. The service evaluation visualizes that the knowledge young women have can come from multiple sources some less official ones, such as friends, influences and less serious websites, and some more official ones like schools, websites and youth centers.

The data inspired a couple of different design ideas targeting different key findings. One idea was about opening up the youth center one day a month to anyone not only to youths. This to improve the general knowledge in older groups as well that have not had the same opportunity to learn when they were younger. Another design idea was to use the waiting room more by developing a game or similar to have the youth interact with and by that prepare the consultation. One midwife was asking for some tool that is more interactive and can show how the body works and a good example of this is Labella [2]. Labella is a tool that in a fun and humoristic way shows the anatomy of the vagina to provide more knowledge and erase stigma talking about it.

The design idea that this thesis moved forward with was the one that possibly could improve the whole customer journey both the before and the after. The concept idea is not about adding one more website or app, this is about developing a whole concept that can help young women prepare prior to a visit and thereby providing the midwives with better circumstances for a successful counseling.

**Solution: PrevPrepare**

The solution is to create a red thread in today's way of providing contraceptive consultations. The service design is about connecting the different platforms that already exist, so young women can go to one place and find out where they can find what they are looking for and know that all the sites and apps are reliable.

*Step one:* Cohesion between the platforms makes it easier to navigate for the users and find what they are looking for. umo.se is a well-known site that has strong educational material such as videos, picture and text written in simple language. But they are missing more interactive features that the young women can interact with that was wished for according McKellar and Sillence et al. (2017). What is also missing is that somewhere midwives can reach young woman on a more personal level. Referring back to the service evaluation, an early touch point to reach the young females midwives have is through their social media. The communication is more direct and can therefore be more personal targeting the young women. Each youth center can build a closer band with youths in their pick-up area. Young women will not follow the Instagram account since that is public, but they can still scroll through and familiarize with the staff before the consultation. Having a strong social media presence creates a possibility to be “where youths are”. Social media matters [21] and the youth center has been using it a lot, but the youth center could use it even more to promote sites that can be helpful. They should also share information about the staff working there and their work and how youths can get in contact with them.

*Step two:* Creating a service that provides a new communication channel. To connect the last three phases in the service evaluation I created the service PrevPrepare; the service especially focuses on the preparation part before an actual consultation and after. It is focused on contraceptive counseling, but it can also be used for preparation of any visit. Trust is important but can be difficult for a midwife to build on only one session. That is why the introduction of a midwife, and what is expected from the visit could lower the barrier and make it less frightening to go there.

PrevPrepare is not a whole new platform with own content, but rather a service providing a new channel of communication. Bringing together existing websites and apps to spread awareness of the platform that exists. On PrevPrepare young women can find all relevant websites and apps categorized to make it easy for the young woman to find all the good platforms the Swedish market has. PrevPrepare is a tool to help midwives and young women prepare and thereby improve the chances of a successful consultation. A few meetings got canceled last minute due to different reasons, some due to that they had forgotten. That shows a need for a service that reminds the young woman about the appointment and prepare for it. That makes it easier for midwives to ensure that the young woman can come and can prepare.

**PrevPrepare service is explained in the following scenario**

The midwife was shown a short video explaining the service PrevPrepare in a scenario, the figures shown below are snapshots from that video. Further information about the scenarios is presented after the figures.

![Figure 4. This is Eda! She feels the need to book an appointment for contraceptive counseling, so she picks up her cell phone](image)
DISCUSSION

This study was performed to focus on the midwives and see if there was anything service design and technology could provide to improve their daily work. The Cultural Probes gave a very big scope of data with a wide range and where three themes could be distinguished; knowledge, missed appointments and trust. The decision to perform an analysis and not use the method fully as intended by Gaver [10] was to more clearly identify the needs of the midwives. From those categories the service PrevPrepare was designed and the suggestion to connect the different channels the youth center used and put more personal content on social media.

Sweden is a very open country in general, but there are still areas where there is a bigger taboo talking about sexual active youths. Technology is a great way to spread knowledge and improve the access for young women. There are many ways technology can open up new ways of communication. Creating an additional digital health app focusing on contraceptive consultation still seems to be a good idea according to the midwives, but they are not fully aware of how the implementation will be. Knowing that they will have an app in the near future we discussed that if the consultation will be online the preparation and the follow-up is even more important.

Midwife’s feedback on social media presence

Social media has been a great tool to use and they have had different strategies on what content they should have on what channel. But last January new regulations came in restricting midwives using social media. The reason for this was that a midwife had gotten death threats though their social media. Therefore, the psychologists are now in charge of the content and the midwives can only suggest content. The restrictions show two things; firstly, that midwives and their field is still provocative to some people and this need be worked against on a societal level. Secondly, the solution is to restrict the use of social media, rather than seeing it as a proof that more information needs to be put out in right channels; to reach and educate more people. The problem becomes the use of social media instead of the person making the death threat.

Not being able to use social media will be loss in creating a more personal connection with the young women. So that is why the youth center cannot connect the different social media channels as suggested in the solution. But it was possible to put out more information about how to book rather than only the phone number in their Instagram profile. Booking appointments through social media will not be possible since it is not as safe and that was also important feedback.

The restrictions make it difficult to reach the young women; the midwives themselves want to be where the young women are. I cannot see not allowing social media being a solution, it is about finding a responsible level of content just as any other organization that uses social media. Although Sweden aspires to be one of the best countries within digital care, it shows that new technology still takes
time to adapt to. One of the midwives talked about how they a couple of years ago were not allowed to use cell phones to today when that is an essential way of communication with the young women. The content I recommended on social media to be more about the staff working at the youth center might not be possible to implement today. But the midwife agreed that that would be desirable to post on social media. To not lose the social media channel PrevPrepare can have their own, to spread awareness and information regarding contraceptives and preparations. Although I worked closely with the midwives and the data there were still things with the design that needed to be modified. This shows how important it is to involve everyone that will use the service. The focus can not only be on the end-user or on the provider. I wish for more studies evaluating digital care both from an end-user’s perspective but also from the perspective of a doctor and midwife providing the care. This to ensure that the service is used to its fullest potential.

Midwife’s feedback on the service PrevPrepare
The service PrevPrepare, along with anything found in this study needs to be further investigated by involving young women. With that in mind we can still move forward with the discussion and investigating why PrevPrepare is a good concept regardless if it is a preparation tool for a physical meeting or a consultation online.

What did not show with the Cultural Probes was that young women that have booked an appointment through 1177 do get a automatic reminder two days before, but not the young woman who has booked as a follow-up appointment or through using e-mail or phone. The reminder is not personal, and young women often want the midwives to text the address. It has to be on the young woman’s term that they can be contacted in this way since that information can be personal. The youth center that participated in this study usually does not have that long waiting time for a first appointment; it would be better to send out the reminder right after the first appointment is booked or 24 hours in advance. The reminder has to be done automatically to not put more work on the midwife.

The midwife was positive on giving that extra push to encourage them to prepare. A more personal reminder and guiding them to a platform that has everything they need got positive feedback. Especially for the follow-up part of the service, there are so many different sites, and young women can easily end up where the content is not correct or outdated. Referring them one site where they can find more information about the contraception method they are using would secure a better use. If one site connects all the existing sites that has reliable and updated content and are responsible to maintain it the midwife does not have to stay updated on every new tool or site.

Knowledge
The Cultural Probes showed that it is important to improve the knowledge young women have. To improve the counseling is to improve the knowledge the young women have. The solution that was developed in this study works in both ways. This solution is improving the self-esteem of young women and make them confident in what method they want by preparing them. As the startups work has been carried out throughout the year interviewing women, it has been acknowledged that the first contraception seldom was something they felt they decided. They felt less in power during the consultation resulting in a confused usage. This is where PrevPrepare would possible help by providing knowledge and have the midwife follow up afterwards and by that building better self-esteem.

Limitations
Since the study only had two midwives the data that was collected cannot be applied to all midwives working at youth centers. The data is very personal, and it is important to keep that in mind when analyzing the data. Not having the young women to confirm the data and the needs the midwives expressed is a big disadvantage. Due to the project scope it was not possible but is strongly recommended to incorporate in future studies. Due to time constraint one of the two midwives could give feedback on the service. It would have been much better if both of them could have given feedback on the service, but the time for that ran out.

CONCLUSION
Yes, service design can improve young women’s journey to get contraceptive consultation according to the midwives; by creating a red thread incorporating both the before and the after part. To have an ideal consultation there has to be a preparation prior to the consultation and a follow-up after. This study resulted in the service PrevPrepare that reminds the young woman of her appointment and gives an extra encouragement to prepare. This by referring her to PrevPrepare; the one place that has connected and displayed all good websites and DST’s there are today. PrevPrepare opens up a communication channel after the appointment and a possibility for an easy follow-up which is a touch points that they did not have before.

Practicing midwives have valuable insights and want to stay proactive in reaching the young women. And should therefore be given more room to share ideas and give feedback early in the design work process, both within service - and tech development. Design work can never be done from only one perspective when it involves more than one target group. The design has to be tested and iterated many times before it serves to its fullest potential.

Future research
For future research it would recommended to find out what the young women think of a service like PrevPrepare. To find out if it would actually make the young women prepare and if the leads to an improved consultation. It would be interesting to investigate how the young women would like to see the contraceptive counseling progress.

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