Master's Thesis

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"When I insert it there is no problem, I am free"

- A qualitative analysis of changes experienced by schoolgirls adopting a menstrual cup in Uganda

" Når jeg indsætter den er der ingen problemer, jeg er fri "

- En kvalitativ analyse af forandringer oplevet af skolepiger der adopterer en menstruations kop i Uganda

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PREFACE

The present thesis is written as the conclusion of my Masters in Public Health from University of Copenhagen. It is formed on the basis of data from a study conducted by the Danish NGO WoMena in Gulu district in the north of Uganda in 2013. Although I have spend many lonely hours writing this thesis, a range of people have been with me along the way and helped this thesis take form, and to them I owe my gratitude.

First and foremost, I would like to thank WoMena for letting me use their precious data, I know a lot of hours have gone into the intervention study and I am happy that they have shown me the confidence of letting me use this data as the basis of my thesis.

I would like to extend a special thanks to Marianne, Maria and Camilla, who helped me gain access to the data and answered questions about the process. Furthermore, I would like to extend my gratitude to Elisabeth and the local translator who worked with Camilla on the interviews. The brave girls in the study deserve my sincerest gratitude and appreciation, without them there would be nothing to write about.

Furthermore, I would like to thank my assistant supervisor Siri Tellier who gave inspirational input along the way and Morten Skovdal who came to the rescue as my supervisor when I felt all alone with my material. Thank you for all the valuable input and assistance throughout the process.

I would also like to thank Henriette for guidance on literature, Lise for great discussions about actor-networks and valuable comments on my work, Ida and Caro for numeral procrastinating or academic discussions, and to my friends and family for moral support and joyful days.

Lastly, a big and heartfelt thank you to Rasmus, who always inspire me to be a better more generous version of myself and who provided the love, help, encouragement and patience I needed to write this.

Content

ABSTRACT

This thesis sought to investigate in what ways schoolgirls in Gulu, north Uganda, observe and experience changes from using a menstrual cup and how their social relations can be seen as mediators of these changes. To address this, I conducted a systematic review of existing literature from sub-Saharan Africa on Menstrual Hygiene Management (MHM) and perceptions of menstruation. Furthermore, I used studies of traveling technologies as illustrative examples to set the scene for the analysis of qualitative interview data from an intervention study. Two interviewers from the Danish NGO WoMena conducted the interviews in Gulu district, north Uganda, in 2013. Menstrual cups, coupled with technical education on their use, were provided to two primary schools in the Gulu district. Two interviewers from WoMena conducted interviews and focus-group discussions with a total of 45 schoolgirls, aged 13-17 years, on the two intervention schools and one control school. The author of this thesis was not part of the data collection but received transcripts and audio files of all interviews. The data was analysed using NVivo 10.2.0 and the analytical tool *thematic networks* as described by Attride-Stirling. Placed within the research field of Science and Technology Studies, using terms derived from Actor-Network Theory, the thesis sought to investigate how the girls' social relations could be seen as drivers and barriers that encouraged and discouraged the girls' adaptation of the cup. Furthermore, it aimed at gaining insights into the changes the schoolgirls experienced when adopting the cup. The findings pointed to a range of actors that could be regarded as barriers namely; fear of negative health consequences of using the cup; fear of pain from inserting or removing the cup; difficulties with guidelines for use of the cup as well as a need to hide the cup. The findings also suggested a range of actors that could be seen as drivers; a strong need to hide menstrual status from others; disadvantages with existing MHM methods; the cost-effectiveness of the cup, getting familiar with the cup and overcoming the fears of negative health consequences; as well as support from human actors. My findings suggest that the girls experienced a change in their abilities to keep their menstrual status hidden as well as a decrease in their dependency on others by adopting the cup.

INTRODUCTION

"[When you wear] pads you may sit on the desk and blood leaks, but now when you sit you don't think about anything. You stay freely [and your friends] may [not even] know there is something in your body, you stay freely." (FGD 5, Codia Primary)

Personal motivation and background for the study

This is the beginning of my master thesis revolving around a seemingly simple technology for health: a menstrual cup. It is a thesis that has sparked from my interest in global health and sexual and reproductive health and rights, as well as from my wish to contribute to pragmatic solutions to complex issues. Determined to find a topic with practical use and value to people "in the field", I reached out to the Danish NGO WoMena[1], initiated by a group of Public Health graduates, that focus on reproductive health solutions and technologies.

I first heard about the NGO from a chance encounter with Marianne, one of the founders, a late afternoon in a park in Geneva a little over a year ago. I found it inspiring and appealing that WoMena primarily focuses on menstrual hygiene management (MHM), an issue that seems so trivial in a European context, but can have vast implications for the lives of millions of girls without access to adequate means to manage menstruation.

A stream of thoughts went through my head after discussing the situation with Marianne: Why did it never occur to me that MHM could be a problematic area for girls in other parts of the world? Why do we rarely, if ever, talk about how difficult it must be to try to manage menstruation without running water, toilets or access to menstrual hygiene products such as pads and tampons? What implication might it have on the lives of girls who are unable to manage their menstruation adequately? And are there any methods that these girls could benefit from that are not currently available to them? In a Danish context the solution to the problem is usually no further away than a female friend's bag or the nearest supermarket. However, in countries without this luxury, management of menstruation may prove very difficult especially for young girls who are still adapting to this new bodily event.

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[1] http://www.womena.dk/WoMena/Welcome.html

In light of these curiosities I arranged with WoMena to access some of their qualitative data from an intervention study conducted by the NGO in 2013. The NGO collaborates with the Danish social business Ruby Cup[2], which aims to help Kenyan girls manage their menstruation with menstrual cups. Ruby Cup base their business model on a *"buy one, give one concept",* meaning that for every menstrual cup sold another is donated to a girl in Kenya, and WoMena wanted to introduce this menstrual cup to girls in Uganda. To this end WoMena conducted an intervention study in north Uganda in the Gulu district and they agreed to let me analyse the qualitative data from this study. Although two previous studies on the use of menstrual cups have been conducted in Sub-Saharan Africa[3], the study by WoMena was the first of its kind in Uganda and I feel privileged to be able to unfold the data in this thesis.

As the study was an intervention study, WoMena was broadly interested in knowing how the girls perceived the cup and whether they found it an acceptable MHM method. After some discussion and an initial scoping of the data, the proposal for a direction in my investigation was to look at schoolgirls' perceptions of menstruation, and their management thereof, as well as factors that may enable or inhibit the introduction of menstrual cups as MHM method in rural Uganda. It was agreed that this would be based on a review of the existing literature from Sub-Saharan Africa, using the qualitative data from the WoMena study as a case example.

Setting the scene

I contend that the menstrual cup can be regarded as a *technology for global health,* so to set the scene for my thesis I looked into literature on this area. Technologies for global health refer to technologies that can impact health and improve it for the better without necessarily being specifically designed to prevent or diagnose disease. A commission by the Lancet recently said that technologies for global health "*improve health, but they are not usually the main concern of a health system."* (Howitt et al. 2012, p. 2). They go on to argue that the term not only covers technologies in a purely mechanical sense, but also includes more intangible or manual technologies such as health guidelines and water filters (Howitt et al. 2012). The menstrual cup can be regarded as a technology for global health insofar that it is a technology that may improve the sexual and reproductive health of girls by functioning as an alternative Menstrual Hygiene Management (MHM) method.

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[2] http://www.ruby-cup.com/

[3] These will be discussed in a later section (see *Menstrual cups as a possible alternative to existing methods*)

Technologies for global health are increasingly being recognised as important measures to improve health (Sinha & Barry 2011). Despite this, many suitable technologies are not reaching the populations who are most in need. This imbalance between needs and availability of technologies is in part due to financial and distributional constraints (Howitt et al. 2012) and in part to a misconception that technologies are inherently costly, supplementary and highly engineered products (Sinha & Barry 2011). According to the World Health Organisation much more simple technologies are needed to improve health in low-resource settings (Sinha & Barry 2011). Thus, to improve health through technologies it is necessary to rethink the common understanding that technologies are per definition "high-tech" and start regarding more simple solutions as appropriate health technologies. Making more technologies available to the people with the greatest needs entails both developing new technologies based on needs, but also looking into ways of successfully introducing existing technologies into new contexts. Creating and sharing appropriate technologies for global health requires an understanding of the needs and possibilities within a specific context (Sinha & Barry 2011; Howitt et al. 2012).

According to Juul Nielsen & Langstrup (2014) global health initiatives increasingly focus on developing or implementing technologies to prevent or alleviate diseases. Making a technology such as the menstrual cup available relates to more than physically placing the cup with the schoolgirls in Gulu, north Uganda, it also entails making sure that measures are taken to make the technology acceptable and possible for the girls to adopt (Howitt et al. 2012; Juul Nielsen & Langstrup 2014). The menstrual cup represents a seemingly simple technology that could be beneficial to girls in Uganda if the technology is successfully implemented. Knowledge on the challenges and opportunities that may arise when the cup is introduced to the schoolgirls in Gulu, north Uganda, is crucial to gain a better understanding of what actors influences the introduction of the menstrual cup and how the cup can influence the lives of the girls. Examples of unsuccessful traveling technologies or technologies that have been changed to be able to fit the context, give a good perspective on some of the interactions that can arise when a technology is being transferred from one context to another.

As an illustrative example I found a news story about an attempted introduction of bed nets, to prevent malaria, to a village in Africa, which proved unsuccessful due to an unforeseen actor working as a barrier for their use (Madala 2015). As the white colour, of the bed nets initially introduced, interfered with local funeral customs, in which the deceased is covered with a white tent much resembling the white bed nets, the introduction of these nets was unsuccessful. Although the villagers did not wanted to use the bed nets for its' original purpose the technology was altered and used for fishing or shielding vegetables. To overcome this, the nets were then coloured green and with this the use of the nets, as it was intended, rose. In this example the bed net did not function as a neutral actor, the perception of the net was changed in the interaction with

local customs. It was not until the technology was altered to avoid conflict with local traditions that the users accepted the technology.

In line with what the above example illustrates, Science and Technology Studies (STS) and Actor-Network theory (ANT) regard technologies as equally influenced by and influencing the context they are transferred to (Juul Nielsen & Langstrup 2014). STS and ANT are two interlinked fields of research inspired by anthropology and sociology in which technologies, societies and sciences are regarded as influenced by each other, meaning that a traveling technology will not enter the new context in a vacuum but will influence and be influenced by that new context (Huniche & Olesen 2014). It is within these research fields I place myself, and thus what my view on traveling technologies is shaped by. Thus it is with the view of technologies as interactive players that I study the introduction of a menstrual cup to the lives of schoolgirls in Gulu, north Uganda.

In order to get a better understanding of the "context" the menstrual cup was introduced to and what actors might be in play, I wanted to comprehend what menstruation entails for girls in Sub-Saharan Africa and find out which MHM methods are currently used. Furthermore, I needed to get an indication of whether the existing MHM methods are sufficiently meeting the girls' needs, to get an indication of the possibility for the menstrual cup to become a technology that could benefit the girls. To this end, I conducted a systematic review of current literature on menstruation and MHM in Sub-Saharan Africa.

Structure of the thesis

To begin with I will describe the background for the thesis with a review of existing literature on MHM and a few examples of traveling technologies. This will lead up to a formulation of a research question and a set of working questions that have guided my work. Following this, I will briefly explain the technicalities of the technology this thesis revolves around, a menstrual cup. Subsequently, my theoretical framework, including the theoretical terms utilised in the thesis, will be explained. Hereafter, I will give a detailed description of the methodology of the thesis, leading up to a short discussion of the use of qualitative interviews, including some ethical considerations in relation to the study. After this, I will present my findings with a table illustrating emerging themes. This will be followed by an elaboration of six global themes. After I have presented the themes that my findings point to, I will briefly summarise and discuss my findings in relation to existing literature. To shed light on my research question, I will discuss three emerging themes in more detail and explore their interconnections. Before I conclude the study, I will discuss its strengths and limitations and offer recommendations for future research, policy and practice.

CONSULTING EXISTING KNOWLEDGE

Literature Review of Menstrual Hygiene Management and menstruation in sub-Saharan Africa

To get a better understanding of the implications for the introduction of menstrual cups as a menstrual hygiene method for girls in Sub-Saharan Africa, I looked into existing literature and knowledge around menstrual hygiene management (MHM) and current methods for managing menstruation in developing countries, with a special emphasis on literature from Sub-Saharan Africa.

Search strategy

The search-engines PubMed, Popline, Web of Science, Scopus and PsychInfo[4] were searched for relevant articles from peer-reviewed journals using the search terms *menstrual, period, menstrual hygiene*, *menstrual hygiene management*, *menstrual cup,* and *menstrual hygiene product*. Studies carried out in high-income countries were excluded and the search was limited to articles in English published in the period 2005-2015 to restrict the search to include fairly current literature. Based on titles, 119 articles that initially seemed relevant were chosen for further inspection. From this, 5 were duplicates, yielding 114 references for initial inspection of abstracts. After revision of abstracts, 104 articles were excluded due to lack of relation with MHM, leaving 10 relevant articles for which full texts were retrieved. Furthermore, relevant articles were searched for additional related literature using a so-called snowball method (Bryman 2004), which yielded another 13 articles to be included in the review. This gave a total of 23 full text articles to be included in the review. Articles that were not readily available were requested from the University of Copenhagen's library. Eleven of the studies included used qualitative methods; seven used quantitative methods; and the remaining five used mixed methods. Figure 1 gives an overview of the collection process of relevant literature.

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[4] The searches in PsychInfo yielded no references.
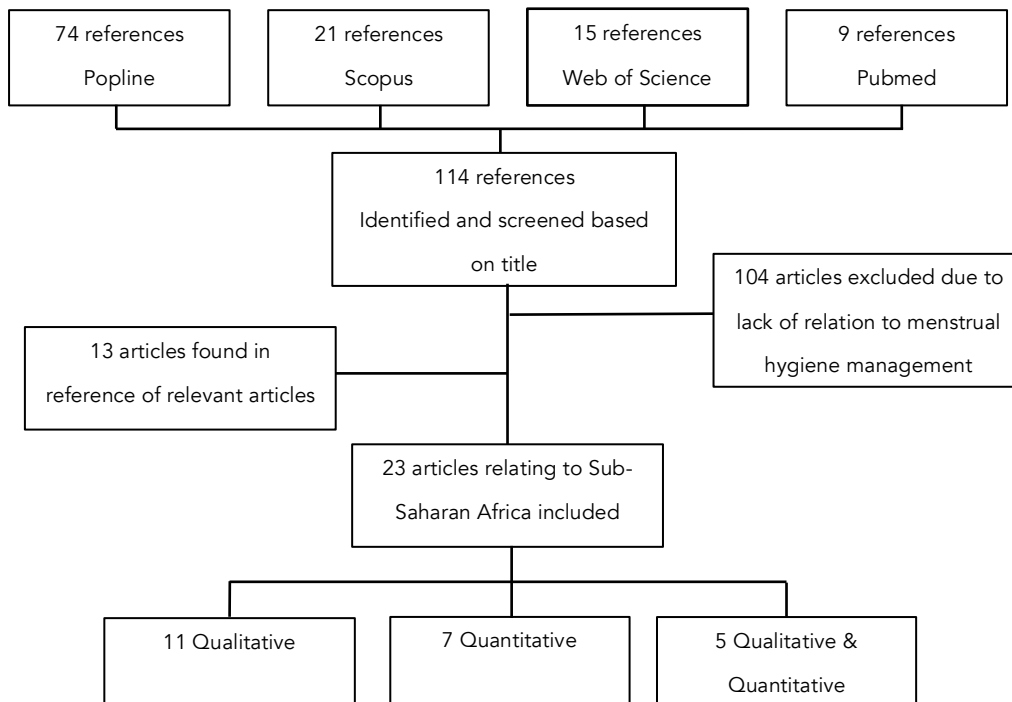
Figure 1 Flow chart of systematic search results

The studies included in the review were conducted in ten different Sub-Saharan African countries[5]; hereof two in Uganda. The studies were equally distributed between being conducted in urban (n=7), rural (n=7), and mixed settings (n=6). The majority of studies concentrated on young girls with only four studies including adult women. Only two studies focused on menstrual cups, these took place in Kenya (Mason et al. 2015) and South Africa (Beksinska et al. 2015) respectively. Furthermore, one study in Zimbabwe looked at the use of diaphragms as MHM method (Averbach et al. 2009). The rest of the literature focused either on knowledge, beliefs and myths in relation to menstruation; menstruation and school attendance; as well as existing MHM methods and introduction of sanitary pads or other MHM methods. An overview of the articles included in the review can be found in Table 1. In addition to these studies a systematic review by Sumpter & Torondel (2013) was included in the review alongside some technical papers. In the following I will discuss the themes that emerged from my review of the existing literature on MHM. The themes that will be unfolded are *i) A culture of silence surrounding menstruation; ii) Traditional MHM methods in Sub-Saharan Africa; iii) Implications of unsatisfactory MHM methods; iv) Menstrual cups as a possible alternative to existing methods.*

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[5] Ethiopia, Ghana, Kenya, Malawi, Mali, Nigeria, South Africa, Tanzania, Uganda, Zimbabwe

Table 1 Overview of articles in literature review

Reference	Country	Number of participants	Age group	Rural/ Urban	Qualitative/ Quantitative	Data collection	Study Aim	Key findings
Mason 2015	Kenya	101 girls, 64 parents	14-16	Rural	Qualitative	Feasibility study (menstruation cup, pads and traditional), focus-group discussion	To examine acceptability, use and safety of menstrual cups or sanitary pads	Girls using menstrual cups preferred these over pads. Both pads and cups seen as advantageous over alternative MHM methods
Beksinska et al. 2015	South Africa	110	18-45	Urban	Quantitative	Randomized two-period crossover trial	To examine acceptability and Performance of the Menstrual Cup	Acceptance of menstrual cups in a population of new users with limited experience with tampons implies that the cup could be a potential MHM in low-income settings
Trinies et al. 2015	Mali	40 (26 girls and 14 key informant)	12-17	Mix	Qualitative	Interviews	To determine challenges faced by schoolgirls in relation to menstruation	Factors explaining girls MHM strategies: culture of minimal information leaving girls unprepared, beliefs and practises and infrastructure
Tegegne & Sisay 2014	Ethiopia	595 questionnaire, 9 interviews, 4 FGD	10-19	Mix	Qualitative	Questionnaire, interviews and focus-group discussions	To examine knowledge about menstruation, MHM school-attendance	Lack of access to sanitary napkins impede school-attendance in rural Ethiopia
Gultie et al. 2014	Ethiopia	492	13-21+	Mix	Quantitative	Questionnaire	To assess age of menarche and knowledge about MHM	Knowledge on MHM very high, this was influenced by place of residence and mothers educational status
Jewitt & Ryley 2014	Kenya	17 interviews, 53 FGD	13-15	Urban	Qualitative	Interviews with key informants, focus-group discussions	To investigate cultural and spatial limitations associated with menstruation	Menstruation among other factors reproduces gender inequalities. Girls face increased risk of sexual exploitation when reaching puberty
Boosey et al. 2014	Uganda	140 questionnaires, 45 FGD, 12 teachers	13-16	Rural	Mixed	Questionnaire, focus-group discussions, interviews key informants, toilet-assessment	To explore menstrual hygiene practices and knowledge and poor MHM, education	Girls miss school or struggle in lessons during menstruation because of lack of sufficient MHM methods

Mason et al. 2013	Kenya	120	14-16	Rural	Qualitative	Focus-group discussion	To examine menstrual experiences of young girls	Girls without support from parents or teacher cope with menstruation alone, sometimes in hazardous ways
Grant et al. 2013	Malawi	717 questionnaire, 30 teacher interviews	14-16	Rural	Mixed	Questionnaire with (ACASI), interviews key informants	To examine individual- and school-level factors associated with menstruation-related school absenteeism.	Menstruation only accounts for a small proportion of missed schools, no evidence for gendered differences in school-absenteeism
Sommer 2013	Tanzania	16	16-19	Mix	Qualitative	Observations, document reviews, interviews	To explore girls experiences of MHM in school environments.	Structural and environmental factors influence girls experiences in school during menstruation, such as access to water and sanitation and the structure of lessons
Crichton et al. 2013	Kenya	34 (interviews) 156 (FGD)	12-17 (girls)	Urban	Qualitative	Interviews, focus-group discussions	To examine emotional and psychosocial aspects of menstrual poverty	Menstrual poverty entails physical and emotional challenges during menstruation and led to embarrassment and fear of stigma
Montgomery et al. 2012	Ghana	120	12-18	Rural	Quantitative	Questionnaire, intervention with provision of pads and education	To assess the role of sanitary pads in girl's education	Girls receiving sanitary pads and MHM education or just MHM education had a higher attendance rate than a control group
Oche et al. 2012	Nigeria	122	15-20	Urban	Quantitative	Questionnaire	To assess knowledge on menstruation and hygienic practices	Low level of knowledge of menstruation among the girls, community and religious leaders were the most common source of information
Crofts & Fisher 2012	Uganda	134	13-20	Mix	Qualitative	Focus-group discussion, participatory observations, interviews with key informants	To explore the difficulties experienced in MHM, introduction of low-cost pads	Low-cost sanitary pads may prove a useful MHM methods if price and convenience match
McMahon et al. 2011	Kenya	48 schoolgirls, 9 teachers	12-16	Rural	Qualitative	Focus-group discussions, interviews, observations	To convey schoolgirls' perceptions and practises related to menstruation	Fear, shame, distraction and confusing were feelings related with menstruation, most common MHM method was cloths, which were unsatisfactory

Sommer 2010	Tanzania	16	16-19	Mix	Qualitative	Observations, interviews	To explore the social context of girls' experience of menstruation and schooling	Challenges hiding menstruation at school, the girls suggests improved toilet facilities and more education to overcome the challenges
Lawan et al. 2010	Nigeria	400	10-19	Urban	Mixed	Questionnaire, interviews	To examine the knowledge and practices around menstruation and MHM	Majority had fair knowledge about menstruation and use sanitary pads for management, which was changed 1-5 times a day
Zegeye et al. 2009	Ethiopia	612	14-19	Mix	Quantitative	Questionnaire	To determine age of menarche and menstrual patterns among schoolgirls	Mean age at menarche was 16 years, 30 % had experienced abnormal length of their menstrual cycle
Averbach et al. 2009	Zimbabwe	43	18-45	Urban	Mixed	Questionnaire, focus-group discussions	To explore menstrual practices and attitudes regarding the use of a diaphragm for menstrual protection	All women reported to be willing to use the diaphragm as MHM method if it was available. Main praised factors relating to use was; low cost, hygiene. 86 % reported that it would have influence on their lives
Sommer 2009	Tanzania	106 (90 participatory, 16 interview)	16-19	Mix	Qualitative	Participatory activities, interviews	To examine girls' voiced experiences of menstruation, puberty and schooling	Girls have inadequate knowledge on MHM in school environments and manage emotional and physical changes to their bodies, and navigate arising sexual pressure from boys
Adinma & Adinma 2008	Nigeria	550	12-20	Urban	Quantitative	Questionnaire	To determine schoolgirls' perceptions, problems and practises related to menstruation	More than half used unsanitary MHM methods. Perceptions of menstruation were poor and often incorrect
Umeora & Egwuatu 2008	Nigeria	1692 (questionnaires), 12 (interviews)	17-56	Rural	Mixed	Questionnaire, interviews	To evaluate beliefs, myths and traditional practices associated with menstruation	Menstrual blood has significance in local beliefs and must be disposed of with care. Some women impose self-restrictions during menstruation
Stadler et al. 2006	Nigeria	289	18-45	Mix	Quantitative	Intervention (two types of pads), questionnaire	To assess the suitability of commercial sanitary pads compared with a nonwoven product	Greater satisfaction with the provided sanitary pad compared to traditional MHM methods. Significantly lower feeling of risk of leaking

Menarche –the onset of a new era

Menstrual Hygiene Management (MHM) has long been a neglected topic of investigation, but the importance of research and efforts within this field is now slowly being recognised (Mason et al. 2013; House et al. 2012). The literature available suggests that girls in sub-Saharan Africa face big challenges when they reach menarche.

When girls transition into adolescence, menarche marks the bodily changes they go through in the process (Adinma & Adinma 2008). Menarche is the onset of a girl's period, and it is the beginning of a long line of years with monthly bleedings. It is a natural biological occurrence in all women's lives and a sign of a healthy progression (Boosey et al. 2014; Gultie et al. 2014). Around a quarter of the world's population are females in the reproductive age that menstruate two to seven days every month and have a need for proper MHM. This refers to practices that will ensure the health and wellbeing of a menstruating girl or woman. This requires both adequate access to water and soap for showering, clean clothes, products to absorb or collect the menstrual blood and the ability to keep a normal routine during menstruation (Rheinländer & Wachira 2015). Although menstruation is a natural reoccurring event, this may prove a challenging event in some countries, due to negative perceptions of menstruation and lack of means to manage menstrual hygiene adequately (House et al. 2012; Crofts & Fisher 2012; Jewitt & Ryley 2014; Umeora & Egwuatu 2008).

A culture of silence surrounding menstruation

In some cultures, menstruation is associated with taboos and special practices and inadequate management of menstrual hygiene may have pronounced implications on a young girl's life and ability to take part in everyday tasks (Jewitt & Ryley 2014; Trinies et al. 2015; Adinma & Adinma 2008). While some cultures celebrate menarche as an important milestone in young girls' lives, and the first step to becoming a woman, wife and mother, other cultures react to this event with *silence*. Kirk & Sommer (2006) denounce this as a *culture of silence*, explaining that girls express feeling unable to discuss menstruation with others. This silence leaves many girls unprepared for their first encounter with menstruation. Thus, some girls in Sub-Saharan African countries experience a lack of information about menstruation prior to menarche and an inability to discuss menstrual issues with family and friends (Sommer 2009; Boosey et al. 2014; Sommer 2013; Sumpter & Torondel 2013; Crichton et al. 2013). In a study in Mali by Trinies et al. (2015) half of the girls had no knowledge about menstruation prior to menarche and those who did, received only very little guidance on how to manage menstruation. Similarly in rural Nigeria only 64,5% of the girls included in a study by Omeora & Egwuatu (2008) had heard about menstruation before their menarche. Consequently, a big proportion of girls in Sub-Saharan African countries may therefore experience menarche without any

prior knowledge on this biological phenomenon and those who have knowledge may have very little means or guidance relating to management.

The culture of silence surrounding this bodily event seems to continue after the onset of menstruation. Thus, in a study by Adinma & Adinma (2008) a little less than half (47,1%) of the girls discussed medical problems relating to menstruation with their mothers. Similarly, Boosey et al. (2014) reported that girls, in their study in Uganda, had trouble talking about menstruation even in the confined space of a female-only focus group discussion, which indicates how unfamiliar the girls were with discussing the issue. Furthermore, in a study by Crichton et al. (2013) Kenyan women reported feeling uncomfortable and embarrassed to have discussions about menstruation with their daughters. These feelings led the parents to avoid these discussions altogether, which further reinforces the silence around the subject. Besides this culture leading to a large number of girls feeling frightened at their first encounter with menstruation, due to the knowledge gap, the silence may also influence the girls perception of themselves during their menstruation in the years to come (Oche et al. 2012; Mason et al. 2013). Moreover, the silence may contribute to the perception that menstruation is so private that it cannot be discussed with anyone, leading some girls to keep their experiences of menarche to themselves thus enforcing the culture. Furthermore, this culture may lead to a sense of obligation to ensure that one's menstrual status is never disclosed to others, placing an unspoken expectation on the girls' shoulders (Jewitt & Ryley 2014; Crichton et al. 2013). Thus, the transition from a child to a young girl menstruating may have implications for the social relations girls have, as new expectations are attached to their new status.

Studies of menstrual practices and perceptions among girls in Kenya, Uganda, Ethiopia and Tanzania reported that the girls experienced feelings of shame related to periods of menstruation (Sommer 2009; Mason et al. 2013; Sommer 2013; Boosey et al. 2014; Gultie et al. 2014; McMahon et al. 2011). In addition, McMahon (2011) found that the most common feeling relating to menstruation, among girls in Kenya, was shame and that this feeling was related to unwanted attention e.g. from classmates. Thus, the bodily change influenced the girls' relations to e.g. boys, teachers and parents. In most of the identified literature, the feeling of shame brought about an immense fear of leakage or otherwise giving away menstrual status. Thus, the changes the girls experience in relation to other people due to menstruation seem to imposes a new set of "rules" on the girls in which concealing their menstrual status becomes a high priority.

With the onset of menstruation, girls are confronted with a paramount need for management of their menstrual hygiene due to a culture of silence surrounding this life event. After menarche, girls often

feel an expectation to be able to manage their menstruation sufficiently to keep their menstrual status a secret and live up to the culture of silence (Trinies et al. 2015). In Mali, Trinies et al. (2015) reported, that girls expressed fears of being ridiculed or punished if they did not keep their menstrual status hidden and in Nigeria Umeora & Egwuatu (2008) found that girls and women self-imposed restrictions on their activities to avoid embarrassment and discomfort. Others argue that menstruation is a state related with stigmatisation and that this constrict women through their attempts to conceal their menstrual status (Crichton et al. 2013; Sommer 2013).

The above exemplifies that the girls' perception of menstruation is influenced by the girls' social relations, such as parents omitting information about menstruation, but it also have an influence on the girls relation to others, such as boys, teacher and their parents. These changes in the girls' social relations due to menstruation invoke a wish to keep their menstrual status secret from others, reflected also in the culture of silence. What actors influence the schoolgirls' perception of menstruation in Gulu may be of importance to this study, as previous studies have indicated that the girls' social relations have an influence on the way the girls' perceive menstruation.

With a strong wish to keep menstrual status secret, the girls' are in need of MHM products that will help them achieved discretion, however, not all MHM products are equally reliable in helping the girls conceal their menstrual status, as I will describe in the following section.

Traditional MHM methods in Sub-Saharan Africa

To manage menstruation and keep their menstrual status private, girls and women around the globe utilises different products to absorb or collect the blood (UNESCO 2014). In order to maintain good hygiene it is important that the products used are clean, effective and sustainable (Rheinländer & Wachira 2015). When such products are readily available, menstruation is a manageable event. However, for girls with limited or no access to safe, clean and affordable sanitary products this monthly event may prove challenging (Averbach et al. 2009; Kirk & Sommer 2006). Research suggests that girls with no access to commercial sanitary products resort to other MHM methods to control their menstruation (Crofts & Fisher 2012; Mason et al. 2015; Lawan et al. 2010). In sub-Saharan Africa, girls in rural areas may resort to traditional materials for managing their menstruation, such as cloths, cotton wool, toilet paper or multiple sets of knickers, when other methods are not accessible (APHRC 2010b; Zegeye et al. 2009; Adinma & Adinma 2008).

Traditional MHM methods may pose a health threat to the girls, as there is increased risk of infections with products such as cloths, toilet paper and cotton wool, and girls using these materials often

complain about discomfort of the products known to cause chaffing or wounds between the thighs (Oche et al. 2012). Additionally, many of these MHM methods are unreliable in terms of avoiding leaks, and thus defeat a great part of their purpose (APHRC 2010b; Mason et al. 2015). Consequently, for some girls in low- and middle-income countries the transition into adolescence may bring with it difficulties due to a lack of access to MHM methods, that can safely and adequately absorb or collect menstrual blood, help maintain good hygiene and conceal their menstrual status (Gultie et al. 2014; Averbach et al. 2009). Some girls in African countries use commercially bought pads, which are more hygienic and said to have better absorption of blood than traditional MHM methods. However in rural areas the demand and supply is often restricted either due to poverty or physical availability (Trinies et al. 2015). Whether girls use commercial MHM methods may relate both to availability but also beliefs and traditions. In a study by Umeora & Egwuatu (2008, p. 111) in rural Nigeria, some women refused to use commercial sanitary pads because there was a long tradition of using cloths and "*they [their forefathers] never had any problems*". In this area of Nigeria sanitary pads were seen as defeating the purpose of the menstruation, which they believed to be a cleansing of the body and, consequently, less than a third of the women used these (27,4%). In contrast, in a different part of Nigeria, Oche et al. (2012) found that the majority used sanitary pads (87%). Thus, what MHM methods are considered appropriate may be very much determined by the specific context and the expectations by society to how menstruation should be managed. That the context seems to influence, which MHM methods are considered appropriate implies that MHM methods are not uncomplicated technologies that do not interact with their surroundings, but rather can be seen as active "players" that influence and is influenced by the remaining "players". That other MHM methods can be seen as influenced by and influencing its' surroundings, reinforces my understanding of the menstrual cup as a technology that can be altered by and alter the schoolgirls and their surroundings in Gulu.

How the MHM methods may influence the lives of girls during their menstruation is valuable knowledge, as this may give an indication of areas where the menstrual cup may provide the girls in Gulu with benefits compared to existing MHM methods.

Implications when MHM methods are unsatisfactory

Previous studies have focused on the negative implication it may have for girls who lack sufficient means to manage their menstruation in accordance with what society and they themselves expect. Thus, several studies have focused on menstruation in relation to girls either missing school or lacking concentration to follow along during their menstrual periods (Trinies et al. 2015; Grant et al. 2013; Sommer 2013; Montgomery et al. 2012; Sommer 2010; Sommer 2009; Boosey et al. 2014).

In the majority of studies on MHM in Sub-Saharan African countries, girls using traditional methods were afraid of leaking or of other people seeing their menstrual blood, i.e. after washing re-usable cloths or disposing of materials (Crofts & Fisher 2012; Mason et al. 2015; Sumpter & Torondel 2013). Some studies argue that lack of adequate menstrual hygiene management methods may affect school attendance as some girls report to have stayed home because of limited ability to manage menstrual blood at school (Tegegne & Sisay 2014; Sommer 2010). Thus, the fear of exposing menstrual status may cause some girls to avoid situations where a potential leakage of menstrual blood could reveal their status, such as contributing in school, where students are required to stand up when addressing the teachers or socializing with peers during breaks (Mason et al. 2015; Jewitt & Ryley 2014). Some even report avoiding school altogether, although research in this field is inconclusive (Crichton et al. 2013). In a study in Uganda teachers reported that girls missed school during menstruation to avoid the shame of possible menstrual accidents, and that even female teachers would abstain if they did not have menstrual products that could sufficiently absorb the blood (Boosey et al. 2014). Similarly in a study in Ghana, Montgomery et al. (2012) found that girls who did not have access to sanitary pads missed three to five schooldays monthly due to difficulties with traditional MHM methods. Thus, the girls' need for secrecy impeded their possibility to change during schooldays and forced some girls to leave school at the onset of their menstruation or when they needed to change their MHM material. In Malawi, Grant et al. (2013) could not find a difference in absenteeism between girls and boys and thus did not conclude that menstruation leads to girls missing more schooldays than boys. However, Sommer (2013) suggested that the implications for the girls' school attendance should be considered in terms of quality rather than quantity. Thus, she argued that although girls came to school during their menstruation the fear of leaking might impede their concentration and feeling of wellbeing at school.

Trinies et al. (2015) reported that girls in Mali had very few MHM strategies to keep them in school during menstruation, and thus, either worried extensively about stains when in school or took the consequence and left school to go home when their period started. Although the girls had access to water and latrines they felt safer leaving school to manage their menstruation, which made them miss parts of schooldays. This was partly due to poor sanitation at school where latrines had low privacy and were considered unclean, and partly due to the fact that the girls' feared that others would find out that they were in their period if they brought MHM methods to change at school.

Leaking has proven to be one of the biggest concerns among girls during their menstruation (Mason et al. 2015; Crofts & Fisher 2012; Jewitt & Ryley 2014; UNESCO 2014), and a study among Ethiopian schoolgirls found that this was the third most reported reason to avoid school during menstruation,

after lack of privacy for washing at school and pain or discomfort (Gultie et al. 2014). The fear of leaking may be linked to girls' reports of being ridiculed, due to their menstrual status being disclosed, both by other girls, but especially by boys (Sumpter & Torondel 2013). Sumpter & Torondel (2013) conducted a systematic review of MHM and the social and health related consequences of poor MHM. The review was conducted in May 2012 and focused primarily on health outcomes in relation to poor MHM. Therefore, only a small proportion of studies in their review overlap with the articles in this section. The authors found, that girls experienced harassment and lack of understanding from both boys and male teachers during menstruation. Such harassment and lack of understanding from males has been repeatedly reported in recent studies as well (Jewitt & Ryley 2014; Boosey et al. 2014; Tegegne & Sisay 2014; UNESCO 2014). Without proper means to live up to expectations, to be able to conceal their menstruation, girls may find themselves in a limbo between what people around them expect, and what opportunities their MHM methods give them. According to Trinies et al. (2015) some factors that influence girls' abilities to manage their menstruation sufficiently cuts across borders and can be found in countries from Africa to Asia whereas others are influenced by cultural factors and cannot be compared directly. Because the factors that influence the girls ability to manage their menstruation varies across countries it cannot be assumed that one solution to a problem is culturally acceptable by all and solutions therefore have to be altered to the context they will be introduced to. How the schoolgirls' in Gulu are influenced by their existing MHM methods and how they perceive the menstrual cup, relates to the social relations in the girls lives and thus cannot be deducted from studies from others context, However, familiarising myself with the implications of inadequate MHM methods in other context may still give a good background for my study. This knowledge helps put my findings in perspective and can function as guidance. Having an understanding of the implications of the implications of MHM methods on the lives the schoolgirls in Gulu may widen my understanding of the possible need for alternative MHM solutions such as the menstrual cup.

Focusing efforts on the misconception and stigmatising beliefs related to menstruation could address the fear of ridicule and harassment and alter the expectation to match the means. However, this process may be long and in the meantime alternative MHM methods that may help the girls protect themselves from ridicule, by giving them the means to conceal their menstrual status, may be beneficial.

Menstrual cups as a possible alternative to existing methods

According to a report by sixteen Water, Sanitation and Hygiene (WASH) experts, all girls should be able to manage their menstruation hygienically, privately and with dignity (House et al. 2012). In

many Sub-Saharan African countries current MHM methods are not meeting the needs of menstruating girls sufficiently and stand in contrast to the expectations the girls face through their social relations. Accordingly, and as discussed in previous sections (see *A culture of silence surrounding menstruation*), a lot of girls fear leaking and having their menstrual status revealed. Introducing alternative MHM methods, appropriate to the contrasting contexts that can be found in Sub-Saharan African countries, may prove to be a helpful solution for the girls who are struggling to live up to the expectation to keep their menstruation private.

Montgomery et al. (2012), conducted an intervention study in Ghana comparing school attendance of girls who received sanitary pads and menstrual education, education only or nothing, and found that the former two groups had greater school attendance after the intervention compared with the control group. This implies that girls in this context may be lacking sufficient means to manage their menstruation, both in terms of education and in terms of access to alternative MHM methods. In Nigeria, Stadler et al. (2006) tested the acceptability of commercial sanitary pads compared with the traditionally used MHM methods and found that this new MHM method was acceptable to the girls and women, and that the pads were considered more comfortable than existing methods. Thus, for some girls the introduction of alternative MHM methods may be considered acceptable and favourable. However, for some girls' sanitary pads may still not meet their needs for concealing menstruation, and other solutions could be beneficial (Mason et al. 2015; Beksinska et al. 2015).

One product that has shown potential to enable girls in Sub-Saharan Africa to manage their menstruation more satisfactorily, and let them be in control of concealing their menstrual status, is a menstrual cup. Some studies show good acceptability of menstrual cups or similar MHM methods in Kenya, Zimbabwe and South Africa (Averbach et al. 2009; Mason et al. 2015; Beksinska et al. 2015; APHRC 2010b). With promising results from other countries, the menstrual cup could potentially also serve as an alternative technology for women in rural areas of Uganda to manage their menstrual hygiene. However, simply providing the menstrual cups may not be successful if the technology is not accepted or possible for the schoolgirls to use. How actors influence the introduction of alternative MHM methods can be useful knowledge that is not evident from the current literature. Looking into the dynamics of importing a technology from one context to another, and focus on the interactions between the technology and actors in the context, might be helpful to illuminate some of the processes that are in play when menstrual cups are introduced to schoolgirls in Gulu, Uganda. To improve my understandings of the dynamics that technologies may encounter when they are transferred I familiarised myself with some case examples of studies of traveling technologies.

Technologies without borders

To gain a better understanding of the challenges and opportunities that the menstrual cup may encounter, when the technology 'travels' into the schoolgirls lives, I have consulted literature on *traveling* technologies. I was not able to find literature on MHM methods in which the methods were viewed as technologies, that interact with their users in the same way as I set out to do, so to unpack the challenges and opportunities that could be at play, I will drawn on case examples studying other types of traveling technologies for health. Although the below discussed technologies may seem very different from the menstrual cup, I contend that some of the interactions that they exemplify will have relevance for the introduction of the cup. Had my discussion related to a technology that resembles the below examples, the knowledge drawn from the examples should be considered as much as a guideline as when the technologies differs, because every context will comprise a different set of actors with a different set of relations.

According to Juul Nielsen & Langstrup (2014) previous attempts to understand how technologies are adapted in new contexts have primarily focused on conflicting interests of stakeholders in the context, and how these negotiate the introduction of a technology, leaving the technology to be regarded as a neutral and stable player. However, as the introductory example (see *Setting the scene*) of the unsuccessful introduction of white bed nets against malaria exemplifies, technologies are not stable entities without influential powers. In the example, the technology (the white bed nets) conflicted with one of the actors in the users network (the funeral customs of covering deceased with white tents) and this influenced the introduction of the bed nets that was initially regarded as a neutral entity. Juul Nielsen & Langstrup (2014) argue that too little attention has been given to the technologies themselves and their influence on other stakeholders. Thus, emphasising a view on technologies as being more influential than previous discussions implies. Consequently, the authors suggest that technologies should be studied where they go and should be considered *as* influential as other stakeholders in play.

> "(…) *what a global health technology is and what it does is first and foremost an empirical question to be addressed by actually following specific entities as they move through various contexts and form part of various relationships*" (Juul Nielsen & Langstrup 2014, p. 239)

To understand how the menstrual cup as a traveling technology is integrated into the lives of schoolgirls in Gulu, north Uganda, it should be regarded not as a neutral entity that can be placed in vacuum into a context, but as a mutually affecting and affected entity forming relations with other actors in the network. In their paper, Juul Nielsen & Langstrup (2014) followed the introduction of a

Danish IT-system, to monitor quality of diabetes care, into a new context in Indonesia. The system was regarded as a traveling technology and the authors discussed some of the barriers that arose during the "transfer". The IT-system was created to enable physicians to monitor patient care through locally collected data and was designed to enable as many users as possible by its modesty and simplicity. However, as the Danish implementers reached the new home of the technology its' premises were quickly challenged. A substantially different composition of the Indonesia diabetes care system forced the technology and the implementation to be translated to fit the surroundings. In return however, the technology ended up influencing the norms of the health care system, as general practitioners and specialists were forced to work closer together than previously, to make the IT-system function (Juul Nielsen & Langstrup 2014). Thus, in this example the technology and the context affected each other mutual and the technology could be regarded as an actor on equal terms with the general practitioners, specialists and the norms within the diabetes care system of Indonesia.

As mentioned previously the notion that technologies are influential is especially present in Science and Technology Studies (STS) and namely Actor-Network Theory (ANT) (Juul Nielsen & Langstrup 2014). In these disciplinary fields the introduction of a technology into a new context, or a *traveling* technology, is regarded as the introduction of a new actor into an existing network of a range of different actors. *"These networks can include humans, things, ideas, concepts – all of which are referred to as "actors" in the network."* (Cresswell et al. 2010, p. 2). Using this analogy can help disentangle the various influences that may determine whether the menstrual cup will be "welcomed" into the schoolgirls' lives, and understand how the cup influences the girls and their surroundings. *"As they [technologies] are displaced they may have powerful effects, but only so if managing to relate to new actors, places, infrastructures and programs of action."* (Juul Nielsen & Langstrup 2014, p. 240).

In a study by Prout (1996) on a metered dose inhalator to treat asthma patients, the new technology, the inhalator, required the users to attain new skills in order to gain the benefits of the technology. During the introduction of the inhalator it became clear that these abilities did not occur naturally in the users, but rather were inscribed in the script of the technology and thus it was necessary to *configure* the user (Prout 1996). In the initial phase of the introduction of this new technology, the general practitioners, who had been given the task of teaching asthma patients how to utilised the inhalator, faced difficulties because the users struggled with the script of this seemingly simple technology. To overcome the difficulties, and facilitate an implementation of the technology in a way so that the medicine within the inhalator was taken correctly, new slightly modified inhalators were produced and educational material and descriptions of the intention of the inhalator and reasons for the new way of distributing the medicine, was developed (Prout 1996). Thus, to facilitate a more

beneficial interaction, between the users and the technology, alterations on both parties were made. Furthermore, the general practitioners had to take on a new role with the change of the script, and be more active in relation to patient education. Thus, the successful introduction of the new technology was dependent on the alterations of relation between not only the users and the technology, but also between other actors within the networks.

The above exemplifies that if technologies and users do not relate properly, the technology may not have the intended benefits, and that alterations of actors on both sides can facilitate a better relation. Furthermore, it highlights how other actors can influence the relation between a technology and its' user. Thus, through the alterations of the actors within the network, a relation was formed between the inhalator and the asthma patient, through which the technology could bring a benefit to the user. With the "correct" use of the inhalator the asthma patients experienced a higher degree of freedom because they were given control over a part of their treatment. Drawing on this understanding, I regard the menstrual cup as an actor and acknowledge that in order for the girls to benefit from the cup they have to form a relation with the cup, and that actors in their network have the potential to influence this relation. If a relation is successfully formed, this new relation may have implications for the schoolgirls, the menstrual cup and all the remaining actors within the girls' lives. Consequently, if this relation is successful, the introduction of the menstrual cup may influence some of the above-mentioned expectations of keeping menstrual status concealed or the girls' abilities to accommodate these expectations.

The abovementioned examples, illustrates how technologies can be influenced by the context they are introduced to, as well as the technologies abilities to influence actors in the networks and relations between them. Moreover, they exemplify how technologies can be beneficial for users when the users and the technology form a connection. STS and ANT can provide helpful guidance to illuminate some of the abovementioned dynamics that may take place when a technology is introduced to a new context.

Thus, using concepts from STS and ANT, I hope to deepen my perspective on the introduction of the menstrual cup to the lives of Ugandan schoolgirls by trying to understand how the technology interacts with existing actors in the networks of the girls, and how these interactions may alter the girls' opportunities within the networks. Focusing on the social relations that exists where the technology is being introduced will help bring light to the alterations that take place when the cup comes into play. This may give a better understanding of both the benefits that may come from the introduction of the cup, and the possible barriers to a successful implementation.

TOWARDS A RESEARCH QUESTION

Based on the literature review on MHH, perceptions of menstruation and current MHM methods as well as literature on traveling technologies I identified four areas that could be explored in relation to the introduction of the menstrual cup to the lives of the schoolgirls in Gulu, north Uganda. The areas relates to *i) identification of actors in the girls' network and how these may have implications for the girls' perceptions of menstruation*; *ii) how 'traditional' MHM methods may influence the girls and control over MHM and means to live up to possible expectations from their surroundings to conceal their menstruation iii) how a menstrual a cup, as a newly introduced MHM method, interact with and influence actors in the girls' networks*; and *iv) how a menstrual cup may change the girls' possible means to control MHM and to live up to the abovementioned expectations to conceal menstruation.*

There is a need to unpack the actors in the girls' network and understand how these affect the girls' perception of menstruation and themselves. Furthermore, it is necessary to investigate the implications of disadvantageous MHM methods on menstruating girls' possibility to act and on their position in the networks. Moreover, it is important to gain a better understanding of the interactions between introduced technology, such as the menstrual cup, and existing actors in the girls' network to comprehend the mutual influence of newly formed social relations. Lastly, there is a need to identify areas where the menstrual cup may alter the girls' perceived possibility to be in control of their MHM. Against this background, and in my interest to contribute to the knowledge on practical solutions to MHM, there is a need to examine and answer the following research question:

In what ways do schoolgirls in Gulu in northern Uganda observe and experience changes from using a menstrual cup and how can their social relations be seen as mediators of these changes?

To help me answer this question I have formulated four working questions to guide my research;

- *How do the girls and actors in their network perceive menstruation?*
- *What menstrual hygiene management methods are available to the girls, what are the advantages and disadvantages of these and how do these relate to the girls perception on menstruation?*
- *In what way do girls' observe and experience changes in their ability to act when using the cup compared to the traditional menstrual hygiene management methods?*
- *How can actors in the girls' networks be seen as drivers or barriers in relation to the introduction of the cup, and how do these actors affect the girls' use of the cup?*

THE MENSTRUAL CUPS' TECHNOLOGY

A menstrual cup is a bell-shaped container used to collect menstrual blood, inside the vagina, that comes in a variety of sizes and colours (Menstrualcup.co n.d.). The Ruby cup (see Figure 3) is made from medical-grade silicone and is thus flexible and non-toxic (Ruby Cup n.d.).

Before use, the cup must be sterilised by boiling it in water for five minutes. After sterilization, the cup is inserted in the vagina by folding the sides and releasing the fold to create a seal around the vaginal wall that prevents the blood from leaking around the sides (see Figure 2). A menstrual cup can be used for up to twelve hours before having to be emptied, depending on the flow of the blood. Furthermore, because of its' flexibility it is possible to sleep, swim and exercise while wearing the cup (Ruby Cup n.d.). When the cup is full it is emptied and either rinsed with clean water and reinserted, or just reinserted if no clean water is available. After each period the cup must be boiled to ensure sterilization. If the instructions for cleaning are followed, menstrual cups are seen as safe, and studies of the risk of uro-vaginal symptoms conclude that there is no higher risk for infection in women who use menstrual cups compared to women who use tampons (Howard et al. 2011).

The cup can last up to ten years and is claimed to be durable and sustainable and thus, it is argued that this product may be a very economically sound solution, especially in settings were MHM may be a challenge due to financial constraints (APHRC 2010a; Beksinska et al. 2015). Some of the cheapest disposable sanitary pads in Uganda cost 0.50 USD for a pack of ten. A study in Uganda found that the girls used 8-10 disposable pads in a month, thus the annual price of these pads would be around 26 USD (Scott et al. 2013). Menstrual cups, that can last up to ten years can be purchased at prices around 33 USD, thus only a little over the yearly expense if disposable pads are used (Ruby Cup n.d.).

Figure 3 A menstrual of the brand Ruby Cup (Ruby Cup n.d.)

Figure 2 How to insert a menstrual cup (Menstrualcup.co n.d.)

THEORETICAL FRAMEWORK

The menstrual cup represents a technology for global health being introduced into a new context similar to the traveling technologies introduced in a previous section (see *Traveling technologies*). To get a better understanding of the context the cup was introduced to, and how this context may affect whether the cup is regarded as acceptable ant will be possible for the girls to adopt, I draw on concepts and terms from Science and Technology Studies (STS) and Actor-network theory (ANT).

Science and Technology Studies and Actor-network theory

STS and especially ANT make up the theoretical framework of this thesis. STS is a broad discipline in which the interest lies in investigating how social, political and cultural values affect, and is affected by, science and technological development (Langstrup & Vikkelsø 2014). Thus, within the field of STS, technologies are not seen as something that exists independent of their surroundings or as objects that can be investigated isolated or implemented in new contexts without influencing and being influenced by the surrounding society (Huniche & Olesen 2014). Rather, technologies are seen as influencing and being influenced by the society it is incorporated into and the individuals and other technologies within this society. Consequently, in order to understand how a technology functions one must study the technology in the context it is brought into (Langstrup & Vikkelsø 2014). Thus, to get an understanding of the influence between the menstrual cup and the context of the schoolgirls in Northern Uganda, the cup must be studied where it was introduced, with emphasis on the relation between the cup and the girls and how this new relation may affect the girls and vice versa. Moreover, in relation to the introduction of the menstrual cup into this new contexts it is important to ask a set of questions; a) how does the technology work?; b) for whom?; c) in what context?; d) with what aim?; and e) as an alternative to what? (Huniche & Olesen 2014).

To get a better understanding of the relations within the context the cup was introduced to, and how these relations may work as barriers or drivers for the acceptance of the cup, the above concepts have been supplemented with terms drawn from ANT, which is a central research approach within the field of STS. It is inspired by the focus; on culture from Anthropology; as well as on the creation of meaning from Semiotics. The founders of ANT, the philosopher Bruno Latour, the engineer Michel Callon, and the sociologist John Law, challenged the naturalness that surrounded concepts such as technology and science, and argued that these should be investigated with as much curiosity and questioning as anthropologists use on cultural concepts and their meaning (Langstrup & Vikkelsø 2014; Huniche & Olesen 2014). The three argued, that technologies do not emerge out of thin air, but

rather are constructed in a negotiation between different actors within a network. Furthermore, they criticised traditional sociologists, for giving too little attention to non-humans, as possible actors in the social world. Consequently ANT argues, that a technology, such as the menstrual cup, should be considered an actor in a network equal to human actors, and that all actors are both influenced by the remaining actors in the network and influence them in return. What actors that influence the introduction of the cup depend on the context and on the "strength" of each actor in the network. Thus, to better understand what influences whether the cup will be successfully introduced to the new context it is important to look into the other actors in the networks and how they interact both with the cup and each other (Huniche & Olesen 2014).

ANT does not entail detailed strict description of a theoretic apparatus but rely instead on some basic analytical principles (Langstrup & Vikkelsø, 2014). As an analytical approach ANT builds on the notion that everything and everyone are part of networks constituted of both human and non-human actors affecting each other mutually. However, there is no strong theory in the classical sense as this, according to Latour, can misguide or hinder empirical analysis. Thus, what I use in this thesis is inspiration from some of the concepts used in ANT more than an actual firm theory. Langstrup and Vikkelsø (2014) refer to ANT as a *minimalist ontology,* thus, it is a theoretical position with so few details, that it almost assume an empirical approach to experiencing the world. However, there are four guiding principle that one should consider when investigating the rise and fall of actor-networks. The four principles often used in ANT analyses are *relational*, *symmetric*, *semiotic* and *recursive* (Langstrup & Vikkelsø 2014). This thesis draws on two of these principles, namely *relational* and *semiotic*. *Relational*, refers to focusing the analysis on the relations between actors instead of striving to find the essence of e.g. the menstrual cup. *Semiotic*, relates to the changes in meaning that can occur when relations are formed or broken. This is relevant in reference to changes in the relations, between the girls and other actors, occurring when the menstrual cup is introduced. The thesis does not draw on the *symmetrical* principle, which entail that all actors are equally represented. This term is not applicable to the analysis in this thesis as the interviews have not been conducted with ANT in mind and thus, are not designed to probe when girls mentions potential actors in their network. Therefore, actors that the girls do not mention who are still a part of the network will not be included. Observations of the girls and their use of the cup might have revealed more actors than the ones the girls mention in the interviews. However, this principle is taken in to consideration in relation to regarding both humans and non-humans as actors. As for the last analytical principle, *recursive*, this would be of relevance during either historical analyses or in studies with a longer follow-up, with repeated interviews or interviews with different actors over time. This could also be discussed through a thought experiment, but is considered to be outside of the scope of this thesis.

Adaption of a technology

Another concept derived from ANT that will be used in the analysis of the cup is the term *black box,* which refers to the naturalness that can surround implemented technologies, so that all the negotiations and modifications that took place prior to the implementation becomes invisible (Huniche & Olesen 2014). In a historical analysis one could focus on "opening" the *black box* that surrounds a technology by questioning what we take for granted. In this analysis I will instead use the term to contrast how some girls adapt instantly to the cup and put procedures relating to the technology in a *black box*, whereas others struggle with the fixed procedures within this *black box*, making some of the negotiations within the box visible.

When a technology becomes a natural part of someone's lives the *black box* has been created through mobilisation of advocate actors and translation of the technology where obstacles have been overcome (Langstrup & Vikkelsø 2014). Often ANT is used to interpret how a technology came to be, or failed to be, adapted. In this thesis I focus on the introduction of the menstrual cup and the initial signs of how this technology might be adapted to be acceptable for the girls or be discarded because negotiations between the actors do not go in favour of the technology. Thus, ANT will in this case be used to look at the "battle" that takes place when a technology is being introduced and *black boxes* are being negotiated. The introduction and use of a technology is a fluid process that may go back and forth between acceptance and abandonment of the technology and its premises. Adaption of the technology, and other actors in the networks, is called *translation* in ANT. This refers to the compromises that take place when a technology is being negotiated. Thus, it refers both to the adjustment of the technology itself and of other actors around the technology, who may likewise change to fit the technology. During *translation* the agency and identity of actors change and new alliances may arise between actors. This provides me with an opportunity to examine the changes both the girls and the menstrual cup go through when the premises for the cup is being "negotiated" and whether there are obstacles hindering a *translation* of the cup to fit within the network.

My thesis will only be able to look at a fraction of the negotiations that takes place around the menstrual cup, as technologies do not become completely static but will continue their transformation. If *black boxes* are created around the technology through *translation* of the use, it may be somewhat stable for a while (Huniche & Olesen 2014). However, if these *black boxes* are reopened there is a possibility that the technology will be renegotiated and will either disappear or change shape. *Black box* and *translation* will be used as terms to describe the processes and negotiations that take place when the cup is introduced and as indicators of whether this technology will be successfully

introduced in the new context. Furthermore, I will look at the potential new opportunities the technology presents the girls with if the technology is adapted. For this I will utilise another useful term from ANT called *agency*, which refers to an actors capacity or attributes. An actor, such as the schoolgirls in this study can change their *agency* or capacity to act through association with other actors, such as the menstrual cup (Huniche & Olesen 2014). Thus, *agency* is used in this thesis to investigate whether the alliance between the girls and the menstrual cup modifies the girls' ability to act, in relation to other actors in the network.

Supportive technology

When looking at technologies for global health it is important to consider whether *supportive technologies* or structures are available in the new context a technology is introduced to, as this might be of paramount importance in relation to its success. Madeleine Akrich (1992) talks about the *script* of a technology as the intended use or a certain procedure that comes along with the technology. The script sometimes specifies a need for access to *supportive technology* or adaptations by the actors in the network. These *supportive technologies* can be regarded as actors that aid the introduction of the menstrual cup and without which a successful introduction may be less likely. A *supportive technology* could for example be a power supply if the introduced technology is electric or a cold chain if the technology is a temperature sensitive vaccine. In this thesis, the menstrual cup comes with a set of recommendations for use and maintenance that can be considered the script of the cup. This script entails a set of supportive technologies such as a pot for boiling the cup and soap for hand washing before touching the cup. These supportive technologies also constitutes actors in the network that the cup is introduced to and thus, take part in the "negotiations" that take place in relation to the introduction.

According to Akrich (1992), the success of a technology not only depends on the negotiations between the actors ending in favour of the technology, but also on whether the necessary *supportive technologies* are available to follow the intended *script*. Thus, even if the remaining actors in the network are in favour of the cup, the successful introduction of a technology will be unlikely if supportive technologies are not present as actors in the network. If supportive technologies are not present, the actors using the technology will have to de-script the predefined script. Thus, if the girls cannot or do not want to follow the *scrip*t, either because they lack access to supportive technologies or because the script conflicts with other actors in the network, they will need to de-script the technology to fit with their needs and available means. De-scripting is similar to the term *translation* mentioned in the previous section, in this thesis the term *translation* will be used to refer both to the adaptations of actors in the network and to alterations in the script of the technology

METHODOLOGY

Theory of knowledge

The present thesis is founded on a qualitative perspective on empirical data collection, analysis and generation of knowledge. A discussion on and recognition of your own perspectives is an important part of qualitative research, as the researcher is believed to influence the phenomena or objects of interest both through interactions with the empirical object throughout the data collection, and through the perspective of the researcher during analysis of the data (Bjerg 2007). Thus, the following section includes a discussion of my personal interests and choice of theoretical framework as well as more philosophical discussions of my ontological and epistemological perspectives.

The perspective on what the world is can also be referred to as the *ontology* of the researcher and this ontology shapes the work of the person as it will lead to a focus on particular aspects of a problem, while letting others fade in the background (Høyer 2007). As my interest lies in the interface between the girls, the menstrual cup, and other people in the girls' social world, it felt natural to study these ties and interactions with a somewhat fluid ontology. This somewhat fluid ontology entails a view of the world in which factors have different meanings according to whom interpret or experience them, thus they cannot be viewed in isolation but must be considered in context. With this perspective an object, such as the menstrual cup, cannot be viewed as a stable commodity that will affect the people that interact with it in the same way independent of the context. The focus of a study with a somewhat fluid ontology thus lies much more in the transformation of objects or relations, than in general rules and patterns in behaviour (Høyer 2007). Consequently, with a somewhat fluid ontology, I acknowledge that another researcher might have a different perspective, knowledge base or theory and would create a slightly different analysis. This is however, not the sign of a flawed analysis from one or the other researcher but rather a fundamental condition of the qualitative approach. Furthermore, two differing analyses do not necessarily devalue each other, instead they may be regarded as two different perspectives on the same phenomena (Bjerg 2007). With this emphasis on the influence of the researcher on data in the qualitative approach, I myself become an object of interest in that my perspective shapes my research.

In relation to discussions of the influence of the researcher on the empirical object it is also important to consider the *epistemology* of the researcher. The epistemology is the researchers understanding of what access one is believed to have to knowledge about the world. Often, a somewhat fluid ontology is

accompanied by a belief that there are no "true" objects that the researcher can define and hold concretely. In line with my somewhat fluid ontology I place myself, and this thesis, in the qualitative research field and contend that I cannot be completely objective and grasp at a fixed "truth", but rather argue that how I view phenomena will influence what I see. Thus, with this epistemological view I acknowledge that how the researcher approach a research question affects how that question might be "answered", and it is not assumed that there is stable world that can be observed without being affected by the observer (Høyer 2007). Consequently, the qualitative approach assumes that data is not something that just exists "out there" waiting for the researcher to collect it, but something that is produced and transformed by the researcher along the way (Bjerg 2007). With this acknowledgement follows the notion that I as a researcher is an active player in the collection of data and during analysis, and therefore has to put my preconceptions on display. This way, my prior understanding may be used as an asset and not a limitation. As I have not been a part of the data collection my influence on the data starts at the point of background researching for the literature review and analysis of the data. This could be regarded as both a limitation and strength to my analysis. The limitation would be that my preconceptions from my knowledge based on the literature review could influence my view on the data, as this was my first encounter with the topic, however, this may be true of anyone doing research as most researchers will obtain knowledge from the existing literature prior to conducting a study. The strength of not having taken part in the data collection is that the answers of the girls' will not be influenced by my research question as this has been formulated subsequently to frame this thesis.

In this thesis I will regard some objects and categories as being somewhat stable, thus I do not consider my ontology entirely fluid. I do believe that I am able to refer to "girls", "boys" and "menstrual cups" as somewhat tangible categories. However, I also consider these very locally founded and accept that what the category entails will differ vastly from one setting to another. I find that without the possibility to use these categories the thesis would be of a much more philosophical nature and less focused on the social relations between the "categories", and this is not the intent. So while I consider my empirical object shaped by my view and the surrounding environment, I do believe there are some categories that are defined sufficiently to use as locally "stable" in this thesis. Although I use these categories as "stable" I do not see e.g. the category "girl" as completely stable and solely descriptive. I acknowledge that the category shape the way the individuals in the category view themselves, and that this may change over time.

Categories will thus be utilised to enable the clustering of different individuals into groups of actors, using concepts derived from Actor-Network theory. The concepts are used to open up the data for

analysis, as an inspiration to find phenomena or connections in the data that I would otherwise not be able to see. Accordingly, the theory is not used as a fixed truth in which the data should fit, but rather as a tool to view the data from a certain perspective. This theory allows me to make sense of some relations, but also precludes me from other perspectives on the data. Thus, some aspects of the interviews will not be seen as important in my particular analysis, while they may have been at the centre of attention if a different theory was used as gateway to the data. This is not to say that one should choose a theory, trust it blindly, and push the data to fit the shape. Rather, the theory should function as guidance through the vast amount of data that is often collected during qualitative interviews. Should the theory seem unfit for the empirical object, I as a researcher must find a different and more appropriate guide to lead the way (Høyer 2007). With this perspective on the questions of interest I do not intend to be able to say what would happen if the menstrual cup was introduced to another setting that might influence the technology or the actors differently, my interest is in the social relations within this specific context and the actors of this study as analysed through concepts drawn from Actor-Network theory as explained in a previous section (see *Theoretical framework*)

Study design

The data used in this thesis is from a study conducted by WoMena (2015), in collaboration with Ugandan Red Cross, in northern Uganda, entitled "*The Gulu School Menstrual Cup Pilot Study*". The study was carried out in a rural area of Gulu District, Uganda, from June to October 2013, and was approved for ethical clearance by the Gulu University Institutional Review Committee and the Uganda National Council for Science and Technology in May 2013 (SS 3074) (Appendix A).

Two female research students from the WoMena group carried out all training and interviews for this study with help from local interpreters. I received the data as either transcripts or audio files 15 months after the last interview. Throughout the writing of this thesis I have been in regular contact with WoMena to clear out any questions that arose along the way.

Three schools[6] were included in the intervention with one (*Mahogany Primary school*) functioning as a control school and the two others (*Codia Primary School* and *Elgon Olive Primary School*) as intervention schools. The schools were randomly allocated to either control- or intervention school. Girls aged 13-18 years who attended one of the three schools and had experienced menarche, were eligible for the study. A total of 194 schoolgirls were included in the overall study consisting of both a

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[6] All school names are pseudonyms made up by the author to protect the anonymity of the girls

quantitative and qualitative assessment. From these, a total of 45 girls from one of the two interventions schools or the control school participated in a single interview, a focus group interview or both; Table 2 gives an overview of their distribution.

Table 2 Total number of individuals in the study and their participation in interviews

Participation in interviews	Individuals
July FGD	10
October FGD	20
October Individual interview	2
July + October individual interview	5
July + October FGD	4
July FGD + October individual interview	3
July + October individual interview + July FGD	1
Total individuals in study	45

All girls from both the control group and the two intervention groups were included in one-day seminars with education on puberty, general anatomy of the female reproductive system, the origins of menstruation and the importance of menstrual hygiene. For the teachings on puberty and the bodily changes that occur in both sexes during adolescence, boys from the three schools were also asked to participate, while the remaining topics were taught to the girls only. At the intervention schools additional training on the use, cleaning and maintenance of the menstrual cup was included in the seminars and menstrual cups were handed out. The girls were advised to follow the guidelines for cleaning the cup and to refrain from sharing it with others. Furthermore the importance of thorough hand washes before inserting or removing the cup was stressed. The teachings were carried out at the school grounds of the respective schools by two female research students at the WoMena project and translated to the local language Acholi by a female interpreter. To observe whether the girls using the cup were at greater risk of urine tract- and other infections all girls were examined at Marie Stopes Health Clinic in Gulu both in July 2013 and October 2013. Girls with infections or other vaginal problems were treated free of charge. Before entering the study all girls as well as their caregivers consented to filling out a questionnaire, use the menstrual cup or inform the interviewers that they did not want to, and go through two examinations conducted at the Marie Stopes Health Clinic (see the consent form in Appendix B). Furthermore, all girls participating in interviews or focus-group discussions filled out an additional consent form (see Appendix C)

Study participants

The participants included in this thesis are girls who went to school in one of the two intervention schools and volunteered to try the menstrual cup and participate in either; a single interview, a focus

group discussion or both, as well as six girls from the control school who did not receive a menstrual cup (see Table 3). These girls participated in a focus-group discussion in July 2013 regarding menstruation and menstrual hygiene. A total of 45 girls volunteered to participate in interviews either before trying the cup, after or at both times. The girls were between 13 and 17 years of age and attended primary school in P5, P6 or P7 grade levels, at the time of the interview. In this thesis all girls from the individual interviews have been given a pseudonym name. Girls from focus-group discussions will be presented without names as the transcript do not always provide identification of each girl.

Table 3 Number of girls interviewed, distributed on school and time

		School	Number of interviews	Age range (years)
July 2013				
	Individual interviews			
		Codia Primary	3	13-15
		Elgon Olive Primary	3	13-15
	Focus-group discussions			
		Codia Primary	6	14-15
		Mahogany Primary (control)	6	13-15
		Elgon Olive Primary	6	14
October 2013				
	Individual interviews			
		Codia Primary	6	13-17
		Elgon Olive Primary	6	13-15
	Focus-group discussions			
		Codia Primary	12	13-15
		Elgon Olive Primary	12	13-16
		Total	60*	

* from this a total of 15 individuals participated in more than one interview

Interviews

In the following I will describe how the interviewers collected the data through qualitative individual interviews and focus-group discussions with the girls. Following this I will discussion the advantages and disadvantages of using these methods. All interviews were conducted with the help of an interpreter as the interviewers did not speak the local language, and the girls had only a limited vocabulary in English. Thus, to ensure that the girls understood the questions and had sufficient means to express themselves the questions were translated from English to Acholi and the answers from Acholi to English. The interviewer transcribed initial interviews, thus only answers translated to English during the interviews were written down. The interpreter transcribed the follow-up interviews, and both answers given in Acholi and English were translated to English and written down. Table 4 gives an overview of the transcriptions

Individual interviews

Two female research students (hereafter referred to as "the interviewer"/"interviewers") working at *The Gulu School Menstrual Cup Pilot Study* conducted the interviews, used in this thesis, with help from a local female interpreter. These were the same persons who held seminars with the girls and taught them the use of the cup. The interviewers carried out all interviews in English and questions and answers were translated to Acholi when needed. The interviewers carried out six individual interviews and three focus-group discussions in June 2013 shortly after the girls received the teaching on puberty, menstruation and use of the cup, one of the focus-group discussions took place at the control group who did not receive any information about the menstrual cup. The interviews were guided by a semi-structured interview guide, which also allowed for new themes to be investigated if these arose, as in this example in which the interviewer asked a girl how her first experience with menstruation was, which led to a conversation about concealing menstruation.

"T: For her she thought that she would never have a chance like she would never be able to be close to people. She felt that she would never have that chance of being with people together. That's how she felt emotionally. I: Why didn't you feel you could be close to people? T: She thought than when you have your period everyone can get know about it even if you don't tell someone. (…) She felt like some people were pointing at her like how bad, that one is having her menstrual period." (Unknown girl, FGD 1, Mahogany Primary)

The initial interviews took place in primo July 2013 and covered themes such as personal perceptions of menstruation; menstrual hygiene management methods; toilet facilities at home and at school; experiences and practices around menstruation in school; initial reactions to the menstrual cup; and feelings related to testing the cup (see the interview guide in Appendix D). In ultimo October 2013 another twelve interviews were carried out of which half was with girls who also participated in the initial interviews four months earlier. The second round of interviews were also of a semi-structured nature and were carried out with one of the research students from WoMena and one interpreter in the same manner, as the initial interviews. The follow-up interviews had themes related to experiences using the cup; practices around cleaning and maintenance of the cup; social factors; and school attendance after the introduction of the cup (see interview guide in Appendix E). Alli ndividual interviews were recorded on a tape recorder and transcribed verbatim for ease of analyses, by either the interviewer or the interpreter (see Table 4 for an overview).

Table 4 Overview of transcriptions of interviews

		Transcribed by	From languages
July 2013	Individual interviews	Interviewer	English
	Focus-group discussions	The author of this thesis	English
October 2013	Individual interviews	Interpreter	English & Acholi
	Focus-group discussions	Interpreter	English & Acholi

Focus Group Discussions

In addition to the individual interviews, the interviewers and the interpreter also conducted focus-group discussions with 38 of the girls during which both interviewers were present. The focus group discussions were carried out both after distribution of the menstrual cups and at the follow-up four months later. Some girls participated in both focus group discussions and individual interviews, some in focus group discussions at the beginning of the study and at follow-up and some in just one of the discussions. The participants in each focus group discussion were of varying ages and came from different grade levels but from the same school.

Focus group discussions were conducted in the same manner as the individual interviews with questions and answers being translated between English and Acholi. Similar to individual interviews the interviewers used a semi-structured interview guide as in the individual interviews to initiate and guide the discussions between the girls. In July 2013 three focus group discussions with six participants in each was carried out, one of these at the control school. At the second round of interviews in October 2013 another four focus group discussions were conducted in groups of equal size to the previous, but only at the two schools where girls received menstrual cups (see Table 3). In the initial focus group discussions the girls discussed issues such as their first menstruation; feelings and social norms around menstruation; social factors related to menstruation; menstrual hygiene management methods; experiences around menstruation at school; and initial impressions of the menstrual cup (see the interview guide in Appendix F). In the second round of discussions girls were asked questions relating to the experiences of using the menstrual cup; potential difficulties with the use of the cup; and methods used for cleaning the cup (see interview guide in Appendix G). Furthermore, the girls were asked about their experiences with the influence of the cup on their daily tasks and whether they discussed the cup with anyone. Similar to individual interviews, all focus group discussions were also recorded on a tape recorder and transcribed verbatim. The initial interviews are transcripts of the English statements only as the author of this thesis transcribed these. The follow-up interviews have both statements given in Acholi and English as these were translated

and transcribed by the interpreter (see Table 4). All interviews were both read as transcripts and heard as audio files by the author of this thesis prior to analysis.

Discussion of the data collection

During the "*The Gulu School Menstrual Cup Pilot Study*" WoMena collected both qualitative and qualitative data. The present thesis is based on the qualitative part of the data collected, as this was deemed best fit to answer the questions of interest. However, as the thesis is based on data that was collected by WoMena prior to thoughts about this thesis, the theory utilised in the thesis was partially chosen based on the type of data available, and partially on my question of interest. Thus, the empirical object also assisted in guiding the choice of theory and data was not collected to answer the problems stated in the background section.

That the data had already been collected have set some limitations as to what could be looked into. However, this also means that there is no bias in the interview data towards answering the research questions of this thesis in a specific way, because the questions were non-existing at the time of data collection. Should I have wanted to answer a different kind of question for which the existing data was not sufficient, it could have forced me to supplement the data with subsequent interviews or collect another type of data. Thus, the theory and subsequent analysis is based partially on a pragmatic approach in which I try to utilize already existing data in a new way and combine it with the existing literature on the topic.

The intent when using the semi-structured interview format is to open up for analysis of the process the girls go through when encountering the menstrual cup, and their descriptions of interaction with different actors around them. Qualitative semi-structured interviews open up for the interviewees to interpret their relations with others and explain the reasoning behind their actions (Christensen et al. 2007). The focus group discussions allow for interpretation of interactions between the girls and the way they discuss a topic as a group (Bryman 2004). This may be of interest because there is information in the interpretation of the difference in atmosphere from the individual interviews to the focus group discussions. If the cup fell into the culture of silence that surrounds menstruation (as discussed in the section *A culture of silence surrounding menstruation*) one could imagine that the girls could feel inhibited in their freedom of speech in a focus group discussion compared to the individual interviews. Furthermore, the way the cup is discussed among the girls may also give an indication of how freely the girls would talk to their trusted ones about the topic. Thus, the individual interviews focus on the girls' interpretations of the experiences and the focus group discussions put emphasis on their actual interaction with each other. Having both focus group discussions and individual

interviews strengthens my analysis by allowing for slightly different perspectives on the same topic to come into play (Christensen et al. 2007).

To encourage the girls to speak unreservedly it was stated before the interview began that there were no right or wrong answers to the questions being asked. Consequently, the interview puts forward the girls' understanding of their interactions with the cup and with other actors, and the reasoning behind their own actions. During one interview the interviewer furthermore repeated that there were no wrong answers: "*I: You should remember that you can tell me anything there are no wrong or right answers it is just your experience*"(Doris). One could argue that it may be a one-sided take on things only to include interviews with girls. However, the intend was not to find a solid "truth", but rather to present the interactions that materialises around the cup as seen from one of the actors perspective. For further research it could be of interest to include the boys or the girls caregivers to gain a different perspective on the cup.

Data analysis

All transcripts from individual interviews and focus group discussions were uploaded and analysed using NVivo version 10.2.0 (© International QSR Pty Ltd.). Guided by the work of Attride-Stirling (2001, p. 386) I carried out the analysis with the aid of the analytical tool *thematic networks*, which according to Attride-Stirling are: "*web-like illustrations that summarize the main themes constituting a piece of text*". The steps of the method find inspiration in a broad range of qualitative analytical approaches and aims at providing a structured and systematic approach to the analysis of qualitative data. Thus, the method is meant to give an illustrative overview of the themes that emerge from the analysis and function as a means to make the analytical process transparent for the reader. Furthermore the methodical systematization of the data may help me as researcher organise and facilitate the analysis. With the method the data is categorised and indexed into *Basic themes*, which in turn are clustered into *Organising* and *Global Themes*, each representing an analytical level. The tool utilises a step-wise approach in which the data is gradually organised in to more analytical themes.

In the first step, the data was broken in to tangible codes or *basic themes*, in this case the basic themes were inspired by; what emerged as issues repeatedly mentioned by the girls; the literature review; as well as my interests and prior knowledge. During this process some basic themes were altered, split or merged when further reading of the transcripts opened up for new themes or new dimensions in existing themes. After coding all text portions deemed interesting for the current thesis, the next phase of the analysis was initiated. During the second step, basic themes were gathered in overlying themes, or *organising themes*, when related while some themes were abandoned. Moreover, during this step

text sections within each basic theme were systematically revisited and moved to new or existing basic themes if a section seemed more related to another code. This was a long process in which the coding of the text changed back and forth until all related basic themes were gathered in organising themes and all basic themes with almost no supporting text sections were deleted. In the third step of the analytical process organising themes were gathered in *global themes* based on what the organising themes seemed to point to. This step was much more analytical than the preceding steps, as this step relied on my deduction from basic themes, to organising themes and further on to global themes, based on an assessed coherence between the themes, and on my interpretation of the meaning of the different themes.

Table 5 illustrates the data organised in the three levels of themes and the themes' relation, which will be described in detail in a later section (see *Analysis*). Following the organisation of the data into the three levels of themes, I went back to the focus on the data, interrogating it further, guided by the thematic networks. This involved looking at complimentary and contrasting expressions relating to the global themes, such as similarities and differences in the girls' experiences with menarche. This step-wise approach for the organisation of the data facilitates the write up of the findings and analysis as it gives not only the researcher, but also the reader an overview of the data and the "road" to follow in the argumentation. The analysis section follows the structure of the thematic network depicted in the abovementioned table.

Ethical considerations

As the data for this thesis was collected through qualitative semi-structured interviews in which the interviewer interacts very closely with the study participants, some ethical dilemmas, that can present themselves during this type of data collection, must be considered.

Keeping an ethical code of conduct

Firstly participants have a right to be informed beforehand about the aims of the research; how their confidentiality will be maintained; what it will entail to participate in the study; and that they are free to retract from the study at any given moment unconditionally (Madden 2010; Bryman 2004; Tjørnhøj-Thomsen & Whyte 2007). In the present study the interviewers obtained written informed consent before the girls' participation in the study. The consent forms contained detailed information on what participation entailed and was signed by both the girls and their caregivers. The caregivers

were included in the consent process because the girls were below 18 years of age and therefore, according to Ugandan law[7], would be considered minors.

Prior to this, the interviewers hosted information meetings for caregivers (see an overview of the content in Appendix H) and information days for the girls (Appendix I) during which the aim and methods of the study was explained and time was set-aside for the interviewers to answer possible questions. Furthermore the girls received a letter to take home to their caregivers describing the study and its purpose (see Appendix J). Thus, the girls and their caregivers were informed extensively both orally and in writing that the girls would have to undergo gynaecological check-ups both before being given the menstrual cup, and four months later to make sure that the girls did not have any infections or other gynaecological problems that could interfere with the use of the cup. Additionally, with the consent form the girls agreed to complete a questionnaire before and four months after receiving the menstrual cup. Consent for the participation in the individual interviews and the focus group discussions were filled out before the interviews (see Appendix B and C). Girls and their caregiver were informed that the girls could retract from the study at any given time, should they not wish to continue. Moreover, to ensure the anonymity of the girls all names have been erased from transcripts and I have instead created pseudonyms for the girls. Therefore, I have not seen any of the girls' names or other identification than their age, their class grade and the school they attend. Furthermore, in this thesis all of these details have been omitted to protect the anonymity of the girls.

Moreover, according to Madden (2010): "*Participants (…) should not come out of it in a worse position than they went in with regard to their safety, welfare, economic position and health*" (p.89.). As far as this criterion goes, the girls in this study have not come out in a worse position regarding either of the above-mentioned aspects. Before being given a menstrual cup, WoMena ensured that girls had gynaecological examinations to determine if they had any gynaecological problems before initiating use of the cup. For girls with infections, fungus and other vaginal problems, treatment were given free of charge, to ensure that all girls were healthy and did not suffer health problems prior to the study or after using the cup. These measures indicate that the research team took the health and safety of the girls very seriously. Furthermore, as the cup is meant to be a long-lasting solution, the girls should gain economically from having the cup by avoiding costs for pads, cotton wool and other menstrual hygiene management products.

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[7] According to UNICEF the age of majority in Uganda is 18 years of age (http://www.unicef-irc.org/portfolios/documents/450_uganda.htm n.d.)

New needs and unequal power positions

Although the study follow the ethical guidelines proposed by Madden (2010), Bryman (2004), and Tjørnhøj-Thomsen and Whyte (2007), other aspects should still be given attention in relation to possible ethical dilemmas. One aspect to consider is the fact that the research team in some way decided what may be a good solution for the girls, without first enquiring what they would wish for. Consequently, this intervention may be considered to take a top-down approach in which someone from outside the community find the solutions they deem most appropriate and needed without first consulting the locals with their wishes and approach to finding a solution. Madden suggests that in order to over-come projects that is "forced" on someone it is important to make sure that the participants have as much information beforehand as possible, about the background for the study as well as the intentions and possible economic interests of the researchers, to make sure participants base their decision to participate on a knowledgeable background (Madden 2010). In this study, the research team put a lot of effort into informing the girls of the intent and content of the study. Moreover WoMena have no economic interests to adhere to, as all menstrual cups were donated for the study by Ruby cup without any economic strings attached. Lastly, WoMena worked with Ugandan Red Cross to ensure that the process adhered to local protocols.

The fact that the research team introduced the cup to a social context where it is not normally available raises important questions. What are the implications of researchers giving vulnerable girls something unobtainable and asking whether they like it? What will happen if a girl loses the cup after the study has finished? Some girls lost or had their menstrual cups stolen leaving them without access to this newfound menstrual hygiene management product. The possible problem of donating something in a study that is not readily available in the country is illustrated in the following passage from one of the interviews,

"T: her question is that if you could help her with another cup it would be so good because she was used to the other one so if there is anything then you help her."(Clare, Codia Primary)

For this girl participating may have been a disadvantage as she has now realised a need that she did not know she had before the initiation of the study. The same argumentation can be used in relation to family members of the girls, who also requested menstrual cups from the research team,

"T: (…)So when they [the girls] got it and they took it home, then they [the parents of the girls] begun asking them that, are we also going to give the parents too, for those ones, for the parents who are still

also like still having menstruation. Are they also going to have a chance to get this cup as well? (Irene, Elgon Olive Primary)

This may put the girls in a difficult situation if family members or friends want to use the cup or are unhappy that they did not receive a cup. The fact that the intervention revolves around a technology that is not available in the local context could thus be criticised. However, in order to test new technologies in new contexts one has to introduce products that may not be available and therefore give advantage to the participants of the study and not others. In so far that the technology then proves to be desirable in the context it can be introduced to the market or included in further health interventions. As the study intends to explore whether the cup can be accepted it is anticipated that work will go in to making the cup available if it proves acceptable. Thus, although the argument may be valid in the short-term perspective, the longer perspective is to make the cup available if the community accepts it.

Table 5 Basic, Organising and global themes of the findings

Basic Themes	Organising Themes
1st global theme	
There is a culture of silence around menstruation and the girls face a lonesome first experience with menstruation	
No prior knowledge Some prior knowledge	Most girls have no knowledge on menstruation prior to menarche and have a lonesome first experience
Teasing because of menstrual status Gossip about girls with menstruation	People who find out about your menstrual status might be "talking with your name"
Choose carefully who you discuss menstruation with Strategies for hiding menstrual status Consequences of not being able to hide menstrual status	Menstruation is not something that cannot be discussed with just anybody. It is important to find means to hide menstrual status to avoid ridicule and shame.
2nd global theme	
Existing Menstrual Hygiene management (MHM) methods available before the menstrual cup and their disadvantages	
Extra sets of underwear (knickers) Cotton Wool Pads	Existing menstrual hygiene management methods and their disadvantages
Access to MHM products (financial constrains) Wounds and scratches Leaking Poor toilet facilities at school	Disadvantages with the existing menstrual hygiene management methods
3rd global theme	
Barriers for acceptability of the menstrual cup	
Others fears related to use of the cup Own fears related to use of the cup	Fears and rumours surrounding the cup
Pain when inserting the cup Difficulties inserting the cup	The girls experience difficulties and discomforts of the cup, especially during insertion and removal, but, "when it is already in there it is not painful"
Access to a boiling tin Keeping the cup clean Availability of soap	The script (or set of "rules") behind the cup and supportive technologies
Boys Children People who either want the cup or want to destroy the cup	A new, but easier, thing to hide from surrounding actors
Losing the cup	A cup down the drain leaves a void in the girls lives
4th global theme	
Drivers for acceptability of the menstrual cup	
The cup helps hiding menstruation	Continued need to hide menstrual status makes the cup attractive
Feeling uncomfortable Leaking and having menstrual status revealed Poor toilet facilities at school Using other MHM methods after introduction of the cup	Disadvantage with other MHM methods justifies the introduction of the cup
Money is saved that can be used elsewhere Not being dependent on others to purchase MHM products	Saving money by using the cup
The need for the cup is greater than the fear of it Getting more familiar with the cup/Translating the script	Overcoming the fears and difficulties with the script of the cup using translation
Mothers and other family members The NGO Senior Woman Teacher Study peers	Supportive human actors in the girls' networks
5th global theme	
New possibilities and abilities with the menstrual cup. Changed agency of the girls after allying with the cup	
Avoiding leaks and ridicule Concealing the menstrual status satisfactorily	The girls are now controlling who know about their menstrual status with the cup
Avoiding toilet facilities at school	The girls are "staying freely", feeling liberated with the cup
6th global theme	
Local Acceptability of the menstrual cup	
Fears of negative implications of use of the cup	Negative statements
Openness towards trying the cup to see if it will be beneficial	Neutral statement
Anticipation that the cup will do good and help the girls	Positive statements

FINDINGS

With terms derived from Actor Network theory and guided by the analytical tool *thematic networks* as described in previous sections *(see *Theoretical framework* and *Data analysis)*, the data was gathered into 45 basic themes. These basic themes were then clustered into 21 organising themes, which again was represented in 6 global themes. Table 5 functioned as guidance for my analysis and gives an overview of emerging themes. The following sections will unfold the abovementioned themes albeit with slightly more lyrical titles.

Culture of silence

A lonesome first experience with menstruation

The majority of the girls had no prior knowledge about menstruation at the time of their menarche. Therefore, this bodily change came as a concerning surprise for many of the girls. For most girls the beginning of their first period started with unfamiliar discomfort, "*all her body was just paining and paralysed, she did* not *know what was going on with her*" (FGD 2). Some believed the blood to be a sign of sickness and felt very scared. This concern had some girls hide the experience from family members and friends. However, eventually all girls confided in a person and shared their concern about the reasons for bleeding. Mothers and sisters usually dismissed the girls' fears, when they shared their concern, with the notion that menstruation was normal and happens to all females, followed by practical guidance for menstrual hygiene management (MHM).

> "*T[8]: She is saying that when she first experienced her period, she thought that it was a disease and she was very scared, but then her mother told her that (…) it is not a disease, it is very normal and all the girls go through this kind of thing. So it is a normal thing.*" (Joyce, Elgon Olive Primary)

Another girl explains how she kept the fear of having a serious illness by herself for a long time before finally confiding in her mother.

> "*T: She was really scared, she could not say anything. But then later she was like: "I can't help myself anymore. I have to say this outside. I have to understand what I'm going through." So she told her mom.*

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[8] T: Translator

"I've woken up, and felt something come out of me", then her mom was like "what's that?" and she said "I'm seeing blood come out of me" "Okay, so this is what you have to do". (Unknown girl, FGD 3, Elgon Olive Primary)

According to the girls, the explanation given about menstruation both in school and at home was succinct, superficial, and usually did not occur until the girls had already reached menarche. Thus, ensuring that the girls have sufficient information to tackle this event without feeling alone and scared does not seem to be a high priority for parents and teachers in the girls' network. The girls noted that their mothers and teachers *"didn't like explain it to details what it was"* (Norah). Consequently, a lot of the girls did not feel prepared for the event because *"in class they used to teach them about this, but the teacher could not go into details like you did today, that is why they didn't understand it well"* (FGD 1). Among the few girls who already had some prior knowledge about menstruation before reaching menarche the sources varied: some had been told by their mothers, others heard it from friends or older sisters, and one girl had been informed by her teacher.

"Talking with your name"

Although the majority of the girls had not heard about menstruation before their menarche, most girls now had someone to talk to about menstruation, *"T: She talks to her mum, so does another girl. Even her, with her mum. I think they all talk to their mothers"*(FGD 1). However, the girls usually only confided in one or two very close friends or family members, and a few girls did not discuss menstruation with anyone, *she doesn't talk to anyone about the challenges* (Joyce). I found that the girls had various reasons for avoiding discussions about menstruations with others. Some of the girls explained that the reason they did not share their challenges or concerns, related to menstruation, with e.g. their mothers or the senior woman teacher, was that they would not be able to help the girls with menstrual hygiene management (MHM) products. Accordingly, some girls stated that sharing the information was useless.

"T: She said that, her mother, even though she tells her that she has her period, her mother will not be of help to her to buy for her pads, she only told her: "I don't have money." So it is useless to talk to her when she knows that she is not going to help her." (Unknown girl, FGD 2, Codia Primary)

Others did not talk about menstruation with certain people because they were afraid of what they would say if they knew that they were in their menstruation. For example, some girls had concerns that they would put themselves in a vulnerable position by sharing information about their menstrual status with men or boys. Furthermore, some girls felt that it would be shameful to share information about their menstrual status with boys or men, but did not explain further why this was seen as shameful. *"T: she is saying that, that is not a*

good information it is not fit to be told to men. I: Why is it not fit to be told to men? G: It brings much shame"
(FGD 7).

Reaching menarche seem to give the girls a certain position in society posing restrictions on them, e.g. through "dictating" who it is acceptable to discuss menstruation with and that menstrual status should be kept a secret. I argue that these expectations regarding the girls behaviour after reaching menarche give the girls almost a predefined space to navigate in, or a certain set of possibilities in their relation to others around them. Thus, some girls described having been told that menstruation should not be discussed with males as this may have negative consequences for the girls such as getting pregnant, *"when you tell a guy or a boy about what you are going through some of them may take advantage of you and then you get pregnant."* (FGD 1).

Some girls expressed concerns that discussing menstruation with other people would expose them to gossip or mockery: *"I find it difficult because when I go to talk to them they just make fun of me.* (Faith). Thus, a lot of the girls feared that they would be ridiculed if people who were not their close friends found out about their menstrual status, especially other children or young people. The ridicule could either be directly to the girl by making fun of her or by *"talking with people's names"* (Norah). A few girls used the expression *"talking with your name"* (FGD 7) to explain how other girls would talk behind your back if your menstrual status was revealed to them. Accordingly, the girls in the study emphasised that one should not share information about menstruation with people who were not close friends, because they could not be trusted.

> *"T: (…) [she] is saying that sometimes it is better to share it with someone whom you trust, because you may share it with someone and then that person will again begin back-biting you or talking things against you. Things that are not supposed to be said to other people. So you normally talk with someone you trust."* (Unknown girl, FGD 1, Mahogany Primary)

For some girls their greatest concern in relation to others talking behind their backs was that their menstrual status might be revealed to boys.

> *"T: She is saying what she knows is that if maybe someone has said something about you somewhere it will only make you to be ashamed of yourself and always you will not raise your head up you will always keep your head down so you be fearing everyone T: What would you be fearing? G: The things they have said about you is what you fear may be it was told among boys how you are so you can be fearing."*
> (Unknown girl, FGD 5, Codia Primary)

Some girls explained this as problematic simply because there are things boys should not know about girls, that *"some of the things about girls are very serious and should be kept in secret"* (Esther). However, some girls expressed fears of specific consequences of boys knowing. Thus, some girls feared being viewed as sexually mature and consequently risked be *"seduced"* (Irene) if their menstrual status was revealed to males and as described previously this also related to a fear of becoming pregnant. In my view, this exemplifies the importance the girls give to the boys as actors in their network during their menstruation. The girls' perception of boys and expectations to their behaviour contributes to the girls' experiences with menstruation. Thus, without the boys as central actors the girls might have experienced their menstrual periods differently.

However, not only boys influenced the girls' experiences during menstruation. The most common fear expressed by the girls in relation to having their menstrual status revealed was the risk of subsequent ridicule or *"jive"* (Faith), especially by boys, but also by other girls, teachers and family members.

Hiding menstrual status

Accordingly, to avoid others talking behind their backs and experiencing the consequent feelings of shame (*of course when someone laughs at you, you get ashamed* (FGD 1)), the girls were very concerned with keeping their menstrual status private. Leaking and not being able to keep your menstrual status secret was similarly related with feelings of shame, *"sometimes when it has passed on your cloth and leak on to the desk (…) that shames you"* (Doris). According to the girls, this was shameful because it showed failure to take care of one self. Thus one girl expressed that *"the reason why boys tease is like for you "you don't know how to take care of yourself."* (FGD 2). It could be argued that this positions leaking as a self-inflicted consequence of the girls' behaviour and not just an accidental event, consequently positioning girls who leak as careless. I see this as highlighting the "role" that girls have in their network and exemplifying some of the expectations that follow along with it.

> *"If you don't have pads you can use knickers so that it doesn't go through your skirts or your knickers, because if it goes through your skirt, the kids will look at you and they will laugh at you. So the most important thing is that what, you have to always be careful and take care of yourself."* (Irene, Elgon Olive Primary)

That leaking was a sign of the girls' unsuccessful self-maintenance was not just used by boys to shame girls, but was echoed by fellow female students as well. One girl even explained how the senior woman teacher had told her off for having *"let it pass through your skirt"* (FGD 2). Thus, having issues with leaking seems to be viewed as something the girl herself is faulty of and something that is avoidable. *"I[9]: What does the other girls say when the boys start teasing you? G[10]: The girls say you are just careless that is why that thing passed through."* (Clare). Accordingly, I argue that there is a lot of pride involved, for the girls, in being able to maintain their menstrual status a secret, both to avoid boys teasing them, but also to keep their integrity. Failure to do so resulted in feelings of shame and guilt. *"T: Then what do you do? G: There is nothing you can do (…) you just stay quietly, ashamed and guilty."* (FGD 4).

The girls talked a lot about their fears of leaking and strategies to avoid this embarrassing event. However, most girls found it difficult to avoid leaks and consequently felt very self-conscious when they were at school during menstruation. A few girls even related the ridicule and fear of leaking to increased risk of missing school.

> *"They talk about it some will say that you don't take care of yourself like for the boys they will keep making fun of you about it you end up missing school because you find staying in school is very difficult."* (Doris, Codia Primary)

Although a few girls reported missing school as a consequence of difficulties in relation to menstruation, most girls said they had only missed school once or that they had never missed school due to menstruation, "*T: She has not missed out on school, the two of them have missed out once, for her she has never. Even them, they have never missed out.*" (FGD 1). However, the majority of girls agreed that menstruation affected how they felt at school, and most of the girls described feeling restricted in their movement and ability to participate fully during their period.

> *"T: (…) so they will go and talk about you to your friends and their friends, and then others will laugh about you, so you really feel out of place even being in class, you feel uncomfortable being in class, because of what the boys think about you."* (Unknown girl, FGD 2, Codia Primary)

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[9] I: Interviewer

[10] G: Girl

In my view menarche and menstrual periods instigates a change in a network of actors who play different roles. For girls reaching menarche this event may entail a new role in their existing network, as new expectations follow along with this biological event. Girls have to navigate between the actors within this altered network and find their new role. One could say that the networks impose a script on the girls at menarche and during their subsequent menstrual periods, with certain expectations as to how the girls should manage the event. Hiding their menstrual status while partaking in school is one of the efforts the girls make to feel comfortable in the network and fill out their expected role. Another is confining their disclosure to a few trusted individuals to avoid their reputation being dishonoured or having boys expect sexual attention from them due to their changed role. Without suitable technologies to help the girls fill out their role, menstruation may prove a difficult time. Thus, when girls reach menarche they face a culture of silence along with a set of expectations from surrounding actors finding themselves in need of MHM products to manage their menstruation and meet the expectations of keeping their menstrual status concealed. In the following section I will go into detail with the girls current possible means to manage menstruation.

Methods before the cup

The girls had various MHM methods before the introduction of the cup. The majority used commercially bought pads, and seemed to *"prefer using pads more than any other product."* (FGD 3). Although the majority said they used pads as MHM method, some girls may have overstated the use. Thus, one girl who first expressed using pads later explained that this was only very occasionally, *"I would use pads but not every day sometimes my mother can buy once or even in the whole year buy only once when it is finished you use knickers."* (Linda). While this girl only used pads very rarely it was still the method she highlighted, which may point to pads being a more prestigious method than for example knickers[11].

Among the girls who used pads the majority complained about the cost of the product and had experienced episodes were pads were unavailable to them due to financial restrictions. Moreover, all but a few girls depended on other people providing pads for them."(…) *If her mom has money she will buy [pads] for her, but if the mom doesn't have money she will continue to use the clothes."* (Irene). For the girls who did not have family members who bought pads for them some sought help from friends, *"She always begs if she doesn't have [pads]. From friends."* (FGD 1). Most often pads were not bought on a regular basis and thus the girls were dependent on someone prioritising the purchase of pads every time the girls were in need of these. For

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[11] The term "knickers" refer to underwear, which are sometimes worn in multiple layers as a MHM method

the girls that did not have access to pads, knickers, cloths[12] and cotton wool were the main alternative methods used.

> *"She (…) has been telling her mother to buy for her pads instead of her using knickers, but the mother says that she doesn't have enough money to buy for her pads. So that is why she is always been using the knickers. So she has no other alternatives."* (Joyce, Elgon Olive Primary)

Most of the girls had tried using other MHM methods when pads were not available. For all existing MHM methods, including pads, girls complained about difficulties with use. Some explained that they would get wounds between their legs with knickers.

> *" (…) you know with knickers there are the sides, the end part is a bit like hard so if you have put four and you are with it for a long time and it is full, so the next thing you feel is it begins hurting your body as you walk. It begins scratching your body; at the end of the day you find that you have a lot of wounds."* (Unknown girl, FGD 2, Codia Primary)

Some girls experienced problems with cloths and preferred pads, *"if you don't really put the clothes well it will bring some wound around your thighs (…) But she prefers the pads. It is a little bit better."* (Irene). Others contrasted this and explained how with pads *"you can put in the morning it can reach in the lunch when it has peeled off the skin in between our thighs"* (Grace). Others explained about the difficulties with cleaning reusable methods such as knickers or cloths or having to change at school because, *"here in our school (…) we don't have good latrines where we can change our pads."* (FGD 7).

I argue that the MHM methods utilised by the girls constitutes actors, which the girls can *ally* with, in the networks they are part of. By forming "alliances" with the MHM methods, the girls can gain or improve some abilities or opportunities, such as being able to conceal their menstrual status, which they may not have had before this alliance. However, due to difficulties with these methods, the technologies are not meeting the girls' needs, as the girls still express disadvantages with the technologies. For the girls who miss school or experience shaming due to difficulties with leaking as described in a previous section (see *Hiding menstrual status)* their existing network pose a problem. Thus, these girls are in need of new actors to ally with in order to optimise their opportunities to act within the network. The menstrual cup represents an actor that could

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[12] Cloths" refer to pieces of fabric that are placed in the underwear to absorb blood and is either washed and reused or discarded after use

present the girls with new opportunities if it is introduced successfully in to the network. In the following sections I will go into detail with some of the actors that could be considered beneficial or hindering for the successful introduction of the menstrual cup to the girls' existing network.

Barriers for acceptability of the cup

During analysis of the interviews it became clear that both actors that could be considered barriers and drivers were at play in relation to the cup being accepted as an ally for menstrual hygiene management. In the following I will look into actors that could work as barriers for a successful introduction of the cup.

Fears and rumours

Own fears

Although not asked directly whether the girls had concerns before trying the menstrual cup, the vast majority brought up both their own fears and other peoples concerns relating to use of the menstrual cup. A lot of the fear related to the menstrual cup being seen as "*too big*" (FGD 5) to fit inside the girls' vagina. Most of the girls' own fears about the size of the cup related to the anticipation that using the cup might be "*really painful when (…) inserting it?*" (Irene). Others feared more severe consequences such as the cup "*will widen your female organ and enlarge your uterus*" (FGD 7), making them unable to become pregnant. A lot of the girls' fears seemed to be related to the use of the cup and uncertainties on how to insert it or fearing not being able to get the cup out once inserted. Thus, the girls' fears were related to difficulties with the intended use or the *script* of the menstrual cup and not feeling secure enough in their own ability to follow this script.

> "*(…) they showed us the cup so I said the whole of this big cup how is it going to enter in my body? I thought much that will it not enlarge my uterus and in the future I don't deliver any child; I thought about very many things, I even thought that it may even tear my uterus because the thing looked so big.*" (Clare, Codia Primary)

Some girls also feared that the cup would "*disappear in [their] stomach*" (FGD 6), and a few even presented situations where they believed it had disappeared. However, none of the girls experienced episodes were they could not get the cup out and had to have help, thus, all girls succeeded in getting the cup out although some had fears.

> "*Mine I had already inserted it for the first time so I tried hard to get it out but it was stuck so I started crying I thought it had already disappeared (…) I started crying but then took courage and kept quiet and then pulled it out and It came out but painful.*" (Unknown girl, FGD 5, Codia Primary)

Two girls expressed that they had feared "*that if you will insert it inside it will kill you*" (FGD 3), however, both girls tried the cup and were using it at the time of the second interview. Girls in the study mainly expressed fears before trying the cup, but some still expressed fears after having tried the cup and using it as sole menstrual hygiene management method for some time. During the second round of interviews one girl asked whether the cup would make her unable to become pregnant and another inquired about possible uterine infections related to use.

Rumours and others' fears

Beside their own fears the girls also described the fears others had expressed in relation to the girls' use of the cup. Furthermore, at one school a few girls explained that girls from a catholic school outside the study spread rumours that the cup "*spoils people's uterus if you insert it for many times your uterus will be enlarged so when you conceive in the future the baby will just come out*" (FGD 4). These girls had been told that the study would include them, but this was cancelled due to a competing intervention at their school. The girls at the catholic school however, let the girls in the study believe that the catholic school was excluded from the study because their teacher refused to participate.

> "*We were told the children from Catholic said that thing they went with to their school but their head teacher refused it and then it was brought for us we are not going to produce children.*" (Unknown girl, FGD 4, Codia Primary)

In my view the girls from Catholic school give more voice to the fear as an actor by reinforcing the girls' own fears through rumours. Thus, the fear and the girls from catholic school works as allies and gain strength in the network in opposition to the cup. Some of the girls from the study believed the catholic schoolgirls' stories, however, most of the girls in the study did not feel intimidated by these tales and dismissed it because "*they don't know actually the benefits of this product so that is why they are talking like that*" (FGD 2). The same was true of the girls' reactions to other peoples' fears. Although some girls internalized the fears of others, most girls dismissed the claims and explained to mothers' and sisters how the cup functions to detach themselves from the fears' of others.

> "*(…) She [her mother] asked me that, "what is that?" Then I said this one is a cup which they distributed to us, then she said how are you going to use it won't this thing harm you (…) so then I started explaining for her how they use it, I explained it all and now days she doesn't stop me I am free in anyway.*" (Unknown girl, FGD 5, Codia Primary)

That the girls used the cup despite the serious allegations against the cup, implies that although the girls' own fears, other peoples' fears and the rumours from the catholic school works as actors in opposition to the cup, the girls still feel that there is something gained by using the cup and thus, the fear "looses" the battle against other actors in the network.

"When it is already in there it is not painful"

Another actor that works in opposition to the cup is the fact that the girls find using the cup painful at times. The majority of the girls experienced discomfort or pain in the initial phase of using the cup and for some the pain persisted throughout the study. One girl explained how "*there was a time she even cried, the pain was too much and the tears came.*" (FGD 2) A few girls felt a constant pain when using the cup, but the girls mainly complained, "*it was painful to insert and to remove*" (FGD 5). However, the vast majority explained that with practice they found the right way to insert and remove the cup and the pain disappeared.

"*The first day was when I feared much and inserting it was difficult and removing was also difficult and the second day was also like that inserting and removing were both difficult then for me I kept doing it and on the third day it became easy*" (Florence, Elgon Olive Primary)

For some girls the pain kept them from trying the cup during longer periods of time and one girl completely abandoned the cup and went back to her previous MHM method. Others had a shorter period of pain but insisted on using the cup and overcame the pain.

"*I tried using it for the first time I found it difficult and then after that first time I came back to use pads I used it and then another month begun and I tried and felt like my waist was paralyzed then I used it and the next day I used it and I then found using it became easy and I now use it.*" (Unknown girl, FGD 6, Elgon Olive Primary)

The script behind the cup

As mentioned previously the girls participated in seminars during which they were taught about the use and maintenance of the cup, especially relating to hygiene when inserting, emptying and removing the cup. These "rules" can be seen as the script of the cup in line with the description of the script of a technology as explained by Akrich (1992) (See *Theoretical framework*). The vast majority of girls explained how they used and cleaned the cup more or less identical with what they had been taught during the seminar. During one of the focus group discussion where the group was asked whether another person would explain how she uses

the cup one girl replied *"we all use it the same way how this one explained."* and another echoed this with the statement, *"there is no other different way because we were all taught the same way"* (FGD 4).

When the girls were asked about use of the cup and possible difficulties relating hereto, most reported difficulties related to inserting and removing the cup, as well as finding a proper pot for boiling the cup. Having difficulties with finding a pot meant that some girls found alternative containers to boil the cup in such as: *a tin which was bought with paints from Sadolin"* (FGD 5); *"a broken pot"* (FGD 4); and a *"tin with tomato seeds"* (Grace), while others were given a pot by family members especially for boiling the cup. Although the girls intended to follow the script of the cup, some aspects of the script seemed to interfere with everyday life of the girls, such as getting access to a pot for boiling the cup. One girl stated, when asked about the cleaning procedures, *"there is a problem because getting the tin for boiling it is difficult."* (FGD 7) and many others agreed with this notion. Although some girls complained that the tins available were not ideal for boiling the cup, none believed that any of the other study participants skipped this step of the cleaning process. One girl accidentally ruined her cup by boiling it in a tin that did not agree with the script of the cup.

> *"The water was little and the cup touched the bottom but also there was much fire so when I tried to pull the tin off fire but unfortunately fire fell in the tin caught the cup and it got burnt"* (Irene, Elgon Olive Primary)

Not all girls had difficulties boiling the cup however, especially girls supported by family members found boiling the cup unproblematic and this part of the procedure became almost "invisible" or *black boxed.*

> *" There is nothing I don't like because even boiling now days is easy because my mother also now knows about the cup so she is the one who gives me the opportunity to boil it. At first I thought it was going to be difficult but it is not, because my mother now knows that I must boil it when am using it."* (Linda, Codia Primary)

This exemplifies how supportive technologies can be of importance when a technology is introduced into a new context, as it is not a given that the technology will function as intended if supportive technologies are not accessible. For the girls without access to functional supportive technology in the form of a proper pot or tin for boiling the cup, following the script becomes a challenge and the script thus have to be modified or translated to fit with existing supportive technologies. For the girls who have a pot that function, the procedure of boiling the cup is black boxed as described in a previous section (see *Theoretical framework).* This part of the cups script becomes almost invisible because there are no obstacles to following the script.

However, for girls without access to a well-functioning pot this part of the technology is made explicit and the black box disappears. According to Latour (as described in Huniche and Olesen 2014) it is only when a part of a technology is not functioning or is set in to a new context, with limitations that interferes with the technology, that the so called black boxes becomes evident. This relates to Akrich (1992) notion that without supportive technology some technologies will fail and black boxes will not be created. For the girls who have found a successful alternative pot for boiling their cup one could say that they have translated the technology to fit with their means and needs and thus again this part of the technology can be black boxed.

Another part of the script of the cup presented quite differently between the girls was access to soap for washing hands before touching the cup. For the majority of girls getting access to soap was not seen as a problem, as soap was something some of them were used to utilizing for cleaning reusable menstrual hygiene management products such as knickers or cloths. However, during the initial interviews a few girls reported not being able to ensure access to soap. Soap thus is another supportive technology, which for some girls became black boxed and taken for granted and for others seem to be a difficult aspect of the cups' script.

> *"T: She says that sometimes they don't have what enough soap at home. I: Who normally gets soap? T: Her aunt is the one who normally buys soap. (…) if she gets some money then she can be able to buy some soap. But if she doesn't, then there is no soap."* (Joyce, Elgon Olive Primary)

Nevertheless, although reporting difficulties ensuring sufficient supply of soap, none of the girls talked about not being able to wash their hands with water and soap before touching the cup in the second round of interviews. Hence, this aspect seemed to be a perceived barrier rather than an actual actor working against the introduction of the cup.

A new, but easier, thing to hide

Similar to their menstrual status the girls saw the cup as something private they should hide. Keeping the cup hidden was both related to the girls' fears of being ridiculed if others knew that they were using it, but also out of fear of what others might do with the cup.

> *"(…) Cover it [the cup] and it let boil (…) don't go anywhere because children are stubborn they may come and open it and see what is inside and they will start saying you are playing with things which are unfit (not right)."* (Florence, Elgon Olive Primary)

As with the menstrual status, hiding the cup related mostly to ensuring that boys did not see the cup and one girl explained that the cup "*must be a secret between me and my mum*" (Ruth). The girls found it especially challenging to hide the cup during the cleaning were it should be boiled. Thus, some girls explained boiling the cup at a time of day where they could be alone. One girl even boiled the cup at night; "*I like boiling it in the night because there were very many children at our home when they see they may start asking that what is this.*" (FGD 4). Most girls used the kitchen facilities of the household to boil their cup, but some boiled it elsewhere, to make sure they had privacy. "*T: The rest are saying they boil it from inside but [she] is saying that she cooks it from outside a private place where no one sees her*" (FGD 5).

Some girls who were afraid their cup would be stolen refused to describe to anyone how it worked out of fear that this would enable them to use the cup and increased the incentive to steal it. "*you may tell someone everything about the cup and then what will happen that very person (…) may steal your cup and then begin using it.*" (FGD 4).

Others feared that someone would destroy the cup if it were not hidden. These fears related both to casual acquaintances as well as family members.

> "*Some people their aunties and sisters are people with bad characters so if you say, they may pick it and go and throw it. Some people said they did say and after that they picked it and threw it (cup) away and for some people were stolen just because they said it*" (Unknown girl, FGD 6, Elgon Olive Primary)

A cup down the drain leaves a void

Four of the girls interviewed lost their cup during the study and were asking for new ones. As one girl explained, she had gotten used to the cup and as these were not available in the area where the study took place she asked if the interviewer could give her one more, "*My question is there, that if they can help me with another one because the other one I was very used to it, so I would like them to help me with it.*" (Clare).

Thus, realising how the cup can help and subsequently loose it may prove difficult for the girls. One girl dropped the menstrual cup down the latrine and explained how "*there was still some pads of mine left so I used it but I found using it became difficult.*" (FGD 5). These statements exemplifies how the cup had become an important ally for the girls in their network and that the lost cup left a void in the network that could not be filled adequately by their previous MHM methods.

Drivers for acceptability of the cup

A number of actors in the network seemed to be working in favour of the introduction of the cup enabling the girls to successfully form an alliance with the cup.

Need to hide menstrual status

As described in previous sections (see *Hiding menstrual status)* most girls expressed that they feared others finding out that they were in their menstruation, this mainly related to boys finding out, but also teachers, family members and peers. That the girls felt such strong needs to hide their menstrual status can be said to give justification to the cup, as it may be able to help the girls conceal their menstruation more sufficiently than the traditional MHM methods. With the traditional MHM methods the girls feared that their status would be revealed if they leaked or that others would find out because the girls had to change MHM products at school. As one girl explained, when asked why she did not want to change at school, "*I just fear; other people can easily know, many people will know; people will understand*" (FGD 7). At one school girls explained that the toilet facilities at school were not very private as the door to the toilet was broken.

> "*(…) you have to come with an extra pad in that at lunch you have to go to your friend's home and then you change it and come back I: Why do you have to go to your friend's home? P: That why do you have to go to your friend's home? G: Because home is far and at school there is no good for you to change in the one at school the door is spoilt.*" (Unknown girl, FGD 6, Elgon Olive Primary)

With pads, cloths and cotton wool the girls explained how they had difficulties changing at school and that with the cup it became unnecessary to change at school.

> "*I feel using the cup is good because like here in our school during school days like this time, you may find that we don't have good latrines where we can change our pads so the cup you can stay with it from morning till evening and then you go and change if you don't have much blood you can stay till evening.*" (Unknown girl, FGD 7, Elgon Olive Primary)

Thus, the girls expressed that it was easier to manage their menstruation at school while using the cup because it did not require changing as often as the traditional MHM methods. This meant that hiding their menstrual status became less difficult for the girls as it was not necessary to change the cup during the day. Thus, the disadvantages of the traditional MHM methods that the girls used before introduction of the cup became one of the actors working in favour of the adaptation to the new technology.

Disadvantages with other MHM methods

One of the main problems that the girls expressed, with the traditional MHM methods, was their inadequate ability to completely conceal the girls' menstrual status. Thus, as mentioned previously a lot of the girls feared leaking when using the existing methods and felt that the cup was superior to traditional MHM methods in this respect. This related among others to the physical uncomfortable feeling when leaking such as getting wounds or rashes between the thighs.

> *"You feel blood flows very much and when you come to school in the morning even if you bathed in the morning by the time you go back home in the evening all in between your thighs rub and get dirty and you will feel even walking is difficult but when you are using the cup and come to school you come and stay in school freely as if you are not in your periods and it doesn't show any sign on you."* (Unknown girl, FGD 4, Codia Primary)

Thus, one disadvantage of the traditional MHM methods, that the cup seemed to counter, was that the girls found that pads, cotton wool and cloths were uncomfortable and the cup did not cause the same physical discomfort. One girl noted, "*I have said pads may cause pealing of your thigh skin but the cup doesn't do that.*" (Evelyn).

The more prominent reasons the girls feared leaking related to their fear of being shamed by others or having boys look at them differently as described in a previous section (see *'Talking with your name").*

> "*Because if they [the boys] see that the blood has gone through your skirt and they notice that they will laugh at you. Sometimes they will even begin touching you and touching your ears and trying to play around with you, just teasing you."* (Irene, Elgon Olive Primary)

The girls explained that traditional MHM methods did not conceal their menstrual status to the same extend as the menstrual cups "*That cup doesn't let blood pass out but other things like pads blood can pass and it keeps on disturbing you to change.*" (Esther). Thus, the majority of the girls mentioned specifically that the cup was better at hiding their menstrual status and that this was a relief especially when they were at school.

> "*Staying at school when you have inserted the cup doesn't disturb your head because once you insert it, it collects all the blood inside and it doesn't leak but like the pad when you are using have to keep changing if not it leaks."* (Evelyn, Elgon Olive Primary)

Because of the existing MHM methods' inadequate ability to conceal the girls' menstrual status the methods became actors in favour of the menstrual cup, as the girls perceived the cup as a stronger ally. This was may be due to the girls' comparisons of the traditional MHM methods with the cup in which they found that the cup met their needs better. That the cup is seen as countering some of the disadvantages of the traditional MHM is implied both in statements about the advantages of the cup over the other products, but also by the fact that most girls stopped using traditional MHM methods after initiating use of the cup. Most girls instantly stopped using other methods, "*After they gave us the cup I never used any other product.*" (Esther). Others had a more gradual transition were both the cup and traditional methods were used until the girls had familiarised themselves with the cup, and hereafter the traditional methods were discarded.

> "*I used it for one time the first time it failed to enter then I put it aside and asked my brother's wife and she gave me money and I went and bought pads and used and then when they came [WoMena] they said I should try again so then the second time I tried it, it entered I started using it.*" (Doris, Codia Primary)

Saving money

One aspect of the cup that the girls and their parents praised was the fact that the cup is very cost effective; one girl noted that "*the cup is good and it doesn't waste money, it is not like pads you buy every month.*" (Evelyn). Thus the majority of the girls highlighted that because of the cup they no longer needed to purchase MHM products every month. One girl explained how the cup was a more reliable MHM method than pads, because it did not have to be bought on a monthly basis.

> "*And then it will also help her, because sometimes maybe like there is not enough money to buy pads. But this one is just there, you don't throw it away, you can use it often and always. So when you don't have money for buying pads, you can still use this one rather than the pads you have been buying and not buying at the same time.*" (Linda, Codia Primary)

This meant that for some a small amount of money was available for other purchases and that the girls had a stable and reliable MHM method available to them; and thus, were prepared for their menstrual periods in a way that some of them had not been previously.

> "*I would say that thing is good because for example your period may get you abruptly when you are not prepared or when you don't know when you don't have pads or even any money so you may be fearing to ask your mother for money so if you have the cup you can just pick it and start using it.*" (Doris, Codia Primary)

That the girls and their families saved money because of the cup was not only highlighted in relation to the actual release of funds, but as much to the exemption from worries that came along with the cup, now that money was not a returning issue in relation to MHM management.

> "It [the cup] really helps much also because sometimes if you have no money there is no need to worry because once you are using and have the cup you don't need to go and buy." (Unknown girl, FGD 6, Elgon Olive Primary)

That the girls saved money was a very strong actor in favour of the cup, one girl expressed that a friend of hers used the cup despite of the fear she had about it possibly closing her uterus, because of its cost effectiveness.

> "She came and told me that she is using it because she is wasting a lot of money for using pads so then she started using it and she said if it is going to close my uterus let it close there." (Ruth, Codia Primary)

Overcoming the fears and the difficulties with the script

The awareness of the amount of money that could be saved by using the cup may have been an incentive for more girls to use the cup despite their fears about the consequences of use. Therefore, although some girls presented frightening scenarios about what they believed the cup could do to them, all but one of the girls tried the cup. There are not a lot of clear explanations on how the girls overcame their fears, but it might in part relate to a great need for the cup to solve problems with existing methods, and that this need is stronger than the fears. Thus the advantages of the cup compared with existing methods become a stronger actor than the fear of the cup, although these fears initially seem very intense. Similar to the above example where the fear was overcome to save money, another girl explained that she used the cup despite of her fears out of need, "I first had fear but I told myself that I have to just try because it is going to help me so I tried and it entered and I continued using it." (Evelyn).

Others explained that the fears were related to uncertainties about how to use the cup and that these were alleviated after the seminar that the interviewers organised.

> "She found it a little bit difficult. She saw that it was kind of difficult, more especially in the way of how to insert it, but the training that we gave and she has now realized how to insert it. But before she didn't know how to do it, she was scared." (Doris, Codia Primary)

To facilitate the initiation of use of the cup, the interviewers worked on raising the girls' awareness about the cup and eradicate some of the myths that arose around the cup. The study included teachings about menstruation, puberty and use of the cup as well as introductions for the parents of the girls. The seminars helped the girls familiarise themselves with the script of the cup and thus might have worked as a supportive non-human actor. This introduction to the use of the cup seem to help the girls overcome some of their fears about the cup, as it was explained in detail how the cup functions and how the cup should be cleaned to avoid infections. This could indicate that it is of great importance that the script of the cup is clear and possible to follow for the girls. If the girls do not have the possibility to either follow the script as is or translate it into something they *can* follow, the adaptation to the cup will be unlikely.

One girl had great difficulties following the script of the cup and could not insert it correctly, however, after battling for a while with unsuccessful attempts to insert the cup she finally found a way to adapt to the script and got the cup inserted.

> "She bathed and got the thing and inserted it, but it all did not go in well, only the upper part, the rest was sticking out. So as she was sleeping she woke up in the morning and the thing (…) had fallen of. (…) then she told her friend that she tried but it didn't enter. But still she had no pads, she had nothing to do now so she had to get some energy, said I have to use this thing, so she bathed again and she fixed it inside, she inserted it and it entered well, (…) and this time it was completely okay." (Unknown girl, FGD 3, Elgon Olive Primary)

This demonstrates how important it was for the girls to feel that they were able to follow the script of the cup, in order to make their fears a "weaker" actor.

The seminars functioned somewhat as an introduction to the script of the cup, to the intended use of the cup as thought out by the designers or retailers of the cup. Most girls repeated what they had been told during the training when asked how they used and cleaned the cup. However, whether this actually reflected what was being done or rather what they knew they "should" do is debatable. It may be that the girls repeated the script, almost in verbatim, because they had a desire to follow the script as the interviewers presented it and therefore hid any deviation from this. A few girls explained slightly different ways of cleaning the cup than the one presented. One girl described how "*you boil it like that every day until when you finish your period*" (FGD 7) although they were taught that it is sufficient to boil it once a month. This girl doesn't give any clear explanation for her translation of the script of the cup, but it may very well be that she feels that it is more

hygienic to boil the cup every day or that it is just a habit from previous methods to clean and prepare MHM products every evening.

For some girls there were no difficulties with the script of the cup and they quickly adapted. Others had different ways of easing in to using the cup which can be regarded as their way of adapting to the script by slowly familiarising themselves with the technology.

> *"For me when I tried using it the first time I found using it very difficult so I left it for two months so I was not using and then just recently in September I used it until when I finished my periods I used it and now I find using it easy there is no problem with it."* (Unknown girl, FGD 6, Codia Primary)

As mentioned above some of the girls helped each other adapt to the cup by explaining the tweaks and turns that made the cup fit into their lives, thus passing on the translations that made the script fit with their context. For a few girls the script was too difficult to follow and thus, they never successfully allied with the cup. One girl had so much difficulty with the script that she completely abandoned the method. *"The first time I started using it, it was painful and the second time I found it painful and also the third time I found it painful so I stopped using it."* (FGD 6). In this particular example the girl did not manage to translate the script to fit to her life and thus the fear became the stronger actor unlike other girls in the study for whom the need "won" over the fear as discussed in the above.

How persistently the girls tried to adapt to the script differed and this could relate to differences in how strong actors in favour of the cup exist in each girl's network. Thus, some girls may have; the means to follow the script of boiling the cup by having access to a proper pot and a fireplace; have supportive human actors that advocate for the cup; and lastly have few actors in opposition to the cup. Others may have a predominance of actors hindering the adaption of the cup in their network, such as; lack of means to boil the cup; family members who do not approve of the cup; and difficulties with inserting the cup. Girls with a predominance of actors in favour of the cup may have a bigger incentive to translate the script of cup or adapt to it, than girls who are predominantly surrounded by actors working in opposition to the cup.

Supportive human actors

Some girls had human actors around them who encouraged the use of the cup, such as parents, peers, the senior woman teacher and the NGO.

Firstly the NGO, WoMena, can be seen as a supportive actor as the interviewers helped the girls understand and be able to follow the script of the cup, which gave the girls courage to try the cup.

> "*I had no problem because we were told during the time when they were teaching us that the first day may be painful and second day will be at least and the third day you will find It not painful.*" (Grace, Elgon Olive Primary)

Furthermore, some girls saw it as a positive affirmation that the cup was brought to them by "white people", and this trust encouraged some of the girls to use it. One girl used this to convince a friend who was afraid to try because of what her mother said about the cup.

> " *She said she told her mum and her mum said that cup is not good it closes people's uterus and so she has fear of using it, I told her that you use it, the whites are the ones who brought they know the good and all the bad and it also made me to have some fear but then I thought.. and then I started using it and its ok now.*" (Ruth, Codia Primary)

Thus, in this example the NGO was seen as more knowledgeable in relation to the cup than the girl's mother, and thus it worked as a stronger actor than the fears of the mother. However, some girls did not instantly trust the NGO and in these cases the fact that the NGO was seen as outsiders, "white people", had the complete opposite effect and gave some girls precautions towards the cup.

> "*(…) she thought that maybe you are just deceiving them I: In which way? G: I even had refused to use it I said until when I have heard that many people have used it I had I thought that I may use it unknowingly when it is a bad thing then it kills us.*" (Unknown girl, FGD 5, Codia Primary)

However, despite having these precautions towards the cup, this girl still initiated use of the cup and became accustomed to it. Other actors encouraged the use of the cup by helping the girls who found the cup difficult to use or had precautions towards it. Having for example mothers as supportive actors made it easier for the girls to use the cup, for practical reasons such as having someone who understood the importance of boiling the cup as mentioned previously (see *The script of the cup*). The support of mothers also influence whether

the girls trusted the technology to be safe and worthwhile. "*My mother said that thing is good it will help me even in the future because I explained to my mother all what you told us.*" (Esther). In this example the girl won over her mother as a supportive actor by explaining what she had been taught at the seminar. Some girls relied on other family members as supportive actors such as aunts, sisters, a brother and a father and others again sought help from their senior woman teacher.

> "*I also hear people saying that it enlarges the uterus so I tried to leave using it but then I thought that I should first come and ask the senior woman teacher, so then I came and asked the senior woman teacher and then she gave me advise on that thing and up to today I am not using people's words [listening to rumours].*" (Unknown girl, FGD 5, Codia Primary)

Which actors who were supportive differed from girl to girl, but all had a least one supportive human actor in their network. For example some girls sought advice and support from their mothers while others tried to keep it a secret from their mothers that they were using the cup. Most often the girls used peers, who also participated in the study, when they needed advice about the use of the cup whereas they mainly relied on other actors for acceptance of their use of the cup. "*One time a friend was saying she tried using it but it was painful so she left it and I told her she should keep trying it will normalise after sometime.*" (Joyce). This implies that the girls help each other translate the script of the cup or adapt themselves to fit with the script by passing on their experiences of what worked for them and seeking help in those who "cracked the code".

> "*We talk about how that thing is good; how it is easy to use; you tell her that if she says it is difficult to use; you tell her that you try this way; you tell her how you tried and that is why you got used to it.*" (Unknown girl, FGD 6, Elgon Olive Primary)

This exemplifies how some of the girls translated the script of the cup in collaboration with their study peers. Successful translation of the script to fit available supportive technology as well as the girls habits and abilities, were important in order for the menstrual cup to be adapted.

Changed agency of the girls after allying with the cup

Before the introduction of the cup the majority of the girls were left in a limbo between not having a stable access to pads and still feeling the need to keep their menstrual status hidden. One girl asked her sisters for help when she was in need of pads but often found that they were in the same position and could not share.

"So she was saying that, she told her sisters that, okay if you don't want to share with me, maybe I can just what, continue using my clothes like that until maybe one maybe mom has money, then she can buy for me. So then she say that, then her sisters told her that no you don't have to be using the clothes all the time. What if you maybe one day as you are using it, it kind of unfolds it drops down and your friends see it and laugh at you, so you don't have to use clothes all the time. But it is a little bit difficult, because the sisters can't share and at the same time she has nothing to use. So she has no alternative." (Irene, Elgon Olive Primary)

Thus, with the traditional MHM methods the girls were in a constant struggle to either ensure that they had sufficient access to MHM products for their next period or accept less ideal methods for managing their menstruation. As the above quote exemplifies, some girls experienced that on one hand there was the expectation that they were able to conceal their menstruation satisfactorily, but on the other hand they had very little means for them to do so.

As explained in a previous section (see *Methods before the cup*) the girls who used pads relied on others purchasing these MHM products for them. The girls described it as being very stressful having to rely on others and never really know when they would run out of MHM products. Thus, these girls lacked the ability to manage their menstruation independently. A lot of the girls stressed the fact that the cup was always *available,* as one of the main advantages of this new technology.

When using the cup as an ally the girls could be said to change their agency or abilities to act. Thus, financial restrains became a weaker actor in the girls' network after the introduction of the cup and its ability to affect the girls' agency was weakened. A similar decline in influence on the girls' lives was seen in relation to the toilet facilities at school. Due to the poor state of toilet facilities at school these used to be an influential actor in relation to the girls' lack of opportunity to be in control of their menstruation as discussed in previous sections (see *Methods before the cup* and *Need to hide menstrual status)*. However, with the introduction of the cup these toilet facilities became unnecessary in the girls management of their menstruation and thus lees influential on the girls' agency. I see this as an implication the girls who used the cup as an ally found that it gave them a different set of options in their network. By forming an alliance with the cup the girls obtain or change their agency within their networks. One of the major changes is the increased ability for the girls to be prepared for their menstrual period and through this take their MHM much more in their own hands than they have previously been able to. With the cup the girls become free of the dependence on others' supply of MHM products and thus more in charge of their own MHM strategies.

Controlling who know about menstrual status with the cup

The girls explained that their ability to keep their menstrual status hidden was enhanced through use of the cup. Thus, when asked whether the girls observed any changes after using the cup the majority of girls mentioned that after using the cup as MHM method they no longer had to worry about leaking, unlike with the traditional MHM methods.

> *"Because pads can, you may wear and stay freely for some time and it gets full and then blood will show on your clothes and everyone will know that you are in your period but the cup when you have inserted it, it doesn't show on your clothes."* (Doris, Codia Primary)

This relates to the girls' strong need to hide their menstrual status to avoid shaming, as discussed in previously (see *culture of silence*). *"I tell them that the cup I found it so good because even if you insert it; it will never shame you at any one time."* (Clare). Being able to trust that the cup wouldn't give away the girls' menstrual status was highlighted as a very important advantage of the cup over traditional MHM methods. This could be seen as a shift in power to reveal the girls menstrual status, from the MHM methods to the girls themselves. Having control over leaking meant that the girls had control over who knew about their menstrual status. *"I come and stay freely you don't think/worry and even when you don't tell your friends they may not know that you are in your period."* (Ruth). Thus, the cup enables the girls to decide who should know about their menstrual status and who shouldn't. Who the girls trusted with this information differed and the cup allowed them to make this decision for themselves without having to worry that it would be revealed due to leaking.

> *"Mine [experience of the cup] also was good because everyone doesn't get to know that am in my periods even my mother does not get to know that am in my periods, that wasn't the case when I used pads."* (Unknown girl, FGD 5, Codia Primary)

I argue that by forming an alliance with the cup, the girls' agency in their networks change, as they gain more self-control over leaking. Within their networks leaking is an area the girls are expected to be able to control. Before forming an alliance with the cup it was expected that the girls concealed their menstrual status with the means available to them (see *Hiding menstrual status*). However, with the traditional MHM products the girls lack sufficient means to hide their menstrual status and struggle with this part of their "role". But with the cup the girls increased their ability to control this more sufficiently. Furthermore, the girls gain so much control over leaks that they feel they could decide entirely who should know about their status and can conceal it from anyone else.

"Staying freely"

A lot of the girls explained the difference between using cup and traditional MHM methods as having the ability to "stay freely" with the cup. The girl related this expression to the feeling they had when using the cup explained that staying freely meant, *"you stay like there is nothing."* (Grace), *"you will not feel that there is something in your body."* (Doris). Others expressed that the cup made it easier for the girls to do what was expected of them such as chores and participating in school.

> *"The cup is helpful because when you insert it during your periods and you can do all different work freely, playing and any other work but in the past they could not do all the different kinds of works when we were using other things."* (Unknown girl, FGD 7, Elgon Olive Primary)

In my view, the girls seem to gain a bigger field to play on through use of the cup. Whereas the girls used to put restrictions on their movements during their menstruation when using the traditional MHM methods, they express feeling more able to move freely with the cup. This related partly to time spent at home but the girls expressed that the most remarkable difference was when they were at school, *"That one [the cup] when you have inserted and come with it to school you stay relaxed and freely knowing there is no problem."* (FGD 7). This may have meant that they could better engage with both teachers and others students during their menstruation compared to what they had explained about their experiences at school during menstruation with the traditional MHM methods as discussed in a previous section (see *Need to hide menstrual status*).

> *"Those days when we came with pads you may sit on the desk and blood leaks but now when you sit you don't think about anything now and you stay freely even your friends may not know there is something is in your body you stay freely."* (Unknown girl, FGD 5, Codia Primary)

One girl even expressed that she used to stay home from school during her menstruation when she use the traditional methods, but that with the cup she felt that she had control over the situation and could come to school and stay with her friends without worrying.

> *"(…) for me my period used to come much that it would even prevent me from coming to school so when I used that cup I found the good was there because once it is full I would know I go and change and even now I stay freely among my friends."* (Clare, Codia Primary)

Even the few girls who still had some difficulties with use of the cup at the second interview expressed that they felt a great deal of freedom with the cup.

"I feel inserting now not painful but removing it is painful but once you have inserted it you play anyhow and do anything and you don't feel like you don't have anything in your heart." (Unknown girl, FGD 4, Codia Primary)

Thus, albeit having fears before initiating use of the cup and some girls still feeling pain during insertion or removal at second interview, most girls overcame these barriers, possibly because they found that the cup gave them a lot of benefits.

"She is saying that she is really so grateful and thankful, when she started using this thing. When for example like she has put it now she can stay in class or do whatever, sometimes she even forgets that she is in her period." (Unknown girl, FGD 2, Codia Primary)

The above expression exemplifies the level of freedom and safety the girls felt when using the cup, where they felt so comfortable and in control that they could even forget for a second that they were in their period. This is in contrast to the feelings expressed when using traditional MHM methods, where menstruation sometimes meant a time where the girls were constantly on the watch and felt very vulnerable as described in a previous section (see *Hiding menstrual status*).

Local acceptability

Some of the actors in the girls' networks stood in opposition to the cup in the initial phase of the study as described in a previous section (see *Rumours and others' fears*). Consequently, the cup faced some difficulties with the acceptability from some actors before it was put in use, however, as the girls initiated use of the cup, most of these actors were either persuade by the girls' explanations about the cup to accept the new technology or deemed unimportant for the girls' decision to use the cup. Thus, all girls who had actors in their network who gave negative statements about the cup tried the technology nonetheless, *"my big sisters told me not to use it but I refused I just hid and continued using it."* (FGD 5). Although some of the negative statements came from seemingly influential actors in the girls' networks the girls initiated use and thus facilitated changes of opinion of the human actors who were reluctant to accept the technology in the initial phase.

"[I] went and showed my mother the cup and all how to use it and then she asked me that those who brought these did they tell you whether it doesn't enter into people's stomach and I told her yes It doesn't enter into people's stomachs that is why they brought it for very many girls and then she said if I find it good then I should use it." (Doris, Codia Primary)

Some girls only had actors with positive or neutral attitudes towards the cup in their network. One girl described how her dad reacted when hearing about the girl's use of the menstrual cup through her mother.

> *"He asked me that he heard that they gave us something called the menstrual cup so have I tried using it then I said Yes! Then he said is using it easy; then I said it easy then he said then he said you continue using it."* (Unknown girl, FGD 7, Elgon Olive Primary)

This actor supported the girl in using the cup, which might have made it easier for her to use and trust this new technology. Some of the actors in the girls' networks were even so positive about the cup that they wanted the possibility to try the technology for themselves. "*My mother doesn't think anything bad about the cup because she said if it was possible then you should also bring it for parents to use.*" (Irene). All but one girl had tried the cup at the time of the second interview, thus no matter how human actors in the girls' networks reacted to the cup, the girls still found enough positive actors, both human and non-human, to initiate use. One girl expressed the dual attitude in society in relation to acceptance of the cup, but stressed that the majority were positive about the cup and that this convinced her to try the cup.

> *"She is saying that she had the information was good but then people were divided there were some people who were saying that the cup is good and there were some people who were saying that the cup is bad so for her now she had to side with the many people so there were many people who were saying the cup is good so that is why she also joined."* (Doris, Codia Primary)

It seems that among the girls there is a great deal of acceptance of and appreciation for the cup, especially after they try it and recognise that the cup could give them a broadened set of opportunities in comparison with traditional methods. One girl expressed that the girls in the study felt very positively about the cup and foresaw a long coming period of use.

> *"Then they were like, really appreciate you guys, we really appreciate these people for bringing for us this cup, because it is going to help us so much. Our parents have always been buying for us these pads, buying for us the pads all the times and sometimes they run out of money for buying pads and use the clothes, we have been really suffering. But this cup is going to help us so much, at least they have said that it is going to last ten years, so that means they are going to be using it."* (Irene, Elgon Olive Primary)

The positive and negative statements of the actors in the girls' networks had some impact on the girls' feelings towards trying the cup, however, no matter how negative anyone actor talked about the cup all girls insisted on trying the cup, and all but one were successful in doing so. The one girl who failed to insert the cup expressed that she would like to try again.

> "*She is saying that when she tried inserting it, it entered, but then she got scared and removed it out, yeah but now she is saying that the next time she is going to insert it and she will not remove it out.*" (Unknown girl, FGD 3, Elgon Olive Primary)

This exemplifies the will the girls have to overcome any barriers that stand in the way of using the technology, which implies a good level of acceptability of the cup.

DISCUSSION

Inspired by the approach of Science and Technology Studies (STS) and Actor-Network Theory (ANT) to technologies relation with the context they are introduced to, this thesis sought understand in what way girls using a menstrual cup experiences changes in their abilities to control their Menstrual Hygiene Management (MHM) and conceal their menstruation and how this change may be mediated by their existing social relations. My findings suggest, that the girls in Gulu experience expectations from their social relations to be able to keep their menstrual status secret, and that these expectations collide with the available MHM methods that do not provide the girls with sufficient means to live up to these expectations. Girls, who successfully ally with the menstrual cup, experience an increased ability to live up to the expectations and express feeling free when adopting cup.

In the following three sections I will briefly discuss overlapping and divergent themes emerging from my literature review and analysis of empirical data, shedding light on my research question. I will then move on to discuss strengths and limitations of the study, as well as recommendations for future research, policy and practice.

The culture of silence and its implications on the lives of young girls

The current study supports previous observations made in Tanzania (Sommer 2013), Kenya (Crichton et al. 2013), Mali (Trinies et al. 2015), Nigeria (Umeora & Egwuatu 2008; Adinma & Adinma 2008), and south east Uganda (Boosey et al. 2014), that girls' experiences of menstruation are characterised by a *culture of silence.* Thus, I found that many of the girls in Gulu had not heard about menstruation prior to menarche and that it is a subject that the girls' discuss with very few trusted people. In Kenya, Jewitt & Ryley (2014) found that the culture of silence may lead to a sense of obligation to keep menstrual status a secret. This sense of obligation is also evident among the girls in Gulu, and many express that a menstruating girl should take care of herself by concealing menstruation, implying that this is something the girls feel is expected of them. According to the girls in Gulu, failure to do so have different implications such as; i) risk of being seduced by boys or men who see the girls differently when they know their menstrual status; ii) risk of ridicule or being looked down upon; and iii) risk of being scolded for bad behaviour. Similar feelings have previously been reported in other studies in which girls express feelings of shame relating to menstruation (Boosey et al. 2014; Sommer 2009; Sumpter & Torondel 2013) and a sense of obligation to keep their menstrual status secret (Trinies et al. 2015; Jewitt & Ryley 2014; Crichton et al. 2013). Moreover, my findings suggest that the girls in Gulu experience difficulties with keeping their menstruation private with the MHM products available to them, which is

similar to findings in previous studies were girls in Ethiopia (Gultie et al. 2014) and Zimbabwe (Averbach et al. 2009) find their existing MHM methods insufficient, and girls in Mali (Trinies et al. 2015), Nigeria (Oche et al. 2012) and Ghana (Montgomery et al. 2012) complain about wounds and rashes from MHM products, and a lack of trust that the products will keep them from leaking. The girls in Gulu express similar problems with existing MHM methods, and in addition describe feeling dependent on others purchasing their MHM products. The girls describe that this dependency make them feel unprepared for episodes of menstruation and in lack of control over their own MHM. This dependency and feeling of lack of control over MHM will be elaborated in a later discussion (see *An ally with benefits*).

I found that only a few girls expressed missing school due to their menstruation. However, most girls described feeling uncomfortable or *"out of place"* at school during their menstruation, implying that menstruation affects their wellbeing at school. These feelings of discomfort often arise because the girls do not feel safe enough with their existing MHM methods, thus the girls express that they do not trust the products to conceal their menstruation sufficiently. Previous studies have been inconclusive in relation to the implication of menstruation on school attendance. Thus, some report that girls do seem to miss school during menstruation (Tegegne & Sisay 2014; Sommer 2010; Montgomery et al. 2012), while others find no indication of this (Grant et al. 2013; Crichton et al. 2013). My findings suggest that the girls' do not miss school during menstruation, but several express avoiding situations of interaction during menstruation such as taking part in lectures because they do not want to stand up or playing with others during recess. Sommer (2013) suggests, that what is important in this discussion is not a mere question of absence or presence, but a question of the girls' feelings of wellbeing at school during their menstruation. In line with this, my findings suggest that the girls' physical presence is not affect by menstruation but my findings do suggest that their wellbeing and ability to partake fully in school may be affected. Beksinska et al. (2015) and Mason et al. (2015) studied the introduction of menstrual cups to adults in South Africa and young girls in Kenya respectively, and found that the women and girls preferred menstrual cups over existing MHM methods. This is similar to the girls in Gulu who emphasised that the cup had the advantage of being reliable in terms of concealing their menstruation and being available to them at all times unlike their previous MHM methods. Compared with previous studies of the introduction of the menstrual cup, my study gave additional details of the actors who influence the girls' interaction with the cup, and how the girls' social relations were altered by the girls' use of the cup. Furthermore, the girls in my study expressed feeling less dependent on others after using the cup and felt secured knowing that they would have a "stable" MHM method available.

The most simple of technologies may not be so simple after all

My findings suggest that the introduction of the menstrual cup can be seen as a process of negotiation in which the schoolgirls, the menstrual cup and other actors within the network all change and bend until the network reaches a new temporary stability with the menstrual cup incorporated on the altered terms of the network.

Comparable to the account of actors influencing the introduction of a diabetes monitoring programme by Juul Nielsen & Langstrup (2014), I observed a range of both human and non-human actors in the girls' networks that seem to function as drivers and barriers to the successful introduction of the menstrual cup. Thus, although the menstrual cup may seem like a very simple technology, my findings indicate that there are a lot of actors involved in the negotiation of the cups' placement within the girls' networks How each actor influences the introduction of the cup, varies from girl to girl depending on the other actors within each girl's network. This deviation in influence of actors is exemplified in the difference in how quickly the girls adapt to or translate the script of the cup. Thus, girls with access to supportive technologies and other supportive actors seem to find it easier to relate to and use the cup, compared with girls who express difficulties with the script of the cup due to lack of supportive technologies or other actors obstructing the girls' adaptation to the script. Although the girls' had different access to supportive technology and different composition of actors in their network all, but one, were able to adapt to the script of the cup at some point.

In the example by Juul Nielsen & Langstrup (2014) both the technology and the actors around it are radically changed before the technology become a part of the network. Similarly, I observed that the girls and the cup mutually affect each other to be able to enter into a somewhat stable relation in which the girls can benefit from the cup. A few girls express some alterations of the cups' script such as boiling the cup in a tin or boiling it more frequently than explained by the interviewers. However, the alterations were mainly of the girls and others actors. Thus, most girls seem to have difficulties with the cup in the initial stages, but when they find ways to insert and remove the cup without discomfort and develop a routine for boiling the cup, they all adapt to the script. Having supportive actors in their network seem to either physically facilitate or mentally encourage an adaptation to the cup. For some girls, a supportive actor, such as the belief that the cup will be superior to existing MHM methods, is strong enough to overcome an opposing actor, such as fears of the cup hurting or causing infertility.

Being able to follow or adapt the script of a technology is important for the relation between the technology and its users. Thus, in the study by Prout (1996) on asthma inhalators the script of the technology initially

impede the successful introduction of the inhalator. Similarly, before the girls adapt to the script of the menstrual cup they are not able to utilise the cup to its' ability. For some girls, the initial attempt to insert the cup fails which exemplifies how the cup does not serve its purpose if the girls cannot translate or adapt to the script. My findings indicate that some girls rely on each other to adapt to the script, while others find help in the training days held by the interviewers. The girls specifically mention the training days as a help to understand the script and overcome some of the difficulties the script may pose on them, such as discomfort when inserting or removing the cup. Thus, a few girls explain how they overcome the pain of inserting the cup, because of their remembrance of the interviewers explanations from the training days, that inserting the cup might hurt the first couple of attempts. In contrast to the example by Madala (2015) discussed in the introduction, where a bed net for malaria protection was unsuccessfully introduced to a village in Sub-Saharan Africa due to a conflict with a funeral custom, the menstrual cup did not have any opposing actors that were strong enough to overcome the supportive actors in the girls' networks. Behind the seemingly simple technology of a menstrual cup is a web of actors entangled in interactions and negotiations between each other influencing whether the schoolgirls and the cup are able the form a relation. Although my findings do not map out the actors of each individual girl, it gives an overall indication of the actors at play when the cup is introduced to the lives of the girls. In this study the supportive actors in the girls' networks enable them to make the alliance with the cup and utilise the benefits of the technology.

An ally with benefits

My findings suggest that the girls experience an increased ability to live up to the expectations to conceal their menstruation, when they use the menstrual cup. Similar to the study by Prout (1996), where asthma patients get enhanced control over own medication with an inhalator, the girls in Gulu express gaining more control over their MHM by allying with the menstrual cup. Furthermore, the alliance with the cup have implications for the girls dependency on others, thus, the girls express not having to rely on others purchasing MHM products for them, when they use the cup. This increased control over own MHM and independence from others seem to make the girls feel less constrained by the expectations they experience to be able to conceal their menstrual status, and the majority of the girls describe feeling more free after allying with the cup.

The girls' imply that they feel more comfortable with the cup compared to other MHM methods, both physically because previous MHM methods caused wounds and rashes, and psychological because the girls feel a sense of mental ease. This ease is described with the term *"staying freely"* or *"stay like there is nothing"* and seem to reflect that the girls feel liberated with the cup, highlighting its' ability to conceal their menstruation and make them almost forget that they are in their period. The girls emphasise their increased

ability to control who are allowed to know about their menstrual status and that the girls trust the cup to conceal their menstrual status from anyone else.

The increased ability to be in control over MHM and be independent can be seen as a change in the girls' agency; an opportunity the cup provides the girls' with when the girls adopt the cup. Alterations in the girls' agency may also affect their relation to other actors in the network. Thus, the introduction of the cup influences the relation between the girls and other actors in the network similar to the change in relation between general practitioners and specialists in the Indonesian health care system, after the introduction of the diabetes monitoring system, explained by Juul Nielsen & Langstrup (2014). With the cup the girls' are no longer dependent on receiving MHM products from family or friends. This increased independence may alter the relation the girls have with these actors and make it a more equal relation. Furthermore, the girls increased ability to conceal their menstruation, and be in control of who know about their menstrual status, may also affect their relation with boys or teachers at school. As the girls trust the menstrual cup to be able to conceal their menstruation they may participate more in school during menstruation, which may alter their relation with their teachers because they are no longer afraid that they will be scolded or ridiculed because of leaking. Thus, the cup may alter the girls' ability to concentrate on school during their menstruation, by allowing them to be present both socially and academically.

Moreover, the girls' relation to the boys is altered because the girls do not fear that the boys will find out that they are in their menstruation. As described previously the girls fear that unveiling their menstrual status may have negative implications such as the risk of either being ridiculed or seduced by boys or men, who see the girls differently when they know their menstrual status. The girls express their relation with the boys as less influenced by menstruation when they use the cup because of the cups ability to hide their menstrual status satisfactorily. This change may give the girls the ability to maintain the relation they have with the boys when menstruation is not present, because the cup enables them to keep their menstrual status hidden.

In addition to the feeling of liberation from the dependency on others and control of own MHM the girls emphasise that the cup enables them to be prepared for menstruation at any time, which may give them a sense of calm knowing that they will not have to go begging for pads or use of MHM products that they find unreliable. A few girls describe that with the cup they do not have to *worry* about money again for a long time because the cup is always there.

The cup thus gives the girls a changed set of abilities both in term of increased control and independence in relation to their MHM, but also in terms of their relations with other actors in their networks. What seems to

be the biggest impact of the menstrual cup is that the girls no longer find themselves caught in a limbo between expectations to keep menstrual status concealed and the lack of means to live up to these expectations.

In relation to my research question I found that the schoolgirls in Gulu experience a range of changes when they adopt the menstrual cup. Thus, the girls express feeling enhanced abilities to control their own MHM, less dependency on others to provide them with means to control their MHM. Furthermore, the girls describe feeling a change in relation to other actors in their network, because of the girls increased ability to control who knows about their menstrual status. The girls' ability to adopt the menstrual cup is influenced by the actors in their network. These were both of human and non-human nature, and seemed to affect each girl slightly differently depending on the composition of actors in a girls network. I found that despite the girls describing a range of actors working in opposition to the adoption of the cup, a broad range of supportive actors were also presented, and all but one girl adopted the menstrual cup.

Implications for policy and practice

As discussed previously, the menstrual cup may be a way to help girls protect themselves from the ridicule and sexual attention they feel, especially from boys, when they have their menstruation. Some people may argue that the menstrual cup is not reaching the root cause of the issues around menstruation and only help the girls treat the symptom of a much deeper-seated problem. These may argue that the best way to address the problems, the girls' face, is by addressing the stigma and silence that surrounds menstruation in many sub-Saharan African countries. I do not stand in opposition to this suggestion, but argue that the menstrual cup may offer an increased autonomy of the girls, and that this technology may be beneficial to girls while problems of silence and stigmatisations are being addressed, as this may be a lengthy process. I regard the cup and actions to counter stigmatisation as complimentary solutions that may both improve the MHM of girls in Uganda.

That the girls experienced enhanced control and ability to manage their menstruation when they adopted the menstrual cup emphasises the usefulness of the technology. My analysis points to actors that can be regarded as drivers and barriers for the girls to be able to adopt the menstrual cup, which can have practical value to both NGO's and health sections with an interest in implementing the technology. Furthermore, my analysis pointed increased wellbeing for the girls' when using the cup, which may be of interest to policy makers, who can get an indication of the potential of using menstrual cups as a technology for global health.

Strengths and Limitations of the thesis

This thesis is a qualitative analysis of the changes schoolgirls experience when adopting a menstrual cup; the findings are based on analysis of empirical data from individual interviews and focus-group discussions with schoolgirls who received a menstrual cup. This poses some strength and limitations on the thesis.

Study type and the influence of my perspective

First of all, the findings are based on the experiences of 45 girls from three Primary schools in the same geographical area, thus it may not be possible to extrapolate the findings to other areas, as these may differ in terms of cultural, structural and demographic composition. However, the intend of the thesis was not to generalise how the menstrual cup invokes changes in girls but rather to give an account of the experiences as laid out by the schoolgirls in Gulu. The advantage of using qualitative semi-structured interviews is a more in-depth description of the girls' experiences than a fixed questionnaire and it allows for themes to emerge that the interviewers may not have foreseen and included in a questionnaire.

My view on the menstrual cup as interactive actors that is mutually influencing and influenced by the context it is transferred to shapes my analysis and what I see in the data material, and thus influences my interpretation. My theoretical framework both enables me to see perspectives in the data I might otherwise have missed and narrows my vision by focusing on some elements of the data and putting less emphasis on others. The use of terms derived from actor-network theory (ANT) influenced what I looked for in the data, but these terms were combined with Attride-Stirling's more explorative analytical tool *thematic networks*, which I argue allows for a less narrow perspective on data. As described in a previous section (see *Theory of knowledge*) I acknowledge, that my approach and theoretical framework is just one out of many, and that others researchers might have come to slightly different conclusions. However, as mentioned above I have aimed to let the data stand out clearly and present the complexities when such were found. The data only represents the girls' perspective. I had no choice in this regard but I do believe that what I am interested in can be portrayed by the girls as long as one keep in mind that this is only one out of many views on the issue. Furthermore, as discussed in the above phenomena and relations will always be influence by how you look at them, thus there will always be different views to collect from informants, however, there is also a practical limit to what a research project can contain

Another factor that is of interest in a discussion of the strengths and limitations of the study is the fact that I as a researcher did not collect the data myself but relied on data collected by WoMena, and that all interviews was conducted with the help of a translator. In the below I will go into detail with the dynamics of being a remote researcher.

Being a *remote* researcher

The findings in this thesis have been based on analysis of empirical data collected by two interviewers from WoMena, furthermore, because of language limitations an interpreter translated between the interviewer and the girls during all interviews. These translational processes potentially create a distance; between the data and me as a researcher, and between the interviewer and the informant, respectively. The translational process at the interview may inhibit a complete free-flow in the interview in which the interviewer can ask probing questions if a topic of interest should be unfolded or to follow up on specific wording of the answers that seem to have a special meaning to the participants (Christensen et al. 2007). A comforting and reassuring environment must be created between the interviewer and the interviewee. Having a third person in the interview, the interpreter, might feel intimidating for the girls to have two people evaluate their answers. Another very pragmatic critique of having more than one person interviewing is that the interviewee will simply have less time because a lot of time is used translating back and forth (Christensen et al. 2007). However, the gain of having the interviewer conduct the interviews through the interpreter and not just have the interpreter conduct the interviews herself is that there is someone from the WoMena group who understands the context and aim of the intervention study. Moreover, the interviewer might be better able to see the possibly contrasting views on the menstrual cup that may rise during the interviews because she is not part of the community.

Subsequently, it can be argued that I, as a *remote* researcher, miss a lot of information using interviews that others have conducted and that the remoteness creates a distance. During an interview one often also interpret facial expressions, posture, pauses in speech and the like, and these impressions are not captured in the transcripts (Christensen et al. 2007). Although I have not been able to get a sense of the bodily expressions during interviews, I have been able to get a feeling of the atmosphere of the interview by listening to the recordings of the interviews, looking at pictures from both individual interviews and focus group discussions as well as reading through all the information material distributed to the participants. Through the audio files I get a sense of the pauses in speech and the feeling of privacy that can be somewhat experienced from the volume of background noise and disturbances during the interviews such as these quotes, "T: *Who is that over there? You girl, boy what are you doing there? Move away from there move away from there we are talking our private things so please move away*"(Joyce), "T: *My friend…you!! Please move away from there*" (Grace). Furthermore, I have been able to see pictures from training days and information days for parents. This has also given a good insight to the context within which the study was carried out. One benefit that could come of not having been present is the fact that without the experiences of facial expression and bodily signals, that could be misinterpreted, I can focus more on what was actually being said, and not what I believe someone intended to say.

Recommendations for future research

Based on my findings and the limitations of this study I see a range of themes that future research could elaborate on. Firstly, a study with a specific focus on the actors in the girls' networks could be of interest to get a better understanding of actors that the girls' may not have mentioned in my empirical data, as the interviews were *not* conducted with Actor-network theory in mind. Furthermore, participatory observations could also supplement data from interviews to observe other potential actors that may influence the girls' that they themselves are not aware of. These actors could be structural or cultural factors that they could view as so natural that they never appear in an interview. Mapping of all the actors within each girls' network might give an indication of which actors are in conflict and point even more detailed to actors that seem to facilitate the use of the menstrual cups.

Furthermore, to determine whether the girls' feel that the menstrual cup increases their concentration and ability to follow along in school, future research could focus on the implications of the menstrual cup on the girls' academic and social abilities at school. My findings suggest that the cup positively influences these, but further research is needed in this regard.

In line with the above, it could also be of interest to investigate how the cup might influence gender inequalities in the society. My findings suggest that girls felt more comfortable at school, if this enhance the girls ability to engage with others both academically and social it could be a mediator for more equality between genders. Although it might be difficult to assess the influence of the cup on gender equality per se, it is of great interest to look into tangible factors that could potentially lessen the gap between girls and boys in Sub-Saharan Africa. Lastly, I could be of interest to look into the implications of the girls' increased independency. With the cup the girls become free of the dependency on their families purchasing sanitary pads. In relation to this it could be of interest to look into how this has implications for their relation with their families. It may be that the increased independence and the fact the girls no longer are "spending" the families financial resources on MHM products have a positive influence on the girls' relation with the family members who used to provide pads for them.

CONCLUSION

In this thesis I sought to understand in what way schoolgirls, in Gulu, north Uganda, experienced changes from using a menstrual cup and how their social relations could be seen as mediators of these changes. To address this I looked into existing literature, from Sub-Saharan Africa, on girls' perception of Menstrual Hygiene Management (MHM) and menstruation, as well as the expectations that follow along with this bodily change. This was supplemented with studies on traveling technologies, using interview data from a qualitative study conducted among schoolgirls in Gulu, north Uganda, as a case study. Drawing on a theoretical framework founded in Science and Technology Studies (STS) and Actor-network theory (ANT), I aimed to enhance my understanding of the interactions that took place when the menstrual cup was introduced to the lives of the girls. This framework allowed me to discuss and elaborate on the actors the girls interacted with and how these influenced the girls' perception of menstruation, the menstrual cup and themselves. Furthermore, it opened up for discussions of changes in the girls' ability to live up to the expectations they experienced during their menstruation, when they formed an alliance with the cup.

The review of the existing literature on MHM formed the basis for my understanding of how girls' in Sub-Saharan Africa experienced menstruation and what means were available for them to manage this event. My findings from the literature review suggested, that girls in Sub-Saharan Africa experienced a change in the expectations they faced from their surroundings, when they reached menarche. These expectations were difficult for the girls to live up to with the existing MHM methods available. I argued that this constituted a dilemma for the girls, which could influence their wellbeing, especially in school. Thus, the girls expressed a need for MHM products that would enable them to live up to the expectations they faced. The subsequent literature on traveling technologies improved my understanding of the exchange between the menstrual cup and the actors in the girls' networks and how the technology had the ability to influence the girls' relation with other actors in the network, if the girls and the actors in their network adapted to the script of the cup.

The menstrual cup provided the schoolgirls in Gulu, north Uganda, with changed abilities to manage their menstruation and live up to the expectations they face from their surroundings. Thus, the girls experienced an increased ability to control of their MHM and conceal their menstruation from others, when they used the menstrual cup. Furthermore, their dependency on others decreased as the menstrual cup represented a stable MHM product, which they could rely on. The girls' social relations functioned as drivers and barriers that encouraged and discouraged use of the cup, respectively, and thereby influenced the girls' abilities to engage with the cup.

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