



*The influence of word-of-mouth,
perceived ease of use and perceived
usefulness on consumer attitudes
towards using menstrual cups.*

Clara Sá Couto

Dissertation written under the supervision of
Prof. Paulo Romeiro

Dissertation submitted in partial fulfilment of requirements for the MSc in
Management with Specialization in Strategic Marketing, at the Universidade
Católica Portuguesa, April 2020.

ABSTRACT

The influence of word-of-mouth, perceived ease of use and perceived usefulness on consumer attitudes towards using menstrual cups. Clara Sá Couto.

Growing appeals for either or both affordable, sustainable and also safe menstrual products have highlighted an enigmatic situation of low acceptance for a product that would meet these exact needs and desires, the menstrual cup. The present analysis illuminates this area by exploring the relation between women's attitudes towards using this product, and their perceptions of how easy and useful it would really be to use one. Moreover, it is investigated how personal and virtual word-of-mouth might come into play, while taking into account possible mediating effects generated by the same expectations.

With this aim in mind, the developed research methodology comprised personal interviews, followed by an online survey, that randomly exposed participants to a stimulus related to either personal or virtual word-of-mouth. Participant's internal beliefs and attitudes of the two groups were thus recorded and evaluated. Findings suggested that in relation to virtual, personal word-of-mouth can more effectively influence women's internal beliefs and attitudes towards using a menstrual cup, particularly when targeting perceived ease of use. The contributions made in the present study should be of wide interest to brands planning to implement appropriate marketing strategies with the aim of cultivating positive consumer attitudes towards using menstrual cups and ultimately, encourage acceptance.

Keywords: menstrual cups, word-of-mouth, personal word-of-mouth, virtual word-of-mouth, perceived ease of use, perceived usefulness, menstrual hygiene technology.

SUMÁRIO

A influência do word-of-mouth, facilidade de uso percebida e utilidade percebida nas atitudes do consumidor face ao uso do copo menstrual. Clara Sá Couto

O interesse por um produto menstrual que seja não só mais acessível como também mais sustentável e seguro, chama atenção para uma situação paradoxal de baixa aceitação por um produto que satisfaz estas mesmas necessidades, o copo menstrual. Como tal, o grande objetivo desta análise passa por explorar a relação entre as atitudes dos consumidores perante o uso deste produto, e as perceções face ao quão útil e fácil de usar este será na realidade. Adicionalmente, é investigado o papel do word-of-mouth, tendo em conta possíveis efeitos mediadores gerados pelas mesmas expectativas.

A metodologia desenvolvida compreende tanto entrevistas como um questionário online, que por sua vez expôs os participantes a um estímulo relacionado com word-of-mouth pessoal ou virtual, aleatoriamente. As perceções e atitudes dos participantes de cada grupo foram consequentemente registadas e analisadas. Os resultados sugeriram que em relação ao virtual, o word-of-mouth pessoal tem o potencial de influenciar as crenças e atitudes face ao copo menstrual mais eficazmente, principalmente quando visa a facilidade de uso.

As contribuições feitas no presente estudo devem ser de grande interesse para as marcas que planeiam implementar estratégias de marketing, com o objetivo de cultivar atitudes positivas do consumidor face ao uso do copo menstrual e, finalmente, incentivar a aceitação dos consumidores.

Palavras-chave: copo menstrual, word-of-mouth, word-of-mouth virtual, word-of-mouth pessoal, facilidade de uso percebida, utilidade percebida, tecnologia de higiene menstrual.

ACKNOWLEDGEMENTS

I gratefully thank my advisor Paulo Romeiro, who allowed me to explore a project that I find extremely interesting and relevant in the present-day society, and for his constant support and guidance.

I am especially thankful and grateful for my mother's unconditional support and positivity, and for showing me first-hand the importance of being kind and working hard. She has enabled me to attend the best schools in Portugal and created the best possible environment for me to become the happiest and most successful version of myself.

Also, I would like to thank Flor Pinho who had a fundamental role in my academic journey, by always believing in me, even when I wouldn't believe in myself. Her positivity, encouragement and serenity were key elements in my development, to which I will always hold on to.

Finally, I would like to take this chance to thank my dear friends Filipa Cepêda, João Costa, Catarina Ribeiro, Inês Martins and Sara Nunes, who are tirelessly there for me and persistently push me to do and be better.

I specially thank my loving grandmother Adelina Sá Couto who passed away in 2019 at the age of 93. She was the bravest, most independent and beautiful woman I have ever met, who unapologetically lived much ahead of her time.

TABLE OF CONTENTS

ABSTRACT	II
SUMÁRIO.....	III
ACKNOWLEDGEMENTS.....	IV
TABLE OF CONTENTS.....	V
TABLE OF FIGURES	VII
TABLE OF TABLES.....	VIII
TABLE OF APPENDICES	IX
GLOSSARY	X
CHAPTER 1: INTRODUCTION	1
1.1 BACKGROUND AND PROBLEM STATEMENT	1
1.2 PROBLEM STATEMENT	2
1.3 RELEVANCE.....	3
1.4 RESEARCH METHODS	3
1.5 DISSERTATION OUTLINE.....	4
CHAPTER 2: LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK	5
2.1 TECHNOLOGY ACCEPTANCE MODEL (TAM).....	5
2.2 ATTITUDES	6
2.3 PERCEIVED EASE OF USE (PEOU)	8
2.4 PERCEIVED USEFULNESS (PU)	8
2.5 INDEPENDENT VARIABLE: WORD-OF-MOUTH (WOM)	9
2.5.1 PERSONAL WORD-OF-MOUTH (PWOM)	11
2.5.2 VIRTUAL WORD-OF-MOUTH (VWOM).....	12
2.6 CONCEPTUAL FRAMEWORK AND HYPOTHESIS OVERVIEW	13
CHAPTER 3: METHODOLOGY	15
3.1 RESEARCH APPROACH	15
3.2 SECONDARY DATA	15
3.3 PRIMARY DATA	16
3.3.1. QUALITATIVE ANALYSIS - PERSONAL INTERVIEWS	16
3.3.1.1 PERSONAL INTERVIEWS: DESIGN AND INSTRUMENTS.....	16
3.3.2 QUANTITATIVE ANALYSIS – ONLINE SURVEY	17
3.3.2.1 DATA COLLECTION	18
3.3.2.2 MEASUREMENT / INDICATORS	19
3.3.2.3 DATA ANALYSIS	20
CHAPTER 4: RESULTS.....	22
4.1 QUALITATIVE ANALYSIS – PRELIMINARY RESEARCH	22
4.1.1 SAMPLE CHARACTERIZATION	22
4.1.2 RESULTS FROM QUALITATIVE ANALYSIS- PERSONAL INTERVIEWS	23
4.2. QUANTITATIVE ANALYSIS- SURVEY QUESTIONNAIRE.....	26

4.2.1 SAMPLE CHARACTERIZATION	26
4.2.2 RESULTS FROM QUANTITATIVE ANALYSIS- ONLINE SURVEY	27
4.2.2.2 HYPOTHESIS TEST.....	28
4.2.2.2.1 MEDIATION ANALYSIS	33
4.3 ADDITIONAL RESEARCH	33

TABLE OF FIGURES

FIGURE 1- CONCEPTUAL FRAMEWORK.....	14
FIGURE 2- HAYES' PROCESS MODEL 6 (STATISTICAL DIAGRAM)	21

TABLE OF TABLES

TABLE 1- OPERATIONAL MODEL	20
TABLE 2- SAMPLE USED FOR PERSONAL INTERVIEWS.....	22
TABLE 3- EFA AND INTERNAL CONSISTENCY.....	28
TABLE 4- INDEPENDENT T-TEST. SD-STANDARD DEVIATION	28

TABLE OF APPENDICES

APPENDIX 1: PERSONAL INTERVIEW QUESTIONNAIRE AND ANSWER NOTES ..	38
APPENDIX 2: ONLINE SURVEY QUESTIONNAIRE	43
APPENDIX 3: QUANTITATIVE RESULTS	50

GLOSSARY

MC(s)	Menstrual cup(s)
MHM	Menstrual hygiene management
TAM	Technology acceptance model
IS	Information systems
PEOU	Perceived ease of use
PU	Perceived usefulness
Att	Attitudes
WOM	Word-of-mouth
pWOM	Personal word-of-mouth
vWOM	Virtual word-of-mouth

CHAPTER 1: INTRODUCTION

1.1 Background and problem statement

Even though menstrual hygiene management (MHM) is an essential need for most women worldwide, popular menstrual products, including sanitary pads (62.1%), shields, pantliners (13.5%) and tampons (10.7% of the 2008 global feminine hygiene market (MarketLine, 2019)), fail to meet basic consumer needs, while generating severe externalities for society as whole. For one, period poverty is a leading cause of professional and academic absenteeism as well as social isolation, preventing women worldwide to achieve their full potential (Baird-Murray, 2019; Carvalho, 2019; Cooper, 2018; Markle, 2017; Oppenheim, 2019; Roni & Rabin, 2019). Menstrual supplies are often deemed unaffordable, despite their indispensable role in women's "health and psycho-social well-being" (Elledge et al., 2018), and hence their growth and development. At the root of this problem is the so-called Tampon Tax, which pertains to the considerable VAT rate levied over menstrual supplies. For example, tampons and pads are classified by many European countries luxury and non-essential items, being charged similar rates as cigarettes and alcohol (Álvarez Del Vayo, 2018; Buchholz, 2019).

From another point of view, the most commonly used menstrual supplies are of single use only and contain detrimental amounts of plastic (Borunda, 2019; Cooper, 2018; Peberdy, Jones, & Green, 2019; Turns, 2019). To put it into perspective, it is estimated that one woman disposes of a total of 10,000 units of menstrual supplies over the course of a lifetime (Cooper, 2018), which poses a staggering threat not only to the environment but also to public health, due to improper disposal (Elledge et al., 2018; Peberdy et al., 2019; Turns, 2019).

Even though period poverty and environmental concerns spark debates and outrage around the world, more affordable and reusable alternatives fail to be popularized among women. One with notable potential is the menstrual cup, MC (Cooper, 2018; Matthews-King, 2019; Roni & Rabin, 2019). This non-absorbent, flexible cup collects menstrual flow for around 12 hours before having to be emptied, rinsed and reinserted (Clerget-Cabrera & Yamakoshi, 2019; Oster & Thornton, 2012; Roni & Rabin, 2019; van Eijk et al., 2019). More importantly, a single menstrual cup is reusable for an average of 10 years, generating only 6% of tampon related plastic waste (Beksinska et al., 2015; Oster & Thornton, 2009; Roni & Rabin, 2019; Turns, 2019; van Eijk et al., 2019), and costs around 40\$ in the US which is significantly less than a single year's worth of tampons or pads (Roni & Rabin, 2019). The MC has further proven to be a safer, healthier and a more effective alternative (Beksinska et al., 2015; Mason et al., 2019; North & Oldham, 2011; Oster & Thornton, 2012; van Eijk et al., 2019), with better performance levels than the traditional tampons or pads (Beksinska et al., 2015; van Eijk et al., 2019), even

in circumstances with poor water and lack of proper sanitation facilities (Matthews-King, 2019; van Eijk et al., 2019). Despite all these advantages, many women are yet to adopt a MC (Cooper, 2018; Roni & Rabin, 2019; Turns, 2019). This paradox has evoked the need for more research on the potential factors influencing acceptance of this menstrual hygiene technology.

While cultural beliefs regarding virginity and fertility, are sometimes at the root of unfavorable attitudes (Elledge et al., 2018), other factors should be considered as well (Cooper, 2018; Oster & Thornton, 2012). Perceptions and attitudes have stood out as key psychological factors influencing technology acceptance (Davis, Bagozzi, & Warshaw, 1989; Davis, 1989; Fishbein & Ajzen, 2011; Y. Malhotra & Galletta, 1999) and consumer's decision-making processes (Solomon, 2012). In turn, these can be influenced by other external factors like product related discussions, commonly known as word-of-mouth, historically used by marketers to influence consumers (Keller & Fay, 2012; Solomon, 2012), and which has recently stood out in the field of consumer technology acceptance (Kawakami & Parry, 2013; Parry, Kawakami, & Kishiya, 2012; Schepers & Wetzels, 2007). On that note, using previous literature and further research, the present study aims to shed a new light on possible factors that would encourage the acceptance of a product that is at the heart of women's wellbeing and their thriving role as members of society, and that can additionally make a massive contribution towards a sustainable future for all.

1.2 Problem Statement

The scope of this research is to understand how consumer's internal beliefs, namely perceived usefulness and perceived ease of use, might influence their own attitudes towards using a MC. Moreover, it is investigated how word-of-mouth might come into play, while considering potential mediation effects of the same internal beliefs. This problem statement is summarized as: "The influence of word-of-mouth, perceived ease of use and perceived usefulness on consumer attitudes towards using menstrual cups", and translates into the following research questions:

R1: Do consumer's ease of use and usefulness perceptions of menstrual cups influence their attitudes towards using this product?

R2: Does word-of-mouth influence women's perceptions and attitudes towards the use of menstrual cups?

R3: Are the sources of word-of-mouth relevant when influencing consumer attitudes towards using menstrual cups?

1.3 Relevance

The present research aims to make contributions that extend to different dimensions. First, understanding how word-of-mouth might shape women's attitudes towards using MCs, will allow firms to design effective WOM strategies aimed at fostering favorable consumer attitudes towards using MCs, and ultimately expand acceptance. This would translate into a crucial turning point for the environment and a powerful contribution towards gender equality.

Secondly, as consumers are becoming more educated and aware, ethical consumerism and sustainable consumer behavior have become rising trends (Auger, Devinney, Louviere, & Burke, 2008; Zheng, 2013), and one that market players should look out for. Therefore, understanding how to leverage a key marketing concept, WOM, within a historically controversial topic that is menstrual hygiene (Waller, Fam, & Erdogan, 2005), might be a key source of competitive advantage within this market, as well as for other product categories.

Lastly, the present research attempts to contribute to literature by further extending the fundamental variables of the renowned technology acceptance model to the voluntary acceptance of a menstrual hygiene technology, within a consumer context, and further expand the current understanding of the relation between internal beliefs and the external factor, WOM, and as has been suggested in literature.

1.4 Research methods

In order to address the proposed research questions, it was crucial to conduct both primary and secondary analysis. Initially, secondary data provided both a clear understanding of the lack of user acceptance of a product with remarkable potential, as well as further guidance and theoretical support during primary research on the then identified constructs. Secondly, to ensure validity and reliability of research findings, both qualitative and quantitative research were conducted during primary investigations (M. K. Malhotra & Birks, 2007; White & Rayner, 2014). Considering the sensitive nature of MHM, personal interviews were the most appropriate qualitative research method to uncover women's "underlying motivations, beliefs, attitudes and feelings" (M. K. Malhotra & Birks, 2007) towards the use of MCs, which was essential for the contextualization of the elected constructs and validation of the prepared stimuli. Taking into account the thus acquired consumer insights, quantitative research was conducted by means of a survey questionnaire, carefully designed to measure the relations among the selected constructs. That is, two groups of respondents were each exposed to one stimulus related with either personal or virtual word-of-mouth, and the subsequently acquired data regarding perceived ease of use, perceived usefulness and attitudes towards using MCs was analyzed.

1.5 Dissertation outline

This thesis compiles a total of five chapters that thoroughly describe the complete processes of this analysis. The literature review, explores and justifies the relevance of the constructs studied, and presents the developed conceptual framework and hypothesis. In chapter 3 the research methodology used to address the research questions is explained, including a detailed description of the undertaken statistical analysis. The results from personal interviews and survey questionnaire are explored in the following chapter. The last chapter draws the final conclusions and considers possible limitations to this study. Suggestions for future research in this area of study, are summed up in the end of chapter five.

CHAPTER 2: LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

Throughout this chapter, a critical look is taken at the literature that provided a theoretical background for this analysis. Studying and comparing different writings, revealed a need for further research on the relative impact of personal and virtual WOM, on women's internal beliefs and attitudes towards using a MC. That being said, the technology acceptance model is first introduced as it provided a theoretical basis for the development of a conceptual framework (fig.1). The dependent variable, attitudes, is thus explored followed by perceived usefulness and ease of use, which according to a considerable body of literature, are key antecedents of attitudes and possible mediators within this model. Finally, this chapter delves into the independent factors personal and virtual word-of-mouth, which as discussed by various authors, may significantly influence internal beliefs and attitudes. The proposed hypotheses are outlined in the very end of this chapter.

2.1 Technology Acceptance Model (TAM)

In the context of technology acceptance and usage, the technology acceptance model (TAM) has stood out as a powerful and reliable framework (Venkatesh & Davis, 2000), originally created as an adaptation of the theory of reasoned action (TRA) by Fishbein and Ajzen, to evaluate and predict user acceptance of information systems within organizations (Davis et al., 1989). Overtime, researchers have explored the explanatory power of TAM for diverse technologies and contexts, including the consumer market (S. Brown & Venkatesh, 2005; Kawakami & Parry, 2013; Rese, Schreiber, & Baier, 2014; Schepers & Wetzels, 2007; Venkatesh & Brown, 2001; Venkatesh & Davis, 2000).

In this light, the present analysis uses TAM as a baseline model to trace the influence of word-of-mouth (external factor), on consumer's internal beliefs and attitudes (Davis et al., 1989; Davis, 1989), towards the use of the menstrual hygiene technology in question, the MC. Prior studies by Oster and Thornton (2012) have also explored technology adoption through MCs, by establishing that this product shares essential features, such as difficulty to use or unfamiliarity, with other important technologies including vaccines and contraceptives (Oster & Thornton, 2012).

Indeed, recognizing menstrual products as technologies has opened discussions about the definition of technology (Vostral, 1968). Yet, this was successfully established in previous literature, as menstrual hygiene technologies are "female-specific technologies" that support women's best interest both politically and consciously (Vostral, 1968). This goes along with the view that technology may be defined as "methods, systems, and devices which are the result

of scientific knowledge being used for practical purposes” (*COBUILD Advanced English Dictionary*, n.d.). Likewise, as has been previously mentioned, a MC is a non-absorbent, flexible device, created to collect menstrual flow (van Eijk et al., 2019), thus allowing women to effectively overcome their menses.

The developed conceptual framework, incorporates two notable constructs proposed by Davis: perceived ease of use (PEOU) and perceived usefulness (PU), which according to the author, are collective determinants of attitudes (Davis et al., 1989; Davis, 1989). In turn, Davis argues that technology usage is determined by behavioral intentions, which, all else being equal, should be positively correlated with affect towards using a technology (Robinson, Marshall, & Stamps, 2005). It is assumed that on one hand, PEOU and PU influence attitudes, and on the other hand, mediate the relation between attitudes and possible external factors (Davis et al., 1989), further explored below. By studying PEOU and PU separately, this study can more effectively trace the influence of relevant external factors on women’s attitudes towards using a MC. Findings should be indicative of how brands can plan externally controllable interventions, strategically designed to shape women’s attitudes towards using MCs. On this note, the present analysis extends the fundamental variables of TAM, to women’s acceptance of MCs, this way contributing to existing literature of technology acceptance within a consumer context, towards a technology of voluntary use.

2.2 Attitudes

In the light of TAM, a women’s decision to use a MC is likely determined by her behavioral intention (BI), which in turn, would be jointly determined by her attitude (A), and her expectation that using a MC would make her menstrual routine more effective ($BI=A+PU$) (Davis et al., 1989). Indeed, when predicting and explaining social behaviors, attitudes have stood out as a crucial psychological concept (Fishbein & Ajzen, 2011), of particular explanatory power in the context of technology acceptance (Y. Malhotra & Galletta, 1999). It is commonly defined as a general and enduring evaluation of an attitude-object (Bohner & Dickel, 2011; Fishbein & Ajzen, 2011; Solomon, 2012), which in this case, reflects the degree to which someone has a favorable or unfavorable evaluation (Ajzen, 1991) towards using a MC.

A fundamental concept of TAM would imply that a women’s evaluation of using this technology stems from her internal beliefs. In other words, following the rationale explained by Davis et al. (1989), her attitude ($A=PU+PEOU$), might be determined by her expectations that not only would she achieve a more effective menstrual routine (PU), but also that using a MC would be free of effort (PEOU), which is of particular importance to women (Morris,

Venkatesh, & Morris, 2000). In turn, it is suggested that PU results both from her subjective probability that a MC will be easy to use, and also from other external factors that this woman may be exposed to ($PU = PEOU + \text{external variables}$). In other words, after being mediated by her own internal beliefs, externally controllable factors might shape attitudes thus encouraging her to embrace a MC. These assumptions are addressed through primary investigations (chapter 4 and 5), so far lacking in scientific literature.

Prior research has called attention to the importance of social influence in technology acceptance (Y. Malhotra & Galletta, 1999; Schepers & Wetzels, 2007; Venkatesh & Davis, 2000), and the need for further research is often called upon in TAM literature (Davis et al., 1989; Davis, 1989; Venkatesh & Davis, 2000). In the present analysis, the role of social influence is explored through word-of-mouth (WOM), previously acknowledged as a relevant external factor in technology acceptance literature (Kawakami & Parry, 2013; Parry et al., 2012; Schepers & Wetzels, 2007). Marketing wise, this was an important question to study, since WOM has been recognized as a key element in consumer decision making processes (Solomon, 2012), and which has gained considerable attention as an effective mechanism used by advertisers (Keller & Fay, 2009) who consistently work towards persuading consumers to change their attitudes (Solomon, 2012).

Given resource and time constraints, behavioral intention and actual system use were not tested in this study. However, as previously mentioned, the model's attitude-behavioral intention relationship implies that, all else being equal, individuals build intentions to perform behaviors "towards which they have positive affect" (Davis et al., 1989). In fact, a strong relation between attitudes and behavioral intention has been successfully established in literature as described by Icek Ajzen in theory of planned of behavior, who contends that attitudes towards a behavior, may be used as a "point of attack" when attempting to shape such behaviors (Ajzen, 1991). On that note, it is reasonable to assume that conclusions drawn from this analysis are replicable across the model and yield reliable marketing recommendations.

As further explored below, modeling each factor separately, allows for the comparison of the relative influence of PEOU and PU in consumer's attitudes towards using MCs, as well as a better understanding of the potential role of WOM. TAM's fundamental concepts were further explored and conceptualized to the present context through secondary and primary investigations.

2.3 Perceived Ease of Use (PEOU)

One of the key drivers of attitudes proposed by TAM, is PEOU, originally defined as the “degree to which a person believes that using a particular system would be free of effort” (Davis, 1989). This follows the logical rationale that users are more likely to develop positive attitudes towards using a technology, if they perceived it will enable them to exert lower levels of effort than they currently do ($A = PU + PEOU$). Likewise, previous studies have emphasized that decisions to adopt a new product depend not only on monetary costs but also on expected effort required to use this product effectively (Parry et al., 2012; Song, Parry, & Kawakami, 2009). On that account, the present study evaluates whether a woman, who is led to believe that using a MC would reduce the effort devoted to her menstrual routine (PEOU), is more likely to develop positive attitudes towards using this product.

According to previous literature, PEOU can influence attitudes in two distinct ways: instrumentality and self-efficacy (Davis et al., 1989). First, as it is further explored below, enhancing of a women’s PEOU may be instrumental in improving her perceived usefulness (PU). On the other hand, it is likely that a woman feels intrinsically motivated to use a MC, if she believes she will have an easy interaction with this product (Venkatesh & Morris, 2000). Taking into account previous studies suggesting that some women have developed wrongful perceptions of size, and fear not being able to insert a MC properly (Mason et al., 2019; van Eijk et al., 2019), it is quite likely PEOU and attitudes towards using this product are indeed positively correlated.

TAM theorizes PEOU to be directly determined by external variables ($PEOU = \text{External variables}$). As it is the case for the MC brand Mooncup (Stevens, 2019) and as suggested by Davis et al. (1989), phone support services can be provided if necessary, possibly enhancing expected ease-of-use. Other external factors like training, tend to significantly improve PEOU, specially during early stages of learning and use (Venkatesh, 1999), which is extremely relevant for the present context, since MCs generally imply a 2-5 months learning curve, through which acceptance is considerably higher if opportunities to learn how to use are made available (Hennegan, 2019).

The present study aims to expand the current understanding of how ease of use expectations about MCs, might influence usefulness perceptions and attitudes towards using this product.

2.4 Perceived Usefulness (PU)

PU has consistently proven to be a key driver of usage intentions (Venkatesh & Davis, 2000) and an essential factor influencing attitudes (Davis et al., 1989). In his own words, Davis

defined PU as “the degree to which a person believes that using a particular system would enhance his or her job performance” (Davis, 1989). Hence, it is likely that a woman develops positive attitudes towards using a MC, if she believes this product can “be used advantageously” by making her menstrual routine more effective, possibly improving her performance on other activities.

However, subjective appraisal of performance (PU) must outweigh expected perceived effort (PEOU) required to adopt a MC, otherwise, following the given rationale, women will most likely fail to accept this menstrual hygiene technology (Venkatesh, 2000). In such circumstances, designing externally controllable interventions to enhance MC usefulness should be a priority. This rationale pertains to a key assumption of TAM model: PU is the joint result of PEOU and external variables, which subsequently influence PU, over and above PEOU ($PU = PEOU + \text{External variables}$) (Davis et al., 1989).

Different external actions can be taken by MC brands to enhance PU directly, and indirectly via PEOU, including: creating specific design characteristics, providing compelling and informational educational programs, among others (Davis et al., 1989). Interestingly, Davis calls attention to “learning based on feedback” as another external variable with considerable potential to enhance usefulness beliefs (Davis et al., 1989). The question that then naturally arises is whether the exchange of MC related information among women would in reality influence their internal beliefs and attitudes towards using this product.

By analyzing these highly related, but distinct concepts separately, the present analysis evaluates the relation between PEOU, PU, attitudes, and a proposed external variable, WOM, in the context of MCs. This is of particular interest for brands planning to design marketing strategies to emphasize PEOU and/or PU, and to ultimately generate positive attitudes towards using MCs.

2.5 Independent variable: Word-of-Mouth (WOM)

When it comes to technology acceptance within the consumer market, social environments have been the object of careful consideration. Indeed, prior research highlights how people’s intentions, behaviors, and perceptions of physical objects can be significantly influenced by social surroundings (Fishbein & Ajzen, 2011; Oster & Thornton, 2012; Robertson, 1989). Accordingly, researchers have called attention to the role of subjective norm on technology acceptance (Davis, 1985; Venkatesh & Davis, 2000), which in turn, may be created by word-of-mouth (WOM), within the consumer market (Schepers & Wetzels, 2007).

Notably WOM, defined as product related information shared across individuals (Solomon, 2012), has been recognized in the field of marketing as a significant factor influencing consumer decision making processes, often being considered a more reliable and trustworthy source than traditional marketing channels (Keller & Fay, 2012; Solomon, 2012). Likewise, several studies have brought attention to the effectiveness of WOM marketing, as it might overcome consumer resistance to advertising, at lower costs and in a timely manner (Keller & Fay, 2009; Trusov, Bucklin, & Pauwels, 2009).

Interestingly, WOM has stood out in the MC market, despite any stigma and taboo surrounding menstruation (Cooper, 2018; Roni & Rabin, 2019). In fact, brands like Mooncup whose sales have risen by 98% over 5 years, directly attribute part of their success to WOM marketing (Stevens, 2019), which is in line with the findings of Oster and Thornton, 2012, that emphasize a strong peer effect on MC use (Oster & Thornton, 2012).

At the same time, some authors have emphasized a relation between WOM communication and TAM's fundamentals constructs: PEOU and PU (Kawakami & Parry, 2013; Parry et al., 2012), explored above.

In the light of reported studies, it is conceivable that WOM has a considerable impact on women's attitudes and perceptions of MC usefulness and ease of use, for many reasons. For instance, increasing awareness of this product's key characteristics and benefits (Arndt, 1967), as well as additional complementary products (Song et al., 2009) might boost positive usefulness perceptions (PU) for women considering to use a MC. Likewise, WOM might also capture a consumer's involvement in a certain product category, thus expanding current willingness and desire, to search and process additional product information (Greenwald & Leavitt, 1984; Song et al., 2009).

From another point of view, by enlightening consumers on other people's experiences and learning processes of using a particular technology, WOM can considerably influence PEOU (Arndt, 1967). Moreover, WOM might also uncover a broader support network (Redmond, 1991) of MC users who are available to provide new users the initial support they might need, thus potentially increasing a women's expectations that her interaction with a MC will be clear and understandable (PEOU). By the same token, consumers can also be recommended other complementary products (Song et al., 2009) that might facilitate MC use, possibly fostering positive ease of use expectations.

The present analysis aims to assess if indeed, WOM can improve women's internal beliefs and attitudes towards using a MC. Still, considering internet mediated WOM has achieved an important role in consumer decision making processes (Cheung & Lee, 2012; You,

Vadakkappatt, & Joshi, 2015) the question that then naturally arises is whether virtual sources of WOM can better shape women's internal beliefs and attitudes towards using a MC as opposed to personally transmitted WOM. As further explored below, a more systematic and theoretical analysis is used to compare the effect of both sources of WOM.

In sum, WOM is investigated as a potential bridge between managerially controllable interventions, and internal beliefs and attitudes of potential MC users, thereby taking advantage of an ongoing cultural shift where relevant conversations about menstruation are finally being opened and normalized (Baird-Murray, 2019; Cooper, 2018; Crilly, 2018; Markle, 2017).

2.5.1 Personal Word-of-Mouth (pWOM)

The present analysis addresses the still unsolved question of whether a woman's internal beliefs and attitudes towards using a MC might change when being exposed to personal WOM (pWOM). That is, face-to-face conversations with friends and family, during which product information is exchanged (Duhan, Johnson, Wilcox, & Harrell, 1997; Engel, Kegerreis, & Blackwell, 1969; Maxham, 2001; Parry et al., 2012). Prior research has emphasized pWOM can have a strong impact on consumer decision making processes, in relation to brand sponsored approaches including sales and advertising (Solomon, 2012). In fact, a considerable body of literature has recognized interpersonal communication as a significant factor in consumer decision making processes, as well as diffusion of product information since it is often considered more credible than other non-personal sources (Feick & Price, 1987).

A number of authors have also suggested that pWOM is particularly influential since it is often generated among individuals who share key characteristics (ex: age, education and/or social status) and who have established strong social ties, consequently exchanging product information that is personally relevant to both sources and recipients, and goes in line with their tastes and preferences, thus providing access to trustworthy and highly credible assessments (J. J. Brown & Reingen, 1987; Duhan et al., 1997; Kawakami & Parry, 2013).

In the light of previous research, it is conceivable that personal WOM has a significant impact on attitudes towards using MCs. A recent study by Oster and Thornton (2012), has shown how peers can successfully affect MC adoption particularly by influencing "learning how to use" and "learning about product value" (Oster & Thornton, 2012). Both of which appear to be highly related with PEOU and PU here explored. In this light, it is likely that by emphasizing PEOU, pWOM can generate positive attitudes towards using MCs.

Having in mind how prior research emphasizes the role of personal sources of information, a critical open question is whether virtual sources, non-personal by nature, would have a different effect on women's internal beliefs (PEOU and PU) and attitudes towards the use of MCs.

2.5.2 Virtual Word-of-Mouth (vWOM)

WOM is particularly noteworthy in the world wide web, as it allows consumers to exchange information instantaneously and providing a relatively low cost window of opportunities for campaigns (Trusov et al., 2009).

Having this in mind, a promising line of research would be to evaluate the potential effect of vWOM in women's internal beliefs and attitudes towards using MCs. This concept pertains to virtual communication between consumers who don't know each other personally (Gruen, Osmonbekov, & Czaplewski, 2006; Park & Lee, 2009; Parry et al., 2012), thus excluding all pWOM transmitted via electronic or virtual means. In contrast to the popular eWOM, vWOM is a more fitting concept for the present study, as it excludes some of the electronic platforms commonly used for pWOM, such as telephone calls (Parry et al., 2012).

That being said, vWOM has gained considerable attention as product reviews and online forums, among others, become a worldwide holy grail of product information. It is relevant to call attention to the view that content generated by vWOM differs from that of brand websites, as it better resonates with consumers by inspiring more credibility and empathy (Bickart & Schindler, 2001).

When it comes to consumer perceptions, authors have suggested significant improvements may stem from acquiring relevant customer know-how exchanged through online forums (Gruen et al., 2006). Indeed, access to multiple points of view, offers a unique chance to overcome perceptions that would otherwise be filtered by people's own code of values and preferences (J. J. Brown & Reingen, 1987; Duhan et al., 1997). Likewise, by uncovering a community of users who may be available for consultation, consumers are likely to become more confident about product use (Parry et al., 2012).

In contrast to pWOM, vWOM allows for the immediate access to an endless variety of valuable product information, which would otherwise go very much beyond the reach (Parry et al., 2012). For instance, consumers may readily be exposed to a considerable volume of expert information, thus expanding their current knowledge about key product characteristics that may emphasize ease of use and/or usefulness perceptions (Parry et al., 2012). Along the same lines, vWOM provides a more diversified content, including an endless amount of technical and performance characteristics (Duhan et al., 1997).

Even though vWOM may prevent individuals to make evaluations of each source of information (Hennig-Thurau, Gwinner, Walsh, & Gremler, 2004), it is possible anonymity may come as an advantage when discussing a menstruation related topic, still stigmatized by many (Cooper, 2018; Roni & Rabin, 2019).

In consideration of the foregoing, the relative impact of personal and virtual WOM on women's internal beliefs and attitudes towards using a MC, remains unclear. Having a better understanding of how women would be influenced by each source of WOM, is a crucial step towards determining effective external interventions that can be undertaken by brands to shape current attitudes towards using this product, and ultimately encourage acceptance.

In sum, TAM is here used as a theoretical basis for the development of an appropriate conceptual framework, as it provides a "source for tracing the impact of external factors" (Davis et al., 1989), in this case word-of-mouth, on perceptions and attitudes of potential MC users, subsequently contextualized through further analysis. Also, this study offers to recommend fitting external interventions brands can undertake to emphasize internal beliefs of potential users as deemed necessary and improve their attitudes towards MC use.

2.6 Conceptual framework and hypothesis overview

In order to address the proposed research questions, the following hypothesis are considered:

H1: WOM has a positive effect on PEOU of MCs.

H2: WOM has a positive effect on PU of MCs.

H3: WOM has a positive impact on consumer attitudes towards using MCs.

H4: PU has a positive effect on consumer attitudes towards using MCs.

H5: PEOU has a positive effect on PU of MCs.

H6: PEOU has a positive effect on consumer attitudes towards using MCs.

H7: PEOU mediates the relationship between WOM and consumer attitudes towards using MCs.

H8: PU mediates the relationship between WOM and consumer attitudes towards using MCs.

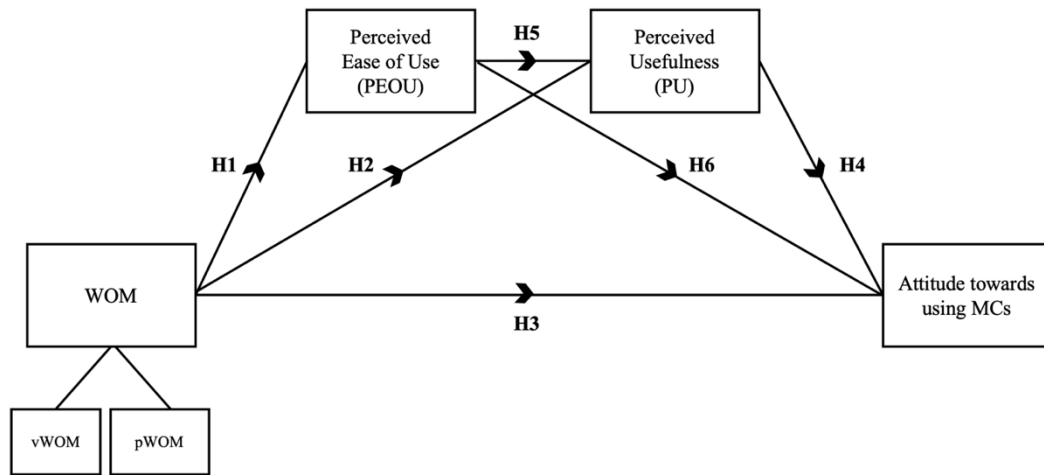


Figure 1- Conceptual Framework

CHAPTER 3: METHODOLOGY

This chapter carefully describes the research rationale used to study the problem statement at hand, and to decide upon accepting or rejecting the designated hypothesis. The general research approach is explored, followed by an explanation of the undertaken secondary and primary research, and a detailed description of the procedures thus chosen for having the best fit to the developed research design.

3.1 Research Approach

Exploratory research was a key first step in the research design of this analysis. Secondary data was initially used to uncover relevant issues related with MHM and shed a light on the instrumental role MCs can have as part of a global solution. At the same time, interesting factors were highlighted and selected for the undertaking of more conclusive studies, namely: (1) WOM, (2) PEOU, (3) PU and (4) Attitudes towards using MCs. This way, exploratory research had a fundamental role in the identification of concepts, definition of the problem statement (chp. 1), and further formulation of research questions and hypothesis within the field of marketing (M. K. Malhotra & Birks, 2007).

Having clearly defined research concepts, primary research was conducted qualitatively and quantitatively. Personal interviews were designed for two key purposes: contextualization of the factors to the present context, and also for the validation of the stimuli developed for further research. Secondly, casual research was conducted in the form of an online survey. This formal approach was essential to test the hypothesis and examine cause-effect relations. Particularly, how WOM (personal and virtual) might impact attitudes towards using MCs, taking into account the impact and possible mediation effects of consumer's internal beliefs (PEOU and PU). By using quantifiable data, research results can be generalized to women worldwide, and relevant marketing recommendations can thus be provided.

In sum, a triangulation research design proved appropriate for this analysis as a means to increase the reliability and validity of results (White & Rayner, 2014).

3.2 Secondary Data

In order to identify relevant factors that are consistent with the proposed problem statement, secondary data was retrieved, mostly from the academic journals discussed in chapter 2. This was an essential first step towards building a well thought-of conceptual framework and establishing pertinent research questions and hypothesis. Furthermore, it provided relevant

insights for the validation of qualitative results and interpretation of quantitative data (M. K. Malhotra & Birks, 2007).

3.3 Primary Data

In pursuance of more accurate results that better fit the present study, primary research was conducted and analyzed both qualitatively and quantitatively (M. K. Malhotra & Birks, 2007; White & Rayner, 2014), in the form of personal interviews and an online survey questionnaire.

3.3.1. Qualitative Analysis - Personal Interviews

Considering the intimate nature of MHM, choosing a method that favored a relaxed and safe atmosphere, was a crucial step towards encouraging participants to share their personal thoughts about their own menstrual routines and the use of MCs (M. K. Malhotra & Birks, 2007). In contrast to other methods like focus groups, personal interviews were the most fitting method, so as to cultivate rapport and trust with each participant, essential to access sensitive data and uncover nuances in consumer attitudes, motivations and behaviors (M. K. Malhotra & Birks, 2007; White & Rayner, 2014).

Even though qualitative research imposes significant time costs and generates findings that are not to be generalized for a wider population, conducting personal interviews was a necessary step towards acquiring a fruitful grasp of women's underlying reasons and motivations behind their attitudes towards using a MC. This way exposing and conceptualizing TAM's fundamental variables (PU and PEOU) to the context at hand, and similarly exploring personal and virtual WOM. More importantly, personal interviews allowed for the validation of the stimuli posteriorly used during quantitative investigations and facilitated farther interpretation and justification of subsequent findings (Jacobvitz, Curran, & Moller, 2002; M. K. Malhotra & Birks, 2007).

3.3.1.1 Personal Interviews: Design and Instruments

After a brief pilot test that guaranteed comprehension of the questionnaire and minimized ambiguity, 12 women were personally interviewed under complete confidentiality, within carefully chosen settings that avoided any disturbances and inspired a relaxed and informal atmosphere where interviewees would feel as safe and comfortable as possible.

Purposive sampling was used to determine an appropriate pool of participants. This non-random sampling approach allows researchers to use their own judgement in selecting participants that will be able to deliver useful data, that satisfies the proposed research objectives (White &

Rayner, 2014). Having that in mind, selecting criteria included but wasn't limited to willingness, availability, and individual characteristics that embody a wider population. Furthermore, including both MC users and nonusers, was considered a relevant exploratory step. A brief illustrated description of the product was prepared and provided if necessary.

A semi-structured questionnaire was prepared in English only, comprising a variety of both closed and open-ended questions, formulated using very simple vocabulary, that resonated with interviewees (Boyce & Neale, 2006; White & Rayner, 2014). As a means to minimize response bias, the questionnaire was formulated as neutrally as possible, and participants were often reminded there were no right or wrong answers. Interviews lasted between 10 to 15 minutes and covered 6 key sections. First, participants were asked general questions about their personal choice of menstrual supplies so as to introduce the topic and possibly find reference points that would aid interpretation. Secondly, existing attitudes towards MC use were investigated, followed by questions that explored possible sources of MC related communication which might be indicative of the suitability and influence of personal and virtual WOM. The following section comprised questions that uncovered internal beliefs, particularly regarding MC's perceived usefulness and ease of use. Participants were randomly shown one of the two prepared stimuli associated with either pWOM and vWOM, and consequently asked to reflect on their given answers and share any possible changes of thought or comments. By assessing possible changes in participants attitudes and internal beliefs and additionally comparing how responses from each group diverged, it was possible to validate the developed stimuli as appropriate tools for further quantitative research, meaning no changes were required. Demographic data was collected at the end of each interview, after briefly summarizing the key points covered on that session, as a means to possibly trigger additional participant comments (White & Rayner, 2014). All 12 conducted interviews were audio-recorded under the participant's consent, and later transcribed to a written format (M. K. Malhotra & Birks, 2007; White & Rayner, 2014).

3.3.2 Quantitative Analysis – Online Survey

Considering the relevant findings from prior secondary and qualitative research, a survey questionnaire was designed and tested so as to examine the cause-effect relationships (White & Rayner, 2014) among the selected concepts. This way, it was possible to attain results that are representative of a bigger population of women and thus essential for the formulation of recommended courses of action.

It is relevant to mention that 6 women who embodied the intended sample frame were recruited to participate in a pilot study conducted beforehand, to address any possible issues related with the survey questionnaire (White & Rayner, 2014). Slight layout and wording adjustments were made according to proposed suggestions. For example, questions 5 and 6 of the survey questionnaire (app. 2) needed to be complemented with “Keeping in mind what you just read...” in favor of minimizing ambiguity and obtaining accurate replies.

Many reasons led to the belief that an online survey was the most appropriate method for the study at hand. For one, it enables the use of a wide sampling pool, from diverse locations, in a timely manner and at very low costs. In contrast to self-administered or telephone questionnaires, online surveys avoid interview bias, especially during personal questions (White & Rayner, 2014) unavoidably asked here, which revealed being a relevant issue during qualitative investigations. Also, online surveys facilitate data entry and analysis, and allow for the inclusion of a very diverse set of questions, to which answers order can be controlled (Evans & Mathur, 2005), which further solidified this decision. Still, it was taken into account that online surveys may pose privacy issues and constraints for people with insufficient experience and/or expertise with online platforms, and might even feel too impersonal (Evans & Mathur, 2005).

3.3.2.1 Data Collection

A survey questionnaire (app. 2) was prepared using Qualtrics software and distributed online, via email and social media platforms including Facebook and WhatsApp, which as has been previously explained, was the most fitting approach for the study at hand. Moreover, the questionnaire was prepared in English such that it would be accessible to a substantial number of participants.

Considering resource and time constraints (M. K. Malhotra & Birks, 2007), non-random techniques were found to be the most fitting methods to develop the sampling frame, namely: convenience and snowball sampling. Additionally, as a means to increase response rates (M. K. Malhotra & Birks, 2007), a gift card was raffled.

The final sample comprised women of diverse demographics who might or not, use a MC. Following previous literature, current MC users were excluded during hypothesis testing. As discussed earlier, the present study contemplates how WOM might influence, and be mediated by, women’s subjective appraisals of performance and effort, as well as their attitudes towards potentially using this product, hence it seems reasonable to only include women who currently

opt for alternative supplies. Yet, for additional research purposes, data from MC users was also collected and later explored.

3.3.2.2 Measurement / Indicators

The first part of the questionnaire (app. 2) welcomed participants to the study and informed them of key details to be kept in mind (ex: confidentiality and anonymity). Participants were then taken through control questions, thus excluding all male participants. Participants then shared their current and previous choice of menstrual product and were further asked to share their level of familiarity with MCs, using a five-point Likert scale from “Not at all familiar” to “Extremely familiar”. This type of scale was used throughout the questionnaire for consistency purposes and since it is widely used in the study of attitudes (Boone & Boone, 2012). Item-scales were based on previous literature related with TAM and attitudes, and lightly adapted to the present context (tbl. 1). Likewise, some constructs had to be adapted from a seven-point scale to a five-point scale, so as to guarantee consistency and simplify responses and posterior analysis.

Having concluded this first part, an equal number of participants were randomly exposed to a pWOM or a vWOM related stimulus, both designed analogously to the respective definitions proposed by Parry et al. (2012, 2013), and as mentioned before, validated beforehand through conducted qualitative research. Two identical sets of questions were presented to both groups of participants, measuring participant’s perceived usefulness of the product, as well as ease of use and finally, their attitudes towards using MCs.

PEOU and PU were measured, using items based on the work developed by Davis et al. (1989) and slightly adapted to the context of MCs, thus emphasizing the need for carrying-out a pilot study, mentioned above. To measure both types of perceptions scale ranging from “Extremely unlikely” to “Extremely likely” was provided. For instance, considering the information acquired when exposed to one of the two stimuli, participants were asked to point out how likely they would be to find a MC to be easy to use.

Likewise, consequent attitudes towards using MCs were measured, using the items based and adapted from previous research conducted by Muk & Chung (2015) and Porter & Donthu (2006). Here, respondents would reveal their personal level of agreement, from “Strongly disagree” to “Strongly agree” with each of the outlined constructs (ex: “I am positive towards MCs”), once again, having in mind the stimulus they were exposed to.

Lastly, demographic data was collected including age, highest completed education level, nationality, occupation and net monthly income. In the very end of the questionnaire, after answering all questions, participants were given the chance to participate in a raffle.

Variable	Scale	N° of items	Literature
Perceived ease of use (PEOU)	5-point Likert scale	6	(Davis, 1989)
Perceived usefulness (PU)	5-point Likert scale	6	(Davis, 1989)
Attitudes (Att)	5-point Likert scale	6	(Muk & Chung, 2015; Porter & Donthu, 2006)

Table 1- Operational Model

3.3.2.3 Data Analysis

All quantitative data collected for the present study was analyzed using the statistical package, IBM SPSS version 25. After descriptive statistics, inferential statistics was conducted, using a significance level to reject the null hypothesis, defined at $(\alpha) \leq .05$. Exploratory Factorial Analysis (EFA) was used to find the underlying constructs behind the variables proposed from previous literature and the respective KMO values were thus compared. Secondly, the internal consistency of each factor, namely: PU, PEOU and Attitudes was verified using Cronbach's Alpha, and the overall reliability of the questionnaire was evaluated (Field, 2009).

When it comes to the developed stimuli, a manipulation check was undertaken using an independent samples t-test, since each half of the sample was randomly exposed to a single stimulus (pWOM or vWOM), and the difference in means for each dimension was compared and evaluated and confirmed as statistically significant.

Hypothesis 1 through 6 were tested using simple linear regressions using the two variables in question, and the significance of the correlation coefficient (β_1) was consequently tested. This is done resorting to a one-tailed hypothesis test on the correlation coefficient with null hypothesis $\beta_1 \leq 0$ and alternative hypothesis $\beta_1 > 0$. Hypothesis 7 and 8 were tested using a mediation analysis, wherein the parameters of the developed statistical model follow Haye's PROCESS Model 6 (2013), as shown below (fig.2). All hypotheses were tested using a 95% confidence level.

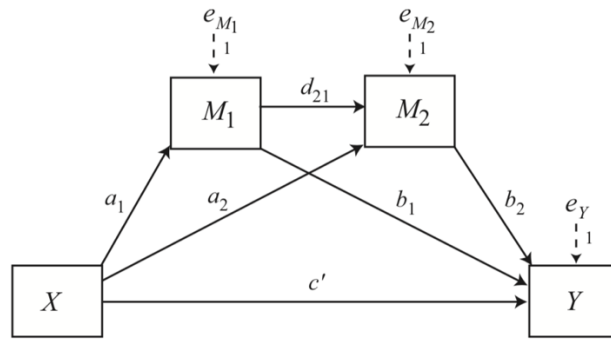


Figure 2- Hayes' Process Model 6 (Statistical Diagram)

CHAPTER 4: RESULTS

The following chapter compiles and interprets data collected during qualitative and quantitative investigations further discussed in the following chapter.

4.1 Qualitative Analysis – Preliminary Research

After describing the developed sample frame, the qualitative findings extracted from personal interviews are explored, which emphasized the contextualization of key study variables and validated the developed stimuli, this way supporting the use of a mixed methodology approach.

4.1.1 Sample Characterization

Table 2 presents the sample frame developed for the execution of qualitative research. In hindsight, having more resources would have allowed for the inclusion of a wider variety of different aged women, from various nationalities and backgrounds which would possibly have produced more insightful results. Nevertheless, findings were sufficient for the extraction of noteworthy conclusions thus meeting the established research objectives. Also, interviewing both MC users and nonusers proved to be a sensible choice in drawing important conclusions. Lastly, all nonusers revealed being somewhat familiar with MCs, even though a brief illustrated description was provided to some participants.

Stimuli		Name	Age	Nationality	Education level	Occupation
Exposed to	vWOM	C.P.	23	PT	Bachelor's degree	Master student
		M.F.	22	PT	Bachelor's degree	Master student
		I.S.	23	PT	Master's degree	Data scientist
		I.M.	24	PT	Master's degree	Brand management trainee
		J.B.	49	PT	Bachelor's degree	Business owner
		I.V.	24	PT	Highschool diploma	Bachelor student
	pWOM	M.C.	23	PT	Bachelor's degree	Manager of social projects
		S. L.	25	PT	Master's degree	Unemployed
		C.F.	30	PT	Master's degree	Lay missionary
		A.H.	27	DE	Bachelor's degree	Master student
		S.M.	20	PT	Highschool diploma	Undergraduate student
		M.R.	27	PT	Master's degree	Personal trainer

Table 2- Sample Used for Personal Interviews

4.1.2 Results from Qualitative Analysis- Personal Interviews

Qualitative research confirmed menstruation still remains a sensitive topic. While some participants appeared comfortable discussing female hygiene openly (“this is a natural thing, we shouldn’t be afraid to talk about it”), others revealed considerable hesitation and required extra encouragement, thus supporting the chosen research approach.

WOM

Interviewees recognized recommendations from friends and family would be a highly encouraging factor for the adoption of a new menstrual product (“I literally started using my MC because my best friend convinced me to”). This implies that despite the apparent stigma, women seem open to discussions with friends and family, which emphasized the potential role WOM might have within MC acceptance. While close acquaintances seem to be a compelling driver of MC acceptance, and the to-go source of authentic and reliable feedback, women appear to count upon online content, shared by other consumers including written product reviews and videos, for a wide array of personal experiences, and helpful insights. Some stressed how expert opinion might also be desirable, which is conveniently available online. Yet, when it came to sharing information, contrasting points of view emerged. While most MC users seemed very confident and prone to share their thoughts about MCs in a rather evangelistic manner (“this is a natural thing, we shouldn’t be afraid to talk about it”), some nonusers would rather keep related discussions among friends and family only. In contrast, when it comes to the world wide web, many would prefer not disclosing their identities, and remain silent participants of such discussions.

On these grounds, qualitative research reaffirmed the potential roles of personal and virtual WOM during consumer decision making process in the MC market, thus supporting the research objectives proposed by this analysis.

Attitudes

An interesting pattern was revealed during interviews. Participants consistently demonstrated willingness and desire to replace their currently preferred menstrual product for a more affordable alternative that would be environmentally friendly, and/or that could be safely worn for longer periods of time, all of which are key attributes of MCs. In view of the fact that all nonuser interviewees revealed being somewhat familiar with the product in question and acknowledge their needs and desires would be thus attended, it is quite likely they have developed certain internal beliefs currently preventing them to embrace MCs.

In agreement with previous literature, interviewees generally revealed unfavorable attitudes towards MC use mostly due to fear and anxiety about wearing such a “peculiar” product (ex: wrongful perceptions of size), and appeared skeptical to how it would meet their own realities (ex: emptying and rinsing when not at home).

Qualitative research contributed to the conceptualization of TAM’s fundamental variables, PU and PEOU, in the context of consumer attitudes towards the use of MCs and emphasized their importance in product acceptance.

Perceived Usefulness (PU)

In harmony with Davis’s definition of PU, it was pointed out by nonusers that MCs would possibly enhance menstrual routines and possibly performance on other everyday tasks, by for example, giving an end to monthly shopping of menstrual supplies, thus saving time and effort. Also, nonusers revealed MCs could “be used advantageously” (Davis, 1989) when producing significantly less waste than other products, being better for women’s health and implying considerably lower costs. Still, from nonuser’s perspective, MCs fail to be perceived as a useful particularly when at work or public bathrooms (“very impractical”, “It’s not like I can just borrow one”) and not appropriate for women with little flow, thus contributing to unfavorable attitudes. Since users point out that the 12h hour capacity avoids any maintenance during the day, it is reasonable to assume that usefulness perceptions among nonusers have a lot of room of improvement. Interviews illustrated the concept PU for the present context and revealed a clear connection between women’s PU and attitudes within the MC market.

Perceived Ease of Use (PEOU)

When it comes to the effort investment consumers believe will be required of them for the use of a MC, negative perceptions seem to have been developed as well, consequently aggravating PU and attitudes. In accordance with previous research, nonusers appear to feel apprehensive about the insertion and removal of a MC (“It gives me a lot of anxiety”), which naturally contributes to negative attitudes. Likewise, MCs are often not perceived as user-friendly nor intuitive, which convinces them they would not be able to properly insert it, consequently fearing discomfort (“it seems very big, does it hurt?”) and even overflowing or leakage. At the same time, it is believed that a water supply immediately next to the toilet is indispensable (“(...) there would have to be a national campaign (...) water available on all public bathrooms”), which, as explained by users is easily overcome through the 12-hour capacity, or if necessary, by carrying a water bottle or hygienic wipes. On that account, it is clear

misconceived beliefs towards MC's ease of use have been developed, consequently affecting PU and attitudes. Some nonusers point out that having access to additional information would certainly facilitate and diminish the effort required to first use a MC ("If well-informed, I think would get the hang of it. Does it come with instructions?"), which indicates that external interventions can be designed to emphasize PEOU of MCs.

As it is the case of PU, personal interviews indicate PEOU's is an appropriate factor for the study at hand and demonstrated a clear correlation to the developed consumer attitudes towards MC usage.

Stimuli Validation

Having contextualized all key variables to the context of MCs, which also exposed clear linkages among them, personal interviews were used to validate the stimuli used for further quantitative analysis, as has been explained before. On that note, the pWOM stimulus was generally considered very realistic ("really sounds like one of us"). After being shown this stimulus, attitudes among nonusers seemed to improve significantly ("seriously thinking about buying one now"). Likewise, nonuser's confidence on MC's PEOU improved considerably ("I had no idea you didn't have to empty it during the day"). Participants appreciated the honesty behind a friend's recommendation and reveal that admitting to a possibly required "trial and error" phase, is actually a confidence builder, as they feel they can form very realistic expectations. Knowing that a close friend was able to use a MC and being clearly recommended appeared to be very encouraging for most participants.

PU seemed to improve as well, by broadening participant's knowledge of MCs ("I've never thought about it before, I would never run out of supplies anymore", "It would be nice not having to run to the bathroom all the time"). Overall, pWOM stimulus significantly impacted participant's internal beliefs and attitudes towards using MCs, thus proving to be a reliable tool for further analysis.

The group exposed to the vWOM stimulus, revealed finding customer reviews very trustworthy and insightful sources of product information ("I trust reviews a lot, especially when it comes to health topics"). After being shown this stimulus, attitudes among nonusers seemed to improve considerably as it was found very educational, informative, and also very honest.

This stimulus sparked a lot of curiosity among nonusers, inspiring them to search more about this product, and read other reviews. While one participant revealed she would definitely want to try a MC after reading this review, others disclosed it felt slightly unpersonal and would want to consult other sources, such as friends and family before making a final decision. Being

reassured of the 12h capacity and informed of additional health benefits they weren't aware of before, significantly emphasized PU among nonusers. Likewise, PEOU seemed to improve, as participants would trust this women's word that she was be able to master her MC after the second attempt. In comparison to pWOM, vWOM provoked curiosity for MCs, but not necessarily desire to try for most participants. Yet, the developed vWOM stimulus seemed to trigger changes in participants internal beliefs and attitudes, thus demonstrating to be appropriate and relevant for the study at hand.

Bearing in mind, interviewed MC users supported the veracity and realism of the developed stimulus, and considering nonusers demonstrated responsiveness to both, no changes were made to neither of the developed stimuli.

In sum, qualitative findings supported the relevance and contextualization of TAM's fundamental variables to the present context and additionally suggested how misconceived internal beliefs have possibly been developed and might be generating negative attitudes among potential users. Also, general willingness to adopt a product that would have some of the core characteristics in MCs was revealed. Using the validated stimuli, a survey questionnaire was designed and tested, to quantify data and attain results that are representative of a bigger population of women and are therefore essential for the formulation of reliable recommendations.

4.2. Quantitative Analysis- Survey Questionnaire

This section starts by characterizing the sample used during quantitative analysis, followed by addressing the internal consistency and unidimensionality of each variable, and further explores the undertaken descriptive research. Secondly, each hypothesis is individually considered, and thus rejected or accepted according to the conducted inferential analysis.

4.2.1 Sample characterization

A total of 374 people were recruited, of which 290 valid participations were extracted after excluding 73 unfinished participations and 11 male respondents (app. 3.1). Hypothesis testing was conducted using nonusers, which corresponded to a pool of 214 participants. Nonetheless, the sample size proved to be sufficient to conduct the analysis and uncover valid results.

The sample comprises mainly Portuguese women (89%), between the ages of 19 and 30 (66,6%). Most have a college level education (84,5%) and are either working full time (48,6%)

or still studying (36,2%). Finally, 32,1% benefit of a net monthly income of 500€ or lower (32,1%), and higher amounts are fairly distributed among the remaining participants.

When it comes to their current choice of menstrual products, most participants currently use either sanitary pads (33%) and/or tampons (35,3%), and only 16,4% of participants report using MCs, and these values appear to be fairly stable in comparison to their previous choices (app. 3.3). In what concerns to familiarity with MCs, only 16,9% of participants revealed being not at all familiar (app. 3.4).

4.2.2 Results from Quantitative Analysis- Online Survey

At a first glance, participants appeared to respond positively to the stimulus they were exposed to. For one, 43,1% believe their interaction with a MC would be clear and understandable which, as inferred from previous secondary and primary research is considered an obstacle to many. In turn, more neutral answers were given when questioned about the potential of MCs to improve performance, productivity and effectiveness on other activities beyond their menstrual routines, which might indicate a need to emphasize performance specificities of this product. Yet, when asked specifically about their menstrual routines, 37,9% believe they would find this product useful. Finally, almost half of all participants (49,3%) disclosed that it would make sense to use a MC, and that all things considered, using this product would be very beneficial (45,9%), which leads to speculation that after being exposed to the stimuli, participants could see some advantages of introducing this product into their own menstrual routines (app 3.5 to 3.7).

By conducting Exploratory Factorial Analysis (EFA), it was possible to find the 3 underlying constructs behind the original 18 variables (Johnson, 2007): attitudes towards using MCs, perceived usefulness and perceived ease of use. Attitudes produced a KMO above 0,9 which is superb, while values for PEOU and PU were great (between 0,8 and 0,9), which indicates distinct and reliable factors were yielded during factor analysis (Field, 2009). Moreover, the internal consistency was verified using Cronbach's Alpha (tbl. 3), revealed excellent values (>0,9) for PEOU, PU and attitudes, this way confirming the overall reliability of the questionnaire (Field, 2009). Finally, the total variance explained is the highest for attitudes at 80,11%.

Construct	KMO	Sig. a)	Dimensions	% of Variance	Cronbach's Alfa	Nr of items
Perceived usefulness (PU)	.891	.001*	1	77,66	.931	6

Attitudes towards using MC	.912	.001*	1	80.11	.906	6
Perceived ease of use (PEOU)	.892	.001*	1	72.5	.904	6

Table 3- EFA and Internal Consistency.

Indeed, as can be seen in appendix 4.7, remarkably consistent answers were given to all questions regarding attitudes, which is in line with the extraction of a distinct and reliable construct.

4.2.2.1 Manipulation Check

As a means to understand whether the manipulation of the stimuli was successful, an independent samples t-test was conducted since each half of the sample was randomly exposed to one of the two stimuli, pertaining to either pWOM or vWOM. This way, it was possible to understand whether the resultant mean level of perceptions and attitudes are significantly different. To that end, each stimulus was transformed into a dummy variable, where pWOM corresponds to the value 1, and vWOM to the value 0.

As presented in the table below, it can be concluded that on average, participants exposed to pWOM show higher PEOU (3.93 (± 0.35) vs. 2.58 (± 0.57)), PU (3.17 (± 0.80) vs. 2.58 (± 0.86)) and attitude values (4.00 (± 0.81) vs. 3.32 (± 0.83)), than the ones exposed to vWOM, and the respective difference for each different dimension is statistically significant ($p < 0.001$). Hence, it is reasonable to assume that the manipulation was successful.

	pWOM		vWOM		<i>p</i>
	mean	(sd)	mean	(sd)	
PEOU	3.93	(0.35)	2.58	(0.57)	<0.001
PU	3.17	(0.80)	2.58	(0.86)	<0.001
Attitude	4.00	(0.81)	3.32	(0.83)	<0.001

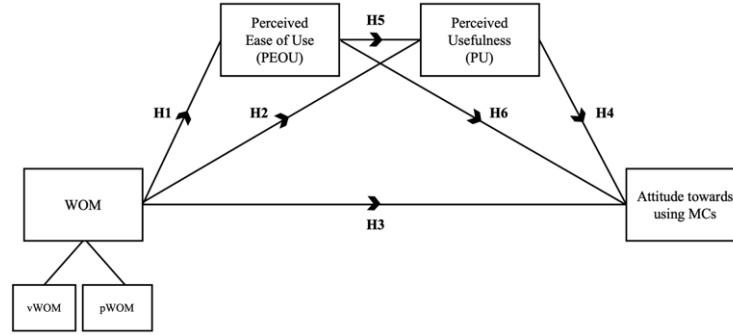
Table 4- Independent T-Test. Sd-Standard Deviation

4.2.2.2 Hypothesis Test

H1 to H6 were tested using linear regressions, while mediation analysis was used to test H7 and H8. All hypotheses were tested using a 95% confidence level. Since hypothesis 1 to 6 all propose positive relationships between variables, the chosen method to assess these relationships was constructing a simple linear regression considering the two respective variables in question, and thus test the significance of the correlation coefficient (β_1). This is done resorting to a one-tailed hypothesis test on the correlation coefficient with null hypothesis

$\beta_1 \leq 0$ and alternative hypothesis $\beta_1 > 0$. The diagram below illustrates the relationships under analysis.

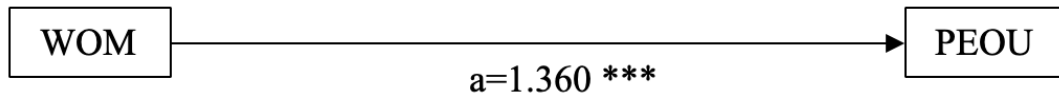
Hypothesis 7 and 8 propose that both PEOU and PU mediate the relation between WOM stimuli (pWOM and vWOM) and attitudes towards using MCs, this way following model 6 of PROCESS by Hayes, 2013 with a 95% confidence level. The resultant matrix is presented in appendix 3.15.



H1: WOM has a positive effect on PEOU of MCs.

The first hypothesis can be translated into the following linear regression: $PEOU = \beta_0 + \beta_1 WOM + \varepsilon$, $\beta_1 > 0$. All linear regression assumptions were verified, as can be seen in appendix 3.8. Meaning, residuals are not correlated, the error is normally distributed and has zero mean and there is evidence of homoscedasticity. The model is statistically significant ($F(1;212) = 414.047$, $p < 0.05$) and the variance in WOM explains 67.5% of variance in PEOU of MCs. The β_1 is 1.360 with $p < 0.05$ which suggests that on average, a one unit increase in WOM increases 1.36 units in PEOU. Accordingly, H1 is verified meaning that the null hypothesis that WOM does not have a positive effect on PEOU of MCs, is rejected.

As has been mentioned before, dummy variables were created such that the value 0 pertains to vWOM. That being said, it can be concluded that participants exposed to the pWOM stimulus, have on average 1,360 more values of PEOU, than the ones exposed to vWOM, which as has been explained is a positive ($\beta = 1.360 > 1$) and significative ($p < 0,001$) effect. By conducting an independent samples t-test (app. 3.8), it has been found that the effect of pWOM and vWOM are different, and this difference is statically significant ($p < 0.000$). All the assumptions of this test were verified, meaning two groups are being compared (exposed to pWOM vs pWOM); the dependent variable PEOU, is continuous, and since the sample size in each group is over 50 it can be assumed that PEOU is normally distributed. In this particular case, the Levene's test is statistically significant ($p < 0.05$) so there is homogeneity of variance (McCormick & Salcedo, 2015).



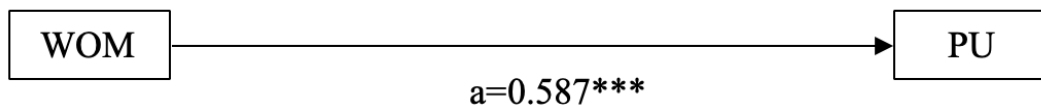
Note:

—————> Sig. - - - - -> No Sig. *p <.05 **p <.01 ***p <.001

H2: WOM has a positive effect on PU of MCs.

The second hypothesis can be translated to the following linear regression: $PU = \beta_0 + \beta_1 WOM + \varepsilon$, $\beta_1 > 0$. Again, all linear regression assumptions were verified, as shown in appendix 3.9. That is, residuals are not correlated, the error is normally distributed and has zero mean and there is evidence of homoscedasticity. In this case, the model is statistically significant ($F(1;213) = 26.795$, $p < 0.05$), and the variance in WOM explains 11.2% of the variance in PU of MCs. Moreover, β_1 is 0,587 with $p < 0.05$, thus suggesting that on average, a woman exposed to one more unit of WOM, will have her PU of MCs increased by 0,587 units. On that note, H2 is verified, meaning the null hypothesis that WOM does not have a positive impact of PU of MC, is rejected.

Again, participants exposed to pWOM, have higher values of PU of MC (0,587 on average), then the ones exposed to vWOM, and this is a positive ($\beta = 0,587 > 0$) and significative ($p < 0,001$) effect. Following the same rationale, it has been found through an independent samples t-test (app. 3.9) that the effect of pWOM and vWOM are different, and this difference is statically significant ($p < 0.000$). Again, all the assumptions of this test were verified, meaning two groups are being compared (exposed to pWOM vs pWOM); the dependent variable PU, is continuous, and since the sample size in each group is over 50 it can be assumed that PEOU is normally distributed. In this particular case, there is no homogeneity of variance since the Levene's test is not statistically significant ($p < 0.05$), consequently the test needed to be adjusted (McCormick & Salcedo, 2015).



Note:

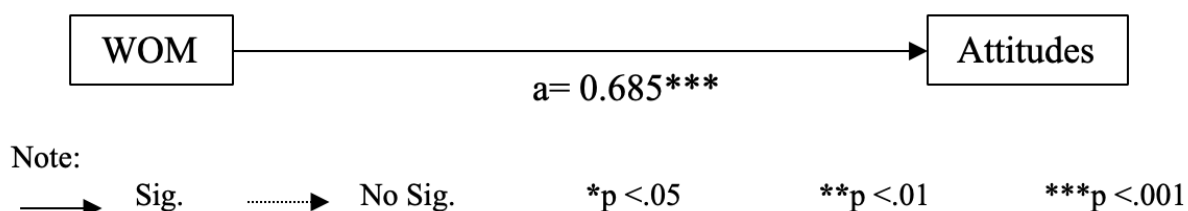
—————> Sig. - - - - -> No Sig. *p <.05 **p <.01 ***p <.001

H3: WOM has a positive impact on consumer attitudes towards using MCs.

Hypothesis 3 reflects the following linear regression: $Att = \beta_0 + \beta_1 WOM + \varepsilon$ and $\beta_1 > 0$. As shown in appendix 3.10, all linear regression assumptions were verified. In particular,

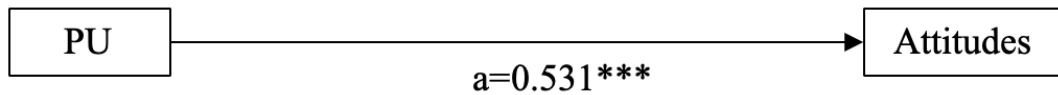
residuals are not correlated, the error is normally distributed and has zero mean and there is evidence of homoscedasticity. Here, the model is statistically significant for $F(1;212) = 25.130$, $p < 0.05$, and the variance in WOM explains 15% of the variance attitudes. Also, β_1 is 0.14 with $p < 0.05$ which following the same rationale suggests that a one unit increase in WOM increases 1.36 units in attitudes towards using MCs. Hence, H3 is verified, this way rejecting the null hypothesis, that WOM does not have a positive impact on consumer's attitudes towards using MCs is rejected.

Finally, in relation vWOM, participants exposed to the pWOM stimulus had more positive attitudes towards using MCs (0,14 on average) and this effect is a positive ($\beta = 0,14 > 0$) and significative ($p < 0,001$) effect. Again, the independent samples t-test (app. 3.10) revealed that the effect of pWOM and vWOM are different, and this difference is statically significant ($p < 0.000$). All assumptions of this test were verified, meaning two groups are being compared (exposed to pWOM vs pWOM); the dependent variable attitudes, is continuous, and since the sample size in each group is over 50 it can be assumed that Attitudes is normally distributed. In this particular case, there is no homogeneity of variance since the Levene's test is not statistically significant ($p < 0.05$), hence the test needed to be adjusted (McCormick & Salcedo, 2015).



H4: *PU has a positive effect on consumer attitudes towards using MCs.*

Hypothesis 4 can be translated to the following linear regression: $Att = \beta_0 + \beta_1 PU + \varepsilon$ and $\beta_1 > 0$. In the same manner, all linear regression assumptions were verified as shown in appendix 3.12. In particular, residuals are not correlated, the error is normally distributed and has zero mean and there is evidence of homoscedasticity. The model is statistically significant for $F(1;212) = 73.603$, $p < 0.05$, and the variance in PU of MCs explains 25.8% of the variance in women's attitudes towards using MCs. Finally, β_1 is 0.531 with $p < 0.05$, thus suggesting that on average, if a woman perceives MC to be useful for one unit more, her attitudes towards using this product increase by 0.531 units. Hypothesis 4 is thus verified, and the null hypothesis that PU does not have a positive effect on consumer attitudes towards using MCs is rejected.

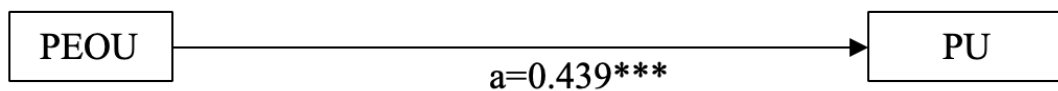


Note:

—————> Sig. > No Sig. *p <.05 **p <.01 ***p <.001

H5: *PEOU has a positive effect on PU of MCs.*

The fifth hypothesis reflects the following linear regression: $PU = \beta_0 + \beta_1 PEOU + \varepsilon$ and $\beta_1 > 0$. In the same fashion, all linear regression assumptions were verified, as can be seen in appendix 3.13. Accordingly, residuals are not correlated, the error is normally distributed and has zero mean and there is evidence of homoscedasticity. The model is statistically significant ($F(1;212) = 43,831$, $p < 0.05$) and the variance in PEOU explains 17.1% of variance in PU of MCs. The β_1 is 0,439 with $p < 0.05$, hence, on average, it is reasonable to say that a one unit increase in PEOU increases 0,439 units in PU of MCs. On that note, H5 is verified meaning that the null hypothesis that PEOU does not have a positive effect on PU of MCs is rejected.

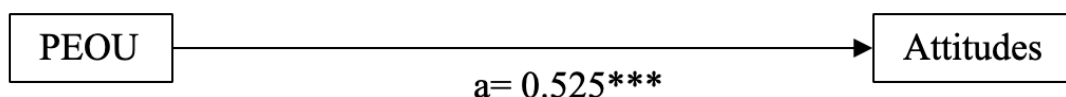


Note:

—————> Sig. > No Sig. *p <.05 **p <.01 ***p <.001

H6: *PEOU has a positive effect on consumer attitudes towards using MCs.*

Hypothesis 6 represents the following linear regression: $Att = \beta_0 + \beta_1 PEOU + \varepsilon$ and $\beta_1 > 0$. As presented in appendix 3.14, all linear regression assumptions were verified, hence residuals are not correlated, the error is normally distributed and has zero mean and there is evidence of homoscedasticity. Furthermore, the model is statistically significant ($F(1;212) = 61.366$, $p < 0.05$) and the variance in PEOU explains 22.4% of variance in women's attitudes towards using MCs. The β_1 is 0.525 with $p < 0.05$ which suggests that on average, a one unit increase in PEOU of MCs increases 1.36 units in attitudes towards using MCs. Finally, H6 is verified meaning that the null hypothesis that PEOU does not have a positive effect on consumer attitudes towards using MCs is rejected.



Note:

—————> Sig. > No Sig. *p <.05 **p <.01 ***p <.001

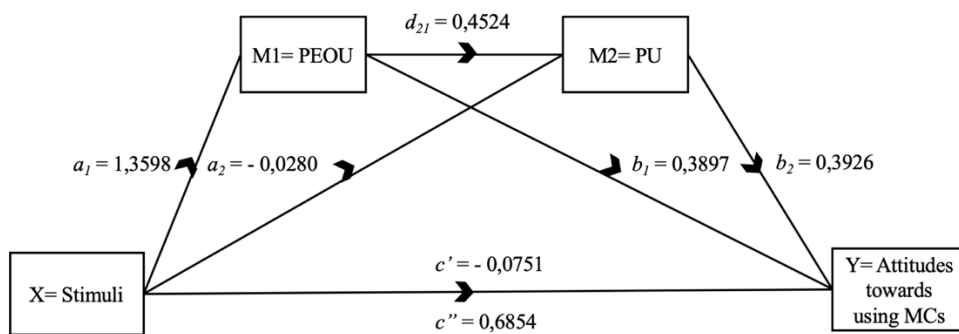
4.2.2.2.1 Mediation analysis

H7: PEOU mediates the relationship between WOM and consumer attitudes towards using MCs.

H8: PU mediates the relationship between WOM and consumer attitudes towards using MCs.

For the mediation to be considered significant, the indirect effect has to be significantly different from zero. Indeed, since the bootstrapping values should not cross zero, PEOU and PU can be considered mediators of the relationship between the stimuli and attitudes. In other words, this effect is significantly different from zero, because the confidence interval does not cross zero. Along the same lines, the single moderation between Stimuli- PEOU- Attitudes generates most of the total indirect effect, which is also statistically significantly (bootstrapping values do not cross zero). In contrast, the single moderation between stimuli- PU- Attitudes, is not statistically significant, which suggests PU is not a mediator between the stimuli and attitudes towards using MCs.

That being said, data supports H7, but not H8, meaning that the null hypothesis that PEOU does not mediate the relationship between WOM and consumer attitudes towards using MCs was rejected, however, the null hypothesis that PU does not mediate the relationship between WOM and consumer attitudes towards using MCs could not be rejected (app. 3.15)



4.3 Additional Research

As has been previously explained, only participants who don't use a MC were considered during hypothesis testing. Yet, additional research comparing users and nonusers was conducted for exploratory purposes. On average, women who currently use a MC, present higher PEOU, PU and attitudes values. As presented in appendix 3.16, current users have higher PEOU mean values (4,13) than nonusers (3,26), and this difference is statistically significant ($p < 0,001$). The same can be said for PU (4.04 (± 0.76) vs. 2.88 (± 0.88)) and attitudes (4.86 (± 0.37) vs. 3.32 (± 0.83)). These findings support that perceiving a MC to be useful and easy to use, emphasizes positive attitudes towards using this product.

CHAPTER 5: CONCLUSIONS AND LIMITATIONS

The following chapter aims to finally connect the research findings described in chapter 4, with the expectations from the literature review and the research questions. Study limitations and further research are contemplated in the very end of this chapter.

5.1 Main Findings & Conclusions

Overall, the purpose of this study was to understand the influence of both WOM (personal and virtual), as well as consumer's internal beliefs about MCs (PEOU and PU), on attitudes towards using such a product. As expected through secondary and primary investigations, over half (61,7%) of participants were at least somewhat familiar with MCs, while only 16,4% revealed actually using a MC which at least hints that internal beliefs and attitudes may actually be discouraging women to embrace such an advantageous product.

In relation to the first proposed RQ, quantitative findings are consistent with the work of previous authors who found positive relations between attitudes and TAM's fundamental variables (PEOU and PU), within the consumer market, as these do seem to verify in the context of MCs. In line with previous research by Davis et al (1989) and Venkatesh and Morris (2000), results indicate that a woman who perceives a MC to be easy to use is likely to not only perceive this product to be useful, but also to feel more intrinsically motivated to use one. On the other hand, findings indicate that emphasizing how a MC can be used to the consumer's advantage by increasing effectiveness during menstrual routines and improving performance in other activities (PU), can also generate positive attitudes towards using this product. Yet, when designing externally controllable interventions, it is important to keep in mind that general PU must outweigh PEOU, and communication efforts should be made accordingly.

When it comes to RQ2, basic findings are consistent with what had been suggested through personal interviews and appear to be in line with the work of Kawamaki and Parry 2013, and Parry et al 2012, wherein WOM can indeed generate more positive consumer attitudes towards the use of a MC. In fact, while most participants reported using alternative menstrual supplies in the beginning of the study, over a third of participants revealed they intend to use a MC after being exposed to a stimulus, and almost half of participants reveal thinking other consumers should do as well. Another promising finding is that WOM, can influence consumers subjective appraisals of both performance and effort towards the menstrual technology in question, even though the latter seems to be influenced the most as the WOM-PEOU link had the strongest coefficient.

A further novel finding is that when it comes to MCs, the source of WOM is in fact relevant for the consumer decision making process (RQ3). Consumers are more likely to develop favorable attitudes towards using a MC if WOM is generated from a personal source. The same can be said for consumer perceptions, creating communication strategies that incentive face-to-face conversations among friends and family about the MC, will most likely increase ease of use and usefulness expectations about this product, when comparing to virtually transmitted information among consumers who don't know each other personally, which is very much in line with the studies reported by Oster and Thornton (2012) that hinted a strong connection between peers and PEOU of MCs.

The present study further confirmed how consumer's internal beliefs (PEOU and PU) play a mediating role between WOM and attitudes towards using a MC. However, contrary to the findings of Davis et al. (1989) when looking at each factor individually, only PEOU mediates the relation between WOM and attitudes towards using a MC. That being said, when designing WOM strategies, it is important to keep in mind that besides the direct effect WOM can have on consumer attitudes towards the use of MCs, there is also an indirect effect through PEOU and PU, as well as PEOU individually.

Finally, it is relevant to mention that additionally conducted research further supports that perceiving a MC to be useful and easy to use, emphasizes positive attitudes towards using this product, further supporting a strong relation between attitudes and behavioural intention reported by Ajzen.

All things considered, this paper casts a new light on relevant antecedents of women's attitudes towards using MCs, not only by demonstrating that consumers expectations regarding this product's ease of use and usefulness might be at the root of general unfavorable attitudes, but also by illustrating how WOM can have a positive effect on each dimension, especially when generated by personal sources. Against this background, findings provide a mechanism for brands to develop adequate marketing strategies, further explored below.

5.2 Managerial / Academic Implications

A first key takeaway from the present study implies that before designing any communication strategies with the goal of generating positive attitudes towards the use of a MC or other technologies alike, brands should first gather a good understanding of how it is perceived by consumers at that point in time. Particularly, how useful and easy to use potential users expect this product to be and additionally, how these compare to each other. Only then, should brands

plan to emphasize either or both PEOU and PU, as deemed necessary, keeping in mind PU should outweigh PEOU.

Among the many communication strategies that can be employed, it is suggested that brands consider a WOM strategy, integrated in a wider marketing plan (Graham & Havlena, 2007), that can directly influence consumer attitudes towards the use of MCs, and additionally exert an indirect effect through consumer expectations of the product's usefulness and ease of use. Even though either source of WOM can originate positive outcomes, it is recommended that brands prioritize encouraging pWOM among consumers, in place of vWOM. In other words, when aiming to shape consumer's expectations regarding how easy to use and useful a MC might in reality be with respect to other alternative menstrual supplies, it is highly recommended that brands encourage personal WOM, that will spark curiosity among potential MC users and encourage current users to share their personal experiences and other relevant information, which as indicated during personal interviews, is something consumers would feel more open to when in the privacy and comfort of being among family, friends and acquaintances. Having this in mind, brands should develop communication strategies that spark conversations among consumers, using a wide variety of channels including but not limited to print and in-store (Keller & Fay, 2012). On that note, targeting influencers may be an effective course of action, as it can boost the impact and efficiencies of WOM marketing (Keller & Fay, 2009).

If, on the other hand, brands opt to take a more virtual approach to encourage WOM it is recommended that web pages are created, where both current and potential MC users can discuss concerns and points of view and learn from each other's feedback.

From a managerial point of view, the extracted findings thus provide a basis of potential mechanisms for the development of adequate marketing strategies that emphasize positive consumer attitudes towards the use of MC and possibly other products alike. Academic wise, the present analysis makes an important contribution to existing technology acceptance literature, by supporting the application of TAM's fundamental variables, PEOU and PU, within a consumer context, towards a technology of voluntary use, the MC.

5.3 Limitations and Further Research

One concern about the findings of the present study lies in the lack of MC literature within the consumer market and technology acceptance contexts. On this account, secondary investigations were often based on literature regarding technology acceptance of a variety of other consumer products.

From another point of view, the approach utilized suffers from the limitation that the sample used for personal interviews was composed of 12 participants only, which is relatively small. On the other hand, the sample used to conduct quantitative research was mostly Portuguese women between the ages of 19 and 30, which poses as a major source of limitation by originating biased and not sufficiently diversified data. For instance, people in lower age ranges tend to be more technology-ready and sensitive to peer opinions (Schepers & Wetzels, 2007). Nevertheless, since unfavorable attitudes towards the use of MCs seem to be a general problem not necessarily restricted to the Portuguese population, it is possible the attained results are generalizable to similar populations in other countries.

Looking forward, interesting questions for future research can be derived from assessing the remaining variables in the TAM model, namely: behavioral intention to use and actual use, since the attitudes-behavior linkage is sometimes questioned (Solomon, 2012). Accordingly, as suggested by Davis (1989), future research should continue to explore how PEOU, PU and acceptance relate to other new and relevant variables. For instance, consumer pro-environmental attitudes might be an interesting line of research as sustainability has become a rising consumer trend in recent years, and also since it was consistently brought up quantitative investigations. Finally, analyzing the impact of traditional communication channels in consumers internal beliefs and attitudes towards using MCs, might also be an interesting topic for future studies, as these may be complementary of one another (Vázquez-Casielles, Suárez-Álvarez, & del Río-Lanza, 2013).

APPENDICES

APPENDIX 1: PERSONAL INTERVIEW QUESTIONNAIRE AND ANSWER NOTES

Introduction		
Interviewer: My name is Clara, I am a master student at Católica Lisbon School of Business and Economics, and I'm currently conducting interviews for the purpose of master thesis. Thank you very much for being here with me today, your contribution is very important to my study. Please keep in mind there no right or wrong answers, and your full honesty and disclosure is highly appreciated. Also, all of your answers will be used for the purpose of this study only and will be kept in complete confidentiality. Finally, do you give consent for the audio recording of this interview? <u>Note:</u> the interview should not proceed without the participant's consent for audio record. This interview will take, approximately 10 min. Before we begin, do you have any questions?		
Top.	Questions	Answer notes and observations
General	1.What type of menstrual products do you usually use or have used before?	<i>All nonusers wear tampons and/or pads only. One recent MC user feels the need to wear pads simultaneously.</i>
	2.What would motivate you to try a new female hygiene product?	<i>Majority of participants would try a new product if it were cheaper, healthier, more environmentally friendly, and if it would be wearable for longer periods of time before reaching full capacity. Some mentioned friend/family recommendations and more practicality. For MC users, sustainability is a priority. Affordability was a key factor for most participants.</i>
	3.How would you obtain more information about a female hygiene product?	<i>All interviewees said they would first google the product. After that, some interviewees said they would talk to friends and family about their own personal experiences and opinions, while others would consult their gynecologist. Two said they would ask in pharmacies.</i>
	4. For nonusers: Do you know what a MC is?	<i>All nonusers were somewhat familiar with MCs.</i>
	 The interviewees who are unfamiliar about MCs or want to be recalled, should be briefly explained and showed a simple, unbranded picture of a MC: “A reusable Menstrual Cup is a bell-shaped device, available in different sizes, that collects menstrual flow internally, instead of absorbing like tampons. It can be worn for up to 12 hours before having to be emptied, rinsed and reinserted. When not in use, Menstrual Cups should be stored after thoroughly being washed and boiled. If properly taken care of, Menstrual Cups can last around 10 years, before having to be replaced.”	
Attitudes	5.For users: How long have you been using your MC (or have used before)?	<i>Most users were using MCs over a year. No nonuser had ever tried a MC before.</i>
	6 How do you feel about MCs? (If needed: Can you elaborate on that idea?)	<i>Sustainability was the main reason encouraging users to adopt MCs, followed by affordability. Comfort was a plus. Some nonusers feared about the “peculiarity” of this product, others had a lot of anxiety due to wrongful perceptions of size. Most nonusers revealed having a lot of anxiety and doubts about emptying and rinsing the MC,</i>

MC related communication sources		<i>particularly when not at home. Three participants were specifically discouraged for doing this step at all, thinking it would be very messy (“menstrual blood, on the floor everywhere”) and even unhygienic (don’t want to have menstrual blood on my hands”).</i>
	7.How would you describe the typical user of MCs?	<i>Most participants visualize an open-minded woman, in their 20s-30s, who is extremely environmentally conscious, who would be willing to do a sacrifice (the learning curve) of adapting to a new menstrual product for the sake of the environment, or someone who is very sensitive to prices. Also, most participants suggested it would have to be someone who is comfortable with using tampons. Some nonusers pointed out it that it would need to be someone very courageous, and innovative. One nonuser considers MCs ideal for very busy people who are looking for practical solutions. Two users believe there is no specific MC user profile, it should be worn by everyone.</i>
	8.In what ways have you ever heard about MCs?	<i>Most participants recall seeing MCs on social media posts (mainly Instagram and FB) and ads; and recently through friends and family. One user participant first heard about MCs through PAN political group. Two users first heard about MC through sustainability dedicated Facebook groups (“I’ve seen many MC related discussions on LixoZero”), and youtubers. Two user participants shared they started using a MC, because of a friend recommendation (“I literally started using my MC because my best friend convinced me to”)</i>
	9.MCs are quite different from other menstrual products, in case you needed to know more about this product what would you do?	<i>Majority of participants would google MCs first. Some would check the brand’s website, read online reviews to learn about different experiences, others would look for video tutorials on YouTube, on how to insert the MCs (“there are tutorials for everything nowadays”). Most participants would ask close friends and family. Two nonusers said they would go personally to the store and talk to the assistant. One said she would ask her gynecologist. One user said she would call the brand’s support line.</i>
	10.Would you be willing to share your thoughts about MCs openly? In what ways?	<i>Some participants felt very comfortable talking about female hygiene and MCs openly, with friends and family (“this is a natural thing, we shouldn’t be afraid to talk about it”). However, when it came to social media or websites, many participants would not feel comfortable disclosing their identity, but find very interesting reading about it.</i>

		<i>Users appeared very keen to talk to others about MCs (“I’d talk to anyone about it, no problem”).</i>
Perceived Usefulness (PU)	11. Considering your menstrual routine, can you think of any advantages of using this product?	<i>All nonusers acknowledge environmental and waste reduction advantages, especially in terms of plastic. Some participants believed MCs would be healthier (“looks like it has less chemicals, which is nice”). Two participants doubted this health aspect, and (“can MCs really be better than tampons?”). Nonusers pointed out the financial advantages. Three participants think MCs users are not to be worn by women with little flow. Two nonusers believe it would probably cause less problems (ex: allergies) than pads. Besides sustainability, Also, most users consider MC more comfortable than pads/ tampons, and hygienic. Three users shared that since using the MC they got to know their bodies better and track any changes. Two users noticed how tampons would absorb beyond menstrual flow, causing a lot of discomfort (“dryness”). Some nonusers point out it would be nice not to have to shop for and carry menstrual supplies around. Users confirmed this saved a lot of effort required for menstrual routines (“I can spend the whole day with it, and just empty it at the end of the day”).</i>
	12.What about disadvantages?	<i>Majority of participants (users and nonusers) were worried about not at home situations. All nonusers were concerned with the maintenance of MCs when out-of-home (ex: at work or public bathrooms – “very impractical”). One participant didn’t see any disadvantage. Two nonusers were wondering about the logistics and unexpected situations (“Do I have to carry the MC everywhere I go? It’s not like I can just borrow one”). Many nonusers think the sterilizing process is time consuming, and not practical”. One user revealed she needs to carry a reusable water bottle or wipes with her all the time when menstruating. Other user reveals that she still needs to wear tampons in situations she can anticipate water availability might lack (“When I was camping with my boyfriend, I had to”). Most users agree that even though it’s not practical when not at home, they also rarely have to do it given the 12h capacity.</i>
	13.Overall, how do you think MC would change your menstrual routine (better/worse)? How?	<i>Some nonusers think it would improve for the better for not having to change tampons/pads during the day. Two participants think it wouldn’t change much. Some believe it would be for the worse given out-home scenarios. Users agreed their menstrual routines became effortless and less</i>

		<i>time-consuming since adopting MCs “I have more freedom now”. Also, two users shared MC overcame any odor problems they had before.</i>
Perceived ease of use (PEOU)	14. Considering other menstrual products, what are your thoughts about MCs?	<i>Most nonusers felt unease and doubtful about the process of inserting the MC (“It gives me a lot of anxiety (...). Does it come with instructions?”). However, some agree that having more information at hand like (“I think would get the hang of it, if well-informed”). Users reveal that before they were feared difficulty on inserting the product, but after watching video tutorials, and trial and error, they were able to insert it comfortably. Also, most users agree that inserting was a lot easier than expected.</i>
	15. How do you think MCs compare to your currently/previously preferred option?	<i>Nonusers agree MC do not look intuitive or user-friendly, in comparison with pads/tampons. Users reveal that indeed using a MC for the first couple of times requires more effort than other alternatives (“in the beginning it was very difficult. Things started to improve when I tried the S shape”), but after overcoming the learning curve it would become effortless.</i>
	16. Can you think of any benefits about using MC?	<i>While users believe MCs require less effort, nonusers couldn’t think of any MC benefits that pertained to ease of use.</i>
	17. What about concerns?	<i>All nonusers were very concerned about the first time using a MC. Most participants feared not knowing how to insert it and even fear of pain or discomfort (“it seems very big, does it hurt?”). Three nonusers had a lot of concerns about coming in contact with menstrual blood and felt uncomfortable touching their intimate parts. A lot of anxiety about overflow. Also, most nonusers believe that a provided water supply immediately next to the toilet is indispensable for the use of MCs (“I would need a bidet next to the toilet. I wouldn’t want someone to see my MC or my hands covered in blood, specially at work”). Users pointed out they need to guarantee that the MC is well inserted otherwise they might face being uncomfortable or even leakages. Two users are very afraid to insert too deeply and then struggling to remove it (“Fear to god that will happen to me”, “the stick is very short, I’m afraid I won’t reach it”). One user was so afraid of this she “tied a knot around the stick”. One user doesn’t wear her MC on long international flights because she is afraid the air pressure would push it down. Some nonusers showed a lot of fear and anxiety about overflowing and leakage One user revealed being afraid of</i>

		<i>during cycles of high flow, even though it never happened to anyone of her knowledge. One user is so afraid of leakages wear pads simultaneously which is very frustrating for her, but she admitted she was still learning (“I don’t think got the hang of it yet”).</i>
Stimuli	<u>Note:</u> Participants were randomly shown one of the two prepared stimuli associated with either pWOM and vWOM, and consequently asked to reflect on their given answers and share any possible change of thought or additional comments they might have regarding the conducted interview (app. 2)	
	17.a Personal WOM	In general, pWOM stimulus was considered to be very realistic (“really sounds like one of us”). After being shown this stimulus, attitudes among nonusers seemed to improve significantly (“seriously thinking about buying one now). Likewise, nonuser’s confidence relating to PEOU improved considerably (“I had no idea you didn’t have to empty it during the day”). Participants appreciated the honesty behind a friend’s recommendation and reveal that admitting to the “trial and error” is actually a confidence builder, as they feel they can form very realistic expectation. Knowing that a close friend was able to use a MC appeared to be very encouraging for most participants. Along the same lines, stimulus shown seemed to improve usefulness perceptions as well, as participants views on MC were broadened (“I’ve never thought about it before, I would never run out of supplies anymore”, “It would be nice not having to run to the bathroom all the time”). Users verified the veracity and realism of the provided stimulus. Overall, pWOM stimulus seemed to have a positive effect on most participant’s internal beliefs and attitudes towards MCs, additionally proving to be a reliable tool.
	17.b Virtual WOM	Most interviewees revealed finding customer reviews very trustworthy and insightful, and reliable sources of product information (“I trust reviews a lot, especially when it comes to health topics”). When shown this stimulus, general attitudes among nonusers seemed to improve, as it was found very educational and informative. This stimulus sparked a lot of curiosity among nonusers, and the writer’s honesty is very much appreciated. Most nonusers would want to know more about this product, and definitely read more reviews (never would they read only one). One nonuser said she would definitely want to try it after reading this review. Two disclosed it felt slightly unpersonal and would want to consult other sources, like friends and family. Being reassured of the 12h period significantly emphasized usefulness perceptions among nonusers, as well as health benefits they weren’t aware of before. Three nonusers wonder about whether this would be placebo. Users verified the veracity and realism of the provided stimulus.
Interviewer: That was the end of the interview. Thank you again for your participation. <u>Note:</u> Interviewer should make a brief sum up of the key topics covered during the interview. Do you have any questions or any comments you wish to add?		
<u>Additional comments:</u> <i>One nonuser mentioned she believed there would have to be a national campaign, and established laws for having water on all public bathrooms, only under these conditions would this product be a true possibility.</i> Two participants were very curious about this product, and wanted to know more about it, specially about the sterilizing and storing process.		
De mo	Age	<i>Participants were between 20-49 years old.</i>
	Nationality	<i>All Portuguese expect one German participant.</i>

	Education	<i>Minimum education level among participants was a high school diploma</i>
	Occupation	<i>Participants included full time workers, one unemployed, master and undergraduate students.</i>

APPENDIX 2: ONLINE SURVEY QUESTIONNAIRE

Block 1: Introduction

Dear participant,

I'm a master student at Católica Lisbon School of Business and Economics, and I'm currently writing my master thesis about women's attitudes towards menstrual cups.

Your participation is very important to my study. Please keep in mind there are no right or wrong answers, and your **honesty** is very much appreciated. Also, your answers will be used for the purpose of this study only, and will be kept in total **anonymity** and **confidentiality**. This survey takes around 8 minutes to complete.

Also, by completing this survey until the **end**, you have the chance to win a **40€ AMAZON eGift CARD !**

If you have any doubts or inquiries regarding this study, please do not hesitate to contact me (clarasacouto@gmail.com).

Thank you very much! Good luck!

Best regards,
Clara Sá Couto

BLOCK 2: CONTROL QUESTIONS

Q1

Please select your gender:

Male

Female

Q2

Which menstrual product(s) do **you currently use** (please select all that apply) ?

Tampons

Sanitary pads

Pantyliners

Menstrual cup

Cloth menstrual pad

Menstrual sponge

Other (please specify)

Q3

Which menstrual product(s) **have you ever used** (please select all that apply) ?

Tampons

Sanitary pads

Pantyliners

Menstrual cup

Cloth menstrual pad

Menstrual sponge

Other (please specify)

Q4

How **familiar** are you with menstrual cups?

Not at all familiar

Slightly familiar

Somewhat familiar

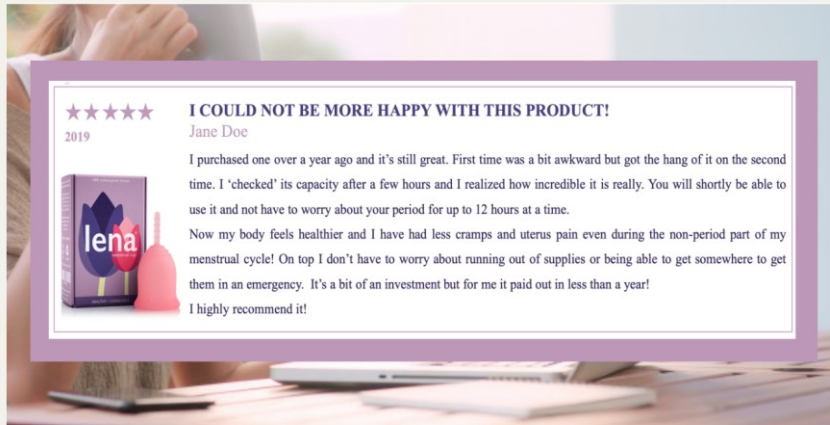
Moderately familiar

Extremely familiar

BLOCK 3: STIMULI

BLOCK 3.1: vWOM STIMULUS

Imagine you are shopping online and come across the following customer review.



BLOCK 3.2: pWOM STIMULUS

Imagine the following conversation with your close friend.



BLOCK 4: INTERNAL BELIEFS

Q5: A and B- Perceived ease of use (PEOU) of MCs.

Keeping in mind what you just read...

Please indicate how likely you are to relate with the following statements. Note:

MC=Menstrual cup

	Extremely unlikely	Unlikely	Neutral	Likely	Extremely likely
Learning how to use a MC would be easy for me.	☐	☐	☐	☐	☐
I would find it easy to get a MC to do what I want it to do.	☐	☐	☐	☐	☐
My interaction with a MC would be clear and understandable.	☐	☐	☐	☐	☐
I would find a MC to be flexible to interact with.	☐	☐	☐	☐	☐
It would be easy for me to become skilful at using a MCs.	☐	☐	☐	☐	☐
I would find a MC easy to use.	☐	☐	☐	☐	☐

Q6: A and B- Perceived usefulness (PU) of MCs.

Keeping in mind what you just read...

Please indicate how likely you are to relate with the following statements. Note:

MC=Menstrual cup

	Extremely unlikely	Unlikely	Neutral	Likely	Extremely likely
Using a MC would make my menstrual routine quicker.	☐	☐	☐	☐	☐
Using a MC would improve my menstrual routine and my performance on other everyday tasks during my period.	☐	☐	☐	☐	☐
Using a MC would increase my productivity on everyday tasks during my period.	☐	☐	☐	☐	☐
Using a MC would enhance my effectiveness on everyday tasks during my period.	☐	☐	☐	☐	☐
Using a MC would make my menstrual routine easier and hence facilitate everyday tasks during my period.	☐	☐	☐	☐	☐
I would find using a MC useful in my menstrual routine.	☐	☐	☐	☐	☐

BLOCK 5: ATTITUDES TOWARDS USING MCs

Q7 A and B

Please indicate whether you **strongly disagree**, **mildly disagree**, are **unsure**, **mildly agree** or **strongly agree** with the following statements. Note: MC= Menstrual cup.

	Strongly disagree	Mildly disagree	Unsure	Mildly agree	Strongly agree
I am positive towards MCs	☐	☐	☐	☐	☐
It makes sense to use MCs.	☐	☐	☐	☐	☐
People should adopt MCs	☐	☐	☐	☐	☐

Q8 A and B

Please indicate whether you **strongly disagree**, **mildly disagree**, are **unsure**, **mildly agree** or **strongly agree** with the following statements. Note: MC= Menstrual cup.

	Strongly disagree	Mildly disagree	Unsure	Mildly agree	Strongly agree
All things considered, using a MC would be very beneficial.	☐	☐	☐	☐	☐
I intend to use a MC.	☐	☐	☐	☐	☐
All things considered, using a MC would be very good.	☐	☐	☐	☐	☐

BLOCK 6: DEMOGRAPHICS

Q9

How old are you?

Under 18

19-24

25-30

31-36

37-42

43-48

49-54

55 or above

Q10

What is your highest completed education level?

Less than high school degree

Highschool diploma or similar

Bachelor's degree

Master's degree/ MBA or similar

Doctoral degree/PhD

Q11

What is your nationality?

Portuguese

Italian

Spanish

German

Austrian

Brazilian

Other (please specify):

Q12

What is your current type of occupation?

Full time job

Student

Unemployed

Retired

Self-employed

Unable to work

Other (please specify):

Q13

Please indicate your net monthly income:

equal or lower than 500€

501-700€

701-900€

901-1100€

1100-1300€

1301-1500€

1501-1700€

1701-1900€

equal or higher than 1901€

BLOCK 7: THANK YOU AND RAFFLE.

You have successfully completed this survey! Thank you very much.
Please **CLICK ON THE ARROW** below to submit your survey.



Please write your email below if you wish to participate in a raffle and get a chance to win a **40€ Amazon eGift Card**! Please note your email will not be used for other purposes rather than this raffle. The winner will be contacted by email.

Good luck!

APPENDIX 3: QUANTITATIVE RESULTS

Appendix 3.1: Sample characterization

Demographic variables (N= 290)	N	%
<i>Age</i>		
Under 18	9	3,1
19-24	127	43,8
25-30	66	22,8
31-36	33	11,4
37-42	41	14,1

43-48	11	3,8
49-54	3	1,0
Education level		
Less than high school degree	6	2,1
Highschool diploma or similar	39	13,4
Bachelor's degree	106	36,6
Master's degree/ MBA or similar	132	45,5
Doctoral degree/PhD	7	2,4
Occupation		
Full time job	141	48,6
Student	105	36,2
Unemployed	10	3,4
Self-employed	21	7,2
Other (please specify):	13	4,5
Nationality		
Portuguese	258	89,0
Other	32	11,0
Net monthly income		
equal or lower than 500€	93	32,1
501-700€	35	12,1
701-900€	41	14,1
901-1100€	43	14,8
1100-1300€	31	10,7
1301-1500€	16	5,5
1501-1700€	3	1,0
1701-1900€	10	3,4
equal or higher than 1901€	18	6,2

Appendix 3.2: Which menstrual product(s) do you currently use?

	N	%
Tampons	164	35,3
Sanitary pads	153	33,0
Menstrual cup	76	16,4
Pantyliners	40	8,6
Cloth menstrual pad	23	5,0
Other (please specify)	5	1,1
Menstrual sponge	3	0,6

Appendix 3.3: Which menstrual product(s) have you ever used?

	N	%
Sanitary pads	246	34,2
Tampons	239	33,2
Menstrual cup	87	12,1
Pantyliners	73	10,2
Cloth menstrual pad	46	6,4

Menstrual sponge	26	3,6
Other (please specify)	2	0,3

Appendix 3.4: How familiar are you with menstrual cups?

	N	%
Not at all familiar	49	16,9
Slightly familiar	62	21,4
Somewhat familiar	56	19,3
Moderately familiar	63	21,7
Extremely familiar	60	20,7
Total	290	100,0

Appendix 4.5: Perceived ease of use (PEOU) of menstrual cups (MCs)

	EU	U	N	L	EL	Mean	SD
Learning how to use a MC would be easy for me.	3,1%	16,9%	15,9%	47,9%	16,2%	3,57	1,05
I would find it easy to get a MC to do what I want it to do.	3,4%	15,2%	25,5%	39,3%	16,6%	3,50	1,05
My interaction with a MC would be clear and understandable.	2,4%	15,2%	24,8%	43,1%	14,5%	3,52	1,00
I would find a MC to be flexible to interact with.	3,4%	14,8%	24,8%	42,8%	14,1%	3,49	1,02
It would be easy for me to become skillful at using a MCs.	4,1%	17,2%	22,4%	42,1%	14,1%	3,45	1,06
I would find a MC easy to use.	3,4%	19,3%	25,9%	38,6%	12,8%	3,38	1,04

Note: EU-Extremely Unlikely, U – Unlikely, N – Neutral, L – Likely and EL - Extremely likely

Appendix 3.6: Perceived usefulness (PU) of menstrual cups (MCs)

	EU	U	N	L	EL	Mean	SD
Using a MC would make my menstrual routine quicker.	9,0%	25,2%	30,3%	22,1%	13,4%	3,06	1,17
Using a MC would improve my menstrual routine and my performance on other everyday tasks during my period.	5,9%	21,0%	29,7%	24,8%	18,6%	3,29	1,16
Using a MC would increase my productivity on everyday tasks during my period.	8,3%	23,4%	33,4%	24,1%	10,7%	3,06	1,11
Using a MC would enhance my effectiveness	7,6%	25,2%	34,1%	21,7%	11,4%	3,04	1,11

on everyday tasks during my period.							
Using a MC would make my menstrual routine easier and hence facilitate everyday tasks during my period.	5,9%	24,1%	27,9%	29,0%	13,1%	3,19	1,12
I would find using a MC useful in my menstrual routine.	5,5%	14,1%	25,9%	37,9%	16,6%	3,46	1,09

Note: Eu-Extremely Unlikely, U – Unlikely, N – Neutral, L – Likely And El - Extremely Likely

Appendix 3.7: Attitudes towards using menstrual cups (MCs)

	SD	MD	U	MA	SA	Mean	SD
I am positive towards MCs	4,1%	9,7%	21,7%	26,9%	37,6%	3,84	1,15
It makes sense to use MCs.	1,7%	4,8%	13,1%	31,0%	49,3%	4,21	,96
People should adopt MCs	1,0%	4,5%	22,8%	26,6%	45,2%	4,10	,97
All things considered, using a MC would be very beneficial.	1,0%	5,9%	17,9%	29,3%	45,9%	4,13	,97
I intend to use a MC.	9,0%	14,5%	21,4%	19,7%	35,5%	3,58	1,33
All things considered, using a MC would be very good.	2,8%	7,2%	21,0%	26,2%	42,8%	3,99	1,08

Note: SD – Strongly disagree, MD - Mildly disagree, U – Unsure, MA - Mildly agree and SA - Strongly agree

Appendix 3.8: WOM and PEOU (H1)

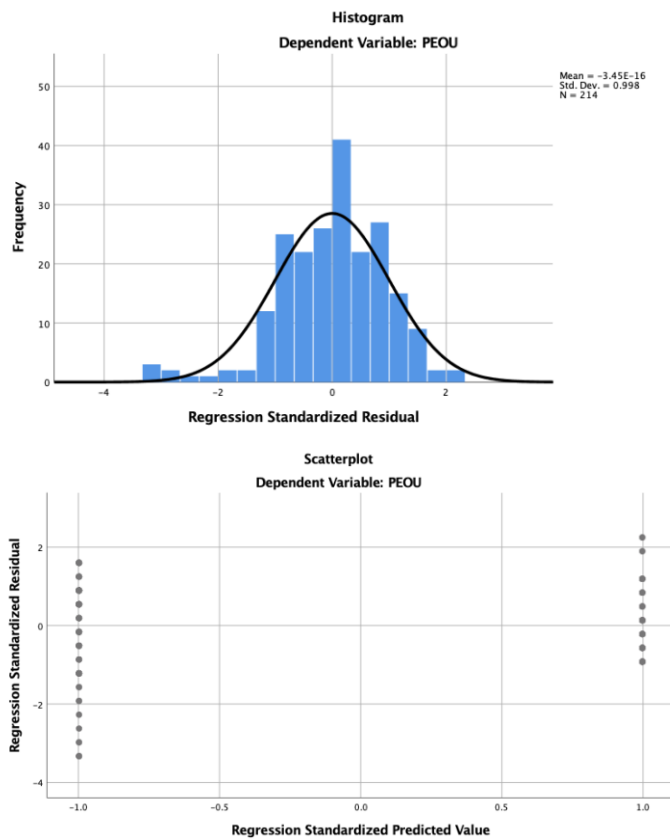
Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.822 ^a	.675	.674	.47360	.045

a. Predictors: (Constant), Stimuli

b. Dependent Variable: PEOU

Charts



ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	98.926	1	98.926	441.047	.000 ^b
	Residual	47.551	212	.224		
	Total	146.478	213			

a. Dependent Variable: PEOU

b. Predictors: (Constant), Stimuli

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.576	.046		56.270	.000
	Stimuli	1.360	.065	.822	21.001	.000

a. Dependent Variable: PEOU

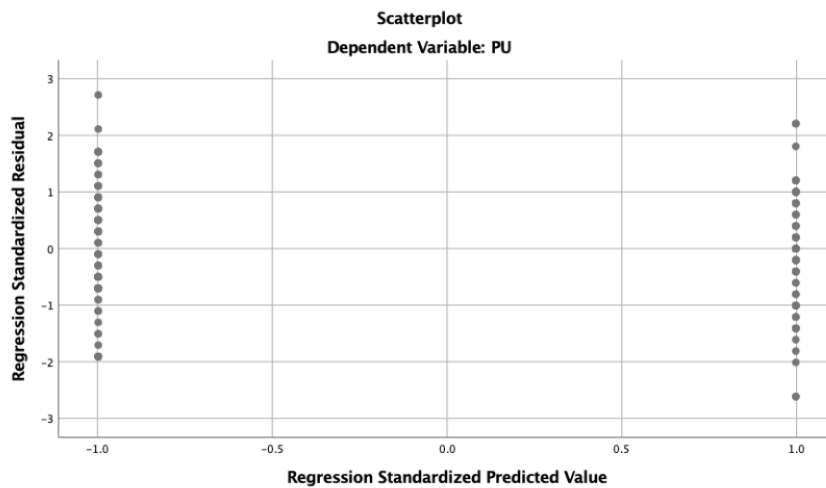
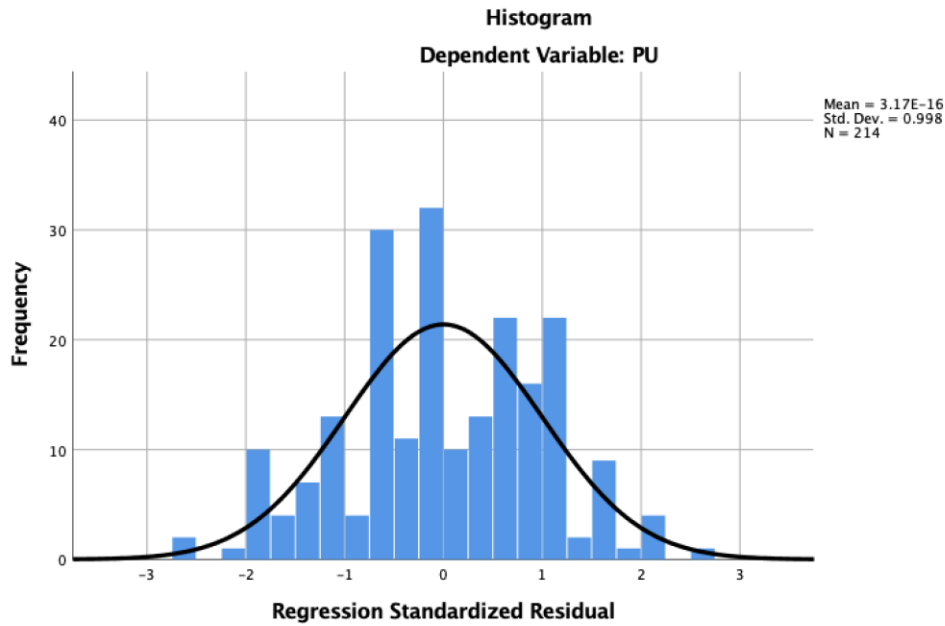
Appendix 3.9: WOM and PU (H2)

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.335 ^a	.112	.108	.82977	1.886

a. Predictors: (Constant), Stimuli

b. Dependent Variable: PU



ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	18.449	1	18.449	26.795	.000 ^b
	Residual	145.964	212	.689		
	Total	164.413	213			

a. Dependent Variable: PU

b. Predictors: (Constant), Stimuli

Coefficients^a

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	2.583	.080		32.195	.000
	Stimuli	.587	.113	.335	5.176	.000

a. Dependent Variable: PU

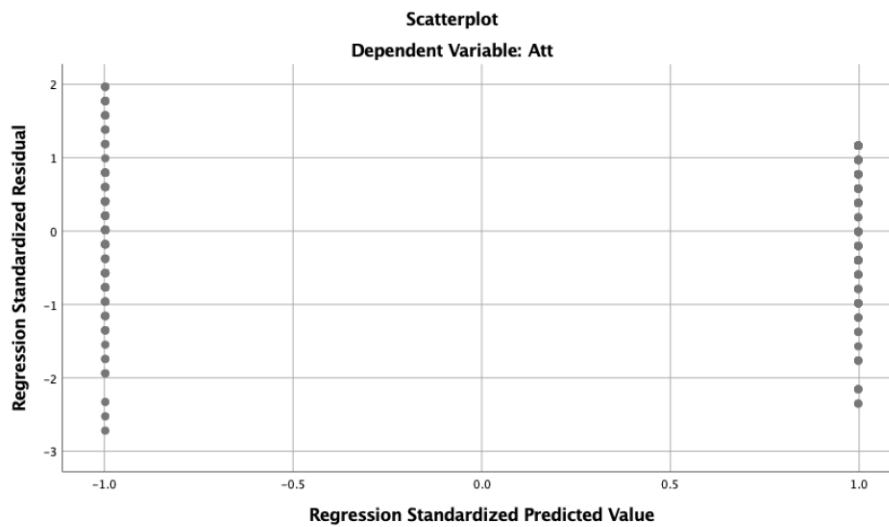
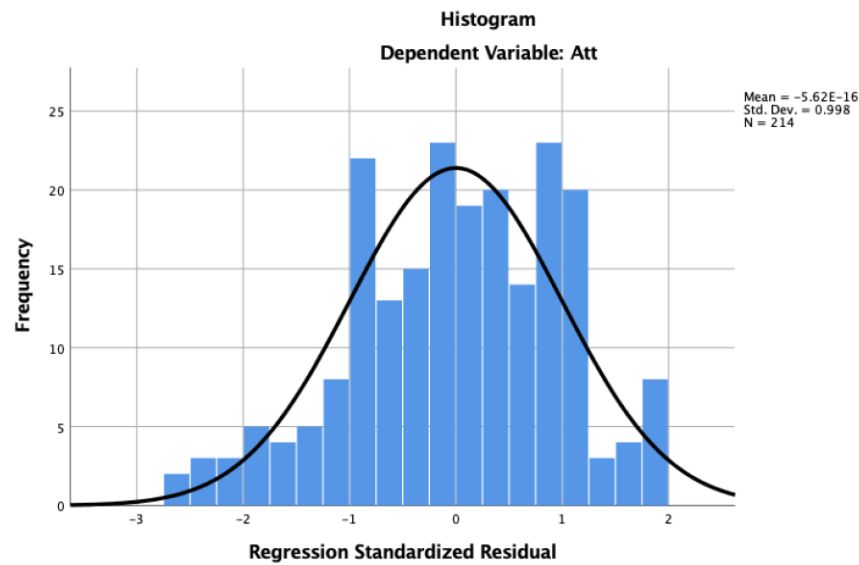
Appendix 3.10: WOM and attitudes (H3)

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.374 ^a	.140	.136	.85347	1.507

a. Predictors: (Constant), Stimuli

b. Dependent Variable: Att



ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	25.130	1	25.130	34.499	.000 ^b
	Residual	154.424	212	.728		
	Total	179.553	213			

a. Dependent Variable: Att

b. Predictors: (Constant), Stimuli

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.321	.083		40.249	.000
	Stimuli	.685	.117	.374	5.874	.000

a. Dependent Variable: Att

Appendix 3.11: Independent samples t-test (pWOM vs vWOM)

T-Test

Group Statistics

	Stimuli	N	Mean	Std. Deviation	Std. Error Mean
PEOU	vWOM	107	2.5763	.57246	.05534
	pWOM	107	3.9361	.34768	.03361
PU	vWOM	107	2.5826	.85885	.08303
	pWOM	107	3.1698	.79963	.07730
Att	vWOM	107	3.3209	.89187	.08622
	pWOM	107	4.0062	.81326	.07862

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
PEOU	Equal variances assumed	26.703	.000	-21.001	212	.000	-1.35981	.06475	-1.48745	-1.23218
	Equal variances not assumed			-21.001	174.834	.000	-1.35981	.06475	-1.48760	-1.23202
PU	Equal variances assumed	1.874	.173	-5.176	212	.000	-.58723	.11344	-.81085	-.36361
	Equal variances not assumed			-5.176	210.927	.000	-.58723	.11344	-.81086	-.36360
Att	Equal variances assumed	.181	.671	-5.874	212	.000	-.68536	.11668	-.91537	-.45535
	Equal variances not assumed			-5.874	210.220	.000	-.68536	.11668	-.91538	-.45534

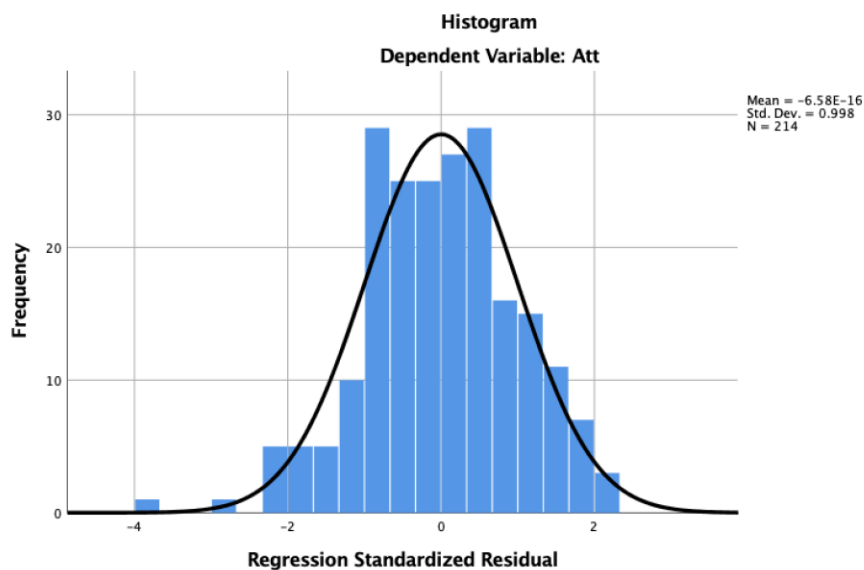
Appendix 3.12: PU and attitudes (H4)

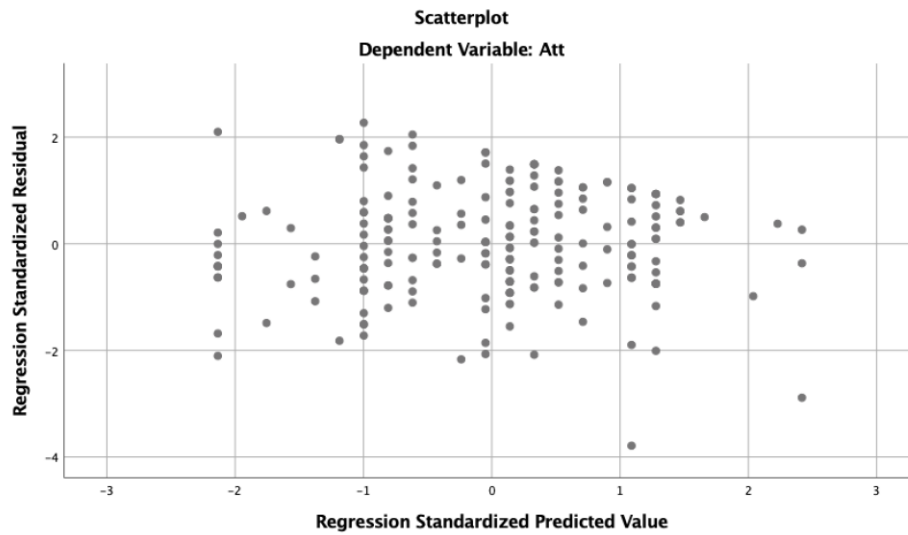
Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.508 ^a	.258	.254	.79289	1.656

a. Predictors: (Constant), PU

b. Dependent Variable: Att





ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	46.273	1	46.273	73.603	.000 ^b
	Residual	133.281	212	.629		
	Total	179.553	213			

a. Dependent Variable: Att

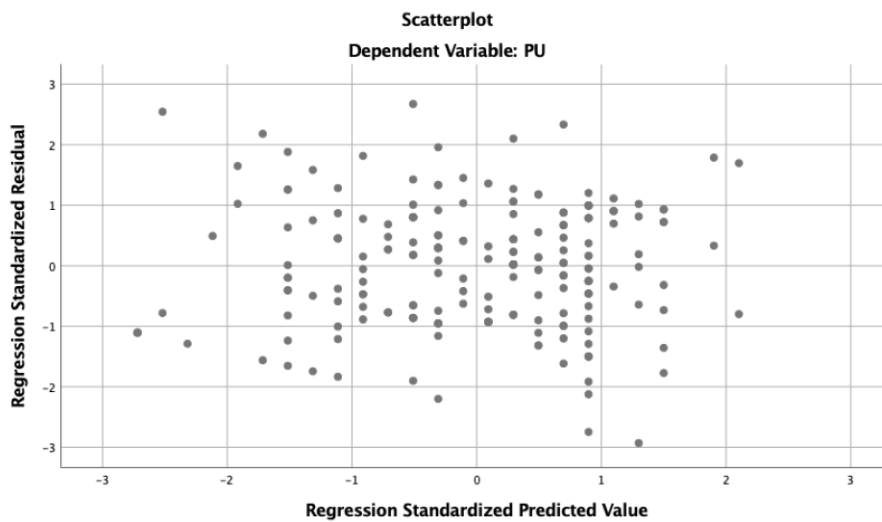
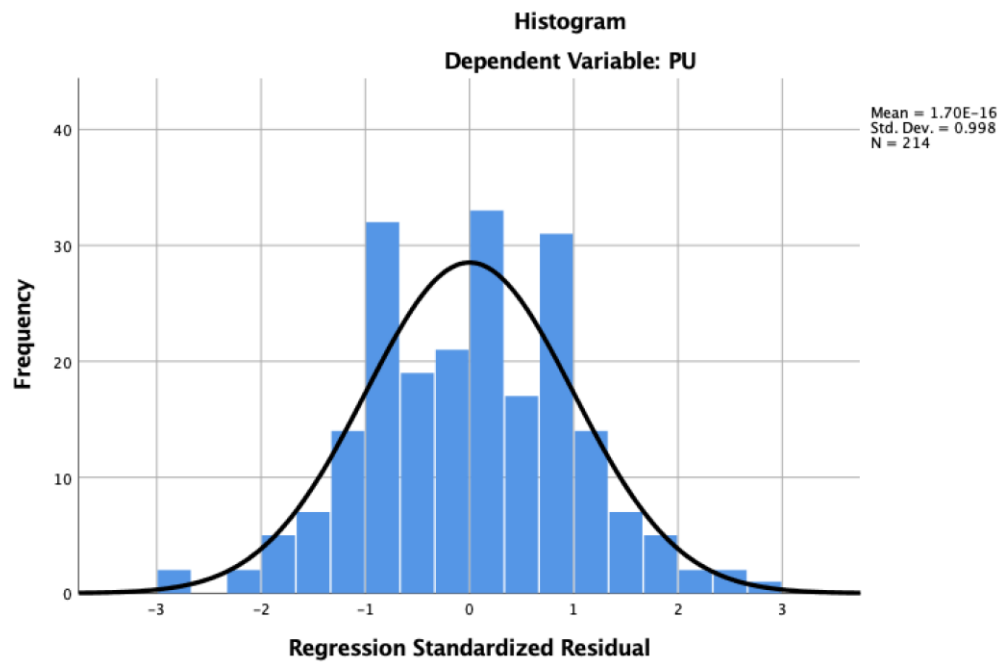
b. Predictors: (Constant), PU

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.138	.186		11.497	.000
	PU	.531	.062	.508	8.579	.000

a. Dependent Variable: Att

Appendix 3.13: PEOU and PU (H5)



Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.414 ^a	.171	.167	.80166	2.008

a. Predictors: (Constant), PEOU

b. Dependent Variable: PU

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	28.169	1	28.169	43.831	.000 ^b
	Residual	136.244	212	.643		
	Total	164.413	213			

a. Dependent Variable: PU

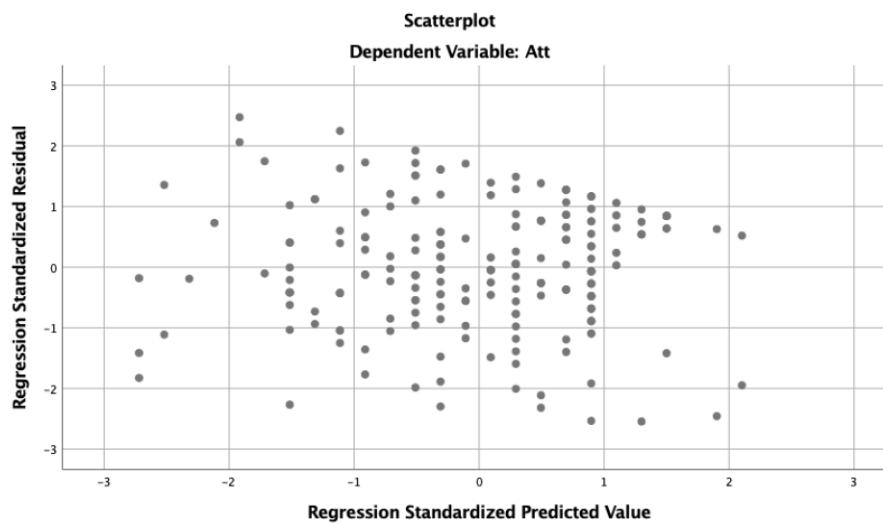
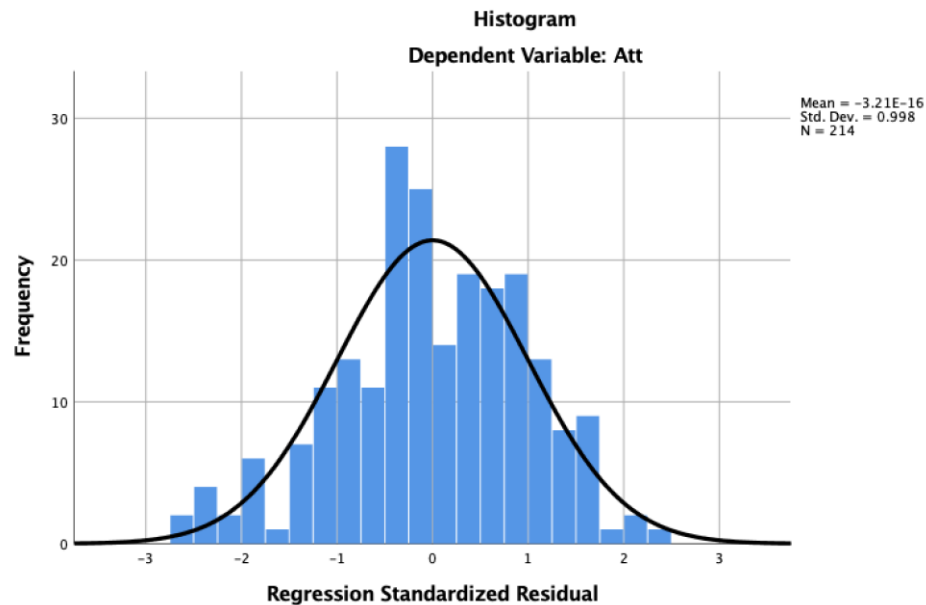
b. Predictors: (Constant), PEOU

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.448	.223		6.508	.000
	PEOU	.439	.066	.414	6.621	.000

a. Dependent Variable: PU

Appendix 3.14: PEOU and attitudes (H6)



Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.474 ^a	.224	.221	.81045	1.663

a. Predictors: (Constant), PEOU

b. Dependent Variable: Att

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	40.306	1	40.306	61.366	.000 ^b
	Residual	139.247	212	.657		
	Total	179.553	213			

a. Dependent Variable: Att

b. Predictors: (Constant), PEOU

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.955	.225		8.692	.000
	PEOU	.525	.067	.474	7.834	.000

a. Dependent Variable: Att

Appendix 3.15: Result Matrix Process Model 6 (H7 and H8) Matrix

Run MATRIX procedure:

***** PROCESS Procedure for SPSS Version 3.4 *****

Written by Andrew F. Hayes, Ph.D. www.afhayes.com
Documentation available in Hayes (2018). www.guilford.com/p/hayes3

Model : 6
Y : Att
X : Stimuli
M1 : PEOU
M2 : PU

Sample
Size: 214

OUTCOME VARIABLE:
PEOU

Model Summary	R	R-sq	MSE	F	df1	df2	p
	.8218	.6754	.2243	441.0469	1.0000	212.0000	.0000

Model	coeff	se	t	p	LLCI	ULCI
constant	2.5763	.0458	56.2702	.0000	2.4861	2.6666
Stimuli	1.3598	.0647	21.0011	.0000	1.2322	1.4874

OUTCOME VARIABLE:

PU

Model Summary

R	R-sq	MSE	F	df1	df2	p
.4140	.1714	.6456	21.8249	2.0000	211.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	1.4169	.3101	4.5695	.0000	.8057	2.0282
Stimuli	-.0280	.1928	-.1452	.8847	-.4081	.3521
PEOU	.4524	.1165	3.8827	.0001	.2227	.6821

Test(s) of X by M interaction:

	F	df1	df2	p
M1*X	.0020	1.0000	210.0000	.9647

OUTCOME VARIABLE:

Att

Model Summary

R	R-sq	MSE	F	df1	df2	p
.5849	.3422	.5625	36.4074	3.0000	210.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	1.3029	.3034	4.2942	.0000	.7048	1.9010
Stimuli	-.0751	.1800	-.4174	.6768	-.4299	.2797
PEOU	.3897	.1126	3.4617	.0007	.1678	.6116
PU	.3926	.0643	6.1101	.0000	.2659	.5193

Test(s) of X by M interaction:

	F	df1	df2	p
M1*X	.1346	1.0000	209.0000	.7141
M2*X	2.3055	1.0000	209.0000	.1304

***** TOTAL EFFECT MODEL *****

OUTCOME VARIABLE:

Att

Model Summary

R	R-sq	MSE	F	df1	df2	p
.3741	.1400	.7284	34.4994	1.0000	212.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	3.3209	.0825	40.2490	.0000	3.1582	3.4835
Stimuli	.6854	.1167	5.8736	.0000	.4553	.9154

***** TOTAL, DIRECT, AND INDIRECT EFFECTS OF X ON Y *****

Total effect of X on Y

Effect	se	t	p	LLCI	ULCI	c_ps
.6854	.1167	5.8736	.0000	.4553	.9154	.7465

Direct effect of X on Y

Effect	se	t	p	LLCI	ULCI	c'_ps
-.0751	.1800	-.4174	.6768	-.4299	.2797	-.0818

Indirect effect(s) of X on Y:

	Effect	BootSE	BootLLCI	BootULCI
TOTAL	.7605	.1744	.4150	1.0988
Ind1	.5299	.1704	.1954	.8714
Ind2	-.0110	.0749	-.1585	.1405
Ind3	.2415	.0842	.0823	.4140

Partially standardized indirect effect(s) of X on Y:

	Effect	BootSE	BootLLCI	BootULCI
TOTAL	.8283	.1791	.4732	1.1680
Ind1	.5772	.1795	.2154	.9237
Ind2	-.0120	.0820	-.1708	.1594
Ind3	.2631	.0884	.0920	.4426

Indirect effect key:

Ind1 Stimuli	->	PEOU	->	Att	
Ind2 Stimuli	->	PU	->	Att	
Ind3 Stimuli	->	PEOU	->	PU	-> Att

***** ANALYSIS NOTES AND ERRORS *****

Level of confidence for all confidence intervals in output:
95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
5000

----- END MATRIX -----

Path	Coefficient	df2	t-value	p-value
a_1	1,359	212	21,0011	0,000
a_2	-0,0280	211	-0,1452	0,8847
b_1	0,3897	210	6,1101	0,0007
b_2	0,3926	210	3,4617	0,000
d_{21}	0,4524	211	3,8827	0,0001
c'	-0,0751	210	-0,4174	0,6768
c''	0,6854	212	5,8736	0,000

STATISTICAL MODEL 6

Appendix 3.16: Independent samples t-test (users and nonusers)

	Menstrual cup user		Non-user		
	mean	(sd)	mean	(sd)	$p $
PEOU	4.13	(0.68)	3.26	(0.83)	<0.001
PU	4.04	(0.76)	2.88	(0.88)	<0.001
Attitude	4.86	(0.37)	3.66	(0.92)	<0.001

Sd- Standard Deviation

REFERENCE LIST

- Ajzen, I. (1991). The Theory of Planned Behaviour. *Organizational Behaviour and Human Decision Processes*, 50, 179–211. <https://doi.org/10.15288/jsad.2011.72.322>
- Álvarez Del Vayo, M. (2018). Half of the European countries levy the same VAT on sanitary towels and tampons as on tobacco , beer and wine. Retrieved from Civio, Medicamentalia website: <https://civio.es/medicamentalia/2018/11/07/14-european-countries-levy-the-same-vat-on-sanitary-towels-and-tampons-as-on-tobacco-beer-and-wine/>
- Arndt, J. (1967). Role of Product-Related Conversations in the Diffusion of a New Product. *Journal of Marketing Research*, IV(August), 291–295.
- Auger, P., Devinney, T. M., Louviere, J. J., & Burke, P. F. (2008). Do social product features have value to consumers? *International Journal of Research in Marketing*, 25(3), 183–191. <https://doi.org/10.1016/j.ijresmar.2008.03.005>
- Baird-Murray, K. (2019). The fanny pack : it ’ s time to talk about female sexual health. *Financial Times*, pp. 1–5.
- Beksinska, M. E., Smit, J., Greener, R., Todd, C. S., Lee, M. L. T., Maphumulo, V., & Hoffmann, V. (2015). Acceptability and performance of the menstrual cup in South Africa: A randomized crossover trial comparing the menstrual cup to tampons or sanitary pads. *Journal of Women ’ s Health*, 24(2), 151–158. <https://doi.org/10.1089/jwh.2014.5021>
- Bickart, B., & Schindler, R. M. (2001). Internet forums as influential sources of consumer information. *Journal of Interactive Marketing*, 15(3), 31–40. <https://doi.org/10.1002/dir.1014>
- Bohner, G., & Dickel, N. (2011). Attitudes and Attitude Change. *Annual Review of Psychology*, 62(January), 391–417. <https://doi.org/10.1146/annurev.psych.121208.131609>
- Boone, H. N., & Boone, D. A. (2012). Analyzing Likert Data. *Journal of Extension*, 50. <https://doi.org/10.1007/s11172-017-1908-3>
- Borunda, A. (2019). *How tampons and pads became so unsustainable*.
- Boyce, C., & Neale, P. (2006). Conducting In-Depth Interviews: A Guide for Designing and Conducting In-Depth Interviews for Evaluation Input. *Pathfinder International*, 2(May), 1–16.
- Brown, J. J., & Reingen, P. H. (1987). Social Ties and Word-of-Mouth Referral Behavior. *Journal of Consumer Research*, 14(3), 350. <https://doi.org/10.1086/209118>
- Brown, S., & Venkatesh, V. (2005). Model of adoption of technology in households: A baseline model test and extension incorporating household life cycle. *MIS Quarterly*, 29(3), 399–426. Retrieved from <http://www.vvenkatesh.com/wp->

content/uploads/2015/11/Brown&VenkateshMISQ2005.pdf

- Buchholz, K. (2019). Statista: Women Pay High Tax Rates for Period Supplies.
- Carvalho, C. (2019, September). *Há Estados-membros onde as meninas não podem sair de casa durante o seu período*. 1–10. Retrieved from <http://visao.sapo.pt/atualidade/2019-02-05-Ha-Estados-membros-onde-as-meninas-nao-podem-sair-de-casa-durante-o-seu-periodo>
- Cheung, C. M. K., & Lee, M. K. O. (2012). What drives consumers to spread electronic word of mouth in online consumer-opinion platforms. *Decision Support Systems*, 53(1), 218–225. <https://doi.org/10.1016/j.dss.2012.01.015>
- Clerget-Cabrera, A., & Yamakoshi, B. (2019). *Unicef: Guide to Menstrual Hygiene Materials*. COBUILD Advanced English Dictionary. (n.d.).
- Cooper, K.-L. (2018). The people fighting pollution with plastic-free periods. *BBC NEWS*.
- Crilly, B. R. (2018). *No more suffering in silence: the teenager who got politicians talking about periods*. pp. 1–5. Retrieved from <https://www.telegraph.co.uk/global-health/women-and-girls/no-suffering-silence-teenager-got-politicians-talking-periods/>
- Davis, F. D. (1985). A TECHNOLOGY ACCEPTANCE MODEL FOR EMPIRICALLY TESTING NEW END-USER INFORMATION SYSTEMS: THEORY AND RESULTS. *Science (New York, N.Y.)*, 146(3652), 1648–1654. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/14224511>
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly: Management Information Systems*, 13(3), 319–339. <https://doi.org/10.2307/249008>
- Davis, F. D. ., Bagozzi, R. P. ., & Warshaw, P. R. . (1989). User Acceptance of Computer Technology: A Comparison of Two Theoretical Models. *Management Science*, 35(8), 982–1003.
- Duhan, D., Johnson, S., Wilcox, J., & Harrell, G. (1997). Influences on consumer use of word-of-mouth recommendation sources: Journal of the Academy of Marketing Science. *J. of the Acad. Mark. Sci.*, 25(4), 283–295. <https://doi.org/10.1177/0092070397254001>
- Elledge, M. F., Muralidharan, A., Parker, A., Ravndal, K. T., Siddiqui, M., Toolaram, A. P., & Woodward, K. P. (2018). Menstrual hygiene management and waste disposal in low and middle income countries—a review of the literature. *International Journal of Environmental Research and Public Health*, 15(11), 20. <https://doi.org/10.3390/ijerph15112562>
- Engel, J. F., Kegerreis, R. J., & Blackwell, R. D. (1969). Word-of-Mouth Communication by

- the Innovator. *Journal of Marketing*, 33(3), 15. <https://doi.org/10.2307/1248475>
- Evans, J. R., & Mathur, A. (2005). The value of online surveys. *Internet Research*, 15(2), 195–219. <https://doi.org/10.1108/10662240510590360>
- Feick, L. F., & Price, L. L. (1987). The Market Maven: A Diffuser of Marketplace Information. *Journal of Marketing*, 51(January), 83–97.
- Field, A. (2009). *Discovering Statistics using SPSS (and sex and drugs and rock 'n' roll)*. Third Edition.
- Fishbein, M., & Ajzen, I. (2011). *Predicting and Changing Behaviour: The Reasoned Action Approach*. Retrieved from http://www.ghbook.ir/index.php?name=فرهنگ و رسانه های نوین&option=com_dbook&task=readonline&book_id=13650&page=73&chckhashk=ED9C9491B4&Itemid=218&lang=fa&tmpl=component
- Graham, J., & Havlena, W. (2007). Finding the “missing link”: Advertising’s impact on word of mouth, web searches and site visits. *Journal of Advertising Research*, 47(4), 427–435. <https://doi.org/10.2501/S0021849907070444>
- Greenwald, A. G., & Leavitt, C. (1984). Audience Involvement in Advertising: Four Levels. *Journal of Consumer Research*, 11(1), 581. <https://doi.org/10.1086/208994>
- Gruen, T. W., Osmonbekov, T., & Czaplewski, A. J. (2006). eWOM: The impact of customer-to-customer online know-how exchange on customer value and loyalty. *Journal of Business Research*, 59(4), 449–456. <https://doi.org/10.1016/j.jbusres.2005.10.004>
- Hennegan, J. (2019). Inserting informed choice into global menstrual product use and provision. *The Lancet Public Health*, 4(8), e361–e362. [https://doi.org/10.1016/s2468-2667\(19\)30126-4](https://doi.org/10.1016/s2468-2667(19)30126-4)
- Hennig-Thurau, T., Gwinner, K. P., Walsh, G., & Gremler, D. D. (2004). Electronic word-of-mouth via consumer-opinion platforms: What motivates consumers to articulate themselves on the Internet? *Journal of Interactive Marketing*, 18(1), 38–52. <https://doi.org/10.1002/dir.10073>
- Jacobvitz, D., Curran, M., & Moller, N. (2002). CONDUCTING IN-DEPTH INTERVIEWS: A Guide for Designing and Conducting In-Depth Interviews for Evaluation Input. *Attachment and Human Development*, 4(2), 207–215. <https://doi.org/10.1080/14616730210154225>
- Johnson, R. A. (2007). *Applied Multivariate Statistics*.
- Kawakami, T., & Parry, M. E. (2013). The impact of word of mouth sources on the perceived usefulness of an innovation. *Journal of Product Innovation Management*, 30(6), 1112–1127. <https://doi.org/10.1111/jpim.12049>

- Keller, E., & Fay, B. (2009). The role of advertising in word of mouth. *Journal of Advertising Research*, 49(2), 154–158. <https://doi.org/10.2501/S0021849909090205>
- Keller, E., & Fay, B. (2012). Word-of-mouth advocacy: A new key to advertising effectiveness. *Journal of Advertising Research*, 52(4), 459–464. <https://doi.org/10.2501/JAR-52-4-459-464>
- Malhotra, M. K., & Birks, D. F. (2007). Marketing Research: An Applied Approach. In P. Education (Ed.), *General Topology and its Applications* (Third Euro, Vol. 7). [https://doi.org/10.1016/0016-660x\(77\)90025-3](https://doi.org/10.1016/0016-660x(77)90025-3)
- Malhotra, Y., & Galletta, D. F. (1999). Extending the Technology Acceptance Model to account for social influence: Theoretical bases and empirical validation. *Proceedings of the Hawaii International Conference on System Sciences*, 00(c), 5.
- MarketLine. (2019). *MarketLine: Global Feminine Hygiene*.
- Markle, M. for T. (2017). Meghan Markle: Periods Affect Potential. *Time*, 2017–2020. Retrieved from http://time.com/4694568/meghan-markle-period-stigma/?xid=time_socialflow_twitter
- Mason, L., Nyothach, E., Van Eijk, A. M., Obor, D., Alexander, K. T., Ngere, I., ... Phillips-Howard, P. (2019). Comparing use and acceptability of menstrual cups and sanitary pads by schoolgirls in rural Western Kenya. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*, 8(8), 2974. <https://doi.org/10.18203/2320-1770.ijrcog20193506>
- Matthews-King, A. (2019). Menstrual cups as safe and effective as tampons , says scientific review. *INDEPENDENT*, pp. 1–9.
- Maxham, J. G. (2001). Service recovery's influence on consumer satisfaction, positive word-of-mouth, and purchase intentions. *Journal of Business Research*, 54(1), 11–24. [https://doi.org/10.1016/S0148-2963\(00\)00114-4](https://doi.org/10.1016/S0148-2963(00)00114-4)
- McCormick, K., & Salcedo, J. (2015). *SPSS Statistics For Dummies, 3rd Edition*.
- Morris, M. G., Venkatesh, V., & Morris, M. G. (2000). Why Don't Men Ever Stop To Ask for Directions ? Gender , Social Influence , and Their Role in Technology and Usage Behavior. *MIS Quaterly*, 24(1), 115–139.
- Muk, A., & Chung, C. (2015). Applying the technology acceptance model in a two-country study of SMS advertising. *Journal of Business Research*, 68(1), 1–6. <https://doi.org/10.1016/j.jbusres.2014.06.001>
- North, B. B., & Oldham, M. J. (2011). Preclinical, clinical, and over-the-counter postmarketing experience with a new vaginal cup: Menstrual collection. *Journal of Women's Health*,

- 20(2), 303–311. <https://doi.org/10.1089/jwh.2009.1929>
- Oppenheim, M. (2019). Period poverty has caused more than quarter of women to miss work or school , poll finds. *INDEPENDENT*, pp. 1–7.
- Oster, E., & Thornton, R. (2009). Determinants of Technology Adoption: Private Value and Peer Effects in Menstrual Cup Take-Up. *NBER Working Paper*, 53(9), 1689–1699. <https://doi.org/10.1017/CBO9781107415324.004>
- Oster, E., & Thornton, R. (2012). Determinants of technology adoption: Peer effects in menstrual cup take-up. *Journal of the European Economic Association*, 10(6), 1263–1293. <https://doi.org/10.1111/j.1542-4774.2012.01090.x>
- Park, C., & Lee, T. M. (2009). Information direction, website reputation and eWOM effect: A moderating role of product type. *Journal of Business Research*, 62(1), 61–67. <https://doi.org/10.1016/j.jbusres.2007.11.017>
- Parry, M. E., Kawakami, T., & Kishiya, K. (2012). The effect of personal and virtual word-of-mouth on technology acceptance. *Journal of Product Innovation Management*, Vol. 29, pp. 952–966. <https://doi.org/10.1111/j.1540-5885.2012.00972.x>
- Peberdy, E., Jones, A., & Green, D. (2019). A study into public awareness of the environmental impact of menstrual products and product choice. *Sustainability (Switzerland)*, 11(2). <https://doi.org/10.3390/su11020473>
- Porter, C. E., & Donthu, N. (2006). Using the technology acceptance model to explain how attitudes determine Internet usage: The role of perceived access barriers and demographics. *Journal of Business Research*, 59(9), 999–1007. <https://doi.org/10.1016/j.jbusres.2006.06.003>
- Redmond, W. H. (1991). When Technologies Compete: The Role of Externalities in Nonlinear Market Response. *Journal of Product Innovation Management*.
- Rese, A., Schreiber, S., & Baier, D. (2014). Technology acceptance modeling of augmented reality at the point of sale: Can surveys be replaced by an analysis of online reviews? *Journal of Retailing and Consumer Services*, 21(5), 869–876. <https://doi.org/10.1016/j.jretconser.2014.02.011>
- Robertson, D. C. (1989). Social Determinants of Information Systems Use. *Journal of Management Information Systems*, 1222(March). <https://doi.org/10.1080/07421222.1989.11517839>
- Robinson, L., Marshall, G. W., & Stamps, M. B. (2005). Sales force use of technology: Antecedents to technology acceptance. *Journal of Business Research*, 58(12), 1623–1631. <https://doi.org/10.1016/j.jbusres.2004.07.010>

- Roni, B., & Rabin, C. (2019). A Better Way to Manage Your Period? Try the Menstrual Cup, Scientists Say. *The New York Times*, pp. 7–9.
- Schepers, J., & Wetzels, M. (2007). A meta-analysis of the technology acceptance model: Investigating subjective norm and moderation effects. *Information and Management*, 44(1), 90–103. <https://doi.org/10.1016/j.im.2006.10.007>
- Solomon, M. R. (2012). *Consumer Behavior: Buying, Having and Being* (10th ed.; P. E. Limited, Ed.). <https://doi.org/10.1017/CBO9781107415324.004>
- Song, M., Parry, M. E., & Kawakami, T. (2009). Incorporating network externalities into the technology acceptance model. *Journal of Product Innovation Management*, 26(3), 291–307. <https://doi.org/10.1111/j.1540-5885.2009.00659.x>
- Stevens, J. (2019). ‘People were revolted’: how Mooncup bust period taboos and built a big success. *The Guardian*, pp. 1–7.
- Trusov, M., Bucklin, R. E., & Pauwels, K. (2009). Effects of Word-of-Mouth Versus Traditional Marketing: Findings from an Internet Social Networking Site. *Journal of Marketing*, 73(September), 90–102.
- Turns, A. (2019). The women taking the plastic out of periods. *The Guardian*, pp. 2–5.
- van Eijk, A. M., Zulaika, G., Lenchner, M., Mason, L., Sivakami, M., Nyothach, E., ... Phillips-Howard, P. A. (2019). Menstrual cup use, leakage, acceptability, safety, and availability: a systematic review and meta-analysis. *The Lancet Public Health*, 4(8), e376–e393. [https://doi.org/10.1016/s2468-2667\(19\)30111-2](https://doi.org/10.1016/s2468-2667(19)30111-2)
- Vázquez-Casielles, R., Suárez-Álvarez, L., & del Río-Lanza, A. B. (2013). The word of mouth dynamic: How positive (and Negative) WOM drives purchase probability: An analysis of interpersonal and non-interpersonal factors. *Journal of Advertising Research*, 53(1), 43–60. <https://doi.org/10.2501/JAR-53-1-043-060>
- Venkatesh, V. (1999). Creation of favorable user perceptions: Exploring the role of intrinsic motivation. *MIS Quarterly: Management Information Systems*, 23(2), 239–260.
- Venkatesh, V. (2000). Determinants of Perceived Ease of Use: Integrating Control, Intrinsic Motivation, and Emotion into the Technology Acceptance Model. *Information Systems Research*, 16(1), 3–11. Retrieved from <http://search.ebscohost.com/jmtoro@psi.ub.es%5Cn10.1174/021435504322839135%5Cnhttp://search.ebscohost.com/login.aspx?direct=true&db=psych&AN=2004-12320-001&lang=es&site=ehost-live>
- Venkatesh, V., & Brown, S. A. (2001). A Longitudinal Investigation of Personal Computers in Homes: Adoption Determinants and Emerging Challenges. *Management Information Systems*, 25(1), 71–102.

- Venkatesh, V., & Davis, F. D. (2000). A Theoretical Extension of the Technology Acceptance Model : Four Longitudinal Field Studies. *Management Science*, 46(2), 186–204.
- Venkatesh, V., & Morris, M. G. (2000). Why Don't Men Ever Stop To Ask for Directions ? Gender , Social Influence , and Their Role in Technology and Usage Behavior. *MIS Quaterly*, 24(1), 115–139.
- Vostral, S. L. (1968). *Under Wraps: A History of Menstrual Hygiene Technology*.
- Waller, D. S., Fam, K. S., & Erdogan, B. Z. (2005). Advertising of controversial products:a cross-cultural study. *Journal of Consumer Marketing*, 22(1), 6–13. <https://doi.org/10.1108/07363760510576509>
- White, B., & Rayner, S. (2014). *Dissertation Skills- For Business and Management Studies*.
- You, Y., Vadakkepatt, G. G., & Joshi, A. M. (2015). A meta-analysis of electronic word-of-mouth elasticity. *Journal of Marketing*, 79(2), 19–39. <https://doi.org/10.1509/jm.14.0169>
- Zheng, B. (2013). Green packaging materials and modern packaging design. *Applied Mechanics and Materials*, 271(PART 1), 77–80. <https://doi.org/10.4028/www.scientific.net/AMM.271-272.77>