

# **RADICAL INNOVATION AND TABOO: HOW TO ENCOURAGE THE ACCEPTANCE OF A NEW MENSTRUAL PRODUCT IN SOUTH AFRICA THROUGH BEHAVIOURAL DESIGN**

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## **ABSTRACT**

*This paper initially explores the complexity of trying to introduce a radical innovation and taboo product into the South African market. What makes radical innovations problematic is that they fall outside the frame of reference of potential product users, and therefore often do not reach their full potential when initially introduced. A radically innovative menstrual product adds the complexity of taboo to market acceptance. Methods that have been developed to introduce radical innovations are often post-design and product-centric and do not take the user or their context into account.*

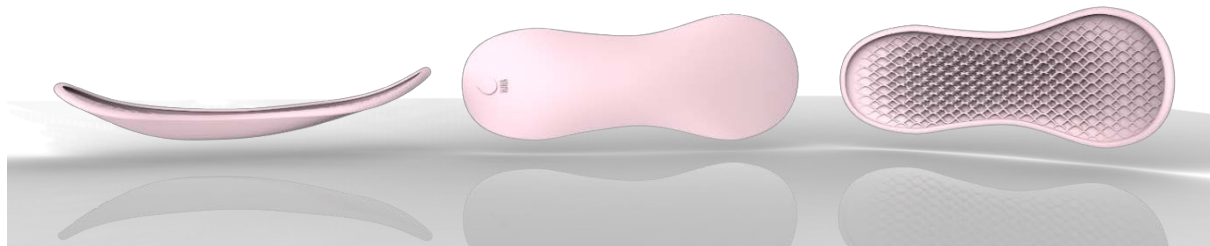
*This paper explores a design honing strategy, which was developed to encourage the acceptance of a new menstrual product in South Africa through the use of Behavioural Design. Behaviour around menstruation is unpacked using Activity Theory as a framework for understanding human action and its influences. The honing strategy was devised as a way of steering a product during its design development phase. The strategy is comprised of four design methods: Appropriate Technology, Designing Affordances, Designing Meaning and Designing Mindfulness. These sit on a spectrum that runs from continuity, in alignment with what already exists, to development, which challenges problematic preconceptions and mindsets. This accommodates the user's cultural and social norms, whilst allowing the designer to encourage appropriate shifts. The strategy is a holistic approach to the participatory design of radical innovations in taboo fields at a systemic level. All methods are aimed at influencing product design and user behaviour to make the acceptance of a new menstrual product more probable. Such an approach is useful for the introduction of any radical innovation which may be considered taboo.*

**Keywords:** Behavioural Design, Menstrual Product, Radical Innovation, Taboo.

## **INTRODUCTION**

Put simply, menstruation is the shedding of the lining of a woman's uterus that occurs during her reproductive years. Menstruation happens to half the world's population and yet the subject is still taboo. The shame and silence around menstruation is a global phenomenon. *Menstrual health management* is a term that describes a woman's right to sufficient menstrual products (MHM, 2019). It also includes access to water and soap, a private place to dispose of or clean menstrual products, and adequate education on menstruation (MHM, 2019). However, due to the limited attention the design of menstrual products has received, this is not every woman's reality. These rights were investigated in a BA Industrial Design project undertaken at the University of Johannesburg titled *The empathic design of a new menstrual hygiene product for women in the South African context* (Findlay, 2017). The project resulted in the design of a theoretical product. This could be a solution to problems identified in existing products in South Africa

Such problems included the affordability of conventional menstrual products (Chikulo, 2015, p. 1979; House, Mahon & Cavill, 2013); the waste they create (Peberdy, Jones & Green, 2019); and the health risks that accompany them (House, *et al.*, 2013). The product outcome was a reusable, medical-grade silicone pad with a surface of cavities that retained menstrual fluid (Figure 1). It was designed to be easily cleaned with running water and dried with a cloth or towel before being reinserted into one's underwear for further use. The use of medical-grade silicone in the product reduced health risks, as the material that does not harbour bacteria (Ross, 2015); the product overcame the taboo of needing to be inserted; and was reusable, which benefitted affordability and environmental sustainability.



**Figure 1:** BA Honours Industrial Design Product Outcome, (Findlay, 2017).

While this reusable pad design solved the practical issues of existing period products, the outcome was a radical innovation in the taboo field of menstruation, which potentially made the acceptance of the product difficult. Therefore, a further study was undertaken to explore and manage the complexities of introducing radical innovations and taboo products – which is the focus of this paper. This study aimed to utilise *behavioural design to develop a method of encouraging the acceptance of a new menstrual product in South Africa, which is a radical innovation and falls under the effects of taboo*. To do this, the behaviour around menstruation within South Africa had to be unpacked. Activity Theory was used as a theoretical framework to frame action as systemic, and Behavioural Design was used as a method of investigating the beliefs and practices around menstruation in South Africa from a human-centric perspective. The outcome of the study was a design honing strategy, as well as a revised version of the menstrual product<sup>1</sup>.

## **RADICAL INNOVATION AND TABOO**

What makes radical innovations problematic is that they fall outside the frame of reference of potential product users, and therefore often do not reach their potential when first being introduced (Norman & Verganti, 2014). People desire things that have already been trialled so that the distinction between good and safe, and bad and dangerous, has already been made (Berkun, 2010, p. 55). This reaction is not deliberately formed but rather arises from a place of habit created in one's subconscious (Schumpeter, 1983, p. 84). The habits people have are largely adopted from their societal norms: “Deeply rooted psychological and cultural factors frame the initial response to new technologies” (Juma, 2016, p. 25). It therefore becomes clear that behaviour and the acceptance of innovations are inextricably linked, and understanding human behaviour is a complex undertaking.

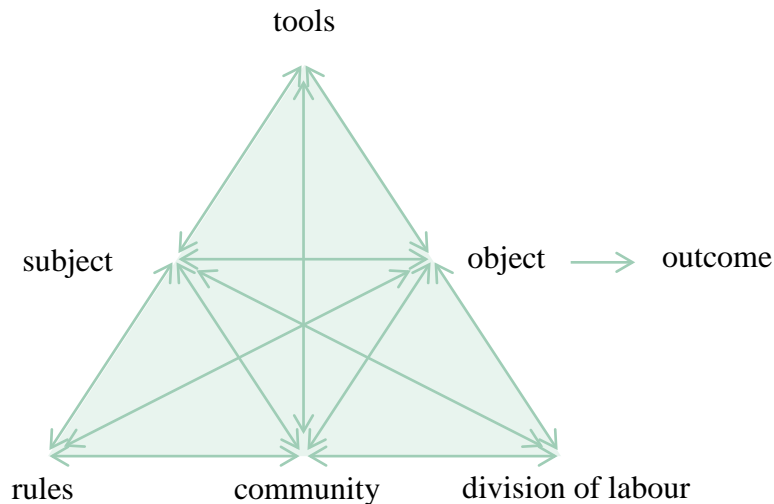
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<sup>1</sup> This paper only covers an aspect of what was a complex two-year Master's design research study, for more detailed information on the study please read Findlay (2020). Also, please note that the menstrual product presented in this paper has been patented in partnership with the University of Johannesburg Technology Transfer Office: ZA National Patent 2018/08001.

The perception of a new product can vary from culture to culture and may be adopted in one place and rejected in another (Berkun, 2010, pp. 60, 66). The reaction an innovation receives is hence greatly influenced by its context. Berkun (2010, p. 118) therefore argues that the acceptance of an innovation relies far more heavily on its alignment with cultural values, than it does on how good its technology is. If an innovation threatens to disrupt cultural identities, it is likely to be rejected (Juma, 2016, pp. 7, 24). It is recommended that radical innovations are revisited through an incremental and human-centred process during the design phase for them to become influential (Norman & Verganti, 2014). Methods that have been developed to introduce radical innovations, however, are often post-design and product-centric processes that do not take the user or their context into account (Rogers, 2003). As South Africa is a complex and diverse context, these methods were deemed inappropriate.

A radically innovative menstrual product adds the complexity of taboo to market acceptance. Taboos are defined as social constraints on an individual's behaviour that prohibit certain actions and even thoughts (Fershtman, et al., 2011, p. 139; Allan, 2015, p. 155). These constraints are experienced culturally and are enforced by social norms, which also means that they differ from culture to culture (Fershtman, et al., 2011, p. 140; Sabri, et al., 2010, p. 62). The universal shame and stigma associated with menstruation is clear and common. It is often associated with uncleanliness (Allan, 2015, p. 156; Houppert, 1999; Dahlqvist, 2018; Strömquist, 2018), and the silence around menstruation is a further universally expected behaviour (Dahlqvist, 2018, p. viii). As menstruation falls under the category of "conversational taboos," it in turn, makes menstrual products and their use a taboo (Sabri, et al., 2010, p. 72). Taboos present a barrier to product acceptance since they threaten to disrupt social order (Allan, 2015, p. 162).

Methods of introducing taboo products are limited and in need of further investigation as most are product-centric and disregard context (Sabri, et al., 2010; Yagnik, 2016). Pro-innovation bias can be detrimental for product success, especially in a multicultural environment, which ultimately leads to tension between cultures as they compete for superiority and survival (Yagnik, 2016, p. 36). Due to the multicultural context in South Africa, the introduction of an innovation, particularly one considered taboo, must be carefully considered. For the acceptance of this study's menstrual product to be encouraged, the design was revisited through a human-centric approach that aimed to deeply understand both the user and their context. This was undertaken by unpacking beliefs and practices around menstruation in South Africa through the systemic lens of Activity Theory.



**Figure 2:** Activity system model, adapted from Engeström, 1987.

## ACTIVITY THEORY

Activity Theory is useful in unpacking the concept of activity, by studying human behaviour on both an individual and social level (Kaptelinin & Nardi, 2012, p. 33). The *Activity System Model* is a widely utilised framework developed by Yrjo Engeström in 1987 (Fig. 2). It was built on previous models of activity theory that arose from psychology in the Soviet Union (Vygotsky, 1962). The model depicts action that is undertaken by an individual (*subject*) to fulfil their motive (*object*) (Engeström, 1987). This action is mediated by a *tool*, which enables the subject to execute their motive (Engeström, 1987). Influenced by the other actors in the activity system (*rules*, *community* and *division of labour*) the action leads to an *outcome* (Engeström, 1987). The emphasis of the broader systemic influences of culture and context on human activity is what makes the theory particularly useful (Kaptelinin & Nardi, 2012). *Rules* or social norms, the individual's social context (*community*), as well as social organisations (*division of labour*), are all considered key supporters or contradictions in the activity system (Engeström, 1987).

## RESEARCH METHOD

Behavioural design (Cash, et al., 2017) was the central method of this study since it allowed for the unpacking of context and culture, with a focus on influencing action. The *tool* in the activity system is key since this is where the designer has some 'power' to elicit change. Human action is hindered or supported by what a *tool* can afford (Gibson, 1979). Designing for affordances can, therefore, be used to encourage certain behaviours and is done by aligning visual cues with the users existing knowledge to encourage the desired action (Norman, 2013). Doing this can be considered as *nudging* or using design to change behaviour in a predictable manner (Thaler & Sunstein, 2008).

Behavioural design requires an unpacking of culture, existing knowledge, and an analysis of what behaviour is motivated in relation to a specific product. Through their analysis of twenty design projects, Cash, Hartlev and Durazo (2017) developed a seven-step behavioural design process derived from existing theoretical approaches to behavioural changes. These steps consist of (1) *the definition of a problem or need*, (2) *behaviour mapping*, creating a (3) *behavioural hypothesis*, which is refined through (4) *fieldwork*, and expressed in a (5)

*behavioural statement, (6) the development of an intervention, and finally an (7) iteration of testing and development* of this intervention. For this paper, these have been summarised into three phases (Table1).

### **Definition of problem or need**

Within this phase of the project the behavioural problem was defined (Cash, et al., 2017, p. 116). Primary literature (Ramdhani, et al., 2016) was used as a foundation for defining the difficulties of introducing radical innovations and taboo products.

### **Behaviour mapping**

Behaviour mapping includes the investigation of elements such as social norms, environment, social context and personal factors that are related to the identified problem (Cash, et al., 2017, p. 117). Guided by Activity Theory (Engeström, 1987), this exploration took place in two parts. The first part included extensive desktop research (Johnston, 2014, p. 620) of primary and secondary literature (Ramdhani, et al., 2016), field observations (Martin & Hanington, 2012, p. 120; Curedale, 2013, p. 211) of the existing South African menstrual product industry, as well as interviews with five South African menstrual product experts. After thematically analysing the resulting data (Martin & Hanington, 2012, p. 12), a behavioural hypothesis was deduced. To confirm, update and expand on this hypothesis,

further interviews were conducted with a culturally diverse group of young South African women, which led to a final behavioural statement.

<b>METHODS</b>			
			<b>Participant</b>
1	<b>Definition of problem or need</b>	Primary literature	
2.1	<b>Behaviour mapping</b>	Primary and secondary literature	
		Field observations	
		Interviews with experts	Sharon Gordon (CEO of Dignity Dreams) Susan Barnes (managing director of SubzPads) Zamagela Magoso (project co-ordinator of Subz-Pads) Ivana Merckel (representative of Mina) Kim Windvogel (advocacy officer of FemmeProjects)
2.2	Behavioural hypothesis		
2.3	Field work	Interviews with young South African women	Amaira Anele Hafeezah Kefilwe Laura
2.4	Behavioural Statement		
3.1	<b>Design intervention, testing and development</b>	Feedback from young South African women, Feedback from SAIS 2019 where the product was exhibited	Anele Hafeezah Kefilwe Laura Mia SAIS Tradeshow Conversations
3.2	Development of Honing Strategy		
3.3	Design Iteration		
3.4	Design Evaluation	Feedback from young South African women	Ayanda Hafeezah Hannah Laura Mieke
<p>*All interviewees were presented with information and consent forms which clarified the intent of the study as well as their participation in it. With consent, the identities of the experts were presented in the study. The identities of all young adults were kept anonymous and are referred to by pseudonyms within the study.</p>			

**Table 1: Methods (Findlay 2020).**

To refine the existing menstrual product, a *honing strategy* was developed as a method to encourage the acceptance of the new menstrual product in South Africa. The strategy was developed as a holistic approach to the design of radical innovations in a taboo field, that addressed both the product and system, as well as the motives of both the user and designer. After conducting a further design iteration, guided by the honing strategy, the menstrual product outcome was evaluated through further feedback sessions with young South African women.

The outcomes of the three phases described above are reported below, forming the core of the paper. To accommodate the complexity of context, the findings are organised under the headings of *rules*, *community and division of labour*, and *subject and object* from the Activity Systems Model (Fig. 2). The *tool* is the menstrual product, which is explored under the development of the honing strategy and its final refinement.

### **Rules, Community and Division of Labour**

Due to social and cultural norms, the context into which a product is introduced strongly influences how it is received (Berkun, 2013; Juma, 2016; Conteh, 2003; Vanek, 2003; Yagnik, 2016). The South African context is complex consisting of multiple ethnicities, religions and cultures (Thompson, 2011; McKenna, 2011). The country's context is generally described as conservative and patriarchal (Barnes, 2019; Gordon, 2019; Merckel, 2019; Windvogel, 2019; Magoso, 2019; Karim & Baxter, 2016; Watts & Zimmerman, 2002), leaving menstruation as a taboo topic and shameful experience for many women (Barnes, 2019; Gordon, 2019; Merckel, 2019; Windvogel, 2019; Magoso, 2019; Dahlqvist, 2018; Houppert, 1999).

There is an existing set of *rules* that dictate menstrual taboos that can be traced back to various sources. The description of menstruation in many patriarchal religious texts plays a role in how menstruation is perceived today (Dahlqvist, 2018; Strömquist, 2018; Windvogel, 2019; Merckel, 2019). As South Africa is a context with a strong religious following, these rules have influenced the forming of societal norms and expectations (Denis, 2006). Traditional African religions have also been criticised for their patriarchal attitudes (Rafudeen & Mkasi, 2016; Tapscott, 2012). Because customary law is acknowledged by constitutional law within South Africa (Maluleke, 2012), many traditional patriarchal practices are normalised (Machisa, et al., 2011), often leaving women in a position of subservience (Gordon, 2019; Merckel, 2019; Windvogel, 2019).

The existing *communities* within the South African context are a further strong influence on the taboos associated with menstruation. Within such communities, the position women hold, has framed many of the perceptions of menstruation (Dahlqvist, 2018). Furthermore, the culture that exists within communities plays a role in the experience adolescent girls and women have of menstruation (Magoso, 2019; Merckel, 2019; Barnes, 2019; Windvogel, 2019). These communities include school and home environments, in which individuals perpetuate or dismantle taboos around menstruation (Windvogel, 2019). Teachers, female family members, friends and peers are most commonly the people who directly transfer menstrual rules to the next generation (Magoso, 2019; Merckel, 2019; Barnes, 2019; Windvogel, 2019; Gordon, 2019; Amaira, 2019; Anele, 2019a; Hafeezah, 2019a; Laura, 2019a; Kefilwe, 2019a).

The *division of labour* describes existing competitors in the menstrual and female health product industry, which influence society's perceptions of menstruation. Because human behaviour is influenced by one's existing frame of reference (Berkun, 2010; Juma, 2016; Norman, 2013), the messages sent by largely commercialised industries entrench a norm. The South African menstrual health industry is largely dominated by international companies, with a small sector of locally produced products (Khumalo, 2013; Le Guern, 2018). Disposable pads make up the majority of products supplied on the South African market, followed by tampons, another disposable product (Chikulo, 2015; Beksinska, et al., 2015). This leaves only a small sector selling reusable products such as cloth pads and menstrual cups.

The messages created by these influences within the South African context are repetitive and consistent. The *rules* that are 'written', the *communities* that adapt and implement them and the messages received from the *division of labour* are continuously presenting menstruation as

something *unclean*, something in need of *concealment* and something closely linked to *sexuality*.

Menstruation is presented as *unclean* (Barnes, 2019; Gordon, 2019; Merckel, 2019; Windvogel, 2019; Magoso, 2019). Many patriarchal religions present menstruation as polluting and dirty (Dahlqvist, 2018), which still determines the kinds of religious practices women are, and are not, allowed to perform during menstruation in South Africa today. The result of this belief has gone as far as women being required to isolate themselves during menstruation (Barnes, 2019). The menstrual product industry, which is dominated by disposable products, promotes the idea that menstruation is dirty and must be disposed of (Strömquist, 2018; Dahlqvist, 2018). Uncleanliness is not only a view society has of periods, but a view that women have of their menses as well (Barnes, 2019; Gordon, 2019; Merckel, 2019; Magoso, 2019; Windvogel, 2019; Anele, 2019a; Hafeezah, 2019a). Some participants were repulsed by menstrual blood and often learnt to practice rigorous hygiene routines during menstruation (Anele, 2019a; Kefilwe, 2019a; Laura, 2019a; Amaira, 2019). Such views led to the rejection of reusable menstrual products due to their need for cleaning (Barnes, 2019; Gordon, 2019; Merckel, 2019; Magoso, 2019). The perception that periods are unclean also caused women to isolate themselves and has created a culture of concealment and silence on the topic. These factors make gaining the acceptance of a new reusable period product challenging.

As it is considered a taboo topic, the *concealment* of menstruation is expected. The existing menstrual product industry perpetuates the idea that menstruation is embarrassing and in need of being concealed (Dahlqvist, 2018; Strömquist, 2018; Houppert, 1999). Men have been removed from the conversation (Merckel, 2019; Barnes, 2019; Windvogel, 2019; Gordon, 2019; Amaira, 2019; Anele, 2019a; Hafeezah, 2019a; Laura, 2019a; Kefilwe, 2019a), making the normalisation of periods nearly impossible. The rule of silence has also affected the realm of education on menstruation in South Africa, where this topic is often neglected in school curriculums and within homes (Merckel, 2019; Barnes, 2019; Windvogel, 2019; Gordon, 2019; Amaira, 2019; Anele, 2019a; Hafeezah, 2019a; Kefilwe, 2019a). As a result, the experience adolescent girls have of their first menstruation involves fear and confusion, and is often kept a secret from others (Barnes, 2019; Windvogel, 2019; Gordon, 2019; Amaira, 2019; Anele, 2019a; Hafeezah, 2019a; Kefilwe, 2019a). Having to conceal the fact that one is menstruating causes girls who don't have access to sufficient menstrual products to avoid attending school during their periods (Barnes, 2019; Dahlqvist, 2018; Chikulo, 2015). The rule of silence and the expectation of concealment around menstruation leads to the experiences of fear and shame, while perpetuating the taboo around periods and making the topic difficult to normalise. Introducing a product that no one wants to admit they use, makes gaining its acceptance challenging.

Menstruation has been linked to *sexuality*, which has continuously caused periods to be presented as “naughty” (Anele, 2019a; Gordon, 2019; Merckel, 2019; Windvogel, 2019). Within South Africa, many adolescent girls were found to believe that the onset of menstruation was linked to sexual activity (Anele, 2019a; Gordon, 2019; Merckel, 2019; Windvogel, 2019). Because the onset of menstruation is strongly linked to womanhood, fears around adolescent girls being subject to gender-based violence has led to practices such as virginity testing in South Africa (Karim & Baxter, 2016; Karim, 2005; Denis, 2006; Barnes, 2019; Merckel, 2019; Windvogel, 2019). Due to the value placed on virginity in many South African cultures, menstrual products that have to be inserted are often restricted (Anele, 2019a; Kefilwe, 2019a; Barnes, 2019; Gordon, 2019; Magoso, 2019; Merckel, 2019; Windvogel, 2019; House, et al., 2013). The link to sexuality has caused young girls to feel ashamed and “naughty”, perpetuating the rule of silence and taboo around menstruation.



## **Subject and Object**

The *subject* was explored to identify the most suitable target audience to encourage the acceptance of a new menstrual product. We aimed to identify early users, who are most likely to try a new product (Rogers, 2003, p. 36), and hence where a change in mindset may need to happen to improve the acceptance of the product. The subjects we identified were young adult women, but this is not the only *subject* audience that could be explored.

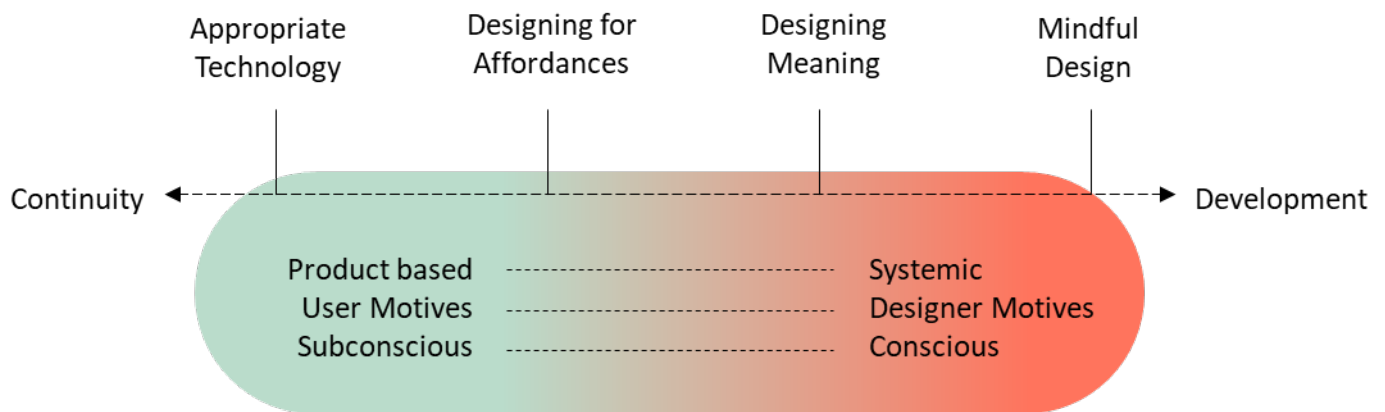
As a group that is open to being guided during their attempt to overcome menstrual taboo, young adult women were identified as the primary target audience. The reason for this is that they reported their experience of menstruation having changed since their adolescence (Amaira, 2019; Kefilwe, 2019a; Anele, 2019a; Hafeezah, 2019a; Laura, 2019a). As they gained more independence from their family home and were exposed to more information in new environments, such as in higher education, they began questioning the norms of menstrual taboos (Amaira, 2019; Kefilwe, 2019a; Anele, 2019a; Hafeezah, 2019a; Laura, 2019a), as well as altering which menstrual products they used (Amaira, 2019; Kefilwe, 2019a; Anele, 2019a; Hafeezah, 2019a; Laura, 2019a).

As the behaviour of the young adult women shifted after adolescence, their motives also changed. Their actions during adolescence showed the intention of concealing their menstruation (Amaira, 2019; Kefilwe, 2019a; Anele, 2019a; Gordon, 2019; Hafeezah, 2019a), to fit in with social norms and to create safety from ridicule. Their actions were determined by other elements in the activity system such as *rules*, *community* and *division of labour*, as well as the products that they had used (*the tool*), which all promoted ideas of uncleanness and the sexual connotations of menstruation that needed concealment. The change in behaviour around menstruation as these women entered young adulthood showed that their goals shift to wanting to be more open about their periods and overcoming certain taboos (Amaira, 2019; Kefilwe, 2019a; Anele, 2019a; Hafeezah, 2019a; Laura, 2019a). The motive of this behaviour can be interpreted as wanting to overcome gender-based restrictions they had experienced as teenagers, not wanting to feel ashamed of their bodies, wanting to gain independence and a sense of freedom, and not feeling judgement towards this naturally occurring process. Some of them also had the goal of becoming more environmentally friendly, by creating less waste from disposable menstrual products (Hafeezah, 2019a; Laura, 2019a).

The *object/objective* of the *subjects* in this study was to use a menstrual product (*tool*) that could assist them in fulfilling their motives, and hence a menstrual product that could clearly indicate how it fulfils their motives would be more easily accepted.

## **Honing strategy**

To gain the acceptance of the new menstrual product, the design had to be revisited. A design honing strategy was developed as a method of guiding the design iteration. The honing strategy was created as a means to manage the balance between “continuity” and “development” (Juma, 2016, p. 6) (Fig. 3). It comprised existing design approaches that fall on this spectrum, as per the selection of the subject, but these are by no means the only design approaches that could be applied when introducing a new menstrual product through behavioural design. They were, however, chosen as approaches that represent a range of different opportunities along the continuity-development spectrum.



**Figure 3:** Honing strategy, 2019, Findlay.

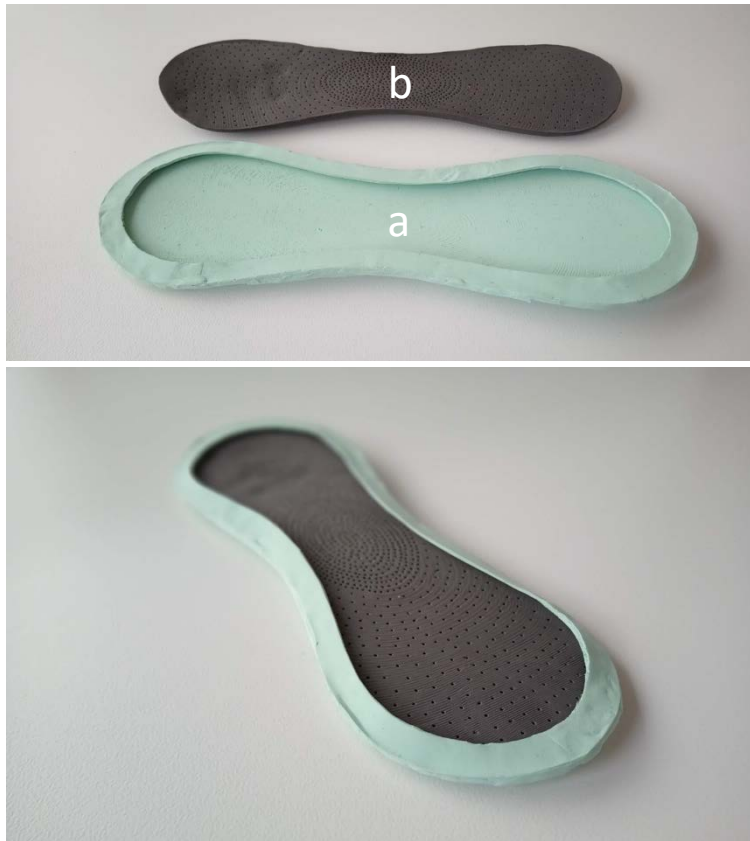
*Appropriate technology* (Conteh, 2003; Vaneek, 2003) and *designing for affordances* (Norman, 2013; Krippendorff, 1989) are the first included methods. These two approaches have a strong focus on the design of a physical product that is being introduced and support continuity by accommodating culture whilst aligning with existing knowledge. However, after unpacking the origin of behaviour and perception around menstruation, it was acknowledged that to gain acceptance of new menstrual products, the spectrum had to be further extended in the direction of development. This extension not only addresses the need for product acceptance but the need for acceptance of menstruation as a whole. The spectrum was lengthened in the direction of development through the addition of a further two design methods: *designing meaning* (Kazmierczak, 2003) and *mindful design* (Niedderer, 2018). Rather than addressing the object being introduced, the intention of including these methods was to encourage more systemic change, than the more physical technological change encouraged through *appropriate technology* and *designing for affordances*. For the acceptance of the new menstrual product, the tool honing strategy presents design methods that encourage behavioural change by not only addressing the need for product design iteration but also the encouragement of a change in mindset around menstruation as a whole.

The feedback gained from study participants was aligned with each one of the methods presented in the honing strategy. As the first two methods within the honing strategy are aligned with user motives, this is where the most product feedback was gained. The last two methods had not been consciously considered in the initial design outcome, but based on the data gathered around menstrual taboos in South Africa, design choices about these two methods were included in the product iteration. This paper touches on a few prominent design decisions made with the use of the honing strategy.

### **Appropriate Technology**

The participants raised questions about having to rinse out the pad in a public bathroom, where basins are not usually available within the toilet stalls (Hafeezah, 2019b; Kefilwe, 2019b; Laura, 2019b) or questioned what if no water was available at all (Hafeezah, 2019b). Because of the culture of concealment that exists around menstruation, rinsing one's menses in a public space, even if only in the presence of other women, was not viewed as acceptable behaviour. To mitigate this problem, it was decided that the pad would be split into two components (Figure 4). The user would be provided with a sleeve (a) and two inserts (b). This meant that if the pad was full and they only had access to a toilet stall without a sink inside, they could simply replace the insert with a clean one and store the used insert until they had the opportunity

to clean it discreetly. This further use of *appropriate technology* accommodated the culture of concealment and hygiene, allowing users to conceal their used pad insert instead of rinsing it out in front of other people. The need to store the pad then also provided another design opportunity to combine storage and packaging, in the design of a case (see *mindful design* below).



*Figure 4: Nula pad, 2019, Findlay.*

### **Designing for Affordances**

Another common question from the participants was how the pad remained in place within one's underwear (Anele, 2019b; Hafeezah, 2019b; SAIS, 2019), and if it would stay in place with various underwear materials, such as lace (Anele, 2019b; Kefilwe, 2019b; Laura, 2019b). This function of the product was difficult for the participants to imagine, as no existing pads make use of friction as a method of holding the pad in place within one's underwear, as the new product intended to do. To visually communicate that the pad would remain in place within one's underwear, wings were added to the pad (Figure 5.). These would be moulded in a closed position and could then be flexed open to be placed over one's underwear. This design decision aligned with the method of *designing affordances*. While not affecting the actual function of the product, it visually communicated its use based on the visual reference to an existing product.



*Figure 5: Nula pad wings, (Findlay 2019).*

### **Designing for Meaning**

A point of sale unit was designed for a sample of the reusable pad to be displayed next to the purchasable products (Figure 6). The unit allowed for the product to be interacted with so that potential buyers could feel the flexibility and softness of the material. The intention of this display was to make more information available about the function, aesthetics and feeling of the product. The point of sale unit created a change in *meaning*, by openly displaying the product, as opposed to concealing it in packaging as existing disposable products do. This openness aimed to change the *meaning* of a menstrual product from being an object that should be hidden, to a product that is normal and common.



**Figure 6:** Nula point of sale, (Findlay 2019).

### **Mindful Design**

A case was designed to store used inserts. Inside the case, along with the pad sleeve and its two inserts, the user was provided with a booklet that gave more detail of product usage and care, as well as educational information (Fig. 7). The booklet was an element of *mindful design* that provided information on both the biological and experiential aspects of menstruation. It also encouraged users to track their menstrual cycle and any symptoms they experienced, as a platform to promote learning more about one's menstrual cycle. It was also a nudge towards a more holistic approach to menstrual health education, that expanded beyond only educating females on the biological function of menstruation. By providing more information on the experiential aspect of menstruation, the booklet aimed to mitigate part of the culture of silence that exists around the topic, as well as communicating the normality of menstruation and the experiences that accompany it, such as cramps, fatigue and an increased appetite.



*Figure 7: Nula product, 2019, Findlay*

The final design outcome was presented for further feedback from the participants, to evaluate the effectiveness of the honing strategy and its implementation. Through this evaluation, the strategy was deemed successful, with the participants indicating a significantly increased acceptance of the new menstrual product.

## **CONCLUSION**

With a new menstrual product as a case study, this paper explored the problems of radical innovation and taboo. Furthermore, this study provided an analysis of menstrual taboos in South Africa, their origin and the effects they have on the lives of South African girls and women. To overcome the complexity of refining a menstrual product design towards its acceptance, this paper reported on a honing strategy that intended to address the problems created by menstrual taboo. In this case, the menstrual product outcome will require further field-testing and certification as a medical device before realising its full potential to improve the lives of South African girls and women. The honing strategy has the potential to serve as a holistic, human-centred approach to design in the menstrual health industry, whether it is applied to re-addressing existing products or designing and introducing completely new ones. Further to this, the honing strategy also has the potential to benefit the broader design, product development and innovation discourse as a way to address radical innovation within different sets of taboos in different contexts.

## ACKNOWLEDGEMENTS

Thank you to the experts and participants who participated in interviews during this study. Your openness and willingness to share your personal experiences added valuable information to a field that is generally otherwise under-addressed.

## LIST OF INTERVIEWS

- Amaira, 2019. *Participant Interview* [Interview] (5 September 2019).
- Anele, 2019a. *Participant Interview* [Interview] (5 September 2019).
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