


INTERNATIONAL DESIGN CONFERENCE - DESIGN 2020
<https://doi.org/10.1017/dsd.2020.331>



PUTTING USER IN CONTEXT: A PARTICIPATORY DESIGN APPROACH USING A SIMULATED BEACH ENVIRONMENT

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Abstract

The research outlined in this paper investigated the sun protection behaviour in young men age 18 to 24. Firstly, field observations were conducted on the beach where the sun protection behaviour occurs. The findings highlighted the importance of gender linked with low levels of sun protection behaviour in young men. This informed the next study through participatory design sessions using a simulated beach environment. The results showed design opportunities with taking an account of gender in sun protection behaviour which opens new avenues where design has a key role in health promotion.

Keywords: participatory design, aesthetics, sun protection behaviour, human behaviour, gender

1. Introduction

Skin cancer is the most preventable cancer and one of fastest-growing cancer in the UK ([Cancer Research UK, 2014](#)). Excess sun exposure and sunburn are primary causes of skin cancer and only by protecting the skin from the sun can it be avoided. According to Cancer Research UK, 85% of skin cancer cases can be prevented through sun protection behaviour. The National Institute for Health and Care Excellence (NICE, 2012) has explained: “sun protection behaviour plays a crucial role in the prevention and the treatment of skin cancer”. To reduce the risk of developing skin cancer, attitudinal factors associated with engagement in a range of sun protection behaviours such as using sunscreen and wearing protective clothing is necessary as well as avoiding sunburn through wearing a hat and staying in the shade. The following are guidelines for engagement in sun protection behaviour by the UK Government’s Health and Safety Executive (HSE, 2011):

- Wearing protective clothing which prevents sunburn, including a hat which covers as much of the face and back of the neck as possible.
- Staying in the shade wherever possible, especially between 11 am and 3 pm.
- Wearing sunscreen with UVA and UVB protection.

According to the [Cancer Research UK \(2014\)](#), sunscreens reduce the risk of developing skin cancer to 40%. The important factor about the effectiveness of sunscreens is dependent on the level SPF protection, UVA protection and the reapplication of it for every 2 hours. Sunscreens protect skin from the sun’s UV radiation that causes sunburn and sun overexposure. However, despite the growth in the market for sun protection products produced by the cosmetics and sunscreen industries which aimed to raise awareness about the risks associated with exposure to sunlight,

young men age 18 to 24 are more at risk of developing skin cancer due to the low levels of sun protection behaviour ([Cancer Research UK, 2014](#)). However, despite the growth in the market for sun protection products produced by the cosmetics and sunscreen industries which aimed to raise awareness about the risks associated with exposure to sunlight, young men age 18 to 24 are more at risk of developing skin cancer due to the low levels of sun protection behaviour. In particular, men are less likely to engage in health-related behaviours that lead to an increased risk of developing skin cancer. The impact of male gender characteristics and masculinity on health-related behaviours increases men's health risk. Masculinity is a set of attributes associated with the enactments of a feeling of superiority concerned with dominance into behavioural patterns. Masculinity is related to the endorsement of behaviours that indicates toughness and the opposite of vulnerability. This situation translates into a higher number of deaths amongst men, primarily due to the lack of health-related beliefs and behaviours ([Cancer Research UK, 2014](#)). The Department of Health and Social Care (DHSC) encourages the design of new interventions and programs, particularly in health promotion, to stop the annual increase of incidence and mortality rates by changing attitudes and behaviours. The current policy programs such as the 'NHS Cancer Plan' and 'Cancer Reform Strategy' by the UK government have focused on areas of primary prevention for cancer-related research to save lives, where design plays a crucial role in health promotion ([Department of Health, 2007](#)). An integral role of design starts with understanding the experience of users, thus opening new avenues and knowledge paths to bridge the gap between the world of designers and the world of users ([Chamberlain and Bowen, 2006](#)).

The diverse nature of design approaches expanded in a range of disciplines, underpins user needs whilst understanding user experience is open to interpretation. Although the areas of application differ, there is a common underlying principle that underpins all these terms: to optimise the design for human use so must always stem from a human-centred design (HCD) approach ([Norman, 2013](#)). The shift in emphasis of the design approaches have evolved towards understanding the situated meanings related to the user experience and most recently, the paradigm of Empathic Design and Participatory Design ([Sanders, 2002](#)). Sanders emphasizes the importance interacting and empathising with the user towards a participatory mindset in design research. The empathic design focuses on the understanding of how it feels to be like another person and is defined as "the ability to understand and identify with another person's context, emotions, goals, and motivations" ([Sanders, 2002](#)).

This paper focuses on the exploration of sun protection behaviour in young men through field observations and participatory design sessions. Initially, Section 2 presents the exploration of the participants' natural attitudes and experience in their typical environment. This research set out to develop an understanding of the relationship between young men's gender and masculinity and the sun protection behaviour in their natural environment through the following: 1) the replication of a social environment in which the participants perform their masculinity and sun protection behaviour, and 2) the replication of a beach environment with liminality. This led to the exploration of the participants' gendered interactions and enactments of social roles in a beach setting with fewer contextual constraints where their masculinity is displayed. Following on from there, Section 3 discusses the results. Lastly, section 4 draws together the key findings and opens suggestions for future research.

2. Methods

2.1. Field observation

Field observation is an exploratory and observational technique in understanding people's behaviour in the context ([Angrosino, 2008](#)). In this approach, the researchers visit the user in their natural setting to understand their activities, interests, motives, and actual needs. For this study, a series of field observations were carried out to explore the sun protection behaviour in young men age 18 to 24 on the Brighton beach. Ethical approval was obtained from the School of Engineering, Computing and Mathematics ethics committee at the University of Brighton in January 2017. The observations conducted between 11:00 AM and 13:00 when the sun UV radiations are at their strongest ([Cancer Research UK, 2014](#)) over 6 days with 20 participants. Each weekend, data were collected through

two-hour observations of young men's activities providing a detailed account of their sun protection behaviour.

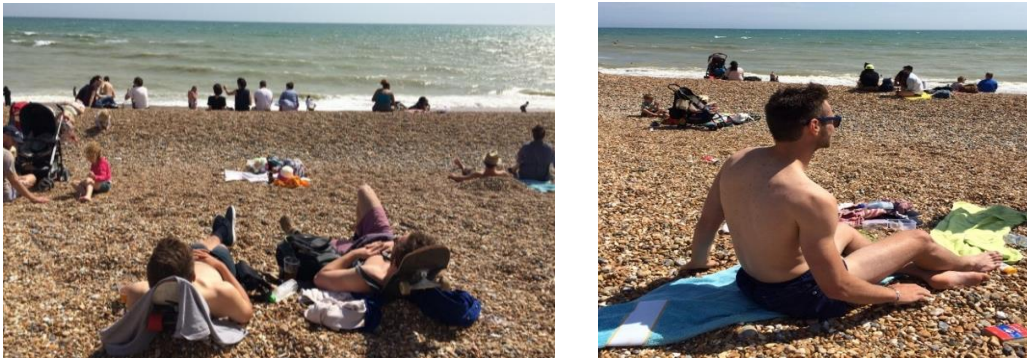


Figure 1. The field observations on the Brighton beach (Authors' photograph)

Each day, data was collected through two-hour observations of young men's activities, providing a detailed account of their sun protection behaviour. The observations were conducted based on observing young men age 18 to 24, and the observed data were recorded through field notes. The main aim is to explore the patterns of participant's behaviour in their natural setting. Initial scoping observations have determined the location of research on Brighton beach, this being between the East Pier and West Pier which is frequently populated by young men due to the leisure activities available such as beach sports, water sports, bars and restaurants, shops and pier attractions.

According to the [World Health Organization \(2016\)](#), the sun exposure is more extensive on the beach due to the reflection of sun's ultraviolet radiations from sand and water, and it is highly likely that individuals have less skin protection due to the nature of clothing that is worn on a beach. This means it is considered as a social zone for personal and elusive behaviours, activities and interactions outside the everyday work-life and norms and gives access for people to form and assert their social roles. According to [Gilchrist et al. \(2014\)](#), the beach is considered a place of liminality and leisure. A beach is a place that is neither land nor sea and is discussed as a liminal or in-between space where facilitates a flow from one moment to the next ([Preston-Whyte, 2004](#)).

Based on the conducted field observations, the participants' desire for a tan indicates the recent transformation of men's physical appearance that promotes normative beliefs regarding tanning that is healthy. According to [Connell \(2013\)](#), young men prove their masculinity through their physical appearance. As masculinity is about physicality, they want to fit into the characteristics of physical toughness and self-confidence linked with the ideal masculine body. The importance of how they feel about their physical appearance is linked with the way men prove or assert their masculinities. This can be linked with tanning for their physical appearance rather than health-related purposes and highlights the impact of gender and masculinity as the most influential factor among sun protection behaviour in young men. This is in accord with the previous studies discussed in Section 1 regarding the impact of gender and masculinity among the health-related behaviours of young men. The results highlight young men's sun protection behaviour contradicting particular ways of performing their masculinity and in this context, prevents them from protecting themselves from the sun. The stated findings from the field observations suggested further investigation of young men's gender enactments related to their sun protection practices on the beach.

2.2. Participatory design sessions

The findings from the field observation informed the next study in the form of a practical approach through participatory design sessions to engage the participants in naturally occurring behaviour on the beach. The participatory design approach is focused on the act of participation through direct user involvement to explore the users' needs from their perception ([Holtzblatt et al., 2005](#)). In this approach, users are empowered and are actively engaged in activities that inspire their creative and innovative thinking. In this manner, facilitating a group dynamic by bringing the users together in the context where their experience is formed empowers the act of participation. A total of eight

participatory design sessions through a simulated beach environment were conducted for 120 minutes. The context of a simulated natural environment is one of the most important features in terms of revealing the participants' natural attitudes and real-life experiences (Martin and Hanington, 2012, p.164).

The facilitated participatory design sessions engaged the participants in their sun protection behaviour and allowed the researcher to observe their behaviour and interactions in relation to their performances of masculinity. The participants sat on beanbags, facing a beach scene and surrounded by other beach-related paraphernalia, such as towel, flip-flops, sunscreens, sunglasses and hats. Yellow lighting and a warmer temperature in the room added the beach mood, which was further enhanced by a projector to display a beach scene on the large curved screen, and a sound recording of sea waves being played in the background. Since the nature of the participatory design method requires small groups of participants for the more focused and in-depth result, each session of the study involved direct user involvement with four to six participants. The main criteria for selecting the participants was regarding the demographic factors, including their age and gender. The potential participants were recruited through distributing flyer at the University of Brighton with details about what the study entails. The participant information sheet, along with the consent form, was given to the participants who voluntarily participated in the study.

In total, 23 male participants and seven female participants participated in male-only and mixed groups, and each session followed the same structure. The difference between the male-only group and the mixed-group revealed the differences that young men account for themselves in relation to their performance of gender and masculinity. The comparison of the sessions with the male-only groups to the sessions with the mixed-gender groups will demonstrate how male participants express their values and beliefs in relation to male-only sessions or the mixed sessions.

The main layout of the space for this study was specifically designed to stimulate the naturally occurring behaviour of the participants' performance and their interactions related to their sun protection practices on the beach. For this study, a replicated naturalistic environment plays a key role to adjust the participants in an environment where their sun protection behaviour takes place. The combination of nature and freedom with leisure and joy replicates a social environment for the participants to display masculinity in their typical environment. These factors demonstrate the transformation of the beach as a liminal space. The beach environment is a zone for specific behaviours, activities and interactions which are outside the everyday work-life and norms (Shields, 1992). In addition, the study environment facilitates a group dynamic through specific activities that enable the researcher to correlate the participants' sun protection behaviour in relation to their gender and masculinities. This is very important for this study as the naturally occurring attitudes and behaviour in their natural setting. Frosh et al. (2002, p.55) describe the importance of group dynamics related to enactments of gender and masculinities. According to Frosh "masculinities are made into, and lived as, natural or essential identities". The researcher explores what the participants experience through the interpretation of their actions, motivations and gender enactment in their natural environment while the participants started talking informally to each other. The key element of this stage is in relation to replicate the participants' naturally occurring behaviour based on their interactions with the arranged environment and the other participants in the group linked with the designed activities for this study.

2.3. Space preparation

The 'Creativity Centre' at the University of Brighton was selected for this study to take place. This space has various facilities that add to its flexibility to create a setting where the patterns of sun protection behaviour occur fully engages the participants in the process. The Creativity Centre includes movable whiteboard panels that can divide the rooms into a specific layout with chairs, tables and bean bag chairs for a relaxed environment. In addition, it contains environmental and technological features such as natural daylight coloured lighting, temperature control, interactive whiteboards, projectors, curved screen and sound system. The room layout also included yellow tone lighting, heating to keep the participants comfortable and represent a beach, sunny environment. These features simulated a 'virtual beach space' through beach scenes projected on the walls, beach sound

and warm temperature control to immerse the participants into the beach environment and set their mindset to where their behaviour takes place. As stated in Section 2.1, one of the main factors associated with young men’s natural attitude and behaviour in relation to how their gender and masculinities emerge are influenced by the environment.



Figure 2. Participants during the Simulated beach environment (author’s photograph)

Initially, the Participants sat on beanbags, facing a beach scene and surrounded by other beach-related paraphernalia, such as towel, flip-flops, sunscreens, sunglasses and hats. A number of popular sunscreens among young people from leading brands such as Nivea (NIVEA MEN, 2018) were outlined to the participants. The selection of sunscreens was based on a preliminary observation of available sunscreens on the market (Boots, North Street branch, Brighton, 11th October 2017). The Nivea sunscreens, which offers sun protection for males, is designed for quick and easy application (NIVEA MEN, 2018). A few sunscreens are commercially available that is specifically targeted towards male genders, for example, NIVEA MEN (2018) and Banana Boat (2018). In this stage, the participants interacted with the sunscreens and shared their experiences and interest in terms of the product aesthetics such as colour, smell, size, material, and shape.



Figure 3. The current Sunscreens for men on the left and both genders on the right. The product photos are printed with all rights reserved (Boots, 2018)

3. Discussion of results

The data collected from the sessions through a participatory design approach demonstrates the importance of being aware of the role of gender in the participant’s actions and performances. The simulated beach environment revealed the link between the sun protection practices in young men and the way they enact their gender in relation to their sexuality. As participants said in their words demonstrated below, the majority of male participants are less willing to use sun protection than female participants due to its application in relation to same-sex body contact. For the project, it appears that female participants are also more aware and cautious about sun protection and keener to use sunscreens than the male participants. The protection of masculinity was very important to these participants, but also must be fragile if they need to protect it. This is apparent from the ways they were constantly differentiating themselves from the girls. In this manner, as Frosh explains in the book *Young Masculinities*: (2002), “Masculinities are consequently presented as powerful but fragile, asserted and constituted in opposition to each other and versions of femininity” (Frosh et al., 2002, p.42).

All the participants identified products with gendered attributes appealing to them in terms of gendered characteristics. Their preferences were related to the product properties described as chunky shapes, dark colours such as dark blue, grey and black. This suggests the deployment of their perceptions based on gendered tropes and gendered view of products. All the male participants said they avoid using products that are not designed for their gender. Although they recognised products targeted at their gender through stereotypical colours such as ‘pink for girls’ and ‘blue for boys’, it is something they expected to be, and it’s an important consideration when they use a product. They described the provided dark sunscreen bottles as strong, manly and powerful, in their words:

[Ralph]: The dark bottle looks stronger, but its lower factor for SPF (30) which means you might burn.

[Anthony]: Male colours are dark blue, grey and black, female products are curvy, and I usually buy the products that are dark colours and are for men, the font and packaging of products for men are with straight lines or as a square.

[George]: I buy products that are dark colours and are for men, if a product is designed for women, it will have bright colours and will be soft and smells girly such as Nivea creams, flowery smells are for girls!

[Ross]: all the men’s products are dark coloured like black, and blue and women are pinker and whiter, if a product is for men, then it’s for him.

As anonymity and confidentiality of participants are central to this research, the participants are named through the use of pseudonyms in this article. The male participants said black comes across as a ‘strong’ and powerful colour. The impact of gender norms and stereotypes are clear from the participants’ comments, with them particularly identifying gendered colours, such as black, as powerful and strong. All male participants attached meaning to the black packaging: to them, black was seen as strong and powerful, which would indicate the impact of marketing towards gender stereotypes. Their gendered attachment to particular colours was also visible in their choice of clothing and their technology products, such as watches and phones.

However, a few male participants indicated more flexibility in using products that are not targeted towards their gender. These participants also indicated that they are more willing to use sunscreen in comparison to the other male participants. Although these participants feel threatened by the sun, and they are aware of using sunscreens to avoid overexposure and sunburn for outdoor and beach activities, they still have low levels of sun protection. Also, they mentioned particular characteristics of sunscreens makes it less motivating and problematic to use. The majority of male participants consciously avoiding sunscreen due to its application in relation to same-sex body contact. For example, in participants’ words:

[Anthony]: if you are on a family holiday, your mum forced you to do it or whatever, also there is something awkward about sunscreens.

[Ross]: it is the back and shoulder area, isn’t it?

[Anthony]: yeah.

[Ross]: It is never comfortable asking friends to apply sunscreen on my back.

[Anthony]: I’m not worried about what sunscreen to buy; I’m worried about how it gets applied!

As these participants indicated, their main worry about sun protection and applying sunscreens concerned the application of sunscreen to their bodies, which is linked with peer-pressure. This can be understood from the ways they represent themselves while they attached gendered values to their sunscreen application. In their world, anything that threatens their gender and masculinity puts them in a difficult position. For this research, we can see a difficult task ahead as participants like Anthony and Ross consciously avoid sunscreens as they conflict with their masculine identity construction. As soon as Anthony said why he didn’t apply sunscreen when he was with his peers, Ross knew he was

concerned about applying sunscreen to his friends' hard to reach areas such as shoulders and back. It was clear from their body gestures and laughter that they felt very self-conscious and embarrassed about this. This could be linked to their gender and the ways in which 'manliness' is perceived by society, as well as fears of being seen as gay among their male peers. From their views and behaviour traits, it is clear that they are concerned with the pressure from peer culture and concerned about the application of sunscreen.

In addition, the variations in attitudes and behaviour of the male participants in comparison with the female participants indicated their gender differences created and reacted in their responses associated with displaying patterns of masculine or feminine attitude and behaviour. This is relevant in developing of understanding of the male participants' attitude and behaviour in relation to their gender characteristics and masculinity embedded in their motivations. At this point, we should note that almost all male participants expressed views and ideas associated with different versions of hegemonic masculinity (Connell and Messerschmidt, 2005). This analysis also indicated that understanding how the male participants express their masculinity as the male respondents seem concerned about their masculinity as came across as defensive and it needs the protection of the male participants' masculinity through choosing particular products. This can suggest that they are in denial as sun protection practices conflicts with the construction of their masculinity. It is also apparent from analysing these comments that the male participants' attributes seem to possess the characteristics of wanting to be accepted by others. Their perspectives and comments imply that few male participants are actively involved in the conversations and primarily positioning their beliefs linked with gendered values. In this case, being popular in the group indicates various ways of inserting masculinities in the group dynamic, such as being popular and dominant in the group. This is linked with the ways that they enact popular ways of being a man and heteronormative identities. In this manner, fear of being seen as gay and gender stereotypes impact young men's perception in relation to their sun protection practices.

In all the sessions, it was noticeable that the male participants' behaviour was continuously assessed and judged by other male participants in the group. This indicates the main reason in relation to selecting the stated prompts and activities shows all the participants seem to have similar ideas about gender. This is linked with the expression of gender and hegemonic masculinity, dominant positioning in the group, and performing heterosexuality (Connell, 2005). The enactment of heterosexuality was noticed as the male participants were imitating others in the group, and more imitation and following were noticed in the mixed group than the male-only group. This means young men want to be accepted by imitating and acting like others (Frosh et al., 2002, p.62). The group dynamic with young men contributes in similar ways of expressing their interests and motives through exploring who's talking the most and who took the lead, who sparking the ideas and who are enacting passive ways of masculinities such as popular forms of being a heterosexual. The simulated beach environment had successfully engaged the participants in naturally occurring behaviour on the beach. Based on my observations on the beach during the field observations, the participants' enactments and behaviours were matching to those of the young men on the beach. This shows persistent and significant gender performance amongst participants which highlights the role of gender. The results revealed participants' sun protection behaviour concerning the replication of a social environment with liminality in which the participants perform their masculinity.

4. Conclusion and recommendations

This paper has shown the significant role of gender in young men's sun protection behaviour which led to new insights and design opportunities for young men underpinning their preferences in terms of the application of sunscreen, and aesthetics such as the shape of the sunscreen bottles, the spray feature of sunscreen bottles and various aesthetical elements such as colours, lines, shapes. The results also showed young men's sun protection behaviour in some ways contradicts particular ways of performing their masculinity and in this context, prevents them from protecting themselves from the sun. This result was achieved by investigating the sun protection behaviour in young men through field observations and participatory design sessions. This analysis guides to research in design towards understanding the way that gender, being a male or female designer, affects the designer's perceptions.

This can suggest the way designers' gender identity play a key role in influencing affordances and signifiers which emerge in a range of physical features of design such as lines, material, shapes, colours, and labels. This would bridge the gap between designers to go beyond their gender perceptions and focus on the users' gender identities. In addition, the implication of design recommendations for sun protection interventions would lead to primary prevention strategies in cancer-related research to save lives, where design has a key role in health promotion.

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