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Attention and Behaviour on Fashion Retail Websites: An Eye-Tracking Study

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Abstract

Purpose

The purpose of this paper is to identify attention, cognitive and affective responses towards a fashion retailer's website and the behavioural outcomes when shopping online.

Design/Methodology/Approach

52 eye-tracking tests and 52 qualitative semi-structured interviews were conducted.

Findings

Consumer attention and behaviour differs across web pages throughout the shopping journey depending on its content, function and consumers' goal. Top-down attention is more dominant than bottom-up attention when consumers are shopping online for fashion items. The product listings page was the most frequented and had the most time spent on it. Consumers enjoy browsing for products and adding them to their basket to evaluate them together later. Customisation and personalisation features are the most valued due to their ability to make the experience more convenient and enjoyable.

Originality/Value

This article contributes novel findings that the content and design of the website affects attention in different ways. It demonstrates that research cannot simplify viewing patterns for fashion shopping online. The study extends the SOR framework, showing that top-down attention, when provided with personalisation and customisation features, results in approach behaviour. A lack of personalisation or customisation features results in avoidance behaviour. The complex nature of consumer attention

and behaviour during their holistic shopping journey advocates the need for eye-tracking research to be conducted on a live website for ecological validity, providing a methodological contribution which can be used for future research.

Key Words: Website Design, Attention, Eye tracking, Fashion Retail, Ecommerce, Browsing, Consumer Behaviour, Personalisation, SOR Framework

Article Classification: Research Paper

Introduction

This research contributes to knowledge by investigating consumer attention and responses to a holistic fashion retail website throughout their typical online shopping journey. Online sales have been rising steadily over the last two decades, and its importance as a retail channel has increased dramatically due to Covid-19, with people unable to buy non-essential items in stores during global lockdowns. Although the reliance has lessened due to stores reopening, Covid-19 has accelerated the shift to shopping for fashion online and this heightened online demand will remain a legacy of the pandemic (Mintel, 2020). This highlights the need for fashion retailers to invest in e-commerce and the importance of effective website design.

However, consumers may have different responses to websites based on the product that they are shopping for. Marketers classify products as 'search', 'experience' or 'credence' products (SEC classification). 'Search' products have features that are easily evaluated before purchasing (e.g. price), meaning there is little product uncertainty when purchasing (Hassanein and Head, 2005; Micu and Pentina 2015; Rutgers, 2019). 'Experience' products have attributes that are unknown until purchase, such as quality or fit, and whose characteristics can only be evaluated fully when a consumer comes into direct contact with them (Hassanein and Head, 2005; Micu and Pentina 2015). 'Credence' products are those which, even after purchase, customers may still be unable to assess their quality, such as legal services (Rutgers, 2019). Hence, 'search' and 'experience' products are differentiated by the consumer's ability to evaluate quality before or after purchase (Darby and Karni, 1973; Gupta *et al*., 2004).

This study classifies clothes as 'experience' products when bought online because they can only be evaluated accurately *after* purchase and wear, the fit and quality is not clear. Hong and Pavlou (2014) found that product fit and quality are experience attributes. Moreover, Gupta and Harris (2010) state that experience products need to be seen and tried on before purchasing in order for consumers to successfully evaluate them. Indeed, consumer satisfaction depends upon how the clothes fit, how they feel, how they look and how long they last, making the decision-making process more experiential (Vahie and Paswan, 2006). This classification of clothes as an 'experience' product is aligned with existing literature (Ekelund *et al*., 1995; Citrin *et*

al., 2003; Vahie and Paswan, 2006; Grant *et al*., 2007; Bock *et al*., 2012; Jai *et al*., 2014; Micu and Pentina, 2015; Pålsson *et al*., 2017; Boardman and McCormick, 2019; Sun *et al*., 2019; Naegelein *et al*., 2019).

Hence, clothing is difficult to buy online compared to 'search' products as experience attributes such as the feel, texture and fit are hard to communicate through websites, creating a higher degree of uncertainty (Naegelein *et al*., 2019). This tactile interaction is very difficult to replicate online but it is essential to provide for 'experience' products such as clothing, as people want to touch the fabric to gain additional information about its properties (Li *et al*., 2001; Citrin *et al*., 2003). Furthermore, clothing is associated with higher social risk due to its potential to expose the consumer to ridicule from peers, and thus, social and symbolic meaning also play significant roles in clothing purchases (Batra and Sinha, 2000; Vahie and Paswan, 2006). This makes clothing ones of the most complex products to buy and sell online. Yet, fashion remains the biggest category purchased online (Hootsuite, 2021). Therefore, fashion retailers must ensure that their website presents items effectively, detailing style and fit accurately, to encourage purchasing.

In order to design websites effectively, retailers must first understand how consumers behave on them and what stimuli capture attention. Chang *et al.* (2016) called for future research to investigate how website design effects consumers' cognitive attitudes. One way in which consumers cognitive processing can be measured is through eye-tracking. Consumers are not often consciously aware of their decision-making processes on websites and so traditional research methods such as surveys are limited in terms of reliability (Wang *et al*., 2020). Eye-tracking enables researchers to capture behaviour that consumers may be unaware of, or unwilling to admit, showing how consumers view websites in real-time (Djamasbi, 2014). Therefore, eye-tracking enables researchers to study the behavioural-environmental processes behind consumers' shopping journeys, providing real-time information on their fixations and gaze patterns, thereby generating a greater understanding of online shopping behaviour (Menon *et al.*, 2016). Hence, by using eye-tracking, researchers are able to measure peoples' behaviour and cognitive processing objectively, counteracting the limitations of traditional methods. Yet, peer-reviewed eye-tracking

papers relating to consumer research remain scare (Huddleston *et al*., 2018). Thus, there is a need for more eye-tracking studies to gain a comprehensive understanding of how consumers respond to fashion retail websites. The present study will fill this gap in the literature.

Most eye-tracking studies are based on 'search' product websites, with ones based on fashion retail websites scarce. Yet, as discussed, results may differ from studies based on 'search' products due to the nature of clothing as an 'experience' product. Furthermore, the majority of eye-tracking website studies are based on static screenshots (Djamasbi *et al*., 2010) or partial/manipulated websites (Cyr and Head, 2013; Shi *et al*., 2013; Cortinas *et al*., 2019). Yet, studies using simulated websites limit the possibility of analysing consumers' actual experiences when shopping (Tupikovskaja-Omovie and Tyler, 2020). Therefore, Huddleston *et al*. (2015) called for future eye-tracking studies to be conducted in a real-time shopping environment as consumers might respond differently in this context as opposed to when viewing static images. Furthermore, Brunner-Sperdin *et al*. (2014) argue that it is imperative that websites are evaluated holistically in order to understand consumers full perception of the website. Thus, extant literature does not explain how consumers respond to a fashion retailer's website and how their attention varies (bottom-up vs top-down) throughout their shopping journey. The present study will fill this gap in the literature using the Stimulus-Organism-Response model to explore consumers' attention and behaviour throughout their shopping journey. Therefore, this article contributes to knowledge by answering the following research questions:

RQ1. What do consumers think and feel when shopping on a live fashion retail website in real-time?
RQ2. What design stimuli do consumers pay attention to when shopping on a fashion retail website and why?
RQ3. How does consumers' attention, cognitive and affective responses to the website design influence their behaviour?

Literature Review

Retail Websites

Fashion consumers frequently switch channels and retailers when deciding on a purchase (Patten *et al*., 2020). Thus, fashion retailers' websites need to create exciting shopping experiences, as consumers can switch to competitors' websites with minimal effort (Pham and Ahammad, 2017). Retail websites should also be easy to use in order to be useful and generate feelings of pleasure (Espigares-Jurado *et al*., 2020). Website stimuli can affect a consumer's mood and buying behaviour, determining how long a user engages with a website and whether they make a purchase (Loureiro and Breazeale, 2016). Poor visual, navigational and informational website design results in users being irritated (Hasan, 2016). Therefore, good website design and usability are vital as they can foster longer user engagement, increasing satisfaction and creating loyal customers (Djamasbi *et al*., 2010; Brunner-Sperdin *et al*., 2014). When consumers are satisfied with the information provided by fashion websites, it generates consumer trust in that brand (Loureiro *et al*., 2018). Indeed, research shows that a retailer's website design has an even greater impact on purchasing than customer service does in stores (Hasan, 2016). Therefore, existing research demonstrates the importance of effective website design in retaining and satisfying consumers. However, no research to date has uncovered what website design stimuli capture consumers' attention across the holistic website when shopping online, why they capture attention and how consumers actually use the website. The majority of website design studies are based on quantitative surveys which do not explain how consumers feel about the website in-depth, nor do they allow us to see consumers' natural behaviour on holistic websites. The present study will fill this gap.

Existing eye-tracking studies use screenshots to represent websites (e.g. Djamasbi *et al*., 2010) or simulations showing one page or section (e.g. Cyr and Head, 2013; Cortinas *et al*., 2019) rather than live websites. Websites are interactive and much more complex than static images. Thus, the same findings cannot be applied when people look at a picture to when they look at a website. It is important to investigate consumers' whole website experience as design stimuli are not perceived as isolated features, but as a combination of stimuli that contribute to the online shopping experience (Pentina *et al*., 2011). As consumers view the website as part of a continuous, integrated experience, the shopping experience should be researched from a holistic perspective (Ballantine *et al*., 2015). However, there is a lack of research investigating consumers' perceptions of online environments holistically

(Brunner-Sperdin *et al*., 2014). Extant research has not considered consumers total shopping experience online (Pham and Ahammad, 2017). The majority of eye-tracking research on retailers' websites have focused on the homepage (e.g. Djamasbi *et al*., 2011; Huddleston *et al*., 2015; Espigares-Jurado *et al*., 2020). However, if a consumer is directed to the website via a search engine or another site they may not see the homepage, landing straight on a product page (Demangeot and Broderick, 2010). Therefore, it is more appropriate to investigate the website as a whole, as opposed to just the homepage, to achieve more realistic findings showing how websites are navigated and experienced (Demangeot and Broderick, 2010). Cortinas *et al*. (2019) call for future research to explore how consumers' attention on text and images differs throughout the different stages of the shopping process. By analysing consumers' behaviour from their first fixation on the homepage all the way to the checkout, researchers can investigate stimuli that help or hinder the shopper journey (Wong *et al*., 2014). The present study researches how consumers behave during their whole shopping journey, tracking participants' eye movements whilst they are browsing in real-time, thus, taking a holistic approach, filling this gap in the literature.

Furthermore, retail website designs may not necessarily produce the same responses or provide the same experiences for consumers when they are shopping for 'search' or 'experience' products. 'Experience' products are evaluated on affective criteria that are subjective or emotional, whereas 'search' products are evaluated on cognitive criteria that are objective or rational (Jourdan, 2001). Thus, 'experience' products, such as clothing, may generate a different type of shopper journey than 'search' products due to their complexity. Therefore, e-commerce studies based on 'search' products cannot necessarily be generalised to fashion retail websites. For example, Vahie and Paswan (2006) state that their findings on grocery stores may not be applicable to clothing stores because the value and importance of clothes is different from the value and importance of grocery items. Furthermore, Hassanein and Head (2005) found that websites selling clothes benefit from higher levels of social presence, and that socially rich design created positive feelings. However, websites selling headphones did not facilitate a positive response as the socially rich presentations did not match the information requirements, making them seem forced and inappropriate (ibid). Yet, many eye-tracking studies focus on 'search' products, such as plants

(Huddleston *et al*., 2015), highlighting the need for more eye-tracking studies on 'experience' product websites.

Studies that have investigated fashion retail websites using eye-tracking have compared user responses to hedonic and utilitarian zones of product pages (Cyr and Head, 2013) and how consumers interact with product presentation features (Boardman and McCormick, 2019). Yet Cyr and Head, (2013) focused on the product information page and Boardman and McCormick (2019) just on product presentation features such as product images, videos and the zoom function, as opposed to the holistic website. Eye-tracking has been used to investigate how consumers use smartphones for fashion shopping (Tupikovskaja-Omovie and Tyler, 2020). However, Tupikovskaja-Omovie and Tyler (2020) focused on a mobile site, on which consumers shop and view items differently due to the size and nature of the device, and they were interested in mapping the consumer journey rather than exploring consumers' responses to the website design. Tupikovskaja-Omovie and Tyler (2020) acknowledged their small sample (14 and 16 participants), calling for future research to be conducted with a larger sample. The present study will build on this to provide an understanding about *why* consumer attention is placed on certain design stimuli and *how* they feel about the holistic website design when shopping on a laptop/desktop. As laptops are the main device used when shopping for fashion online (68% of people use laptops, only 41% use smartphones) this study is warranted (Mintel, 2020).

Cortinas *et al*., (2019) used eye-tracking and a survey to investigate how attention can vary on retail web pages according to different purchasing tasks. However, they focused on how the attention differed on simulated websites according to the task. This provides interesting insights but, again, does not provide an understanding about *why* consumers behave this way and their attention during a more exploratory shopping session on a real live website. Hence, no study has researched consumer behaviour across a fashion retail website holistically. This rich set of qualitative data is missing from the extant literature. Indeed, Tupikovskaja-Omovie and Tyler (2021) call for future research to provide qualitative insights into consumers responses to fashion retailers' websites, especially when combined with eye-tracking data. Extant literature details causal relationships between attitudes, satisfaction and purchase

intention on website design, but there is a lack of research regarding attention and consumers' cognitive and affective responses to fashion retailers' website design and their holistic online shopping experience. The present study will fill this gap.

Attention

Attention implies that a user focuses their thoughts on a particular stimulus (Wedel and Pieters, 2008b). Thus, it is only if a user applies their mind to a stimulus that it captures their attention. Visual attention is important as it represents information processing (Wedel and Pieters, 2008b). Users' attention is prioritised to areas of information that are considered relevant to their goals and help them complete their task (Wedel and Pieters, 2008a). Therefore, the amount of attention received indicates the amount of cognitive processing required, with more complex items receiving more attention (Scott and Hand, 2016).

Eye-tracking measures people's viewing patterns and can be used to determine consumer attention and subsequent cognitive activities when interacting with a website (Wong *et al*., 2014). This facilitates a better understanding about which design stimuli attract attention and those which are not seen. Consumers' attention is useful for practitioners to help them understand and manage the complicated consumer shopping journey (Cortinas *et al*., 2019). It is essential for retailers to capture consumer attention via their website design in order to direct them to information or cues that will lead to a purchase (Huddleston *et al*., 2018). If products and information are not obviously displayed, users may abandon their shopping baskets as the website design does not capture their attention (Wong *et al*., 2014).

According to the visual marketing attention theory, attention can be allocated as a result of either 'bottom-up' or 'top-down' factors (Wedel and Pieters, 2008a). Bottom-up factors are visual characteristics, such as a stimuli's size or shape (Orquin & Mueller Loose, 2013; Meißner & Oll, 2019). Top-down factors are goal-driven and relate to that person's expectations, objectives and emotions rather than the layout of the webpage (Scott & Hand, 2016; Imamoglu *et al.,* 2018; Cortinas *et al*., 2019). Fixations represent the type of information sought by users and its relevance to the task at hand (Huddleston *et al*., 2018). Therefore, eye-tracking can be used to measure both bottom-up and top-down attention. Yet, there is a paucity of research

focusing on bottom-up factors and their role in capturing attention, an aspect that eye-tracking research enables us to explore further (Huddleston *et al*., 2015). The present study will investigate both bottom-up and top-down attention through the triangulation of eye-tracking and interviews, gathering a rich set of data. This will provide a novel contribution to the literature as the interplay of both bottom-up and top-down attention on a holistic website has not yet been explored.

Earlier eye-tracking studies advocated that users view websites in the shape of a letter 'F' (e.g. Buscher *et al*. 2009). However, later studies found that it was text-based web pages that were more likely to receive an F-shaped viewing pattern (Sutcliffe and Namoun, 2012). More recently, Scott and Hand (2016) found that users tend to view Facebook profiles in a 'Z' or an 'L' pattern. Whilst this is interesting, social media sites have very different layouts and purposes to retail websites and so these findings may not be generalisable. No study has investigated consumers' attention across a holistic fashion retail website and how that attention may vary on the different types of web pages or whether it is more formulaic as prior research suggests. The majority of eye-tracking research is focused on a micro level, investigating very specific aspects such as product packaging, price or sign information (Huddleston *et al*., 2018). In their literature review of eye-tracking and retail marketing studies Huddleston *et al*., (2018) identified a lack of eye-tracking research focusing on the wider picture, and therefore called for future eye-tracking research to consider the whole shopping experience. The present study contributes to knowledge by filling this gap in the literature.

Theoretical Framework: S-O-R Model

This study explored attention, cognitive and affective responses towards a fashion retailer's website when shopping online as well as the behavioural outcomes through the theoretical lens of the Stimulus-Organism-Response (S-O-R) model. The S-O-R paradigm stems from environmental psychology and advocates that the environment affects the emotional state of the individual, which impacts their behaviour (Mehrabian and Russell, 1974). The S-O-R framework has been used in many website design studies to gain an understanding of how online environmental cues affect consumers' responses, and by several eye-tracking website design studies in particular (e.g. Cyr and Head, 2013; Jai *et al*., 2014; Cortinas *et al*., 2019). Thus, it is a reliable model to use in this research and methodological context. Furthermore, Huddleston *et al*.,

(2018) call for future eye-tracking research to use the S-O-R model as a theoretical frame to investigate attention in different retail contexts as well as the mediating/moderating role of top-down and bottom-up factors when consumers are shopping. The present study fills this gap in the literature, extending existing research by examining how the holistic website design (Stimulus) affects consumers' internal states (Organism: visual, cognitive and affective), and how that affects their behavioural outcomes (Response: approach/avoidance behaviour) using eye-tracking and qualitative interviews to gain these insights.

Method

This research pursued a multi-method approach consisting of eye-tracking and qualitative semi-structured interviews to investigate consumer behaviour on a fashion retail website. Eye-tracking provides an objective measure of consumers' reactions to a website through their eye movements (Djamasbi *et al*., 2010). This facilitates an in-depth analysis of their shopping journey, as unconscious actions and aspects that they may not be able to describe are recorded and analysed. The analysis of observational data is very valuable but a second method should be used alongside it in order to ensure that other information and the effects of the online experience are captured too (Cortinas *et al*., 2019). Therefore, qualitative semi-structured interviews were conducted to gather rich data on consumers' thoughts and feelings towards the website. 6 pilot studies were performed to test the reliability and validity of the research, as well as the research design and procedure. Ethical approval was granted by the university ethics committee. Participants were given full disclosure of the purpose of the study beforehand and signed informed consent forms. Participants were told that they could withdraw from the study at any time. All participant data was collected and stored anonymously on a password protected file.

Sample

A non-probability purposive sample of 52 regular users of the website (aged 20-70, mean age=46), was selected to provide a representative reflection of the retailer's target demographic. The sample size is comparable to other eye-tracking studies on websites (Cyr and Head, 2013; Cortinas *et al*., 2019; Wang *et al*., 2020; Deng and Gu, 2021) and ensured that saturation point was reached in the interviews. An all-female sample was chosen as this was who the retailer targeted, justified by the fact that more

women (64%) than men (56%) purchase clothes online (Statista, 2019). A Love2Shop voucher was provided as an incentive. Participants were required to have purchased from the website within the last 3 months to ensure that they were familiar with the design. Using real customers enabled the researchers to uncover any frustrations that they experienced with the website design, providing the best basis for improvement for retailers (Tupikovskaja-Omovie and Tyler, 2020), adding ecological validity, increasing data validity and differentiating it from other eye-tracking studies with student samples (Djamasbi *et al*., 2010; Scott and Hand, 2016; Cortinas *et al*., 2019; Deng and Gu, 2021).

1. Eye-tracking Study

Eye-tracking technology was used to track consumers' online shopping journey by recording eye fixations and cognitive processing in real-time. A video-based infrared eye-tracker, Tobii TX 300, with a 300Hz sampling rate, was used. The eye-tracker records users' fixations in an unobtrusive manner, operating remotely, not requiring participants to take off glasses, making the experiment more natural, increasing validity. Participants were positioned approximately 60-65cm away from the screen and calibrated to ensure that their gaze and fixations were accurately recorded. After calibration, participants read the on-screen instructions telling them to simply shop on the retailer's website as they would do normally, looking at items that interested them. Participants pressed the space bar to launch the website and stopped when they felt like they had finished shopping. The rationale behind this was that literature suggests that eye-tracking experiments need to be designed in a natural way with minimal interruptions when the participant is on the website (Tupikovskaja-Omovie and Tyler, 2021). The eye-tracking lasted a minimum of 5 and maximum of 25 minutes.

This study uses the eye-mind hypothesis, which suggests that what people look at is the same as what they think about (Just and Carpenter, 1980). This implies that eye fixations are equated to attention and cognitive processing. Users' fixations were analysed to ascertain where participants looked, with a fixation defined as 250 milliseconds (Guo *et al.*, 2013). Fixations are an important indicator of decision-making (Deng and Gu, 2021). Users' fixation count and durations were analysed through the generation of gaze replay videos (screen recordings containing the participant's gaze behaviour overlaid on the video), which illustrate the user's sequence of fixations and

provides an insight into the user's visual behaviour on dynamic content, such as across several web pages (Wong *et al*., 2014). In order to visualise the results, heat maps were created, which show the distribution and concentration of participants' attention through different colours. Heat maps operate on a traffic light system, with red areas those that gained the most attention and green areas which received the least attention, whereas areas with no colour received no attention.

2. Qualitative Semi-Structured Interviews

The eye-tracking test was followed by a semi-structured interview to gain further insights into the online shopping experience and participants responses to the website design. The website was open with different pages being shown whilst the interview was conducted and used as a prompt to discuss participant's regular shopping journey, allowing them to click on anything to illustrate their point. The rich qualitative data sets allowed for patterns and clusters regarding the website design and consumers shopping journey to emerge organically. The interview guide was structured according to main, probes, and follow-up questions based on the holistic website, the main web pages (homepage, trends sections, product listing page, product information page) and the participant's online shopping journey. Interviews lasted on average 30-50 minutes. Once the interviews had been conducted all were transcribed verbatim and data analysis began by reading and re-reading the transcripts to identify the preliminary codes (Licsandru and Cui, 2019). The web pages visited by participants were used as the main themes as well as anything that emerged regarding the holistic website, such as customisation. The codes were then organised into sub-codes to further analyse the data and understand the key findings for all the website design stimuli (Saunders *et al*., 2016). The researchers conducted multiple coding cycles, first individually, before discussing any discrepancies of emerging themes and patterns, which were then carefully looked at. All codes were evaluated and compared across all interviews (Licsandru and Cui, 2019).

Results

This study investigated consumers' attention, cognitive and affective responses as well as their behaviour on a fashion retail website. The eye-tracking and interview data are analysed below. The interview quotes presented are the ones that typified participants responses, the 'power quotes', which are the most compelling data that

effectively illustrate the main point and are, therefore, the most appropriate ones to use in the main body of the paper (Pratt, 2009).

Figure 1 illustrates the number of times different web pages were visited throughout participants' shopping journeys:

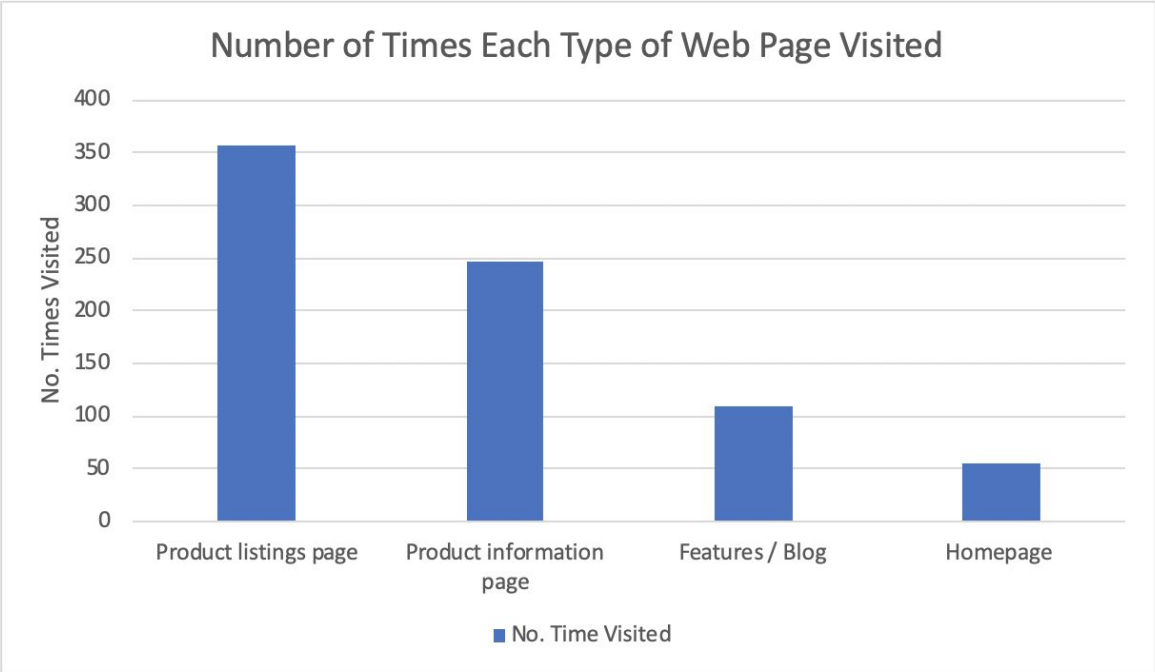

Figure 1 Number of Times Each Type of Web Page Visited

Figure 2 depicts the amount of time spent on the different types of web pages throughout participants' shopping journeys:

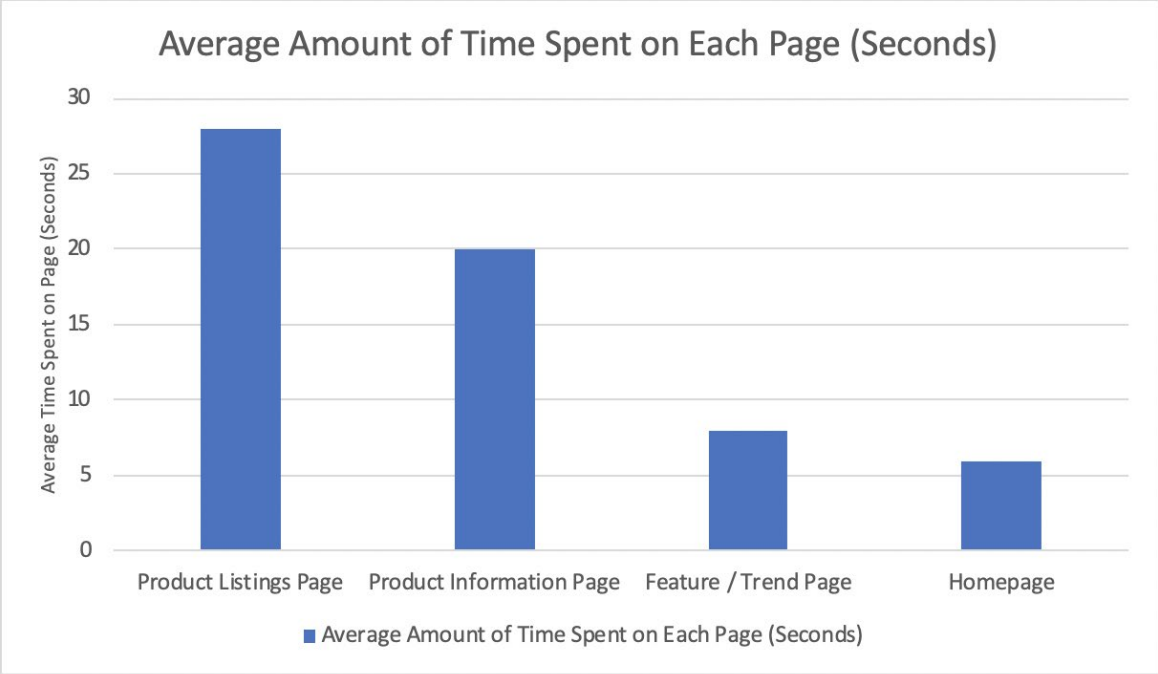

Figure 2 Average Amount of Time Spent on Each Web Page

Figures 1 and 2 demonstrate that the **product listings page** was the most frequented, totalling **356 visits**, with an **average time spent of 28 seconds**. This was followed by the **product information page**, **visited 246 times** with an **average time spent of 20 seconds**. Only two other types of pages were visited; the **features page** (**109 times, average time spent: 8 seconds**) and the **homepage** (visited **55 times**, only 3 revisited it after initially landing on it, **average time spent: 6 seconds**). Therefore, across the whole website, participants spent the least amount of time on the homepage. Eye-tracking and interview data revealed that when landing on the homepage consumers go straight to the top left-hand drop-down menu to access the category that they want, exemplified by P.9:

"*I wouldn't spend that long on the homepage, I would just go off it pretty quickly... I know what I want and I just go straight to the top… I'd just get on with it*" (P.9).

This shows that the homepage is just seen as a landing page, not much attention is paid to the features on it. Data revealed that consumers felt it did not warrant further exploration as it was not directly related to their shopping goal. Consumer attention

(or lack of) on the homepage is therefore primarily influenced by top-down factors as they go straight to the navigation stimuli in order to access the part of the website that is useful for their shopping goal.

Inspirational Features

Eye-tracking data show that 12% of participants visited the trend/style feature pages, such as 'Get The Look' or 'Designers and Brands'. Interviews revealed that participants did so to get inspiration as a starting point for their shopping journey:

"I like outfits… if there was something for a night out there then you might like it straight away and then just go for it, you don't even need to look through…" (P.42)

Thus, having products and outfits encompassing the latest trend or tailored towards an occasion (e.g. a wedding) collated together was helpful it saved consumers time, provided them with ideas and enabled them to browse products that were relevant to their shopping goal. This is an example of top-down attention as they view inspirational features to fulfil their shopping goal when shopping for a specific event. With so many items on fashion websites, some consumers found it preferable to have a selection already tailored to their needs, rather than having to filter the items down themselves.

Product Listings Page

Eye-tracking data show that the product listings page was the most frequented and viewed for the longest time. Interviews revealed that this was because consumers enjoyed browsing products and selecting those that appealed. Figure 3 depicts the heat map of participants' attention on the product listings page:

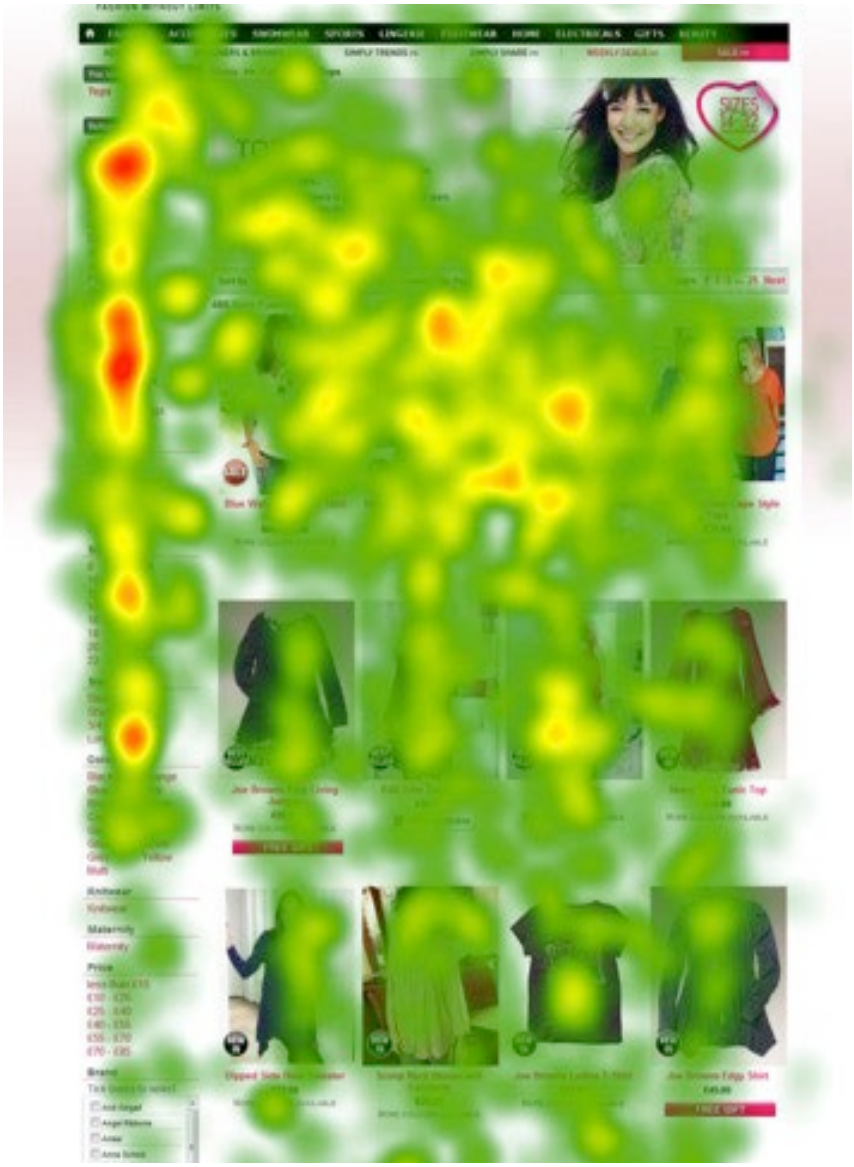

Figure 3 Heat Map of All Participants on The Product Listings Page

Figure 3 shows most attention was on the top-centre thumbnail images and the left side of the page where the filter menu bar resides. When looking at the thumbnails, participants' fixations focused on the centre of the page. This suggests that products on the edges are more likely to get missed as consumers keep their eyes focused in the middle when scrolling as opposed to looking from side-to-side.

Figure 3 shows that the left-hand filter menu received a high amount of attention and the gaze replays revealed that 77% of participants used it. Interviews revealed that participants found the large product selection overwhelming and so narrowed it down

when they landed on the page to make it more manageable. As such, consumers are creating a personalised website:

"It's just quicker for me, less time for me, and less frustration so I'm more likely to be happier and buy stuff" (P.38).

Therefore, having customisation features results in less frustration and a better shopping experience for consumers. Interviews revealed that consumers enjoyed the process of narrowing their search down to create their own personalised product selection. This supports the eye-tracking data which showed that participants spent the majority of their time on the website engaging in this behaviour.

Eye-tracking revealed that style, length and size, followed by colour, were the options that received the most attention. This is reinforced by the number of participants that used each option during the eye-tracking task (Table 1).

Option	Used Most/ Least	Percentage of Participants That Used This Option	Reason Why According to the Semi-Structured interviews
Size	1st	52%	• Easy • Confirming Availability • Time Saving • Less Frustrating shopping Experience
Style	2nd	48%	• Quicker • Personalise search
Colour	3rd	32%	• Personalise search • Saves Time • Easier shopping experience
Length	4th	26%	• Quicker • Helpful • Personalise search
Price	=5th	4%	• Would sort by price instead • Would not use as the search would be too narrow
Brand	=5th	4%	• Prefer to see all brands

			• Would not use as the search would be too narrow
Design feature	=5th	4%	• Would not consider at this stage in the shopping journey (consider on product information page instead)
New in	6th	2%	• Would not consider at this stage in the shopping journey (consider on homepage instead)

Table 1 Eye Tracking & Interview Findings For Filter Menu

Interviews revealed that size was the most popular option because consumers wanted to avoid the disappointment of seeing unavailable items:

"Just in case I saw something that I really liked and then it wasn't in my size, I'd be really annoyed… It makes it a lot quicker and more enjoyable because I'm not seeing things that won't fit me and getting upset about it" (P.47)

Thus, as well as avoiding disappointment, being able to narrow their search down by size made consumers feel that their shopping journey was easier, which in turn made their shopping experience more enjoyable.

'Style' was used for particular occasions:

"…If I wanted something because I was going out, or if it was coming up to Christmas, or I was going away… I would click on there and then I know that I'm going to get the sort of thing that I'm looking for…" (P.9).

This enabled consumers to **"*find what (they) want quicker" (P.17)***, making their shopping journey more efficient and enjoyable. Similarly, colour was used when consumers were looking for an item to match something that they already had, or if they already knew what they wanted to buy (goal-directed shopping). Hence, narrowing down their search by size, style and colour made the shopping experience easier and quicker for consumers. This in turn made consumers feel like their shopping

journey was personalised, leading to feelings of enjoyment, which, in turn, resulted in them having a better shopping experience and more likely to purchase items.

The gaze replay videos demonstrated that ‘design feature’, ‘price’, ‘brand’ and ‘new in’ were rarely used. Interviews revealed that consumers had already made the decision whether or not they wanted to see the new products prior to landing on this page, and ‘brand’ or ‘design feature’ were things that they would consider later on, explained by P.39:

“...if I was looking for a brand then I would have already specifically gone to Joe Browns.... I’m not sure I’d use this design feature… those kinds of things are not what I’m thinking about before I’ve started looking at dresses… it’s only after I’ve got an idea would I start thinking about whether it’s going to have secret support…” (P.39)

Therefore, fashion retailers need to ensure that they are selective in what they include on the filter options and make sure that they are relevant to that stage in the shopping journey.

15% of participants used the ‘sort by’ option to organise products from lowest to highest price, discussed by P.39:

“*…I always go straight to price from lowest to highest… so that I’m not over spending, I am sticking to the minimum budget that I’m allowing myself and it makes me feel good about not having to spend a fortune to get what I want” (P.39)*

Thus, the ‘sort by’ drop-down menu enabled consumers to personalise their search further, making them feel in control, resulting in a more enjoyable shopping experience.

Product Information Page

Most attention on the product information page was on the colour and size drop-down menus (right side), followed by the product image (left side). This is illustrated in the

heat map of all participants (Figure 4). The mouse clicks have been included to show that people zoomed-in and looked at alternative images, as well as clicked on the size and colour drop-down menus.

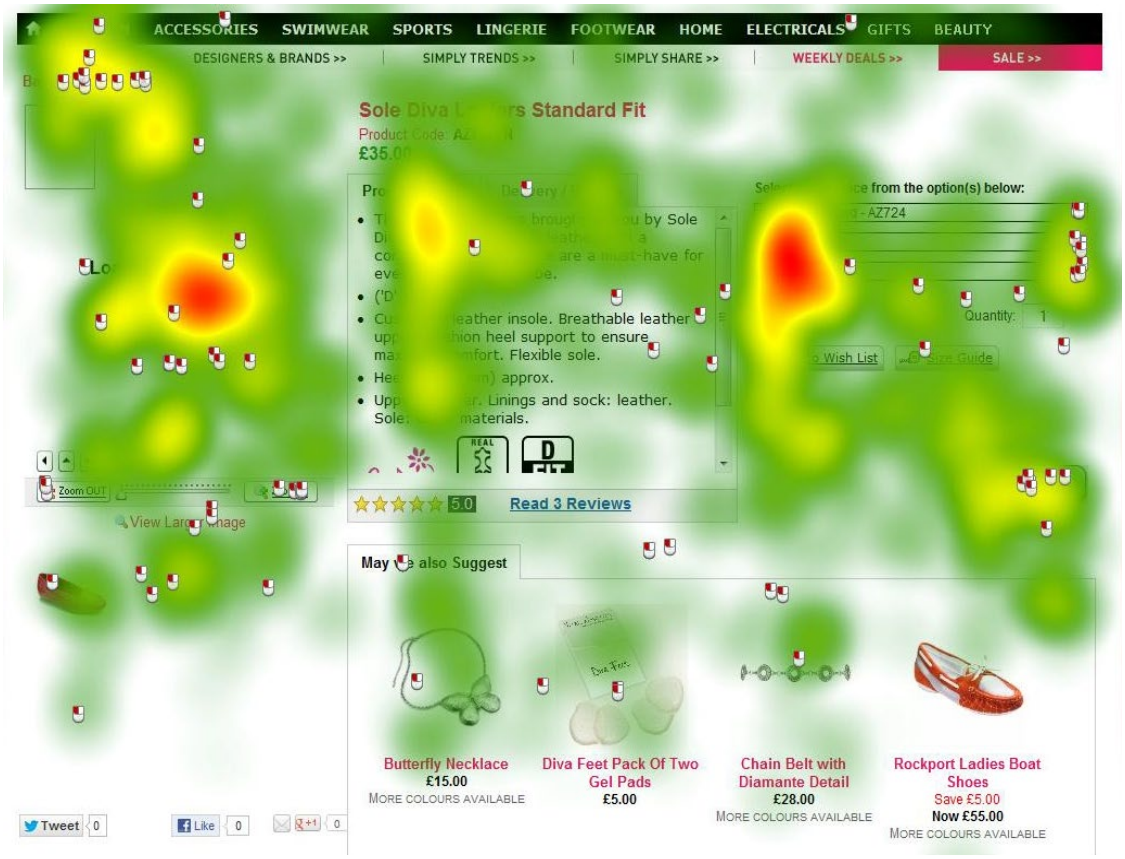

Figure 4 Heat Map of All Participants on Product Information Page

These findings are reinforced by the gaze replay videos as participants spent the majority of their time looking at and zooming-in on the product images and at the alternative colours available. Figure 5 portrays the eye-tracking total visit duration statistics, demonstrating the amount of attention spent on the product images in particular.

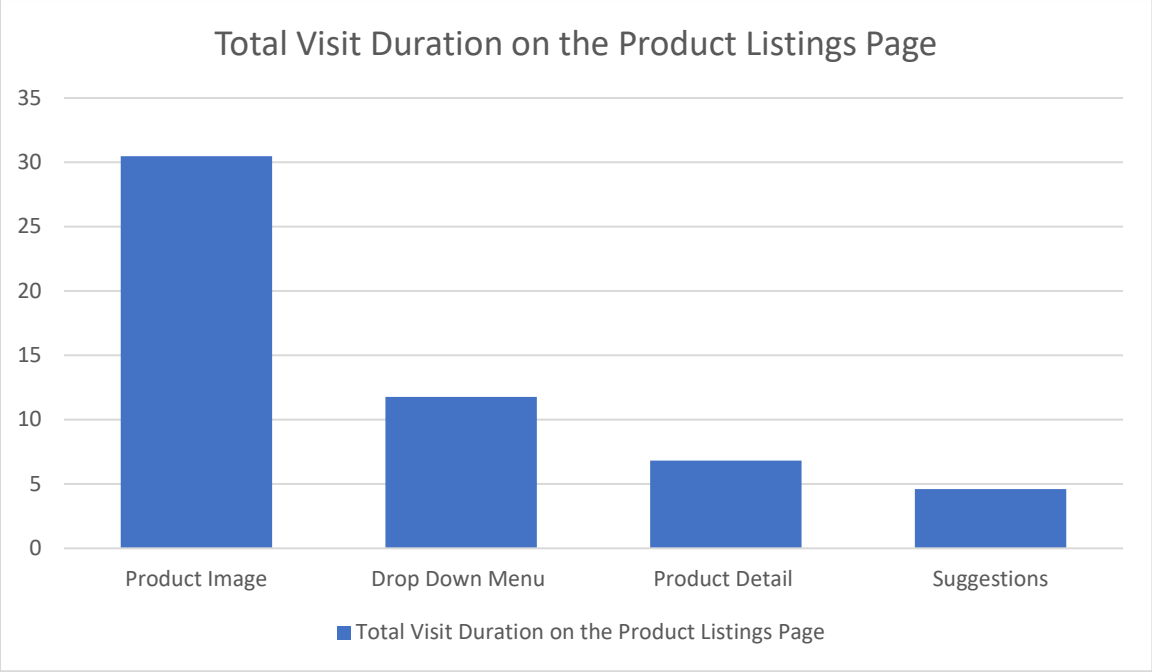

Figure 5 Total Visit Duration on The Product Information Page Design Stimuli

Figure 5 shows that participants spent an average of 30 seconds looking at and interacting with the product images and 12 seconds using the size and colour drop-down menus. This is supported by the interviews, with the typical product information page experience summarised by P.11:

"…what I do straight away is go to my size and see if they've got it in my size… It… tells you what the material is… I would then just zoom it in and then go up and down on it…" (P.11)

This reinforces the eye-tracking data which showed that the first thing that participants did was check the size availability in order to pre-empt disappointment if their size was not in stock. This demonstrates top-down attention as the size drop-down menus fulfilled participants objectives. Yet, eye-tracking data show that **participants' first fixation was on the product image, taking an average of 1 second for participants to fixate on it**. This is a clear example of bottom-up factors influencing attention as participants wanted to check their size first but got distracted by the image. The **size drop-down menu received participants' average second fixation** (**3.6 seconds to fixate on**). Participants divided their attention between the two design stimuli, clearly demonstrating the interplay between bottom-up and top-down attention.

Having different colourways presented for each garment was important to consumers. They liked how the image changed when they clicked on different colours as it enabled them to facilitate comparisons, often resulting in alternative or additional purchases.

However, the heatmap (Figure 4) shows that minimal attention was paid to the product description and product detail. The interviews revealed that consumers only looked at the practical information (material, length, care instructions) quickly and the product description (sentences describing the style and trend) was perceived to be unnecessary. For example:

"…there's too much information… they don't need the fashiony bit… I wouldn't even read that… I'm more interested in what length is it, is it washable, what sizes have you got" (P.20)

Interviews revealed that product descriptions were not perceived as helpful because consumers were already attracted to the product and wanted to know the practical details to assess its suitability. This highlights a sustainability issue as the flexibility of free returns has resulted in consumers not spending long on their decision-making process and sending for items to try-on and decide at home, hugely increasing retailers' carbon footprint.

Nevertheless, consumers wanted more information about the fit of the garment:

"I need a really real description… it's explaining here about the neckline, the fact that it pulls in at the middle with an elasticated waist, where it falls to, those are really important… It helps me to know what I'm getting…" (P.39)

Thus, to help consumers in their evaluation of clothes online, retailers should provide details of how the garment fits, presented concisely. Consumers want fabric information (e.g. stretchy, sheer), length and significant details (e.g. exposed zip). Including this information will increase consumer confidence about their purchase.

Eye-tracking showed that 85% of participants looked at the product recommendations but only 29% clicked on them. Interviews revealed that participants liked product recommendations because they provide ideas and inspiration:

"…I'm like what I am I going to accessorise it with, so having some suggestions on that would be really useful… That might encourage me to spend more money if I find things that go with it, and get it all in one go, that would be brilliant…" (P.39)

If an item was unavailable, participants looked at the product recommendations for anything similar. Having complementary or similar items suggested was helpful, resulting in consumer satisfaction and the likelihood of purchasing additional items.

Yet, the participants that fixated on product recommendations only did so briefly, with minimal cognitive processing occurring. This may be because the items suggested were not accurate matches for the item being viewed, as P.23 illustrates:

"…the things that are on there are so random, there's no relation to the item that you're looking at… it's horrendous… **(I want them to be)** ***Linked to the actual outfit that they're wearing. Or similar items… more thought put into it…" (P.23)*****.**

Therefore, fashion retailers must provide accurate product recommendations. Presenting items that are unrelated produce feelings of annoyance and frustration, resulting in avoidance behaviour. Interviews revealed that participants did not like the terminology, 'people who viewed this item also viewed' as "***it's kind of a really obvious attempt to get you to buy more…" (P.27)*****.** They were not interested in what other people liked, preferring the website to be personalised, with items recommended based on their browsing and purchasing history.

Holistic Website Behaviour

Eye-tracking showed that participants added items to their basket whilst browsing, replicating an offline shopping experience, selecting anything of interest, then evaluating at the end. Participants made a curated wish list and then went through products in detail afterwards, thereby splitting their shopping journey into two stages.

As such, consumers use the basket as a **"*storage area*"** (P.35) and found it helpful seeing items grouped together for evaluation:

"...when you actually see them summarised close together, you can see that that's actually a bit close to that so I can take that one out" (P.7)

Consumers enjoyed this process and found that **"*time flies*"** (P.52) when scrolling. Participants wanted this process to uninterrupted so being able to add items directly to their bag/wish list on the product listings page was preferable.

Eye-tracking revealed that the main menu bar was primarily used to navigate the website but 20% of participants used the search bar. Gaze replay videos show that participants did not use the search bar if they were simply browsing but may use it if they were looking for a particular item. Words typed were product category (e.g. jeans), product description (e.g. peplum top) and brand (e.g. UGG). Interviews revealed that the search bar was used for convenience because it was "***simpler***" and "***quicker***". Hence, the search bar facilitates an easy shopping experience and saves time when consumers are goal-directed shopping.

Discussion & Conclusion

This study contributes to knowledge by providing an in-depth understanding of consumers' attention and behaviour on a holistic fashion retailer's website, thereby addressing a gap in the literature. The study aimed to answer the following research questions:

RQ1. What do consumers think and feel when shopping on a live fashion retail website in real-time?

RQ2. What design stimuli do consumers pay attention to when shopping on a fashion retail website and why?

RQ3. How does consumers' attention, cognitive and affective responses to the website design influence their behaviour?

Findings demonstrate that consumers have different viewing patterns on web pages throughout the shopping journey. For instance, attention is placed towards the top-left of the homepage (to click off it quickly), the top-left and centre of the product listings

page and the centre and centre-left of the product information page. This contradicts prior literature as participants did not have F-shaped, Z-shaped, or L-shaped viewing patterns (Buscher *et al*., 2009; Scott and Hand, 2016). Instead, the present study shows that attention is influenced by both top-down and bottom-up factors. Thus, research cannot generalise holistic website viewing behaviour into one formulaic pattern, it depends on the design stimuli and consumers' goal/objectives on that page. The interplay between bottom-up and top-down attention is illustrated clearly on the product information page, with the image naturally drawing participants' attention, receiving their first fixation (bottom-up attention), but their second fixation is directed to where they want it to go, the size/colour drop down menus, in order to check availability (top-down attention). Overall, the present study found that top-down attention is more dominant than bottom-up attention when consumers are shopping online for fashion items. Consumers are very focused when shopping for fashion, so although stimuli, such as images, are distracting (bottom-up factors), consumers will consciously focus their attention on the stimuli that they need to fulfil their objectives, such as menus, filtering systems and colour/size options (top-down factors).

The study indicates that 'experience' product websites may produce different responses to 'search' product websites due to the complexity of the decision-making and evaluation stages involved. This is particularly evident on the product information page where the images, sizes and colourways are focused on extensively in order to evaluate the fit and quality of items, something that would not occur for 'search' products. Hence, this research contributes to the literature by demonstrating that consumers may have different responses to different types of retail websites and may want different experiences based on the products that they are shopping for. Future research could explore this further.

The present study also provides a methodological contribution, demonstrating the need for research to examine how users behave on a live website to observe their natural behaviour and not just what they self-report. Studies that advocate F-shaped, Z-shaped and L-shaped viewing patterns, alongside the majority of eye-tracking studies, are based on static screenshots or simulation websites and, therefore, are not realistic representations of users' interaction with websites. For instance, the present study found that consumers' fixations remained quite central on the product listings

page when scrolling. This contradicts Guo *et al*. (2013) who found that on a product listings page, eye movements started in the top left-hand corner and moved down the page row by row. However, Guo *et al*. (2013) asked participants to view a static screenshot, which is not an accurate representation of how consumers interact with a website. Thus, using a live website has arguably made the results more reliable and ecologically valid as it objectively captures consumers' real-time behaviour. Furthermore, the triangulation of eye-tracking and qualitative methods ensured that participants' attention and cognitive processing was interpreted accurately, providing a rich data set. The value of a multi-methods approach is highlighted here as mono-methods do not allow for a holistic picture to emerge and may result in misleading conclusions/assumptions. This demonstrates a valuable methodological contribution which can be utilised by future research.

Huddleston *et al*., (2018) call for future eye-tracking research to use the S-O-R framework to explore the mediating/moderating role of top-down factors and bottom-up stimuli when consumers are shopping. The present study fills this gap by examining how the holistic website design (Stimulus) affects consumers' internal states (Organism: visual, cognitive and affective), which, in turn, affects their shopping outcomes (Response: approach/avoidance behaviour) using eye-tracking and qualitative interviews to gain these insights. The study extends the S-O-R framework, showing that top-down attention, when provided with personalisation and customisation features, results in approach behaviour. For example, being able to narrow their search down by size made consumers feel that their shopping journey was easier, which in turn made their shopping experience more enjoyable, encouraging them to spend longer on the site and increase the number of items purchased. Similarly, having personalised product recommendations resulted in increased attention and feelings of enjoyment, leading to increased consumer satisfaction and the likelihood of purchasing a higher number of items. If product recommendations were not personalised, this resulted in avoidance behaviour. Tupikovskaja-Omovie and Tyler (2021) found that only 2 out of 7 participants clicked on the product recommendations and so call for future qualitative research to investigate how well fashion retailers' product recommendations meet the requirements of consumers. The present study fills this gap by finding that consumers wanted personalised product recommendations.

Similarly, customisation features resulted in approach behaviour, as they enabled consumers to find items efficiently, aiding decision-making. This is surprising as fashion retail websites contain a lot of dynamic content such as trends pages, but it is the functional menus that enable consumers to navigate through the website and customise their search that are the most important. This contradicts Cyr and Head (2013), who found that participants spent more time looking at the hedonic sections of a fashion retailer's website than the utilitarian sections. This study focused on the product information page and so is not generalisable to the whole website. These results also contradict survey results from Kaushik *et al*. (2020) that 'the latest trends', 'style guides', and 'celebrity endorsement' were really important to consumers and essential for fashion websites to have. Nevertheless, Kaushik *et al*.'s (2020) study was based on Indian shoppers' preferences and highlights there may be differences between countries and cultures, an aspect that future research could investigate. This also highlights the advantage of using eye-tracking as a method as consumers may report that they want/do one thing in surveys but in reality, their behaviour suggests otherwise. The present study found that consumers' valued features that made their shopping experience easier, more convenient and quicker. They wanted minimal clicking and the ability to create a customised product selection to suit their requirements, creating a more enjoyable shopping experience. Hence, the concept of convenience was enjoyable, and thus, a trait which has been traditionally viewed as utilitarian now appears to contain hedonic value. Further investigation of this is warranted.

The study contributes further novel findings to literature, namely that the product listings and product information pages were the most important pages, due to the amount of time spent and the frequency of visits. Although research has found that the product listings page can impact consumers' decision-making and purchase intention (Schmutz *et al*., 2010), no studies have explored consumers' thoughts and feelings towards the product listings page in-depth. The present study fills this gap. This study disagrees with previous research that the homepage is the most important page on a retailer's website (Nielsen and Tahir, 2001; Tzanidou *et al*., 2006). This suggests that consumer behaviour has changed as e-commerce has developed and the homepage is now just perceived as a landing page. Further research could

investigate how retailers could encourage consumers to explore the homepage further.

Nowadays, with information being presented in bitesize chunks on social media, consumers do not want to spend time reading. The present study found that fashion descriptions were not perceived as helpful, consumers just wanted the key practical information to be presented clearly and concisely in order to acquire it in a glance. These findings contradict previous research that high-quality product descriptions have a positive effect on cognitive product involvement (Mou *et al*., 2019) and the call to provide higher quantity product information in the form of text descriptions (Chang *et al*., 2016). The findings highlight a shift in consumer behaviour so further research could investigate different forms of information provision on fashion retail websites.

The depth of understanding provided into consumer attention and behaviour on a fashion retail website in this article is of value to marketers and academics studying website design, as the findings and conclusions drawn can be understood in the wider context of shopping online for experience products, filling a gap in the literature.

Managerial Contributions

The study provides fashion retailers with the knowledge of how consumers behave on their website and what attracts their attention, which they can use to inform their website design. For instance, on the product listings page, attention focused on products towards the centre of the page. This suggests that products on the edges are more likely to get missed. Therefore, fashion retailers could provide rows of two products to ensure that they are seen. Consumers added items to their basket as they were browsing, creating a curated wish list. Consumers want this process to be as smooth as possible so being able to add items directly to their bag/wish list on the product listings page would be effective.

The product listings page is the most important, followed by the product information page, in terms of time spent and frequented, and so these are the pages that fashion retailers should invest in to maximise sales and the customer experience. In particular, retailers should invest in features that enable consumers to customise their search. Consumers found the large product selection overwhelming and so narrow it down to

make it more manageable. Fashion retailers need to ensure that they are selective in what they include on the filter options and make sure that they are relevant, primarily size, style and colour. ‘Design feature’, ‘price’ and ‘brand’ were not considered helpful at this stage.

Using blocks of text to provide fashion information is not reflective of the modern consumer. Consumers want to see key practical details presented concisely and more information about how the garment fits, as well as fabric information (e.g. stretchy, sheer), length and significant details (e.g. exposed zip). Including this information will increase consumer confidence about their purchase. Having alternative colour options on the product information page would also encourage alternative or additional purchases.

Fashion retailers should also invest in making the website personalised for each consumer. Consumers want accurate personalised product recommendations in the form of ‘Similar Items’ or ‘Outfit Suggestions’ based on their own style, browsing and purchasing history. Having personalised product recommendations resulted in consumer satisfaction and the likelihood of purchasing a higher number of items. Retailers could investigate how to enhance personalisation using Artificial Intelligence.

Fashion retailers should provide product listings pages for products dedicated to the latest trend or tailored towards an occasion (e.g. a wedding). With so many items on fashion websites, some consumers found it preferable to have a selection already tailored to their needs, rather than having to filter items themselves. Including this provides consumers with ideas and makes the goal-directed shopping experience more enjoyable.

The practical implications of this study have been realised as the findings were presented to the fashion retailer and recommendations made based on the results, which have since been implemented, and further research is being conducted by the retailer on how to create more personalised experiences for consumers based on these findings. This emphasises the knowledge exchange and impact that the results have already had and the managerial contribution made by this study.

Research Limitations and Future Research

This study was conducted in the UK and so used a UK-based sample, but the results may be different for other areas of the world. Future studies could investigate if there are cultural differences in responses to holistic fashion retail websites. An all-female sample was used due to the website that the study was based on. Nevertheless, this was representative of a wide demographic and was appropriate as the study aimed to explore how regular consumers behaved. Future research could investigate if there are any differences between men and women, or between age groups, in attention and behaviour when shopping online.

As this study found that the product listings page and the product information page were the more important pages, future research could be conducted to investigate different designs of these pages. The study shows that consumers are not reading product descriptions in the form of blocks of text so further research could explore whether it would be more effective to show product information visually as opposed to verbally.

Findings demonstrates that customisation and personalisation were very important to consumers. Therefore, future research could be conducted to investigate how websites can be designed to better suit contemporary consumers, maximising customisation and personalisation features, and see how new technologies, such as AI, could enhance the shopping experience.

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