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Consumer Experience of Interactive Technology in Fashion Stores

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1. Introduction and rationale

Of the many influences on the way consumers shop for fashion clothing in the early twenty-first century, technology is amongst the most important (Herhausen *et al.*, 2015; Kinley, 2017). Digitally confident consumers have increasingly turned to their personal devices, typically a smartphone, for online fashion shopping activities (Koo, 2016; Comscore, 2018).

Although consumers may be viewed as inseparable from their digital devices and sufficiently content with online shopping, nevertheless they still visit physical stores (Mintel, 2017; 2018). Previous studies suggest that consumers come to physical stores for multi-sensory experience, such as entertainment, leisure, direct brand interaction, social interaction, inspiration and to browse (Kent, 2007; Dennis *et al.*, 2012; McCormick *et al.*, 2014; Spence *et al.*, 2014). It can be argued therefore that physical store experience is still highly regarded (Alexander and Cano, 2018). One outcome of mobile shopping is that consumers frequently use their personal devices during the store visit (Verhoef *et al.*, 2015; Grewal *et al.*, 2018). This indicates an opportunity and increasingly a necessity to integrate the physical store with interactive technology (Verhoef *et al.*, 2015; Alexander and Alvarado, 2017). The application not only accommodates consumers' inclination for digital interaction but also complements the overall store experience.

Many fashion brands have already incorporated interactive technology into their stores as a means to provide consumers with digital experiences (Bonetti and Perry, 2017). Interactive technology enables consumers, that is, store visitors, to explore the digital world of the brand interactively while being immersed with the physical store elements. Consumers can therefore experience shopping in both physical and digital worlds. It can be argued that the integration of interactive technology in fashion stores can potentially heighten the overall consumer experience (Dennis *et al.*, 2014; Kent *et al.*, 2015; Alexander and Alvarado, 2017). Furthermore, the integration can generate distinctive experiences and contribute to a new kind of interaction

between the fashion brand and their consumers (Huang and Liu, 2014; Armstrong and Rutter, 2017), all of which will be beneficial not only for the brand but also for its consumers (Sachdeva and Goel, 2015; Belghiti *et al.*, 2017). Much literature in marketing and fashion marketing has underlined the importance of understanding consumer experience (Holbrook, 1994; Schmitt and Brakus, 2015), specifically with interactive technology and its application within the physical store (McCormick *et al.*, 2014; Kent *et al.*, 2015; Verhoef *et al.*, 2015; Bonetti and Perry, 2017). However, research into technology integration in physical stores remains relatively limited and underexplored, and literature regarding consumer experience of interactive technology in physical stores, particularly in the fashion retail context, remains scarce (McCormick *et al.*, 2014; Bonetti *et al.*, 2018).

This research establishes the context for interactive technologies and its saliency: irrespective of their tendency towards online shopping, consumers still visit physical fashion store to obtain experiences that cannot be achieved solely via digital devices. Therefore the integration of interactive technology into fashion stores can make an appropriate contribution.

The aim of the paper is to explore consumer experience with interactive technology in fashion stores. More specifically, it centres on the evaluation of consumers' interaction experience with the digital world while in parallel experiencing the physical world. Given that the underlying phenomenon concerns interaction between humans and interactive objects and devices, a user experience design (UXD) approach was adopted for this project.

2. Literature Review

Experience and user experience with technology

The concept of experience is normally associated with a personal internal response to memorable moments (Gentile *et al.* 2007; Jantzen 2013). As such it is used to describe the result or aftereffect of direct or indirect interactions

with surrounding objects or stimuli (Boswijk *et al.*, 2012). In the marketing context, experience is evoked by a direct or indirect contact with the product, company or brand (Meyer *et al.* 2007; Brakus *et al.*, 2009). It engages the consumer at cognitive, emotional, social, sensory and physical levels (Brakus *et al.*, 2007; Gentile *et al.*, 2007) as a holistic concept (Verhoef *et al.*, 2009).

However, as retailers move towards a seamless consumer experience across physical and digital channels, the distinction between the two diminishes (Verhoef *et al.*, 2015). From a consumer perspective, the boundaries of an experience become less defined by the physical dimensions of the store. Web and mobile technologies provide opportunities for experiences before and during a shop visit as consumers as use their own mobile devices or store based interactive devices (Rigby, 2011; Brynjolfsson *et al.*, 2013; Pantano and Priporas, 2016; Shankar *et al.*, 2016). As customers have become accustomed to a specific online experience they expect a similar experience in physical stores in terms of interaction, convenience and visual stimulation (Blazquez, 2014). However, while experience arises from the interaction between the retailer and the customer throughout their shopping journey (Blazquez, 2014; Kent et al. 2015) there is a lack of specific research about how interactivity with technology in the physical space of the store, contributes to the experience of shopping

Experiences with technology are more concerned about the actual process or activity with technology rather than with the outcomes of the interaction (Jensen, 2013; Wright and McCarthy, 2010; Wright *et al.*, 2018). Interaction experience is defined by the iterative process of perception-action, which distinguishes it from customer experience with its focus on the customer journey as a seamless experience through a number of marketing channels (Verhoef *et al.*, 2015). Moreover, customer experience is directed more towards brand-consumer relationships and value creation rather than engagement (Gentile *et al.*, 2007).

Interaction experience with interactive technology forms the focus of this study. Although it centres more on the process, it nevertheless involves

preconceptions and knowledge from previous experience. Jantzen's (2013) definition of experience supports this; he introduces a semantic distinction of experience in German, which combines two aspects, *erfahrung* (experience) and *erlebnis* (experiencing). The former refers to knowledge, which includes observational knowledge, practical skills and conscious knowledge; the latter to the process of perceiving, sensing and feeling. *Erfahrung* is not only the knowledge resulting from the perceptions, but also the source which *erlebnis* relies on. However, perceiving the moment of experiencing is what defines experience, meaning experiencing produces experience. It is through perception that emotion, cognition, affect and behaviour are combined (Jantzen, 2013; Lykke and Jantzen, 2016) in a dynamic and perpetual sequence to constitute experience (Hassenzahl, 2010). As such, in order to produce experience one should be able to perceive and interact with the environment in which one is present (Wright *et al.*, 2018).

Interaction experience therefore consists of perception-action and knowledge (McCarthy and Wright, 2004) which has a start point, middle story and an end point; therefore it can be specified, told and articulated as they normally overlap with each other (Forlizzi and Battarbee, 2004; Hansen and Mossberg, 2013). Because of these characteristics, interaction experience can also be regarded as 'peak experience' (McCarthy and Wright, 2004). Interaction experience during technology usage is associated with the term 'peak' because it provides the moment that evokes the strongest emotions and reactions in the user (Blythe and Hassenzahl, 2018). Physical responses in this moment also tend to be higher, as the stimuli are more absorbed, thus the experience can leave a profound impression in the memory (McCarthy and Wright, 2004). For this reason, peak experience is at the heart of an interaction with a technology: when a person is in a higher state of perception, which may lead to a better quality of the resulting experience (Wright and McCarthy, 2010; Wright *et al.*, 2018).

An important approach to the evaluation of interactions between people and interactive technology is User Experience Design (UXD). UXD is both a field of research and a methodological approach (Hassenzahl and Tractinsky,

2006). More specifically, it is concerned with the peak interaction experience during the interaction with a technology rather than its antecedents and outcomes (Hassenzhal, 2010). For this reason, UXD was deemed appropriate for this study. It is by definition, human-centred with a close focus on motivations, expectations and actions during an interaction and their outcomes (O'Brien, 2010). It is formed from three interactive elements: the user, the system and the context (Roto *et al.*, 2011). As such, technologies are conveyors (media) of experiences; the experiences are not embodied but shaped through the technologies' influences on humans' feeling, thinking and behaviour (McCarthy and Wright, 2004; Hassenzahl, 2010). Many UXD studies have demonstrated how emotion is found in the deepest core of experience, or the language of experience (McCarthy and Wright, 2004; Jantzen, 2013). The experiential aspect embodied within UXD emphasises emotions and affect, which plays an important part in shaping the interaction process, including how a product can be evaluated and communicated (Forlizzi and Battarbee, 2004; McCarthy and Wright, 2004).

User experience design as the main theoretical framework

One of the most influential theoretical frameworks within UXD is McCarthy and Wright's (2004) four threads of experience framework. Built around sensual, emotional, compositional and spatio-temporal aspects, it aims to account for an holistic experience rather than define or reduce it to key variables. The framework of the four threads of experience was used as the theoretical background for this research because its core assumptions are aligned with the underlying phenomenon being investigated, that is, the interaction experience with interactive technology. The framework is used as a lens to examine consumers' experiences as an iterative process of perception-action during the interactions with technology,

The *Sensual thread* refers to the immediate sensory perception on a technology and the environment in which it is presented. This type of experience typically derives from a perceptible real object and ambience,

which is the physical manifestation of a technology and its surroundings. Although they are bodily engaged with the experience, people are not always aware of this perception, as it is pre-reflective in the sense that it happens naturally and automatically. This should mean that the sensual thread relies on other threads to make borders that frame a particular experience from other experiences (Wright, Wallace and McCarthy, 2008).

The *Emotional thread* refers to the judgments of value from a technology that is associated with a person's needs and desires. Emotions may present immediately after a short perception which colours an experience (Wright, Wallace and McCarthy, 2008). The dynamic of emotions can change throughout an interaction with a technology; thus it is highly dependent on the sensory perceptions, which work together iteratively. When the interaction ends, it will reveal a 'final' emotion that might be crucial for the process of memorising an experience. *Compositional* is a thread that refers to an experience's narrative composition, the sense-making process of the association of elements and the entire experience. In other words, it is the process of creating a coherent story for the experience, which normally has clearly defined beginning and end point. The *spatio-temporal thread* refers to space and time that house an experience. This thread signposts people to the specificity of an experience as it is strongly bounded to contexts. As McCarthy and Wright (2004, p.91) explain it, "all contexts are shaped by the quality of time and space that they produce". A space experienced today would be different when experienced tomorrow.

While interactive technologies have been the subject of research in the context of in-store customer-facing innovations, the literature review has demonstrated the relative under-exploration of interactivity itself. From a UXD perspective it can be argued that an interaction experience with technology should be viewed holistically. In particular, a holistic approach can be applied to interactive in-store technology in fashions stores, where interactivity affords consumers an experience beyond functional technology, that is, experience through the activity involved in using the technology. It is

important therefore to explore this experience in order to achieve a better understanding of the application.

Research gap identification and research question

The significance of understanding the subtleties of experience under stimuli, has been put forward by many researchers (for example Csikszentmihalyi, 1997; McCarthy and Wright, 2004, Hassenzahl, 2010; Sohn, 2011; Wright *et al.*, 2018). Extracting these elements could help understand the overall constructs in the process of the interaction, which consists of a human, the object and the interaction itself. Focusing exclusively on the object (cues) or a human's internal state is not sufficient.

In the digital world the relationship between people and technology is drawing closer, but research that focuses on this closeness through in-store interactive technology is limited (for example Dennis *et al.*, 2010; 2014; Pantano and Viassone, 2014; Poncin and Ben Mimoun, 2014; Kent *et al.*, 2015). The rapid development and adoption of technology in fashion retail over the past decades has resulted in many studies that investigate the interplay between people, technology and fashion (Choi and Kim, 2016; Raushcnabel *et al.*, 2016; Kim *et al.*, 2017). These studies however, have focused more on the adoption or antecedents of technology usage or the impact of using technology usage rather than the interaction experience. Based on this gap, a research question is proposed: What is the interaction experience that consumers elicit from interactive technology in fashion stores?

3. Methodology

The research question inquires an understanding of the holistic interaction experience while interacting with fashion stores' interactive in-store technology (interactive technology) along with its digital content and surrounded by the physical store elements. As such, the exploration is not just about the experience with interactive technology itself but also the store environment that affects the interaction experience. In keeping with the research approach of user experience design, the expected insights should cover feelings, thinking and actions.

Rapid ethnography was chosen as the strategy to address the research aim and question. This strategy was introduced by Millen (2000) with the aim of applying ethnography in a considerably shorter period of time than conventional ethnographic approaches without diminishing the quality of the data. As a researcher at a computer company, Millen underlined the necessity to obtain insights efficiently, thus the findings can efficiently inform the design of user experience and interaction too. In essence, rapid ethnography is a collection of field methods to provide user experience designers with an understanding of users and their activities given a limited amount of time spent in the field gathering data (Millen, 2000; Akpan *et al.*, 2013).

Rapid ethnography as a research strategy has been disseminated at many industry and academic conferences (Kujala, 2003; Marshall *et al.*, 2011; Akpan *et al.*, 2013). It has since been accepted and used by researchers in both areas, not only in the field of user experience design but also social science in general (for example, Pink and Morgan, 2013; Padros and Padros, 2018). It can thus be argued that rapid ethnography is appropriate to UXD research. Moreover, given that interactive in-store technology is often installed in fashion stores for a limited time, it has the advantage of agility.

Niketown, situated in the centre of London's West End shopping district was chosen as the location for the study. It has long been known as a hi-tech apparel store with a focus on interactivity with consumer (Peñaloza, 1999; Von Borries, 2004). Touchscreens, computers and other technological solutions permeate the three floors of the store. Initial visits established that

the staff were friendly and non-intrusive, qualities that would make participants feel more comfortable and embodied in their interaction with technology. The fieldwork was conducted over five months. After conducting a pilot study with seven participants, fifty-one participants were successfully recruited and participated in the primary research data collection of the main study.

The study used a 48" interactive in-store technology as the main stimulus. It was attached to the wall, on the first floor between the Nike SB (skateboarding) and Nike Golf sections. A looping video with a cue to swipe could be seen immediately in the starting point. The navigation types for the interactive technology are "swipe" and "tap". There were 3 main menus and 3-4 submenus, which offered images, videos and motion graphics. This interactive technology was visually driven and included videos.

Procedure

Three methods were used for the data collection; protocol analysis, observation and interview (POI). Protocol analysis, also known as cognitive response, think aloud, thought verbalization (Wright, 1980), is a way of eliciting insight through participants' verbal reports during interaction with a stimulus (Ericsson and Simon, 1984; 1993). In other words, it is the participants' direct and immediate reporting of stimuli. What is significant about this report is that each participant thinks out-loud, verbalizing everything that comes across their mind towards stimuli. The decision for using these methods was partly because many user experience design research projects, both academic and industrial, have successfully used them (for example, Van Waes, 2000; Arhippainen and Tähti, 2003; Sivaji and Ahmad, 2014; and Studies at Dentsu).

Each participant in the research project was informed about the POI data collection process and was given a slot for participating individually, meaning one participant to each POI. A maximum of four participants were scheduled for each day to achieve greater control over the situated fieldwork. Two audio recorder devices were prepared: a Sony digital audio recorder with an external

microphone and an Apple iPhone with hands-free kit. Each participant was asked to wear both recorders to ensure good documentation. At the appropriate cue the researcher and the participant entered the store.

The POI start and end points were from the moment the participant and researcher entered the store until both exited the store. On entering the store, the protocol analysis and observation methods were used first. However, the intensity of the POI increased during specific periods, between when a participant saw the interactive technology and ending after their interview (the intensity of the POI is illustrated in figure 1 below). Intensity here means a participant would be prompted by the researcher to apply themselves to more protocol analysis and the researcher would record their observations with further detailed note taking and sketching.

(Figure 1 place here)

Figure 1. The intensity of the POI

The researcher walked with the participant for most of the time during the POI process. During interactions with interactive technology, the researcher would consistently position himself in an appropriate standing position (see figure 2).

(Figure 2 place here)

Figure 2. The positions of the researcher during POI

The interviews were undertaken as soon as the protocol analysis and observation ended, when a participant implied or said that there nothing could be expressed further. In a few cases, such as when a participant seemed idle or confused, the researcher confirmed the end of the protocol analysis and observation. The interview was conducted to explore aspects of the interactivity that were not covered during the protocol analysis and

observation phase. It was also used as a way to confirm findings from this earlier phase. For example, discrepancies between movements, expressions and what was said and second, when interesting notes were taken from the observations and needed further explanation.

Analysis

All the data obtained from the POI process was analysed using a thematic data analysis because it has acknowledged in social science research given its capacity to produce and present qualitative data efficiently (Bryman, 2015; Miles *et al.*, 2019). More importantly, much research in the discipline of user experience design has utilised thematic analysis (Rogers *et al.*, 2011; Blandford *et al.*, 2016). It should be highlighted that the data analysis was undertaken iteratively; data was already analysed following a day of data collection. For instance in one day of the data colletion, 4 POIs were completed. The data was instantly analysed before conducting the next ones. Not only this process is aligned with a user experience design research (Buley 2013), but also convenient for the data collection process as it provides a greater sense of control over the time and schedule (Miles *et al.*, 2019).

The data analysis went through several stages. The first stage was to analyse the notes and sketches from observations. All notes and sketches were first evaluated to make sense of the relevance, which is also the way for filtering; subsequently everything was then labeled (Nippert-Eng 2015). The labels were used to support and clarify the data from the protocol analysis and interview. In the next stage, all transcriptions from protocol analysis and interview methods were analysed. There were four steps in this stage of analysis: read and understanding, units of meaning generation (coding), units of meaning evaluation and categorisation by themes or themes creation (Patton, 2002). These steps have been acknowledged in both general social science qualitative research and specifically user experience design research (Miles and Huberman 1994; Bryman 2015; Blandford *et al.*, 2016).

McCarthy and Wright's (2004) the four threads of experience was used to inform the units of meaning generation. In essence a unit of meaning is one standalone sentence that derived from the transcription and embodies a meaning without having to rely on the previous or next sentence (Saldana 2015; Miles *et al.*, 2019). Subsequently all units of meaning were categorised into themes (Miles *et al.*, 2019). Finally in the last stage, observation labels were used for additional information during the analysis to ensure the comments were aligned with the behaviour. For instance, when a participant said something positive verbally but with a frown or expressed an interest but seemed to touch the screen a few times. These sorts of discrepancies were noted and then clarified in the brief interview that followed the protocol analysis.

4. Findings and discussion

The findings are presented in the form of themes that convey the interpretations along with direct quotations from the participants involved in this research. The four themes are *split domain, interaction moments, digital merchandise*, *interactive information*. The hierarchy and interrelatedness can be seen in the diagram 1 below. For the elaboration of themes and their discussion, the participants in the study will be referred as "users".

(Figure 3 place here)

Figure 3. Thematic map of main themes

Split domain

The theme split domain is about the shifting experience between the frames of digital and physical worlds when a user is using interactive in-store technology in fashion stores. The theme focuses strongly on all the visuals that

can be seen when a user is using in-store interactive technology. Other senses such as auditory, tactile and olfactory senses may be exposed as well during the interactions with interactive technology.

The shifting experiences between digital and physical provide an interactive technology user with novel and epistemic feelings. The underlying state for this is high arousal, which is strongly linked to the condition of being alert and aware. The perception and experiencing process is higher therefore, making it possible to better experience the moment (Kaltcheva and Weitz, 2006; Jantzen, 2013). In addition, the actions are dynamic because they are unpredictable in terms of the timing of the experience. One person for instance, can be very active in looking around when using interactive technology, while another can look around less. Most users involved in this research demonstrated the dynamic switching of perceptions between the digital and physical elements. Users reflected this dynamic in terms of:

> *"... The visuals are really really good, a sort of modern umm hi tech style with [glancing away from the screen towards an area] oh they wanted to make a similar style I think with the surrounding..." (Participant 23)*

> *"... I could see that each floor has different styles. Can be quite distracting, but the good thing is I can always see what's going on (around). Great for search and comparing I guess..." (Participant 14)*

Although users can be engrossed with the content of the interactive technology, they can also relate the content to the nearby physical elements. This means that what is presented in the vicinity of the interactive technology is paramount. Nearby decorative and other visual merchandising elements, such as merchandise and signage can increase the quality of the content as well as contributing to an immersive experience feeling. This can be seen in the excerpts below:

> *"... Everything is perfect. The height, maybe because I'm tall. The size, and the rim is metallic black, blended with the wall, suit the others [physical elements] really well. It's cool and hi tech. Feeling immersed..." (Participant 50)*

> *"... so I'm clicking it again, I want to see some new things...[stopping abruptly] oh this is the shoe we saw over there. Cool so let's see..." (Participant 7)*

Digital domain merchandise

Digital domain merchandise is the second of the four themes. It represents findings associated specifically about the presentation of the digital merchandise of a brand wherein the interactive technology is installed. The data from findings show that users pay attention mostly to the digital merchandise. Thus, while it is part of the overall content on the interactive technology, elements of merchandise should be delineated and presented separately as a main theme. The theme *digital domain merchandise* is more specifically focused on the merchandise presented on interactive technology, whether for e-commerce and selling purposes, or for demonstration.

The details of digital merchandise on interactive technology are important because users of interactive technology want to see the smallest elements, such as contour and fabric pattern. These can be presented in two ways. One, is by providing a magnifying tool, the second by presenting images of the already magnified details as an image of a zoomed detail. The latter could have limitations, but the findings indicate that it is more preferred by the users. One reason is because some users may have less motivation to move the zoom tool around and focus more on other navigation tools. Another is because it would provide users with important information without having to find it. The finding is described in an excerpt as:

> *"...[swiping images] Nike training... great images...about something new... so this new shoe with a technology... [suddenly fixated with an image] wow you can see the detail of the shoe here... very detailed, as if it's the real texture [referring to a zoomed image of a shoe fabric] I didn't know you can click this [laughing] good..."(Participant 11)*

In relation to that, the users also prefer to be provided with automatic motion features that show the details of the merchandise. Users want to be active

when they come to interact with interactive technology and in the overall experience, yet in some aspects they still expect to be provided with selected and relevant information in a more passive mode. These can be seen in the next excerpts:

> *"... [swiping screen slowly] it's relevant and I kinda like the graphics [stopped swiping because of an auto play motion of a shoe] ... mmm I think the slow mo(tion) [autoplay video] is fantastic... because it's very smooth and not clanky..."(Participant 38)*

> *"...I'm stopping at this [shoe]...right... it's rotating. This is good so I can see every angle..." (Participant 44)*

However, one further related point from these findings is that there are some specific or unexpected aspects of merchandise that need to be provided by the fashion retailer. The finding indicates that the users prefer to be active in searching for details of merchandise but some unthinkable aspects need to be provided for them, for example a particular aspect of merchandise that uses innovative fabric.

Interactive information

This theme contains narratives of findings regarding interactive information experienced by the interactive technology users. The first finding shows that most users perceived the information on interactive technology as interactive irrespective of its functionality, meaning the perceived interactivity with interactive technology content tends to be high. Studies on digital content have found that often only the menu, navigation tools and product images that are perceived as interactive (Wu, 2005; Wu and Wu, 2006; Yo *et al.*, 2015; Sundar *et al.*, 2016). This finding suggests something further: that all content on interactive technology is perceived as interactive, including text and images that are not interactive, that is, they cannot be clicked. This can be seen in the following excerpt:

"... then I go into this page, yes it's accessible [keep swiping and clicking] this one is... wait...yes I can click it, so everything is... working [clickable]..." (Participant 41)

A second finding in this theme demonstrates that interactive technology can provide useful information, but more importantly that their interactions made the users perceive that the useful information is "pulled" by the user rather than exposed by the system. It further suggests that the users can obtain useful information more efficiently as they are accessing only the most important and relevant information to them. Moreover, they feel in control and the information is filtered without having to be exposed to unimportant or unwanted material. The next statement shows this:

"... So what I'm seeing here is a new product I think with some innovative technology. It (the headline) says it is (the shoe) lighter and with higher breathability. Right that's cool because I'm into it, glad to know it..." (Participant 13)

A user can find and "pull" the only information they really need via a few taps. Given the interactive trait of the information, a user can thus navigate accordingly to obtain the required information. This can mitigate the notion of information overload, a condition in which people feel they are getting too much information and too many choices.

A third finding shows that not all information should be placed on the interactive technology, but only information that is strongly relevant to the individual user and adds benefits. The physical store environment should present general information, such as locations, product categories and prices through point of sale and in-store signage. The interactive technology should be used to provide elements of information that are rarely shown in a physical store, for instance a brief story behind a particular design or descriptions of secondary merchandise worn by a model, as demonstrated in these next excerpts.

"... I want to find another colour. Custom maybe? yeah I think fabric composition is not really important, I mean you can always pick it up there [pointing at rail of merchandise] and see the label..." (Participant 22)

"...they should've shown the detail of all that [a top worn by a model]..." (Participant 51)

It needs to be emphasized that a user is unable to change the visual design of the textual information, but they can decide which information to read. Interactive in this context means users can control which information to experience, and it is argued that this possibility can increase the interaction experience intensity of an interactive technology user.

It is evident from these findings that the content has a capability to create nuanced aesthetic experiences. The core of the information of interactive technology evokes not only reactive aesthetic experiences, but also intentions to channel the knowledge received into something practical. In this case users seemed to receive ideas for how best to renew their style or outfit and would apply it to themselves. The messages experienced through interactive technology are able to spark ideas for constructing personal styles and further, self identity and self-presentation as found in the following excerpt

"... I don't like this top but the leggings looks fab. Might try to look for this. If anything I can mix it with mine..." (P1)

Moreover, it appears that the human aspects of interactive technology content can provide inspiration for the users as well. Human aspects refer to all models wearing the brand's outfits, either in part or wholly, presented on the interactive technology screen. The findings show how important the body is when users are when experiencing information. Graphics, visuals and texts can be quite sterile or cold and too hi-tech. To present people as part of the content can not only inspire users but can also make the ambience warmer. This works where users can relate with another person on the screen and specifically their actions and poses from everyday activities, such as running and doing sports.

"...it may be very cool with the colours and all that. But the people [models] make it down to earth..." (Participant 5)

"... Nike is one of the brands that have been using like regular people [not a public figure] for their adverts [the participant also referred the screen as an advert]..." (Participant 47)

Interaction moments

The theme *interaction moments* covers all aspects linked to the interactive process when engaging with the interactive technology. This includes visible interactivity actions and perceptions and also thinking processes about interactivity that occur as an internal state in the mind. Interactivity is at the heart of this theme and evidently interactivity is a trait that differentiates interactive technology from other in-store technologies that are non-interactive, such as digital signage. interactive technology affords store visitors an experience of additional content and enables them to actively engage with its elements similar to interactions with personal devices. Interactivity is the most distinctive dimension of interactive technology that takes it to a higher level. In this theme, interactivity is one trait that provides several benefits for store visitors, all of which can help elevate the overall store experience. Its characteristics allow store visitors to have epistemic experiences.

An important finding in this theme indicates that interactivity through the interactive technology is able to provide user gratification beyond that achieved by personal devices. New and unexpected content is the driver. Although personal devices enable consumers to access information and content via the Internet, at times a brand's app can be found to be too predictable. interactive technology content is interactive as discussed previously (*interactive information*), but because this content is provided by the brand and normally disconnected from the Internet, the access tends to be restricted: users are unable to access online links. This limited interactivity access can apparently heighten the attractiveness of interactive technology and intrigue users to engage further. The elements of surprise, such as

knowing that the brand creates content and ways to use it leads to the perception of a new experience. This is reflected in the responses below.

> *"...quite interesting. This can be refreshing [using interactive technology] because I don't think you can get it from your phone..." (Participant 3)*

> *"...maybe because I like surprise! So I like to find what's new inside [a store]. [mobile] app can be predictable and boring. So store should have more things right? Like this thing [interactive technology]..." (Participant 42)*

It is equally important to highlight that the physicality of interactive technology can make the users feel more confident and familiar in using it. As one participant demonstrated, connections with daily habits and activities help form preconceptions towards objects or devices. People can relate the interactive objects they use in their daily lives to interactive technology; for example, medium sized interactive technology in a horizontal position can lead to familiarity as the users relate it to home technology, such as a smart TV. Users can feel a relationship which leads to improved interaction:

> *"... maybe they should use kinect [a controller for game console] too [laughing] looks a bit like my TV game. But it's touchscreen so it's ok. Not too big, not too small, position is also ok..." (Participant 46)*

Although the interactive technologies in this research do not have a dedicated booth or dividers, the nearby area appears well-designed resulting in a personal space. The findings show that interactive technology provides this personal space so the users can check the detail of merchandise and conveniently find more information in their own time. All of these are reflected in the statement below:

"... I feel unpressured by anyone else. Not like in the fitting room. I know it's strange but that's how I feel when in it. I think because it's [interactive technology] not using a booth or something. I mean just carpet or whatever it is. Then these [wall background] But it's like a spot. Won't be bothered by people around..." (Participant 12)

Discussion

The four themes that have been presented were futher converted into core concepts containing central ideas of this research. There are two core concepts: *control over experience via framing* and *challenges for experience*. The *Control over experience via framing* concept was built predominantly from the themes *split domain* and supported by the other three themes. And *challenges for experience* concept carries the saliency of the theme *interaction moments* while also supported by insights from other themes.

The former is concerned with the dynamics of experiencing between two frames, digital and physical. When a user is interacting with interactive technology they are able to frame the physical elements surround them and the digital elements within the screen frame separately. With framing, the user has a total control over the experience. At times the users need a sense of embodied awareness (Hassenzahl, 2010) and this is connected with a higher sense of control of a moment (McCarthy and Wright, 2004). Interactions with interactive technology generate experience with a higher control of what to experience.

Previous studies indicate that perception is essential to experience and that one way for experiencing is by having the human senses perceive inputs (McMillan and Hwang, 2002; Wright and McCarthy, 2010; Sohn, 2011; Jantzen, 2013). By doing this, consumers would be able to some extent control what they want to perceive and what they want to experience (Wright *et al.*, 2018). This research suggests a further dimension of controlling what to perceive and what to experience through the idea of framing the two experiences separately – experiencing digital and physical as two frames. Further, they are able to experience those frames dynamically in their own time and convenience.

This is linked with McCarthy and Wright's (2004) four threads of experience (4TE) and in particular the compositional thread. It is concerned with how users see experience elements fitting together to form the experience itself. It

further suggests that users of interactive devices have a greater sense of control over the interactions' stimuli (McCarthy and Wright, 2004). This peak experience as a compositional process is comparable to the "control experience via framing". However, the core concept of this research advances this idea by positing that the users of interactive technology have the capacity to perceive and experience the elements of experience separately (framing) without having to be reductive. As such, it is about building a distinctive experience from experiences; experiencing the digital world frame and the physical world frame dynamically that leads to a distinctive holistic experience.

Challenges for experience, the second core concept, demonstrate that the interactive technology users are keen to make an effort and put energy into interactions. When using an unfamiliar technology, such as interactive technology, the users move into a higher awareness: trying to be focus with the interactive technology while at the same time being aware of surroundings. As suggested by Akpan *et al.*, (2013) the situation and condition of a space, shape how people use interactive objects and the enjoyment in using them. People as users often feel unfamiliar with the use of a public technology (Williamson, 2014). Thus, users need adjustments and usually do not want to be seen incapable of using the technology. As a result they tend to be alert of their surroundings, all of which increases awareness and focus (Muller *et al.*, 2010; Wright and McCarthy, 2010).

The spatio-temporal thread of The 4TE projects the same idea; the place and time in which a user is present propel the level of challenges of the interaction experience (McCarthy and Wright, 2004). This is because experiences are transient, which means that the experience with an interactive technology will keep changing depending on the situation (Forlizzi and Batarbee, 2004). The spatio-temporal thread of the 4TE further notes that the quality and sense of space-time pervades experience. As McCarthy and Wright (2004, p. 91) puts it "...time may speed up or slow down; pace may increase or decrease; spaces may open up or close down, affecting our willingness to linger or to re-visit such places".

All this supports the view that the physical world governs the way users see the digital world and not the other way around. The second core concept of this research suggests that the users can also be active in selecting and managing the challenges. Space and time are constructs that are difficult to control. However, users have the capability to transform those - physical - challenges into a relevant and positive experience that complements the other - digital - experience. During their interactions with interactive technology as a public technology, users can achieve an appropriate psychological state for managing challenges. Many aspects of the location in a store (physical world) can be organised and designed in such a way so it aligns with the content of interactive technology (digital world).

5. Conclusion

This research aimed to explore consumers experience with interactive technology in fashion stores. A user experience design (UXD) approach was employed for addressing this phenomenon. The methodology based on UXD has successfully generated findings for answering the research question and achieved the research purpose.

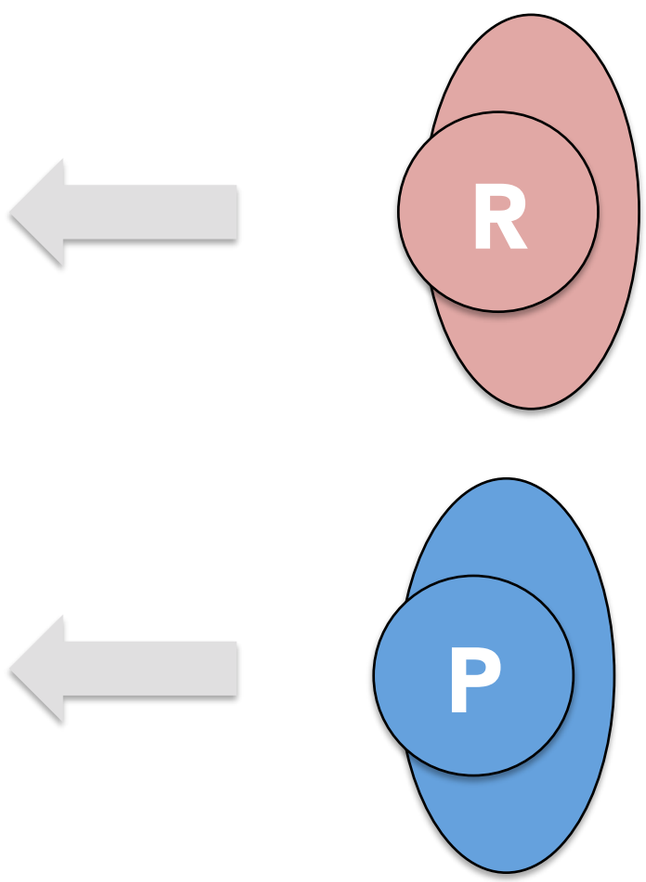
Four themes emerged from the research: split domain, digital domain merchandise, interactive information and interaction moments. These themes embody insights in relation to experience with interactive technology in fashion stores. There are two core concepts that can be taken from the themes. One, *control over experience*, where the users expect control, not only over the interactions - interactive technology navigation - but also over the experience. Using interactive technology enables the user to shift the "frames" of digital and physical. This further suggests that when interacting with interactive technology the users also need the nearby physical elements. The second core concept is *challenges for experience*, in which the users like the challenges obtained from using interactive technology. The nature of interactive technology as a public technology requires the users to make more

effort, for instance navigating an unfamiliar system, unlike personal devices, being aware of the surroundings and concern of being seen by other store visitors. These however, lead to a distinctive experience.

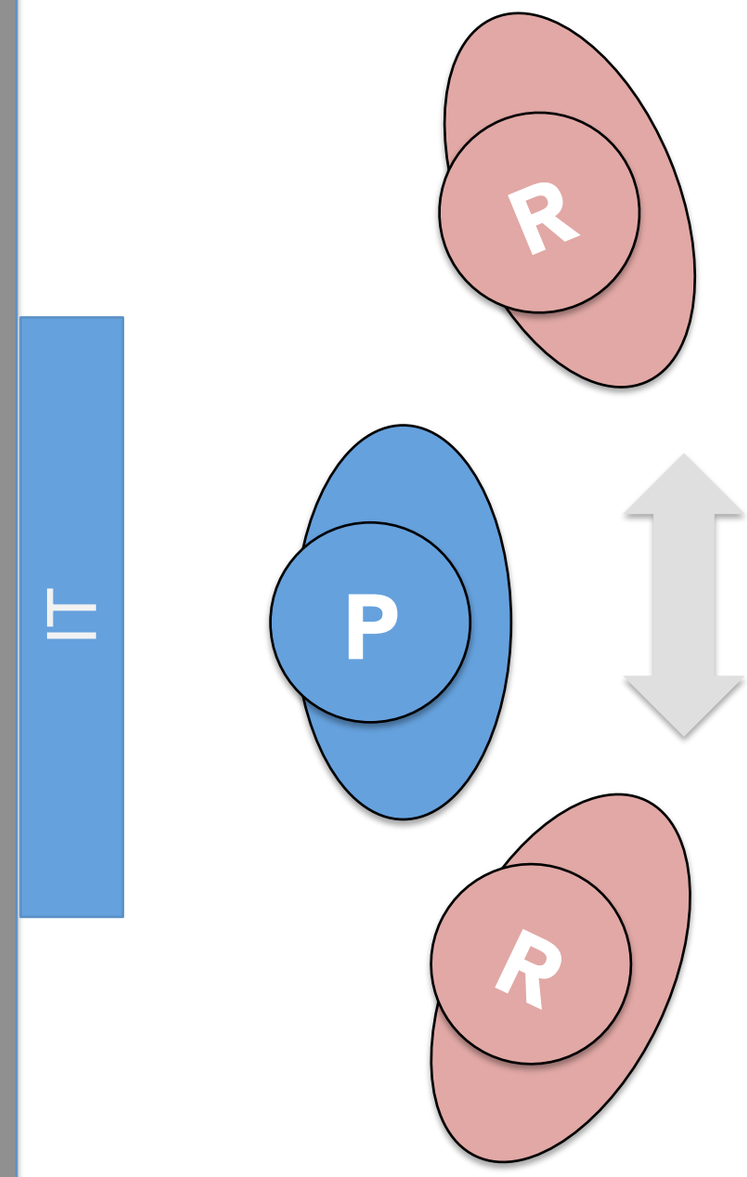
Regarding the implications, for theory, UXD has been proven to be effective and efficient in advancing research in the field of fashion marketing. This indicates that a link can be made when it comes to addressing fashion marketing research that concerns the interactions between consumers and technological devices. More specifically, UXD can be used for exploratory research beyond personal devices, and applied to public technology. The managerial implications are that fashion brands should consider the design and implementation of the interactive technology by looking two aspects. The first is the *positioning and nearby area design,* when users should be able to link with and feel immersed in, the physical elements. This requires that the interactive technology is best positioned not too far in the periphery of an area so users are able to "switch frame" and experience the physical elements accordingly. Moreover, although the physical store can have a number of departmental designs, the nearby area to the interactive technology should be synchronised with the interactive technology. This can be done by linking the theme and graphics of the interactive technology with the physical elements of the store. The second is the *content*, which should be based on selected information, something that could extend the presentations in the physical store. This should mean that interactive technology does not need to be fully comprehensive. Thus the two channels can be in harmony, complementing rather than competing with each other. In this case the interactive technology content completes the physical store.

Some limitations in this research concern the data collection and analysis processes. Regarding the former, only one researcher was involved in the in-situ data collection. A team of researchers could organise and manage the data collection process more efficiently; however this needs to be placed in the context of the researchers' skills. UXD requires a grounding in design principles and the sketching and observational techniques may require additional researcher training. In analysing the data the researcher manually

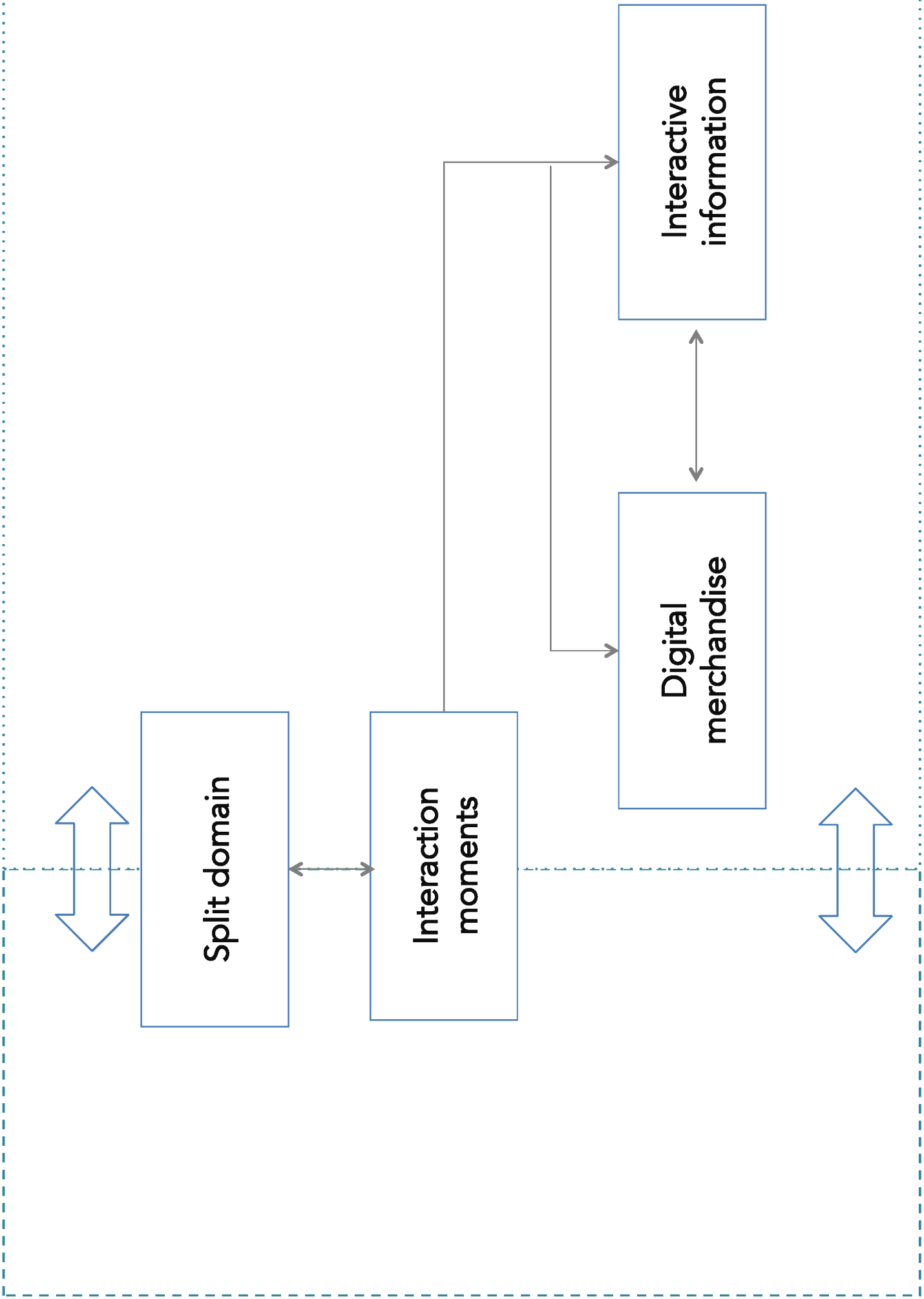
coded and categorised the data. As suggested by the rapid ethnography literature, the use of computer software could benefit the analysis process and may increase the ability to undertake research across different stores. Future research in this regard may consider using the UXD approach with other types of interactive technology in fashion stores, such as augmented reality and virtual reality.



Walking along

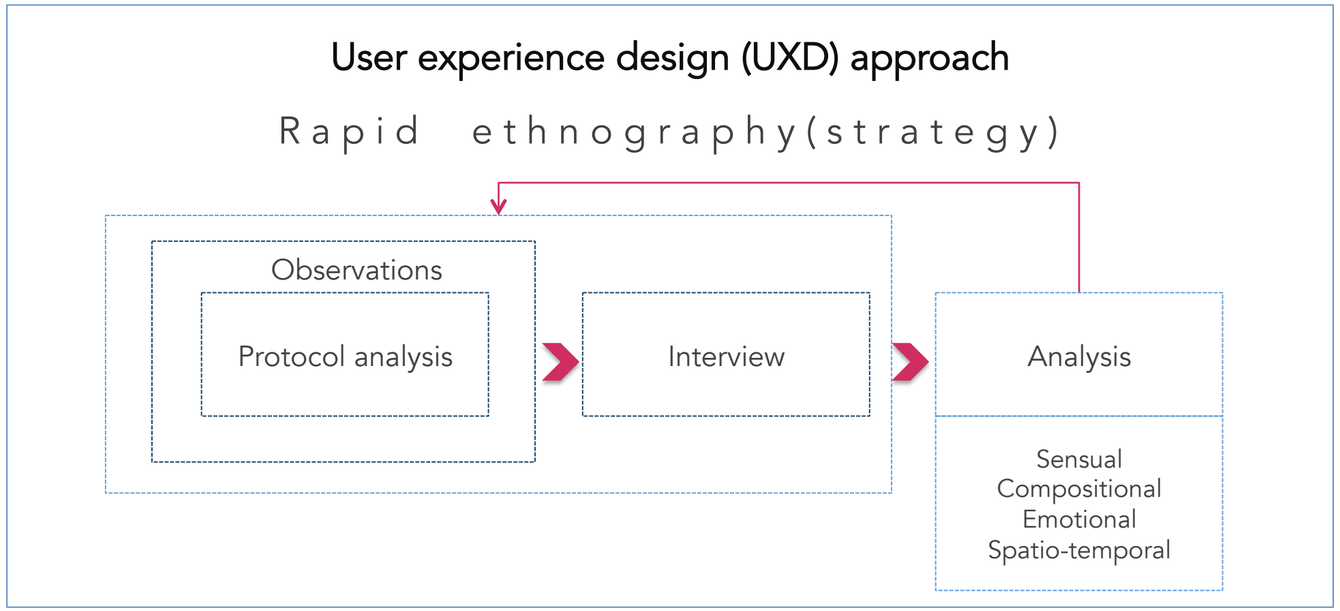


During IT interactions


Digital
Interactive information
Digital merchandise
Split domain
Interaction moments
Physical
DYNAMIC EXPERIENCE

CONSUMER EXPERIENCE OF INTERACTIVE TECHNOLOGY IN FASHION STORES

What is the interaction experience that consumers elicit from interactive technology in fashion stores?



Split domain – Interaction moments – Digital merchandise – Interactive information

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Control over experience | Challenges for experience