

# How to Engage Fashion Retail with Virtual Reality: A Consumer Perspective



Liangchao Xue, Christopher J. Parker and Cathryn A. Hart

**Abstract** Highly valued consumer experiences occur when designers understand how emerging technology—such as Virtual Reality—is presented in an emotionally engaging format. For fashion retailers to ensure longevity through new retail models, designers must understand how Virtual Reality can offer an exceptional retail experience. Our research addresses this question by interviewing 22 young professionals on attitudes towards Virtual Reality, motivation to shop through v-Commerce, and the moderating variables that influence virtual environment perceptions. Our results prove consumers expect a vivid shopping environment, with authentic product features instead of than more common simulated environment. We prove hedonically motivated consumers are more open to v-Commerce than utilitarian consumers, and Consumers aged 18–34 regard interactivity, personalisation, and social networking as critical to offering that a cost-efficiency shopping experience. This paper thus establishes the fundamental design rules for v-Commerce platforms, allowing designers to create effective retail environments, sympathetic to the consumer’s cognitive desires.

**Keywords** Virtual reality · V-Commerce · Retail · Shopping experience · Consumer

## 1 Introduction

To secure the future of the UK retail sector, retailers must understand how to present emerging technology in a format that facilitates consumer purchase behaviour, based on established consumer investigation methods (Parker & Wang, 2016). Despite being worth over £60,800 million (Dover, 2018), the UK fashion retail sector faces an uncertain future. Highstreet footfall is at a crisis level, electronic commerce’s (e-Commerce) performance is weakening and retailers are increasingly reliant on debt (Santi, 2019). According to KPMG (2018), overall sales were down by 3.1% in April

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2018, the biggest decline since 1995. In 2018, online retail sales also experienced the lowest November growth since 2011, increasing by only 8.1% year-over-year (IMRG, 2018). Developing disruptive technologies such as Virtual Reality (VR) as a retail platform (v-Commerce) offers great potential to increase the competitive advantage of any retailer who can tap into the shopping behaviours of consumers. Despite such a perspective being heralded for over a decade (Arakji & Lang, 2008; The VR/AR Association, 2017) v-Commerce has yet to make a significant impact on the shopping behaviours of consumers. V-Commerce's lack of disruption is because of industry holding no consensus on the optimal consumer experience or how to design virtual stores for high return on investment (Xue, Parker, & McCormick, 2018). Without understanding the format consumers desire from v-Commerce interactions, virtual retail will remain an interesting marketing gimmick instead of a pivotal driver of sales (Bonetti, Warnaby, & Quinn, 2018).

This paper aims to investigate the format of v-Commerce experience fashion consumers best respond to (e.g. fully immersive/augmented). To address this research aim, this paper embodies three research objectives:

1. *To understand the consumer response (attitudes and motivations) to v-Commerce, allowing retailers to meet the growing and diversified needs of consumers and enhance competitiveness.*
2. *To understand the moderating variables that affect shoppers' perception when developing a virtual environment for retailing, allowing designers to develop more effective and emotional seductive v-Commerce platforms.*

## 2 Methodology

### 2.1 Setting and Sample

Consumers aged 18–34 are the most open to VR acceptance, with gender showing no difference between gender, demonstrating a broadening of traditional segregating categories (Nielsen, 2016); recognising digital natives' emergence into mainstream consumers. To generalise the data, we collected responses with both males and females, in full-time employment, and aged 18–45. We also included VR developers to obtain an industry-centred perspective. 22 participants were recruited through purposive sampling, ensuring a suitable spread of participants across the sampling frame; including 20 consumers and two VR developers. We chose qualitative methods to achieve deeper emotional insight than widespread surveys provide. Our semi-structured interviews were conducted Between August and October 2018 within UK urban areas: London, Manchester, and Sheffield; preferring universities, coffee shops, and shopping centres. These locations facilitate collecting data from college students, income earners and shopping fans.

## 2.2 Data Collection

Preceding data collection, the researcher showed participants two concept videos of v-Commerce high-street environments; for ASOS (Fig. 1) and Alibaba (Fig. 2). Showing the concept videos was to elicit the participant’s response to questions before conducting semi-structured interviews. The first high street environment (ASOS) shows an initial user interface of virtual shopping environment. The second high street environment (Alibaba) shows the shopping process of a customer wearing a VR headset entering a virtual Macy’s store to purchase a handbag. By viewing the v-Commerce video prototypes, participants could understand v-Commerce without requiring the experimental equipment Alibaba and ASOS utilised: equipment currently unavailable to the public. Subsequently, the participant’s reaction to both forms of v-Commerce, alongside their desires and preferences that influence their v-Commerce perceptions, could then be gauged.



Fig. 1 ASOS: Trillenium demo app (VIDA 3D, 2015)

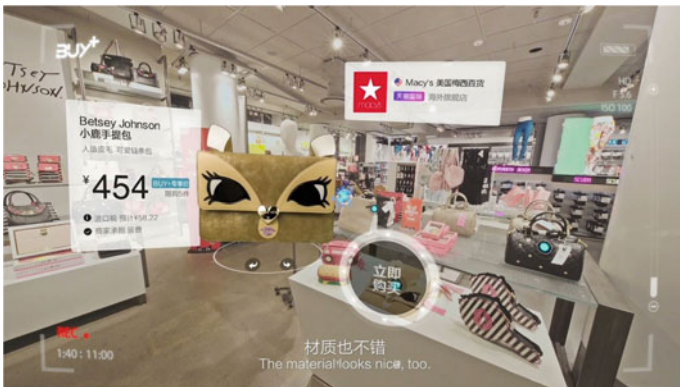


Fig. 2 Alibaba: Buy + VR shopping experience (Alibaba Group, 2016)

To address the research objectives, the interview question sheet targeted consumer attitudes, motivations, shopping behaviours and influential variables.

- Consumer attitudes of v-Commerce were investigated in line with the recommendations of Ha and Stoel (2009) and Kim and Forsythe (2008), investigating consumer e-shopping acceptance in a Technology Acceptance Model through technology acceptance, usefulness, ease of use, enjoyment and trust.
- Motivation towards v-Commerce was investigated in line with the recommendations of Arnold and Reynolds (2003), classifying consumer shopping motivation into either hedonic motivation (gratification shopping, social shopping, idea shopping, role shopping and adventure shopping) and utilitarian motivation (efficiency shopping and achievement shopping).
- To understand the consumers' shopping behaviour, the questionnaire explored the consumer's different behaviour in offline and online shopping channels through perceived value (Escobar-Rodríguez & Bonsón-Fernández, 2017), shopping experience and decision-making (Katawetawaraks & Wang, 2011).
- The influential variables that affect shoppers' perception of v-Commerce were investigated in line with the recommendations of Xue et al. (2018), focusing on comfort, content, functionality, media richness, perceived value, social networking and user experience to reveal moderating variables towards v-Commerce.

Each interview took from 30 to 45 min, with the researcher capturing audio via iPhone and recoding pen.

### **2.3 Data Analysis**

The researcher analysed full transcripts with NVivo 11 (QSR, 2017), with thematic analysis aiding a deeper insight into the data than otherwise possible. Through thematic analysis insights into consumer reactions to VR within v-Commerce were gained alongside their desires/preferences and the factors that influence their perceptions toward v-Commerce.

## **3 Results and Analysis**

### **3.1 Consumer Response to V-Commerce**

The key themes derived from thematic analysis are presented within Tables 1 and 2.

**Table 1** Relevance characteristics of VR in interview—coding references (technology acceptance)

Theme	Category	Themes from data	Participants aged 18–34	Participants aged 35–45
Technology Acceptance	Positive	Novelty effects	13	4
		Benefit from VR	19	3
	Negative	Expensive	15	2
		Adaptation	4	5
		Change of shopping behaviour	0	5
		Technology awareness	2	5

**Table 2** Relevance characteristics of VR in interview—coding references (influential variables)

Theme	Category	Themes from data	Participants aged 18–34	Participants aged 35–45
Comfort	Positive	Convenience	25	10
		Without crowding	19	0
		Easy access	17	1
Content	Environment	Authenticity (product and environment)	26	8
		Pleasant environment (light and sound)	7	3
		Designed store layout	9	4
	Information	Customer reviews	14	7
		Easy navigation	8	6
	Product feature	Vividness	12	7
	Functionality	Accessibility	Simple procedure	11
Interactivity		Product interaction	30	7
		Social interaction	26	4
Personalisation		Personal service	12	6
		Personalised interface	14	5
	Product recommendation	7	1	

### 3.1.1 Attitude Towards V-Commerce

Results shows the younger generation to be v-Commerce's main adopters. As shown in Table 1, 94% of participants in the age group of 18–34 were familiar with VR. Those same participants showed great potential to experience VR as the technology could offer many benefits for them that match their interest in innovative technology. Conversely, 40% of participants aged 35–45 showed negative attitudes about adopting v-Commerce. This is due to the challenge of altering existing shopping modes and behaviours compared to a younger audience. The results prove hedonic consumers to be more open to accept v-Commerce than utilitarian consumers. As participant 7, from the 35 to 45 age group, stated *“If you really enjoy shopping... you would like VR shopping process. But for me...I just know what I want and go and buy it. [VR] seems a bit would probably slow me down, because what I like about websites is that it will make it quicker.”*

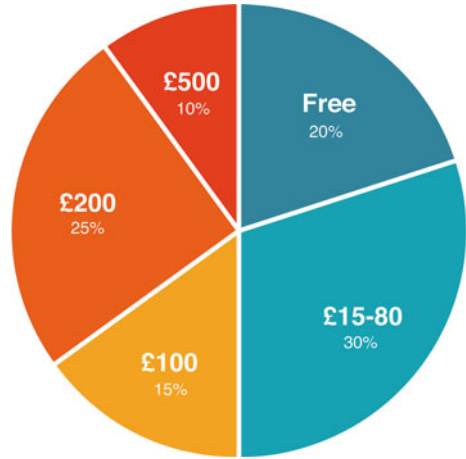
### 3.1.2 Technology Acceptance Barriers

The results predict v-Commerce shall manipulate and revolutionise consumers' purchasing habits. This is supported by participants from 35 to 45 age group who were concerned how their shopping behaviours in v-Commerce would change through, for example, emulating 3D environment, sensitive and interactive home shopping or a different check-out procedure. As participant 5 referred *“I like to be able to feel things and hold them. And there are a lot of aspects of virtual shopping that I wouldn't feel comfortable unless I could experience and feel the product in person.”* The other acceptance barrier of v-Commerce lies in financial factors, as half of the participants worried about being unable to afford expensive VR goggles for home interaction; costing from £399 (Oculus, 2019). Among them, 70% participants expect the price of a headset should be under £200, while another 20% proposed that retailers need to take the responsibility of the cost of v-Commerce; see Fig. 3.

### 3.1.3 Motivation Towards V-Commerce

14 participants pointed out they are willing to try VR shopping because of the novelty effect. Amongst the 14 participants, 50% of feel they would try it as part of an experiment, but not for long-term use. As participant 5 stated; *“I guess, just for the fun experience of it, to try it out. But otherwise I'm pretty happy with current in-store and online shopping.”* Hence, if v-Commerce cannot offer additional value, or experience than current shopping channel, consumers' motivation toward v-Commerce would decrease rapidly.

**Fig. 3** The percentage of respondents based on the cost they willing to spend on A VR headset



### 3.2 *The Moderating Variables that Affect Shoppers’ Perception When Developing Virtual Environment for Retailing*

The key themes derived from thematic analysis are presented within Table 2.

#### 3.2.1 Convenience and Accessibility

The result from the interview shows 70% of participants perceived convenience in v-Commerce as a top priority to them, helping consumers to save effort and make decisions. According participant 18 *“convenience should be very important, priority. You are asking users to learn a new skill, so it should be very convenient and provide a great experience for them to keep using it. Otherwise they may just want to feel fresh [novel] for the moment”*. Interestingly, no participants considered time saving as an outcome from v-Commerce. This is surprising because consumers will spend more time browsing or interacting with different features when they are shopping in physical stores.

#### 3.2.2 Authenticity (Environment and Product Feature)

Authenticity of v-Commerce environment and products was a key influential variable that affects consumers’ perception. 18 participants wished to experience v-Commerce as lifelike interactions, otherwise there could be a negative impact on consumer trust in v-Commerce. For example, presenting authentic environments with the realistic size and colour of the products, rather than stylised interfaces. Participant 4 stated: *“I’m wondering if I will be able to see the real sizing of the item*

or be able to hold up two of the sizes like small and medium; you could see how different they are, which will reduce the risk of online shopping". Such interactions are, however, outside contemporary VR's capabilities, being restricted to 360° video and preventing interactivity. Consumers, at this point, have too high expectations of v-Commerce, resulting in dissatisfaction with current technology unable to satisfy their desires.

### 3.2.3 Interactivity

Product interaction, social interaction, and personalised services are the most valued function in v-Commerce; see Table 2. 75% of participants believe interacting with products will improve product perception and provide a better understanding of the products, as long as the technology is mature. As participant 12 said: *"The interactivity should be smooth and active. If it's very clumsy and hard to use, I can easily hate it. But if it's very responsive and easy to use, I will feel very much engaged and my perception may change positively, which may stimulate my willingness to spend money."*

Virtual sales assistants in VR were perceived as being very helpful and interesting according to 19 participants. As participant 8 referred; *"For Amazon, there is no one [who] can interact with customers (live chat), VR could do this. A real or AI sales assistant both would improve the online shopping experience. Disabled people (deaf), would be helpful to have live chat."* Additionally, 19 participants regard social dimension as part of their entertainment. Consumers feel positive about shopping together with friends/family in a virtual environment, even if they are not in the same place in reality.

### 3.2.4 Personalisation

Pairing shopping behaviours could improve consumers' shopping experience and make v-Commerce more attractive. 15% of participants mentioned they prefer to keep privacy sometimes during online shopping; comprising of persons who feel introverted, less sociable, or prefer shopping alone. The participants would, therefore, like more control over the social interactive function. According to participant 10: *"If I use VR, a big part of it may because I want to shop alone sometime. Even though other's opinions will influence me ...The only interactivity I require is the product itself and sales assistant."*

Personalised service was a feature 70% of participants said they were keen to obtain through recommendation of new arrivals or matching items from the customer's preference and personal suggestions, as answered by participant 18: *"I hope to receive personal advice from a sales assistant, the sales assistant will provide further product or alternative information if the consumer has been focused on one product for a long time"*. All participants believed that human service is much more reliable than the gruff reply from artificial intelligence (AI) that can only answer



a few questions. Consumers may only know about a single product, yet often seek information about similar products within different price categories or from alternative brand. Consumers may, therefore, benefit from the ‘guess what you like’ function to screen out which product is most suitable for them.

## 4 Discussion

### 4.1 *Consumer Response (Attitudes and Motivations) of V-Commerce*

Because of the changing consumer expectations and technology development, there is scant definition of consumer behaviour in VR environments. Therefore, we need to understand consumer response to the interactive technology in a high street retail setting.

Table 1 shows that younger people responded more positively to v-Commerce than older people. Older participants find it is difficult to embrace such new technology because of the changing shopping habits; confirming the propositions of Nielsen (2016). Even though most consumers are open to trying v-Commerce, the potential allure does not convince them to use it; especially for participants aged from 35 to 45. This is because consumers regard v-Commerce as a new technology producing a significant novelty effect. Once v-Commerce loses its appeal or unique value, there will be less to motivate consumers to use v-Commerce. Eventually, consumers will quit the virtual world. The other reason lies in consumers will not get any added value from the product itself when they spend money on the VR headset/accessories, which leads to reducing the consumers’ perceived value of v-Commerce.

This study reaffirms Papadopoulou’s (2007) findings, that virtual reality shopping environments might not hold for experienced users, as shopping in such an environment can be deemed as time-consuming or boring, because of their familiarity with existing sites. Given the novelty effect disappears at some point, the overall effectiveness of v-Commerce is believed to be limited in generating positive consumer evaluations. Consumers’ shopping behaviour varies depending on whether their search motivation is for fun or efficiency. This study found that if the consumers are going to the store for specific items, they may not be inclined to use v-Commerce, unless they have more time and would like to browse the store.

Since v-Commerce doesn’t improve the quality of products and or decrease their price, hence, retailers must consider how to provide extra value on products or services and distinctive experience through VR platforms to reduce consumer perception of price. Besides, to keep v-Commerce attractive, content design becomes important, where v-Commerce experience should the traditional physical stores it may be incorporated into; if employed in a high street setting. This will reduce consumers’ time and energy costs in the entire shopping process. To reduce technology acceptance barriers, VR developers should focus on develop human factor theory in VR

shop design (i.e. social dimension, eye-tracking, disadvantages shoppers' considerations etc.) to relieve the needs to change original shopping behaviour for older and disadvantages audiences.

#### ***4.2 The Moderating Variables that Affect Shoppers' Perception When Developing Virtual Environment for Retailing***

V-Commerce environment differs from online shopping environments, and it therefore becomes difficult to explore consumers' desires since most consumers have not experienced virtual shopping. Hence, understanding consumers motivation towards v-Commerce becomes important for developing v-Commerce at the initial stage.

The most significant finding from this study is that convenience has been regarded as the most influential factor for home shoppers. Interestingly, none of our participants believe virtual shopping could help them to save time on achieving a specific shopping task and distrust information provided by virtual shopping within virtual-built environments and products. Therefore, participants expect to improve the credibility of v-Commerce through obtaining vivid interaction with products to enhance their product perception, and helpful virtual assistants to provide more specific/detailed product information and satisfy a variety of personal needs (personal service). As such, the faceless interaction with the usual web interface is advanced to a human-like communication, where the customer talks and has a virtual eye contact with the salesperson. We also found the social dimension as hedonic value is key to v-Commerce. Participants feel excited to interact with their friends, family, or the public in the virtual world. Through virtual communities, customers can post articles, reviews, and product recommendations, with feedback from other customers, facilitating consumer trust.

In 2019, the consumer's low level of trust in v-Commerce is due to the technology's inability to provide personal multisensory in-store product experiences, or match e-Commerce's convenience. e-Commerce is more likely to be goal-focused rather than experiential. Wolfinbarger and Gilly (2001) showed that for goal-oriented users, e-Commerce retailers must prioritise easy to access and use information instead of content and community. The functions such as welcome, recommendations, search, product and product-related information view, short video about the fitting effect, order placement, purchase and order-racking are currently typical of conventional online stores. The same practical functions, when provided within a virtual reality shopping environment, can be preferred by customers and can also build a customer's trust in v-Commerce. On the other hand, Roth, Latoschik, Vogeley, and Bente (2015) found that social behaviour challenge for both technical aspects, such as the real-time capacities of the systems, but also psychological aspects, such as the dynamics of human communication. Our results also show, many participants desire privacy during online shopping, leading some consumers to prefer shopping alone. These

outcomes are interesting since social shopping motivations associate with a greater preference for e-Commerce engagement (Parker & Wenyu, 2019). For consumers, personalised interfaces become a critical factor in effective v-Commerce interfaces.

Therefore, the study suggests the overall shopping operation have to be easy access, including hand and head movements, it should conform to the daily behavioural logic, which would ease the need for older audiences to change their current shopping behaviour. Moreover, v-Commerce designers should put emphasis on the social dimension and creating real-world shopping environment and authentic product model. Creating real-world shopping environments will help consumers to improve product perception and enhance the credibility of v-Commerce environment. Because of the consumers' diverse demand, the interface of v-Commerce could offer different options or modes to satisfy both hedonic and utilitarian consumers from personalised entertainment functions (i.e. social interaction, adventure shopping experience, background music, lighting etc.). In addition, intelligent sales assistants will be very important in v-Commerce to provide product information and advise consumers during their shopping; it would evolve by higher accessibility, but companies require an extensive database.

## 5 Conclusion

To conclude, this study investigates consumer responses and expectations toward v-Commerce in a high street retail setting. The most positive response is hedonic consumers and 18–34 aged consumers, as older audiences resist changing their purchasing habit. Meanwhile, most participants point out novelty effect is their prime motivation to try v-Commerce. As consumers are chiefly motivated by a products' quality and price, factors v-Commerce cannot improve upon, v-Commerce's must find and focus on alternative purchase motivators. We recommend retailers offer promotions along with the products to increase perceived value to consumers, this would motivate utilitarian shoppers to adopt v-Commerce. V-Commerce platforms must increase consumer engagement by including high quality content. High quality content, directed by designers, must be achieved through more creative and challenging interfaces than current practices of recreating physical spaces can offer. For designing such alternate interfaces, the v-Commerce designer must be moderated by shopping convenience and product accessibility (i.e. friendly user interface and easy process etc.), authentic environment and product representation, interactivity (i.e. product interaction and social interaction), and personalisation (personalised interface and personalised service). Ultimately, v-Commerce environments that excel in delivering creative—yet accessible, authentic, and personalised—experiences stand the greatest chance of facilitating consumer purchase behaviour; contributing to the high-street's regeneration.

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