

Going with the flow: Smart shopping malls and omnichannel retailing

Abstract

Purpose: The transition from multichannel to omnichannel retailing requires a better conceptualisation, especially for customer experience in smart shopping malls. Therefore, this study proposes a theoretical model that captures customers' omnichannel experiences in smart shopping malls in terms of personal interaction, physical environment and virtual environment encounters. It examines the mediating role of flow experience on the relationship between the three types of encounters and customers' intention to revisit smart shopping malls.

Design/methodology/approach: The study draws on four key theories: the service encounter model, trust-commitment theory, flow theory and experiential value theory. A total of 553 completed questionnaires were collected from customers (millennials) in the United Kingdom (UK). The data was analysed using partial least squares-structural equation modelling.

Findings: The findings show that physical environment encounters and personal interaction encounters play a significant role in customers' omnichannel experiences in smart malls. Also, of significance are the following aspects of virtual environment encounters: interface design, personalisation, trust, privacy, consumer-peer interaction and relationship commitment. The findings highlight the significant mediating role of flow on the relationships between these three types of encounters and intention, and the effect of flow on omnichannel service usage in smart shopping malls.

Originality/value: The research contributes to the existing literature by proposing a conceptual model: the smart shopping mall omnichannel customer experience (SSMCE) model. The findings offer practical guidance to shopping malls and retailers who wish to enhance the customer omnichannel experience.

Keywords: Omnichannel retailing, shopping malls, service encounters, trust-commitment theory, flow theory

Paper type: Research paper

Introduction

Shopping malls play a fundamental role in the retail ecosystem by bringing shoppers and retailers together. However, the customer shopping experience has been revolutionised by the use of digital technologies. Customers can now shop online and via their smartphones with convenience. This has had an adverse impact on shopping malls in recent years, as the number of visitors has been declining severely and the number of stores closing has been increasing annually (Forbes, 2018). Nevertheless, there is still a chance for shopping malls to innovate, capture value and remain relevant for twenty-first century shoppers (Agarwal et al., 2018). Shopping malls are no longer evaluated on the basis of their physical environment, but on the basis of the omnichannel experience they provide through the smart integration of their physical and virtual environments (Fujitsu, 2019). This involves integrating different technologies, such as mobile applications, artificial intelligence (AI), virtual reality, augmented reality and biometrics, in a physical shopping environment (Miiter, 2018). By doing this, retail stores can expect to gain many benefits, such as a powerful marketing channel, a comprehensive mall reach, instant flash sale capability, the ability to tailor in-store loyalty programmes and fast, accurate receivables (Idsolve, 2020).

The smart shopping mall makes use of intelligent technology that can benefit customers, mall owners and retailers (Kindley, 2019). However, the majority of previous studies focused on either customer shopping experiences in shopping malls (e.g. El-Adly, 2007; Keng et al., 2007; Merrilees and Miller, 2019) or customer online shopping experiences (e.g. Ansari and Qadri, 2018; Bahl and Kesharwani, 2019; Chiu et al., 2019; Mou and Shin, 2018; Nguyen et al., 2018; Zhang et al., 2019). In addition, existing studies of customer experiences in shopping malls mainly focused on service quality and the physical environment in malls (e.g. Das and Varshneya, 2017; Idoko et al., 2019). Furthermore, despite that the majority of existing studies focused on multichannel retailing (Beck and Rygl, 2015; Hult et al., 2019; Yurova et al., 2017), there is a gap in research on the transition from multichannel to omnichannel retailing (Verhoef et al., 2015; Rodríguez-Torrice et al., 2017). There is no theoretical model that captures customer experience in these malls or the effect of digitisation in shopping malls on the customer experience. Furthermore, there is a gap in theory in terms of conceptualising the role of flow (Csikszentmihalyi, 1990) in omnichannel experiences in smart shopping malls, despite the literature acknowledging that this factor is important because it affects customer satisfaction and future behaviours

(Kazancoglu and Aydin, 2018; Bèzes, 2019). Csikszentmihalyi (2000) pointed out that the goal of experience design is to create a compelling experience that can be measured and analysed on the basis of flow experience.

This study proposes a theoretical model that captures customers' omnichannel experiences in terms of personal, physical and virtual encounters in smart shopping malls. It also examines the mediating role of flow experience on the relationship between each type of encounter and customers' intention to revisit a smart shopping mall. The study integrates and draws on the service encounter model (Bitner, 1990; Bitner et al., 1997; Solomon et al., 1985), trust-commitment theory (Morgan and Hunt, 1994), flow theory (Csikszentmihalyi, 1990) and experiential value theory (Mathwick et al., 2001).

The study offers theoretical contributions and practical implications. In terms of the theoretical contributions, this research bridges a gap in the existing knowledge and the marketing literature by developing the smart shopping mall omnichannel customer experience (SSMCE) model, which models and conceptualises the omnichannel experience in smart shopping malls and examines the mediating role of flow in this experience. Our proposed model draws on theories in marketing literature. In doing so, this research provides a more holistic model that acknowledges the complex nature of omnichannel experiences in modern shopping malls: smart malls in which customers receive different services at different points of interaction. The model is tested in a shopping mall in the United Kingdom (UK). In terms of the practical implications of this research, the insights that it provides on the customer experience in smart shopping malls have implications for shopping mall management teams and stores.

Literature review

Omnichannel retailing and the customer experience

Verhoef et al. (2015, p.176) defined the omnichannel customer experience as “the synergetic management of the numerous available channels and customer touchpoints, in such a way that the customer experience across channels and the performance over channels is optimized”. The interaction can take place across different physical and virtual retail channels, including stores, websites and direct marketing. It can also take place on mobile channels (i.e., smartphones, tablets, apps), social media or other customer touchpoints, such as mass communication via television and radio (Mosquera et al., 2017). The smart and

complex integration of these channels provides a seamless experience for customers, where the different channels interact with each other and are used simultaneously (Frasquet et al., 2019). Mirzabeiki and Saghiri (2020, p.1) explained that this complex integration in omnichannel experiences can be achieved by “automating and standardising data capturing and sharing methods, and centralising data storage among companies and channels, which leads to improved efficiencies”. Mosquera et al. (2017) and Bèzes (2019) explained that in omnichannel experiences, each touchpoint in the customer journey provides seamless and intuitive transitions across channels in order to accommodate customers’ preferences, needs and behaviours. Cook (2014) explained that omnichannel customers and traditional (offline) retail shoppers behave differently, as omnichannel customers are more informed and make use of the technologies available as part of their shopping experience.

Shopping malls literature and smart shopping malls

Recent studies have focused on the decline in the use of shopping malls (Calvo-Porrà and Lévy-Mangin, 2019; Helm et al., 2018). Ferreira and Paiva (2017) categorised malls into three types: small shopping galleries, neighbourhood shopping condominiums, and convenience shopping malls. Furthermore, the authors provided the following reasons for this decline: innovation cycles, the economic context, the relation between retail and urban cycles, and the manager’s ability to adjust to change. With this in mind, studies on the customer experience in shopping malls focused on factors related to individual shoppers’ behaviours and attitudes in addition to the characteristics of the malls (Keng et al., 2007). Gomes and Paula (2017) explained that there are two main types of retail agglomerations: evolved and planned. The second type is related to modern shopping malls, which are deliberately planned and have a centralised management, while the first type is linked to shopping in streets and bazaars. Table 1 provides examples of recent studies on the customer experience in shopping malls.

Insert Table 1 here

Based on an analysis of the studies listed in Table 1, we highlight two main findings. First, the majority of recent studies on the customer shopping experience focused on the quality of service provided in the mall and on the physical environment of the mall. Second, there is a

gap in research focusing on the customer experience in the new type of shopping mall: the smart shopping mall, which integrates the physical and the virtual environments by using various technologies. These new and advanced shopping malls are no longer considered to be purely for offline shopping (Shi et al., 2019; Helm et al., 2018).

A smart shopping mall is based on a complex integration of the physical and the virtual environments, as visitors are able to use advanced technologies as part of their physical shopping experience. A smart mall integrates Internet of Things (IoT) functionality both inside and outside the mall's buildings, and it can use data shared by customers to provide valuable customer insights for retailers and mall management teams alike (Kalany, 2019; Idsolve, 2020). Examples of IoT used in smart malls include smart parking, where sensors help shoppers navigate to the nearest free parking space; customer foot traffic, where foot traffic in malls is monitored and analysed to provide a better customer experience; and connected food courts, which allow customers to receive offers and to order and pay online in advance to avoid long queues (Kalany, 2019). The customer experience begins with eye scanners at the mall entrance, which recall information about the customer's previous purchases so that the customer can be offered personalised short cuts around the mall (Morgan, 2018). Secure wireless connectivity (Wi-Fi) is the key to managing a connected smart mall. The IoT, big data, analytics and marketing tactics that are enabled in smart shopping malls can revolutionise customers' experience. These changes are expected to bring many advantages to customers who visit and shop in smart malls; for example, they can receive personalised notifications, be made aware of promotions and sales, join loyalty schemes, use wayfinding technology and make the most of an optimised environment (Kalany, 2019).

Related theories

Existing theories on shopping mall patronage focus mainly on combining particular factors, such as distance to the mall, population density and space (Brunner and Mason, 1968). Various theories have been used to study the customer experience in shopping malls; for example, inference theory (Nisbett and Ross, 1980) and the service encounter model (Keng et al., 2007). The shopping mall service encounter model introduced by Keng et al. (2007) categorises the service encounters that can affect customers' behavioural intention to visit and shop in malls into two groups: personal interaction encounters and physical environment encounters. This is one of the most cited models in studies of shopping mall

encounters. In addition, market trends show that the role of customer experiential value has attracted increasing attention among practitioners in the retail industry (Varshneya et al., 2017). Experiential value is the value that customers derive from an experience. The notion is based on the theoretical concept of value defined by Holbrook (1994; 2000). Mathwick et al. (2001, p. 41) conceptualised experiential value as the value derived from an experience via “interactions involving either direct usage or distanced appreciation [indirect observation] of goods or services”. Experiential value (Mathwick et al., 2001) is conceptualised in terms of four main dimensions: playfulness, aesthetics, service excellence and consumer return on investment (CROI). Shopping mall experiences are categorised as: experiences perceived through the senses; and experiences created through entertainment or dramatic effects (Holbrook, 1994, 2000).

Flow experience is described as the holistic sensation that people feel when they act with total involvement (Csikszentmihalyi, 1975). However, studies have not yet investigated how flow mediates the three types of encounters that customers have as part of their omnichannel experience in smart shopping malls. Csikszentmihalyi and LeFevre (1989) explained that the person who achieves flow feels “more active, alert, concentrated, happy, satisfied and creative, regardless of the task being performed”. During flow, an individual’s self-consciousness vanishes, and their sense of time is distorted. Csikszentmihalyi (1990) described this experience as so gratifying that people are willing to be in a state of flow for its own sake. According to Csikszentmihalyi (1997), there are eight major characteristics of flow: (1) clear and distinct goals, (2) a temporary loss of self-consciousness, (3) a distorted sense of time, (4) actions merging with awareness and immediate feedback, (5) high concentration on the task, (6) a high level of control, (7) a balance between the available skills of the individual and the challenges of the task, and (8) autotelic experiences. We argue that flow experience helps customers to navigate smoothly and seamlessly between different types of encounters (touchpoints) in the omnichannel experience in smart shopping malls. Studying the mediating role of flow has important implications for theory building, as mediation provides insights into how and why a relationship between two variables exists (Baron and Kenny, 1986).

Ghani et al. (1991) indicated that enjoyment and concentration are the two most important dimensions of flow experience, and these were the focus of studies concentrating on online or computer-mediated experiences (Obada, 2013; Bridges and Florsheim 2008).

However, previous studies explained that flow has five main components: control, enjoyment, concentration, skill and challenge (Wang and Hsiao, 2012; Chang, 2013). Therefore, this study focuses on all five components of flow. In addition, although recent studies emphasised the significant effect of ensuring a seamless flow between physical and digital channels in omnichannel experiences, they did not empirically test this effect (e.g. Kazancoglu and Aydin, 2018; Bèzes, 2019; Wang and Hsiao, 2012). The majority of the previous studies that empirically tested the effects of flow focused on online settings only (e.g. Hoffman and Novak, 1996; Novak et al., 2000; Rose et al., 2012; Bridges and Florsheim 2008; Novak et al., 2000; Schouten et al., 2007).

Trust-commitment theory explains that trust and relationship commitment play key roles in the process of developing a relationship between customers and retailers (Morgan and Hunt, 1994). Furthermore, Wang et al. (2019) explained that trust helps to build a relationship commitment between customers and retailers, online and on social media. The authors highlighted the role of privacy issues, including privacy control, which may raise concerns; in particular, the fact that consumers have a low level of control over how their data is used by retailers. Given that smart shopping malls use a variety of technologies and that shoppers are aware that their data is being used, factors such as trust and commitment can play important roles and should be studied further.

The research model

Our proposed model acknowledges the role of technology in modern shopping malls and draws on the service encounter model (Bitner et al., 1997), trust-commitment theory (Morgan and Hunt, 1994), flow theory (Csikszentmihalyi, 1990) and experiential value theory (Mathwick et al., 2001). Therefore, we classify service encounters in our proposed model into three dimensions. The first of these is personal interaction encounters: efficiency and service excellence (Keng et al., 2007). The second is physical environment encounters: diversity, luxury, aesthetics, comfort and convenience (El-Adly, 2007; Keng et al., 2007). The third is virtual environment encounters: interface design, personalisation, trust, privacy, consumer-peer interaction and relationship commitment (Ariff et al., 2013; Chellappa and Sin, 2005; Mun et al., 2006; Wang et al., 2019). In addition, the model integrates flow as a factor mediating the effects of the three encounters and customers' intention to revisit smart shopping malls.

There were three reasons for integrating the service encounter model (Bitner et al., 1997), trust-commitment theory (Morgan and Hunt, 1994), flow theory (Csikszentmihalyi, 1990) and experiential value theory (Mathwick et al., 2001). First, each theory is relevant to the context of this research. The service encounter model (Bitner et al., 1997; Keng et al., 2007) is one of the pioneering models to focus on personal interaction encounters and physical environment encounters in shopping malls. Trust-commitment theory (Morgan and Hunt, 1994) has been applied in studies concentrating on online environments (e.g. Wang et al., 2019). Furthermore, it focuses on trust and privacy: aspects that are important in the context of smart shopping mall experiences, given that shoppers' data is gathered when they use different technologies in these malls. In addition, flow theory (Csikszentmihalyi, 1990) focuses on an important aspect of customer experience, flow, which has mainly been studied in the context of online experiences (e.g. Hoffman and Novak, 1996; Novak et al., 2000; Rose et al., 2012; Bridges and Florsheim 2008; Novak et al., 2000; Schouten et al., 2007). This is despite the fact that flow can also apply to omnichannel experiences (Kazancoglu and Aydin, 2018; Bèzes, 2019). Second, the integration and extension of these theories bridges a gap in the literature, as it provides a better understanding of the customer omnichannel experience in modern shopping malls. By combining virtual environment encounters, personal interaction encounters and physical environment encounters and by studying the mediating role of flow, it is possible to provide a more in-depth understanding of the customer experience in smart shopping malls. Third, factors such as interface design, innovativeness, personalisation, trust, privacy, consumer-peer interaction, relationship commitment and flow have been highlighted as significant in the study of online shopping experiences (Lee and Chung, 2008; Chaouali and Souiden, 2019; Kannan, 2017; Martin and Murphy, 2017; Park and Kim, 2018; Trivedi and Trivedi, 2018; Wang et al., 2019; Shen et al., 2018). However, these factors have not yet been studied in the context of smart shopping mall omnichannel experiences. Studying the effects of these factors on customers' use of different advanced technologies in smart shopping malls is important, as it bridges a gap in the literature on service encounters in such an environment. Therefore, we propose the smart shopping mall omnichannel customer experience (SSMCE) model.

Hypothesis development

This section outlines the hypotheses developed in this research. Figure 1 depicts the proposed model.

Insert Figure 1 here

Personal interaction encounters

Personal interaction encounters refer to the time during which customers interact with service personnel. Customers' assessments of the quality of these encounters are based on the service provider's competence, listening skills and level of dedication (Keng et al., 2007). Personal interaction encounters encompass efficiency and service excellence (Keng et al., 2007). Efficiency is a dimension of customer experiential value (Varshneya et al., 2017). It refers to the consumer return on investment (CROI) provided by a shopping experience. The consumer's investment may include their economic, time, temporal, behavioural and psychological resources, and this may result in a positive shopping experience (Keng et al., 2007). Efficiency has been classified as an extrinsic factor affecting the customer shopping experience in shopping malls (Wu and Liang, 2009). Previous studies highlighted this factor has a more significant role than design and aesthetics in service marketing (Varshneya et al., 2017). When customers shop in shopping malls, they expect the outcomes (CROI) of their shopping experience to be positive, whether that experience involves online, mobile or offline shopping, or a combination of these. Providing CROI could also involve providing offers and discounts, giving good advice, solving shopping problems and providing fast and friendly customer service (Keng et al., 2007). Thus, efficiency is linked to the integration of different technologies and personal interactions in a way that enables customers to evaluate their shopping experience as efficient. This factor can have a significant effect on customers' behavioural intention towards the use of smart shopping malls, because when customers are able to identify positive outcomes from their shopping experience, they are likely to have stronger intentions of repeating it. Therefore, we propose:

H1a. The efficiency of the shopping experience will have a significant positive effect on behavioural intention towards shopping in smart shopping malls.

Service excellence has been classified as an extrinsic and reactive factor, and it is part of the reactive side of customer experience (Keng et al., 2007). It refers to the courtesy, attitude, knowledge and friendliness of personnel, all of which can have a significant effect on customers' intention towards shopping in smart malls (Calvo-Porrall and Lévy-Mangin,

2019; Haj-Salem et al., 2016). From the perspective of retailers, the frontline salesperson is an important differentiator in creating value for customers (Hughes et al., 2019). Previous studies in retail marketing showed that when shopping malls provided a quality service by understanding customers' needs and preferences and giving them quick and effective solutions, this increased customer satisfaction, which was an important factor in determining customers' intentions to use a shopping mall again (Varshneya et al., 2017). Therefore, we hypothesise:

H1b. Service excellence provided by the service provider will have a significant positive effect on behavioural intention towards shopping in smart shopping malls.

Physical environment encounters

The physical environment of a shopping mall refers to the general atmosphere of the mall as perceived by consumers; namely, the appearance of outdoor areas, the shape and internal designs, the colours and lighting, and the décor and aroma (Calvo-Porrall and Lévy-Mangin, 2019). Previous studies explained that the physical environment may offer clues concerning the impact of the image of brands and shopping malls, because this environment affects customer satisfaction (Baker et al., 2002; Ryu and Han, 2011; Wu and Liang, 2009). The physical environment of the shopping mall consists of three elements: ambient elements; spatial layout and functionality; and signs, symbols and artifacts (Bitner, 1992; Calvo-Porrall and Lévy-Mangin, 2019). Following the work conducted by Keng et al. (2007) and El-Adly (2007), the physical environment factors included in this study are diversity, luxury, aesthetics, comfort and convenience.

The diversity of the shopping mall's physical environment refers to the variety of restaurants, stores, food and cinemas provided by the mall to satisfy shoppers from different cultures, nationalities and backgrounds (El-Adly, 2007; Kusumowidagdo et al., 2016). This factor was found to be important in previous studies on customers' use of shopping malls (Kusumowidagdo et al., 2016). The diversity of stores, food outlets and entertainment in the mall contributes to customers' overall perception of a pleasant shopping environment (El-Adly, 2007). In fact, diversity in the physical environment was found to increase customers' desire and intention to stay for longer and to visit again (Ryu and Han, 2011). Such diversity helps to enhance the inclusion of customers from different backgrounds and tourists from different destinations. Thus, we hypothesise:

H2a. Diversity in the physical environment will have a significant positive effect on behavioural intention towards shopping in smart shopping malls.

Luxury in the shopping mall's physical environment was found to be an important factor in determining customers' shopping intentions (Lee, 2015). The level of luxury is the sum of the visual and semantic cues in the shopping mall. It is also linked to the presence of luxury brands in the mall (Lee, 2015). In the context of a mall's physical environment, luxury is linked to the location of the mall, the design of the outside and inside of the mall, and the luxuriousness of the retailers and services provided. Therefore, luxury is one of the main factors defining the attractiveness of a shopping mall to customers (El-Adly, 2007). In addition, previous studies highlighted that luxury retail has a positive influence on customer experiential value (Varshneya et al., 2017). Hence, the luxury of a shopping mall's physical environment can have a positive effect on customers' behavioural intention to use the mall. Thus, we hypothesise:

H2b. The luxury of the physical environment will have a significant positive effect on behavioural intention towards shopping in smart shopping malls.

In the context of retail marketing, aesthetics can be viewed as relevant visual elements of the retail environment (Mathwick et al., 2001). Previous studies found that the aesthetics of the décor, food, architecture, design and layout of the mall were important elements of the customer shopping experience (Wu and Liang, 2019). Perceived aesthetic value has been classified as a reactive-intrinsic factor (Keng et al., 2007). Previous studies showed that perceived aesthetic value can play an important role as a marketing tool, because it affects the following customer responses: intentions, attitudes, pleasure, emotions, price perceptions, value perceptions, satisfaction, and behaviour (Ryu and Han, 2011). Therefore, we hypothesise:

H2c. The aesthetics of the physical environment will have a significant positive effect on behavioural intention towards shopping in smart shopping malls.

Comfort refers to the elements of comfort provided by cafes, restaurants and other retailers in the shopping mall, all of which are linked to positive appraisals of a mall and increase the chances of customers visiting it again (Baker et al., 2002; Haj-Salem et al., 2016). El-Adly (2007) explained that comfort includes attributes related to security, parking spaces, temperature, cleanliness, and attributes that meet the needs of families. It is also

linked to the design, décor, lighting, furniture, layout, facilities and seating arrangements (Ryu and Han, 2011; Haj-Salem et al., 2016). El-Adly (2007) found that comfort is one of the most significant factors for shoppers when considering the physical environment of a shopping mall, as it can determine customers' evaluation of the mall's quality and, in turn, their intention to use the mall again. This is particularly important for families with children (El-Adly, 2007). Accordingly, we hypothesise:

H2d. The comfort of the physical environment will have a significant positive effect on behavioural intention towards shopping in smart shopping malls.

Convenience in the context of the shopping mall's physical environment refers to the convenience of using, and the ease of access to, the facilities, stores and retailers in the mall (Keng et al., 2007). Due to changing consumer needs, shopping malls have grown larger and the convenience of one-stop shopping has expanded to include service outlets and entertainment providers (Jackson et al., 2011; Keng et al., 2007; Wu and Liang, 2009). Customers are using shopping malls as meeting points and as places to have fun and relax in addition to doing their shopping (Keng et al., 2007). When considering the presence of online shopping, which is considered to be convenient for customers because it is enabled by technology and products are delivered at a convenient time and place, convenience in the shopping mall becomes an even more significant factor (Varshneya et al., 2017). Previous studies found that customers' choice of shopping mall is dependent on convenience and that this is especially important for older shoppers (Jackson et al., 2011). Therefore, convenience is an important factor that can affect customers' intention to use shopping malls. Thus, we hypothesise:

H2e. Convenience will have a significant positive effect on behavioural intention towards shopping in smart shopping malls.

Virtual environment encounters

In the era of new and advanced technologies, shopping malls are no longer described as providing an offline shopping experience, as digitisation is transforming the retailing ecosystem (Park and Kim, 2018). In smart shopping malls the virtual environment integrates different technologies, including mobile applications, smartboards, social media, virtual reality and AI (Park and Kim, 2018). The integration of the virtual environment and the physical environment in a mall helps to create an omnichannel customer experience, where

customers switch between the mall's online and offline channels in a harmonised way (Harris et al., 2018). For example, when customers enter the shopping mall and want to search for a retail store, food court or facility, they can use smartboards and store finders to look for it and find the shortest route to it. Customers can also use a mobile device to search for an item (and any offers on it) in a store before visiting to look at the item and possibly buy it. In previous studies in retail marketing literature, a number of factors were consistently found to be important in virtual environment encounters where customers interacted with technology as part of their experience of shopping in a mall (Limbu et al., 2011; Park and Kim, 2018). In this study, the factors included in virtual environment encounters are interface design, personalisation, trust, privacy, consumer-peer interaction and relationship commitment. These factors were found to be significant in previous studies of online retail environments (Ariff et al., 2013; Chellappa and Sin, 2005; Wang et al., 2019).

The first factor, interface design, refers to the appeal of the shopping mall's user interface and whether its design increases customers' willingness to use the technology more often (Ariff et al., 2013). The design of a technology interface, whether it is mobile application, a website, virtual reality or a smartboard, can have a significant effect on customers' intention to use that technology to shop (Ariff et al., 2013; Lee and Chung, 2008). An attractive user interface increases customer satisfaction (Lee and Chung, 2008). The interface design of the different technologies used in a shopping mall's virtual environment is different from the traditional user interface in an ordinary shopping mall. A user interface consists of a physical medium and content presentation interface elements (Kourouthanassis et al., 2015; Ameen et al., 2020; Ameen et al., 2018a). Recent literature on consumer interaction with different technologies for shopping purposes highlighted the importance of providing a user-friendly, easy-to-use, clear design and understanding customers' needs (Ariff et al., 2013, Kourouthanassis et al., 2015). This is because elements of the interface design increase customer participation by regularly presenting details about products in the shopping mall and other information, resulting in consumers processing the information faster and more actively (Lee and Chung, 2008). Regardless of the variety of technologies that can be used in shopping malls, the quality of the interface design remains an important factor that should be consistent across these technologies (Kourouthanassis et al., 2015; Lee and Chung, 2008). Accordingly, we hypothesise:

H3a. The interface design of the technologies used in the virtual environment will have a significant positive effect on behavioural intention towards shopping in smart shopping malls.

Personalisation refers to the degree to which information is tailored to meet the needs of the individual user, and it is an important determinant of positive experiences (Bilgihan et al., 2016, p.110). It is based on how data-mining techniques are used to tailor the service provided to customers in order to meet their needs and preferences, which leads to a higher level of interest in shopping. Personalisation was found to be an important factor in determining a positive customer experience when using different technologies in shopping (Trivedi and Trivedi, 2018). The use of technology to provide customers with a personalised shopping experience can enhance informativeness, credibility, intention and pleasure (Kim and Han, 2014). Therefore, it is essential for marketing methods to adhere to consumer profiles and patterns of need and consumption (Kim and Han, 2014). Personalisation is based on customer demographics, preferences, context and content (Xu et al., 2008). In the context of smart shopping malls, meeting customers' preferences in terms of products, services, retail stores, cafes and restaurants, and social and entertainment activities can play an important role in creating a pleasant shopping experience for customers and can increase their intention to shop in smart malls. Thus, we hypothesise:

H3b. Personalisation of the customer shopping experience using technologies as part of the virtual environment will have a significant positive effect on behavioural intention towards shopping in smart shopping malls.

Online trust is defined as an attitude of confident expectation that in an online situation of risk, one's vulnerabilities will not be exploited (Park and Kim, 2018). It extends to trusting the brand as well as the technology (Park and Kim, 2018). These points accentuate the complicated nature of trust in digital commercial exchanges and when collecting data about consumers. Trust in the context of mobile technology for shopping is even more complicated, because it consists of trust in the retailer and trust in mobile-related aspects (Yeh and Li, 2009). Previous studies provided insights into consumer behaviour and trust of processes in a digital environment (Kannan, 2017; Park and Kim, 2018; Ameen et al., 2018b; Ameen, 2017). Within the context of the smart shopping mall omnichannel experience, shoppers' trust in using multiple channels via the different technologies in the shopping mall can play an important role in their shopping experience. Therefore, we hypothesise:

H3c. Trust in technologies used in the virtual environment will have a significant positive effect on behavioural intention towards shopping in smart shopping malls.

Privacy as part of consumers' perception of a retailer's ethics is a crucial factor in the use of technology while shopping (Limbu et al., 2011). This is because consumers share their personal and financial data with shopping malls and retailers each time they interact with a mall's technology, and they expect that information to be treated confidentially (Limbu et al., 2011; Martin and Murphy, 2017). Bart et al. (2005) described privacy when interacting with retailers' digital technologies for shopping purposes as consumers' perceptions of the protection of individually identifiable information on the internet. The information shared by consumers when using various technologies is protected under the General Data Protection Regulation (GDPR), which was introduced for companies in Europe and has an impact on companies in other countries that deal with consumers from Europe (Zalewski, 2019). This regulation has had a significant impact on digital marketing in retail and on consumers' privacy concerns (Sand, 2018). When shopping malls and retailers introduce new technologies, such as AI, virtual reality and robotics, this may add to customers' concerns about the privacy of their personal information if they lack knowledge and experience in how these technologies gather and use their data (Deane, 2018). Hence, this factor can have a significant effect on customers' intention towards the use of different digital technologies as part of the virtual environment in shopping malls. Thus, we hypothesise:

H3d. Privacy will have a significant positive effect on behavioural intention towards shopping in smart shopping malls.

Consumer-peer interaction refers to consumers' perceived intensity of their social connections with their peers (Wang et al., 2019). This factor stems from trust-commitment theory, and it acknowledges the power of customers' social interactions in shopping and building brand value (Morgan and Hunt, 1994). Many retailers and shopping malls are now utilising social commerce sites to interact with their clients and to advertise products and services (Wang et al., 2019). Since consumers provide feedback on their shopping experience and share it with other consumers, shopping malls and retailers can record and analyse such data to improve the quality of their customer service (Wang et al., 2019). Consumers share their shopping experiences and interact with others on social commerce platforms to exchange information about products and services. This leads consumers to develop and maintain close relationships with each other, satisfying their need for relatedness (Wang and

Li 2016). When consumers share their experiences of a smart shopping mall and provide positive or negative feedback, the influence of their opinions can affect other consumers' intention to use the mall; therefore, consumer-peer interaction is an important marketing issue for retailers and shopping malls (Libai et al., 2010). Therefore, we hypothesise:

H3e. Consumer-peer interaction using technologies as part of the virtual environment will have a significant positive effect on behavioural intention towards shopping in smart shopping malls.

Moorman et al. (1992) explained that relationship commitment refers to an enduring desire to maintain a valued relationship, and this plays a key role in determining customers' behavioural intention. This factor stems from trust-commitment theory (Morgan and Hunt, 1994). Morgan and Hunt (1994) explained that consumers can become more interested in interacting with retailers and building relationships with them. This sort of relationship was found to be particularly important in technology-mediated communications between brands and customers (Park and Kim, 2018; Wang et al., 2019). According to Morgan and Hunt (1994) explained that the degree to which a consumer believes that an ongoing relationship with a retailer is important affects the amount of effort they put in to maintaining it and whether they continue to shop there. Similarly, consumers can become more committed to their relationship with smart shopping malls by using the technologies provided as part of the virtual environment. Relationship commitment is an outcome of long-term satisfactory interactions between customers, shopping malls and retailers (Wang et al., 2016). It leads customers to assume that there are no alternatives that would provide similar benefits, so customers are less likely to shift to online or mobile shopping instead of shopping in shopping malls. Thus, we hypothesise:

H3f. Relationship commitment between customers and smart shopping malls will have a significant positive effect on behavioural intention towards shopping in these malls.

The mediating effects of flow

Previous studies examined the effects of flow experience, either by analysing its direct effects (Wang and Hsiao, 2012) or as a mediating factor (e.g. Rose et al., 2012; Chang, 2013; Liu et al., 2016). In this study, we propose that flow mediates the effects of (a) personal interaction encounters, (b) physical environment encounters, and (c) virtual environment encounters on

smart mall shopping intention. More specifically, we propose that the effects of these three types of encounters are strengthened by the presence of flow.

We propose that flow mediates the effects of personal interaction encounters (efficiency and service excellence), and smart mall shopping intention. Customers' sense of efficiency in terms of the return on the economic, time, temporal, behavioural and psychological resources they invest in shopping is strengthened when they have sufficient skills, are challenged in a balanced manner, are more absorbed in the experience and feel that they are enjoying their shopping experience (Wang and Hsiao, 2012). In addition, customers who experience flow are more able to identify the return on their investment in their smart shopping mall experience; in turn, this increases their intention to revisit the mall. Similarly, customers who experience flow in their shopping experience become more aware of the courtesy, attitude, knowledge and friendliness of retail personnel (Wang and Hsiao, 2012). The services offered by personnel in smart shopping malls can help customers reach a state of flow, as these services allow customers to overcome any challenges associated with shopping at different touchpoints of their journey and to become more skilful in switching between channels. This, in turn, increases customers' intention to revisit the mall. Thus, we hypothesise:

H4a. Flow mediates the effects of personal interactions encounters (efficiency and service excellence) and smart shopping mall intention.

Previous studies found that the feeling of enjoyment and being absorbed in the shopping experience, which are part of flow, increased customers' perceptions of diversity and luxury and strengthened their level of engagement with the shopping mall atmosphere (Rajagopal, 2009). In turn, this affects intention. In the context of smart shopping malls, a flow experience mediates the effects of diversity and luxury on shoppers' intention to revisit a smart mall. Previous studies highlighted that individuals who enjoy aesthetics experience flow in terms of openness to experience, inspiration, curiosity and exploration (Wanzer et al., 2020). Such aspects of flow can then increase customers' intention to revisit a smart mall. In addition, the comfort that customers feel in a smart shopping mall's physical environment (in terms of its design, décor, lighting, furniture, layout, facilities and seating arrangements) produces certain behavioural effects in shoppers; for example, it evokes enjoyment, which is a component of flow (Darden and Babin 1994; Babin and Attaway, 2000; Ong et al., 2012). Therefore, when shoppers experience flow in smart shopping malls, their feelings of comfort

are heightened and their intention to revisit is stronger. Similarly, the state of flow is evoked when shoppers experience convenience in smart shopping malls (Ong et al., 2012). As shoppers feel less challenged and their enjoyment levels rise as part of the flow experience, their intention towards revisiting the smart shopping mall increases. Thus, we hypothesise:

H4b. Flow mediates the effects of physical environment encounters (diversity, luxury, aesthetics, comfort and convenience) and smart mall shopping intention.

A high-quality interface design helps individuals to feel less challenged and more skilled and to have clearer goals; hence, it has a positive effect on flow (Ozkara et al., 2017). In addition, a previous study on customer experiences online highlighted the importance of ease of use and navigation in creating a flow experience (Wu and Chang, 2006). When individuals experience this flow in a smart mall, they feel less challenged and have a higher level of concentration, which increases their intention to revisit. In addition, the provision of personalised information may reduce the effort that users have to exert when searching for information; thus, it initiates a flow experience by reducing the challenges and difficulties that customers may face when searching for information and by enabling them to enjoy their experience more and concentrate better (Zhou, 2019). Fewer challenges and greater enjoyment and concentration increase customers' intention to revisit a smart shopping mall. Furthermore, the presence of flow reduces uncertainty, complexity and feelings of insecurity, all of which can affect concentration levels; therefore, flow strengthens the effects of trust and privacy on shoppers' intention to revisit a smart mall (Wu and Chang, 2006). In addition, as customers' enjoyment increases through their flow experience, so do their interactions in communities on social media (Zhang et al., 2014). This, in turn, increases their intention to revisit the smart mall. Finally, experiencing flow strengthens customers' relationship commitment to smart malls, which strengthens their intention to revisit the mall. Thus, we hypothesise:

H4c. Flow mediates the effects of virtual environment encounters (interface design, personalisation, trust, privacy, consumer-peer interaction and relationship commitment) and smart mall shopping intention.

Smart mall omnichannel service usage

Previous studies highlighted the significant effects of flow on customers' behavioural intention (Novak et al., 2000; Siekpe, 2005; Obada, 2013). Ozkara et al. (2017) found that

behavioural intention is significantly affected by flow as a multidimensional factor of enjoyment, control, concentration, time distortion and curiosity. The psychological state of flow influences customers' exploratory behaviours and attitudes in relation to online purchases (Chang, 2013). In addition, we propose that a flow experience in personal interactions, physical environment encounters and virtual environment encounters has a significant direct effect on omnichannel service usage. This is because customers experience flow in terms of being able to concentrate, feeling that they are skilled and absorbed, feeling in control, being less challenged and enjoying the experience (Hoffman and Novak, 1996). Such feelings evoke customers' usage of smart mall omnichannel services. Therefore, we propose the following hypotheses:

H5a. Flow will have a significant positive effect on smart mall shopping intention.

H5b. Flow will have a significant positive effect on smart mall omnichannel service usage.

The effect of intention on usage behaviour is acknowledged in existing theories, such as the theory of reasoned action (Fishbein and Ajzen, 1975) and the theory of planned behaviour (Ajzen, 1991). In the context of this research, when shoppers' intention to revisit a smart mall is strong, their use of the omnichannel services available in these malls increases. Thus, we hypothesise:

H6. Smart mall shopping intention will have a significant effect of smart mall omnichannel service usage.

Methodology

Measurement items

The items for the factors of efficiency, service excellence, aesthetics and behavioural intention were adopted from studies conducted by Mathwick et al. (2001) and Keng et al. (2007). The items for comfort, convenience, diversity and luxury were adopted from El-Adly's (2007) study. The items for interface design were adopted from Ariff et al.'s (2013) study. The items for personalisation and privacy were adopted from a study by Chellappa and Sin (2005). The items for trust, consumer-peer interaction and relationship commitment were adopted from Wang et al.'s (2019) study. The items for flow were adopted from studies by

Zhang et al. (2014) and Wang and Hsiao (2012). Finally, the items for omnichannel service usage were adopted from Shen et al.'s (2018) study. A seven-point Likert scale was used in this study, where 1 referred to "strongly disagree" and 7 referred to "strongly agree".

Appendix A shows the factors included in the study, their items and the source of each item.

Participants

The target participants were people who had shopped in Westfield London, a shopping mall in the UK. Westfield London is one of the largest and most advanced shopping malls in Europe, with over 450 retail stores and more than 20,000 personnel (Hendriksz, 2018; Santamaria, 2018). The management of Westfield recently announced its 2028 vision for the mall (Hendriksz, 2018). According to the vision, hanging sensory gardens, AI-infused walkways and dedicated wellness initiatives will be integral parts of the shopping centre (Santamaria, 2018). It is anticipated that technology will enable what Westfield is referring to as the 'Extra-perience' by providing customers with more information about their visit (Santamaria, 2018). Retailers in the mall have used technology to provide rewards at different points in the user experience cycle such as digital discounting and personalised offers to reward loyalty (Westfield, 2019). In addition, the management and retailers have started using AI, virtual reality and augmented reality technology to improve the customer shopping experience, and they expect the role of digital in the customer retail experience to become even more important in the upcoming years (Westfield, 2019). For example, in 2019 the shopping mall opened the first ever AI-powered store, which stocks items that are sold by retailers in the mall and are trending across social media in real time (Wightman-Stone, 2019). In addition, retailers such as Thomas Cook used virtual reality to provide customers with tasters of the holiday they might want to purchase, and Tommy Hilfiger used virtual reality in-store to bring their catwalk to life for customers (Westfield, 2019). Figure 2 shows examples of how technology is used in the Westfield London shopping mall.

Insert Figure 2 here

The data for this study was collected face to face using purposive sampling. This method allowed us to collect data from young consumers who shopped in the target shopping mall. In previous studies, purposive sampling proved to be effective with target samples that had

certain characteristics (Ndubuisi, 2006). In purposive sampling, the respondents are selected on the basis of particular qualities (Etikan et al., 2016). That is, they must meet certain criteria in order to be selected (Etikan et al., 2016). Therefore, it is different from convenience sampling, in which the participants are selected on the basis of their availability at a given time (Dörnyei, 2007). In this research, two criteria were used for selecting the participants. First, the participants had to be 23–38 years old in order to be classified as millennials (Dimock, 2019). Second, they had to shop in the target shopping mall: Westfield London in the UK.

There were three reasons for selecting participants aged 23–38 years. First, it is predicted that by 2020 millennials will account for nearly \$1.4 trillion in spending power (The Store Front, 2015). In addition, their spending patterns are different from that in other generations: they like to buy experiences, such as travel, entertainment and technology (The Store Front, 2015). Second, this segment of shoppers prefers to use technology as part of an in-store shopping experience, rather than relying on online shopping with no physical (in-store) interaction; for example, they like to use their phone to get information and pay while shopping in a store (Skeldon, 2018). Third, the buying decision-making process for millennials is different from that of previous generations: they require a unique, exciting and personalised shopping experience, which makes them a challenging segment for retailers in shopping malls (Oracle, 2015).

Using this purposive sampling method, we distributed 700 face-to-face questionnaires to participants in London in August 2019. After checking for missing data, unengaged responses and outliers (Hair et al., 2017) and confirming that the participants shopped in the selected shopping mall, 553 completed questionnaires were used in the analysis. The response rate was 79%. Distributing the questionnaires face to face helped us to achieve this high response rate. To evaluate the validity and reliability of the questionnaire used in this study, an initial pilot study was conducted in which data was collected from 25 customers in the UK. As a result, a few changes were made and some questions were added.

Sample characteristics

The descriptive statistics were obtained using the Statistical Package for the Social Sciences (SPSS) version 24 software. Table 2 shows the demographics of the respondents.

Insert Table 2 here

The results show that 43% of the respondents were 23–30 years old and 57% were 31–38 years old, while 49% of the respondents were male and 51% were female. In addition, 84% of the respondents were tourists visiting the UK, while 16% were residents in the country. The results also showed that 9% of the respondents shopped daily in shopping malls, 81% shopped weekly, 10% shopped monthly and none of them shopped annually. Furthermore, 64% of them shopped more often offline and the remaining 36% shopped more often online. In terms of the types of technology used while shopping, 58% indicated that they used smartphones and mobile applications, 4% used augmented reality, 14% used virtual reality, 8% used biometrics and 16% used all of these technologies.

Analysis and results

The initial screening and analysis were conducted by assessing common method bias and normality in the data (Hair et al., 2017). Because this study is quantitative and common method variance can be a problem in self-reported studies (Podsakoff et al., 2003), the study relied on Harman's single factor test. Common method bias was assessed using Harman's single factor test in SPSS. Upon the extraction of the squared loadings, the results showed that a single factor accounted for 19% of the variance, which is lower than the threshold value of 50% (Podsakoff et al., 2003). In addition, common method bias was assessed in Smart PLS software via the inner collinearity assessment function. The results showed that the inner variance inflation factor (VIF) values were lower than the threshold value of 3.3 (Petter et al., 2007).

The normality of the data was assessed using skewness and kurtosis in Smart PLS software. When skewness and kurtosis are present, it can be assumed that the data is not normally distributed. Values greater than 3.0 indicate that the data is skewed (Kline, 2005), and values of 8.0 or higher indicate extreme kurtosis, as suggested by West et al. (1995) and Kline (2005). The analysis showed that the collected data was not normally distributed.

The collected data was analysed using partial least squares-structural equation modelling (PLS-SEM) (Hair et al., 2017). There were three main reasons for choosing this

method of analysis. First, PLS-SEM makes it possible to analyse non-normally distributed data, which was the case for the collected data in this research (Hair et al., 2017). Second, this method can handle single item factors in an analysis of a structural model (Afthanorhan, 2014). Third, when used with complex models, PLS-SEM is more effective than covariance-based structural equation modelling (CB-SEM) (Hair et al., 2017). Therefore, the use of PLS-SEM in this study was justified. The PLS-SEM analysis included an assessment of the measurement model, followed by an assessment of the structural model (Hair et al., 2017).

Assessment of the measurement model

The measurement model was tested by assessing the convergent validity, discriminant validity and reliability (Hair et al., 2017). Table 3 shows the assessment of average variance extracted (AVE), Cronbach's alpha and composite reliability. In terms of convergent validity, the AVE values were above the threshold value of .5 (Fornell and Larcker, 1981). In addition, the composite reliability values were all above the threshold value of .7 (Urbach and Ahlemann, 2010). The values for Cronbach's alpha were at or higher than the threshold value of .7 (Urbach and Ahlemann, 2010).

Insert Tables 3 and 4 here

Discriminant validity was also checked by assessing the cross-loadings and the Fornell-Larcker criterion (Urbach and Ahlemann, 2010). Tables 3 and 4 show the values of the Fornell-Larcker criterion. The assessment of the cross-loadings shows that each construct loads higher on its own indicators than on the indicators of the other constructs, and there are no issues in terms of discriminant validity (Hair et al., 2017). Some of the loadings were lower than .7, so they were deleted (Hair et al., 2017).

Assessment of the structural model

The structural model was examined by assessing the significance of the relationships in the model ($p \leq .05$) and the predictive power of the model's R^2 value (the cut-off levels are .190 weak; .333 moderate; and .670 substantial) (Hair et al., 2017). Table 5 shows the results of the assessment of the structural model.

Insert Table 5 here

The significance and magnitude of the hypothesised relationships in the structural model were assessed by following the bootstrapping procedure in PLS (Hair et al., 2017). The results show that all but three of the hypotheses are supported, as the p values are lower than or equal to .05. The three exceptions are H1a (efficiency \rightarrow behavioural intention: p value = .77), H2b (luxury \rightarrow behavioural intention: p value = .36) and H2e (comfort \rightarrow behavioural intention: p value = .49). In addition, the results show that the proposed model has a strong predictive power for smart mall shopping intention to revisit and for omnichannel service usage. The results show that the R^2 value is .78, suggesting that the model is able to predict 78% of smart mall shopping intention to revisit. In addition, the R^2 value for omnichannel service usage is .59, suggesting that the model is able to predict 59% of omnichannel service usage.

Assessment of the mediating effects of flow

Mediation analyses establish whether the relationships between the independent variables (predictors) and the dependent variable are direct or indirect (Iacobucci et al., 2007). This study hypothesises that flow mediates the effects of personal interaction encounters, physical environment encounters and virtual environment encounters. The mediation effects were assessed using Preacher and Hayes's (2008) bootstrapping method with bias-corrected, 95% confidence intervals and 5,000 iterations to test the significance of the indirect effects. If the indirect effect is significant and the confidence interval is not zero, mediation is supported (Zhao et al., 2010). Table 6 shows the results of the assessment of the mediation effects.

Insert Table 6 here

The bootstrap results show that flow mediates all the hypothesised relationships in the proposed model except the paths of luxury ($\beta = 0.04$, $p = 0.053$; CI = 0.06 to 0.19), comfort ($\beta = 0.01$, $p = 0.43$; CI = 0.00 to 0.01) and consumer-peer interaction ($\beta = 0.02$, $p = 0.07$; CI = 0.13 to 0.56) towards intention.

Discussion

Our holistic, conceptual model sheds new light on customer omnichannel experiences in smart shopping malls by drawing on distinct theories: the service encounter model (Solomon et al., 1985), trust-commitment theory (Morgan and Hunt, 1994), flow theory (Csikszentmihalyi, 1990) and experiential value theory (Mathwick et al., 2001). Using PLS-SEM, we examined the integration of personal interactions, physical environment and virtual environment encounters and the mediating role of flow experience on the effects of these three types of encounters on smart mall shopping intention. Our findings add interesting insights to the literature on the mediating role of flow in omnichannel customer experiences, in which physical and online shopping are integrated to create a seamless experience for customers. Given that the majority of the factors proved to be significant, the findings show that our proposed model fits well.

The assessment of the effects of personal interaction encounters provided some interesting findings. Surprisingly, our findings revealed that the efficiency of the service provided by the shopping mall's service provider did not have a significant effect on behavioural intention towards shopping in smart shopping malls. This contradicts the findings of previous studies, which highlighted the importance of providing an efficient service in shopping malls (Keng et al., 2007; Varshneya et al., 2017). This is possibly because customers find the excellence of the service in terms of competence, understanding and helpfulness important rather than generally solving problems and providing offers. Service excellence, in terms of personal service and interaction with the service provider is a significant factor for customers in the UK. This is consistent with the findings of previous studies on shopping mall interaction (Calvo-Porrá and Lévy-Mangin, 2019; Haj-Salem et al., 2016).

For smart shopping malls, service excellence is at the core of personal interaction encounters. All of the physical environment encounters were significant except for luxury and comfort. The findings also show that diversity in shopping malls plays an important role in physical environment encounters. Diversity helps to increase customers' desire and intention to stay for longer and repeat their visit (Ryu and Han, 2011). However, our analysis contradicted the findings of previous studies, which highlighted the significance of the luxury

of the shopping mall's physical environment, visual and semantic cues, luxury brands and the luxury service provided in the mall (e.g. Lee, 2015). The insignificant effects of luxury maybe linked to the shift in millennial customers' behaviour and preferences as they seem to prefer having a digitally-enabled experience in shopping malls rather than just enjoying luxury (Boykiv, 2017). In this study, despite luxury not having a significant impact, the aesthetic and relevant visual elements of the retail environment proved to be significant. These findings show that the décor, food, architecture, design and layout of the shopping mall, which were found to be important elements of the customer shopping experience in previous studies (Wu and Liang, 2009), are still significant. In other words, despite the emergence of online and mobile technologies as part of the shopping experience, customers are still aware of and affected by the physical retail environment that surrounds them.

The findings of this study show that comfort is insignificant among customers. This is surprising, given that our target sample was made up of millennials, many of whom have children, and considering that comfort was highlighted as one of the most significant factors in previous studies on shopping mall patronage (El-Adly, 2007; Ryu and Han, 2011; Haj-Salem et al., 2016). The absence of the significant effect of comfort in the context of our study is possibly due to customers placing a high significance level to having convenient experiences in shopping malls (Wu and Liang, 2009). Nevertheless, the findings revealed that convenience is an important factor for customers. This is linked to the ever-changing needs of customers, which have resulted in shopping malls growing larger. As such, the convenience of one-stop shopping has expanded to include service outlets, retailers and entertainment providers (Jackson et al., 2011). Overall, the results show that physical environment encounters play a significant role in the success of smart shopping malls.

Our findings suggest that virtual environment encounters are also an important part of the customer shopping experience in smart shopping malls. Our analysis of the virtual shopping environment extended trust-commitment theory (Morgan and Hunt, 1994) by integrating trust, privacy, consumer-peer interaction, relationship commitment, interface design and personalisation. The interface design of the different technologies used in smart shopping malls and retailers, including mobile, online, virtual reality and smartboards, plays a significant role in customers' intention to shop using these technologies and in encouraging customers to visit more often. This confirms the findings of previous studies on the

significance of providing a user-friendly design for different technologies (Ariff et al., 2013; Lee and Chung, 2008).

Using technologies to provide customers with a personalised experience that is based on their needs and preferences is viewed as an important predictor of customers' intention towards shopping in a smart shopping mall. This links to the findings of a previous study conducted by Kim and Han (2014). Thus, it is important to track consumer profiles, consumption patterns and customer needs. However, the findings show that customers are sensitive to how their information is used by shopping malls and retailers. This may also be linked to how consumers rate the reliability of the technologies used in smart shopping malls, as trust was also a significant factor in the context of virtual shopping encounters. This extends the findings of the previous literature, which highlighted the role of trust in online and mobile shopping (Kannan, 2017; Park and Kim, 2018; Yeh and Li, 2009). The findings reveal that trust plays a significant role in the omnichannel customer experience in smart shopping malls.

Interestingly, the findings show that consumers' interaction with other shoppers on social media has a significant effect on their intention towards shopping in smart shopping malls. In addition, customers' commitment to their relationships with retailers on social media is a significant determinant of their behavioural intention towards shopping in smart shopping malls. These findings extend those of previous studies that focused on consumer-peer interaction and relationship commitment in the context of smart shopping malls (e.g. Park and Kim, 2018; Wang et al., 2019). Overall, our findings reveal the significance of most of the factors proposed in this study as part of personal interaction, physical environment and virtual environment encounters in smart shopping malls.

In addition to the direct effects discussed above, the findings of this study show the mediating effects of flow on the relationships between personal, physical and virtual environment encounters and smart mall shopping intention. By showing that flow is a significant mediator in omnichannel experiences, our findings extend the knowledge on the mediating role of flow in online environments (e.g. Rose et al., 2012; Chang, 2013; Liu et al., 2016). Our findings reveal that the state of flow, which helps customers to navigate smoothly through the different touchpoints in their journey and increases their intention to revisit smart shopping malls. Maintaining flow in smart mall omnichannel experiences via control, skill, challenge, enjoyment and concentration helps shoppers to become more active, more satisfied

and less self-conscious when switching between different channels. In addition, our findings show that flow has a significant direct effect on omnichannel service usage in smart malls. When shoppers have sufficient skills, are challenged in a balanced manner, are more absorbed in the experience and feel that they are enjoying their shopping experience, they are less disrupted by switching between different touchpoints in a smart shopping mall.

Theoretical contributions

This study offers three main theoretical contributions to existing literature. First, it proposes a conceptual model: the smart shopping mall omnichannel customer experience (SSMCE) model, which models and conceptualises the customer experience in smart shopping malls. The SSMCE combines theories in marketing literature: the service encounter model (Solomon et al., 1985), trust-commitment theory (Morgan and Hunt, 1994), flow theory (Csikszentmihalyi, 1990) and experiential value theory (Mathwick et al., 2001). Moreover, it contributes to the literature by revealing the mediating role of flow in shoppers' omnichannel experience in smart malls. The study offers a more holistic model that acknowledges the complex nature of smart shopping malls, in which customers receive different services at different points of interaction.

Second, to the best of our knowledge, this is a pioneering study of the mediating role of flow in omnichannel experiences in smart shopping malls. Our findings extend those of previous studies on the mediating role of flow in online environments (e.g. Rose et al., 2012; Chang, 2013; Liu et al., 2016). The study shows how flow acts as a significant mediating factor when the physical and virtual environments are combined in shopping malls. It examined the effects of the five main components of flow: control, skill, challenge, enjoyment and concentration. The findings revealed that all these components are important for a seamless shopping experience in smart shopping malls.

Third, the research addressed a gap in the literature in terms of focusing on the customer experience in new and advanced shopping malls by studying how flow mediates the effects of physical and virtual encounters. Most previous studies focused on either the customer shopping experience in shopping malls (e.g. Keng et al., 2007; Merrilees and Miller, 2019) or the customer online shopping experience (e.g. Ansari and Qadri, 2018; Mou and Shin, 2018). However, as explained by Shi et al. (2019) and Helm et al. (2018), new advanced shopping malls are no longer considered to be purely for offline (in-store)

shopping. Therefore, there is a requirement to integrate the factors that can influence customers' omnichannel shopping experience in smart shopping malls. Although some previous studies focused on multichannel retailing (Beck and Rygl, 2015), there is a research gap in the transition from multichannel to omnichannel retailing (Verhoef et al., 2015; Yurova et al. 2017). The findings of this study extend the findings of those studies by revealing that the careful integration of these three types of encounters with the presence of flow provides a more in-depth understanding of the omnichannel customer experience in smart shopping malls. The findings suggest that omnichannel retailing creates a more seamless shopping experience for customers.

Practical implications

Our research assists shopping mall management teams and retailers to reach a better understanding of customer experience. The high level of diversity and complication in shopper journey configurations across different platforms poses a challenge to marketing researchers and retailers, as it makes it more challenging to create a harmony between the different channels (Harris et al., 2018). Although this research focused on advanced shopping malls, which integrate technology into the customer shopping experience, it is anticipated that the future of retailing lies in the omnichannel customer experience.

Overall, the findings of this research indicate that shopping malls should adopt omnichannel strategies by combining digital and physical elements to improve the customer shopping experience. Shopping mall management teams should collaborate with 'bricks and mortar' retailers to provide an exciting shopping experience to customers as part of an omnichannel strategy.

Shopping mall managers are encouraged to focus on the virtual environment as part of the customer shopping experience. To provide a better customer experience and increase the number of visits, shopping malls must carefully integrate and harmonise offline shopping with the new technologies that are available, such as AI, virtual reality, robotics, online, mobile and social media. It is also important for managers of smart shopping malls to integrate physical and online encounters with care throughout the shopping journey so that all five components of flow are present and balanced namely: control, skill, challenge, enjoyment and concentration. Examples of important areas to consider include the careful planning of where and when shoppers will interact with technology (i.e. in which part of their

shopping journey) and which technology should be integrated at various points. In addition, it is important to understand how skilful customers are, what challenges they may face when switching between channels, and at which points they prefer to use face-to-face or virtual interaction.

It is essential to ensure that the design of technology interfaces is user-friendly, understands customers' different needs, and is easy to browse and navigate. For example, the smartboards in smart shopping malls can be designed in a way that shoppers can use different languages according to their preferences. Also, customised and flexible user interfaces can be provided to customers with learning difficulties or disabilities. In addition, the shopping mall omnichannel experience should be personalised according to the needs and preferences of different types of shoppers. For example, to attract millennial shoppers it may be helpful to understand customers' history of shopping in the mall and analyse common patterns that can be translated into special and timely offers from their favourite stores. In addition, a chatbot customer service tool, which can often be personalised and stores previous conversations for quick and personalised support, may appeal to some shoppers. Nevertheless, despite the importance of providing customers with a personalised shopping experience via different technologies, smart shopping mall management teams and retailers should be cautious and transparent about how shoppers' data is used. Furthermore, providing a clear privacy statement showing an awareness of GDPR requirements would help to build customer trust. Another interesting finding of this study is the important role played by social media engagement in motivating consumers to use shopping malls. Hence, shopping malls are encouraged to create online communities on social media, sharing events and showcasing the entertainment and enjoyment aspects of these experiences. In addition, shopping mall managers are encouraged to collaborate with retailers and be actively involved in interacting with customers on social commerce platforms. This interaction is likely to enhance customers' engagement and their intention to shop in these malls.

Conclusions, limitations and future research directions

Shopping malls can provide customers with an exciting experience, providing that they keep up with customers' ever-changing needs and preferences. Therefore, technology is becoming part of the customer shopping experience in malls. This research focused on participants who shop in one shopping mall' or 'people who visit one shopping mall in the UK, and the majority of the participants were tourists. Future studies can collect data from other types of

participants (non-tourists) and compare their findings with the findings of this study. In addition, future research can collect data from other advanced shopping malls that integrate technology into the customer shopping experience in other locations at different times of year. In addition, this study focused on millennial shoppers between the ages of 23 and 38, which is an important segment of customers. However, future research can collect data from older shoppers, who may not be as active in using advanced technologies in shopping malls, and compare the findings. In addition, one of the main areas for future research exploration is the study of differences between male and female shoppers in smart shopping malls, as the findings will help malls to provide more effective targeting strategies that suit shoppers' needs and preferences. Furthermore, it is recommended that future research focuses further on the omnichannel customer experience, rather than focusing solely on online and mobile shopping.

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Insert Appendix A here
