

## **Examining Consumers' Continuous Usage of Multi-Channel Retailers' Mobile Applications**

### **ABSTRACT**

This paper examines the variables influencing a consumer's satisfaction and continuous use of a multi-channel retailer's mobile application. Drawing upon the Expectation Confirmation Model for Information Technologies, post-adoption literature, and consumer behaviour literature, we assess pertinent factors on the continuous usage of multi-channel retailers' mobile apps. Through a sample of 1,009 consumers who retained a retailer's mobile app for more than six months and conducting Structural Equation Modelling, the findings illustrate that utilitarian variables (Perceived Usefulness, Ease of Use and Personalisation), hedonic variables (Perceived Enjoyment) and a brand-related variable (consumer loyalty intention toward the retailer's brand), play a significant role in influencing continuous usage of multi-channel retailers' mobile apps. In contrast to e-commerce research, the study outlines that escapism plays a negative role in both consumer satisfaction and intention to continue to use a multi-channel retailer's mobile app. Previous research points to the fact that consumers' retention of retailers' apps is low. This paper contributes to the emerging literature on consumers' continuous use of retailers' mobile apps through enhancing our understanding of technology and non-technology related variables.

### **KEYWORDS**

Continuous Usage, Utilitarian, Hedonic, Escapism, Mobile Apps, Mobile Retailing, M-Commerce, Brand Loyalty.

## INTRODUCTION

The continued innovation of the smartphone and branded mobile applications (apps) has transformed mobile marketing from a channel that mainly generated brand awareness, to a channel that can enhance the way consumers communicate and interact with brands (Fang, 2019; McLean et al., 2020). Within the retail sector, a smartphone mobile app empowers consumers to make purchases and consume services through the app (Newman et al., 2018). These branded mobile apps enable consumers to be in control when interacting with brands by choosing when and where to interact with the pull-based services that brands offer (Persaud and Azhar, 2012; Bellman et al., 2011; Winer, 2009). As smartphone users are set to reach 4.3 billion worldwide in 2023 (Newzoo, 2019), the prevalence of retailers' branded apps is likely to continue to grow. In addition, the introduction of 5G technology and the resultant improvements in data transfer speeds will enable retailers to utilise a range of advanced technologies (e.g. Augmented reality) within their mobile apps without adverse effects on consumers' data allowances or loading speeds (Ericsson, 2020).

Despite the proliferation of retailers' mobile apps recent industry reports assert that, after the initial adoption of branded mobile apps, many consumers do not continue to use and retain them. According to CleverTap's (2019) e-commerce research, 42 percent of new app users uninstall an app after only one month and 96 percent become inactive on an app after three months. Previous literature also highlighted the low retention rates of mobile branded apps (Bhandari et al., 2015). As such, there is a need for more research into what influences a consumer's continued use of a retailer's branded app (Fang, 2019; Stocchi et al., 2020).

Previous research undertaken by McLean et al. (2020), Fang (2019), and Stocchi et al. (2020) surmised that factors that are not specifically related to the technological characteristics of the mobile app (e.g. loyalty toward the brand, attitude toward the brand, brand recognition,) can play a role in understanding consumers' continued use behaviour. Therefore, this paper aims to contribute to the mobile app literature by not only examining the technological characteristics of a retailer's app but the role of cognitive psychology and brand-related factors (e.g. escapism and loyalty intention toward the retailer) in influencing a consumer's intention to use a retailer's app.

The growth in the use of apps can clearly provide retailers, that are attempting to pivot to a multi-channel service offering (i.e. in-store, website, and mobile app), with increased opportunities to acquire new customers whilst retaining and building relationships with

existing customers. Given the increased number of online-only retailers, traditional high-street retailers have little choice but to adapt to a multi-channel service offering in order to compete. Accordingly, we focus this research on four traditional high-street retailers who had a physical store presence prior to their multi-channel offerings.

The study draws on Bhattacharjee's (2001b) Expectation Confirmation Model for Information Technologies (ECM-IT) as its theoretical lens to understand the technological and non-technological (e.g. escapism and loyalty intention toward the retailer) factors influencing the continuous use of retailers' mobile applications. The ECM-IT model combines Oliver's (1980) Expectation Confirmation Theory (ECT), from cognitive psychology and consumer behaviour research, while drawing on the work of Davis et al. (1989) on the Technology Acceptance Model (TAM) from Information Systems (IS) research. In turn, we review the IT acceptance, post-adoption, cognitive psychology, and consumer behaviour literature to assess potential utilitarian and hedonic factors that are related to the performance characteristics of the technology in influencing consumers' satisfaction with a multi-channel retailer's app and the resultant continuous intention to use the app. As such, this study involving data from 1,009 consumers of four large multi-channel UK retailers, uniquely considers the technological, cognitive psychology, and brand-related variables that influence the continuous use of a retailer's mobile application.

## **LITERATURE REVIEW**

### ***Retail Mobile Apps and Multi-Channel Retailing***

The smartphone can be viewed as a device that enables consumers to communicate and accomplish multiple daily tasks and activities on the go (Shankar et al., 2016). The conceptualisation of the term mobile "app" relates to software downloaded from Apple's App Store or Google's Play Store onto a mobile device (e.g. smartphone, or tablet) (Purcell et al., 2010; Garg and Telang, 2013). Featuring on a smartphone screen, apps can be seen to appear in the form of a tappable designed icon that carries the brand's identity (e.g. the brand's logo) (Bellman et al., 2011). Furthermore, Newman et al. (2018, p.214) define a retailer's app as "a mobile application on a smartphone/tablet that is used for purchase or completion of some transaction [e.g. price checking, subscription renewal, product locator] that may result in a purchase". Unlike websites, app developers can take advantage of the distinguishing technological capabilities inherent in smartphone devices to perform specific tasks (Purcell et

al., 2010). Accordingly, branded apps can increase a consumer's awareness, interest, and increase loyalty towards the brand (Shankar et al., 2010; Bellman et al., 2011; Shankar et al., 2016). In addition, retailers' apps may combine a range of categories to provide an enhanced interactive user experience and enable consumers to complete a variety of tasks on the go, such as planning and/or making a purchase, finding directions to the nearest physical store, viewing the latest deals and offerings from the brand, or reading product reviews that may help in the facilitation of a future purchase (Bellman et al., 2011; Wang et al., 2015). Notably, consumers are often willing to download apps from brands that are familiar to them, and brands are keen to encourage consumers to engage with their mobile apps (Bellman et al., 2011).

In a multi-channel retail environment, mobile apps play a facilitating role to other operating channels (e.g. physical store, website), retailers need to successfully synchronise a satisfactory customer experience that reflects harmony among all operating channels (Verhoef et al., 2015; Blázquez, 2014). In other words, multi-channel retailers need to offer equal state-of-the-art customer experience in all operating channels as consumers meander between channels. For example, consumers can browse and explore ideas relating to products they are interested in from the mobile app and then examine products in the physical store before deciding to make a purchase. More so, consumers may purchase products from the app and choose to collect the item in-store (i.e. click and collect). Additionally, consumers may use the mobile app in the physical store to check prices and/or make a purchase through the app and have the retailer deliver the product to a selected delivery address. Regardless of how the customer decides to shop from any of the retail channels, retailers need to maintain an equally pleasant customer experience in all operating channels (Verhoef et al., 2015; Blázquez, 2014).

Recent research is developing our understanding of mobile apps and consumer behaviour beyond just offering an overview on the technical aspects (e.g. ease of use, usefulness, and/or enjoyment) that are associated with the technology in motivating consumers to continue to use mobile apps (see: Newman et al., 2018; McLean et al., 2020; Fang, 2019; Stocchi et al., 2020). For example, Newman et al. (2018) examined the app's ease of use and the role of the consumer's self-connection (i.e. self-concept) in motivating the consumer to recommend the retail app, purchase from the retail app, and purchase in-store. Furthermore, McLean et al. (2020) while investigating technical functional aspects (e.g. usefulness, ease of use, customisation) and the hedonic aspect of enjoyment in the continuous usage context of retail apps, they also examined the role of the consumer's attitude toward the app in influencing the consumer's attitude and loyalty toward the brand. In a related study, Stocchi et al. (2020)

investigated consumers' past experiences and its role in influencing consumers' continuous intention to use branded apps through two decision-making paths (i.e. the app recognition path, and the evaluation of utilitarian and hedonic benefits path). More so, Fang, (2019) investigated the role of the branded app value-in-use in influencing brand competence, brand warmth, the consumer's brand loyalty, and the continuous intention to use the app, while examining factors related to the affordances of mobile apps. Similarly, Baek and Yoo (2018) investigated the influence of branded app continuance usage intention on consumers' brand loyalty, while accounting for branded app usability and branded app referral intention.

Furthermore, research has outlined that brand elements in the offline environment can play a role in our decision-making towards the online environment (see: Kwon and Lennon, 2009a; Kwon and Lennon, 2009b; Marianne et al., 2008; Savila et al., 2019). For example, what the consumer thinks and feels about a brand in the offline environment is transferred to the online environment (Kwon and Lennon, 2009a). Accordingly, consumers utilise their perceptions about a brand as a reference in their decision making to adopt that brand's online store (Kwon and Lennon, 2009b). In turn, the loyalty toward a physical store in the offline environment influences a consumer's loyalty to repurchase from the retailer's website (Savila et al., 2019). A non-exhaustive overview of pertinent research from 2016-2020 on the continued use of retailers' mobile apps is presented in Table 1.

<Table 1. Overview of research on the continued use of retail mobile apps >

Recent literature outlines the value of looking beyond just the utilitarian and hedonic features of mobile apps through incorporating cognitive psychology factors and factors that are related to the brand (McLean et al, 2020). To our knowledge and based on reviewing the mobile app literature and the presented research in Table 1, an important relationship is not accounted for in past and recent research, which involves the role of satisfaction and its interplay with loyalty toward the retailer, and continuous intention to use the app. In addition, building upon the works of McLean et al (2020), Stocchi et al (2020), and Fang (2019) we further investigate the utilitarian and hedonic factors that are related to the technical aspects of the app, and accounting for usage and purchase frequency. The following section provides a theoretical background for our conceptual development.

### ***Theoretical Framework***

This study draws on the Expectation Confirmation Model for Information Technologies (ECM-IT). There are several reasons for utilising the ECM-IT in this study. The ECM-IT which was developed by Bhattacharjee (2001b), is one of the first theoretical models that is tailored to understanding the consumer's continuous usage of a technological system. The theoretical development of the ECM-IT brought two research disciplines together, as its theoretical foundation draws upon Oliver's (1980) Expectation Confirmation Theory (ECT), from the consumer behaviour research domain, while utilising significant work from Information Systems (IS) research, drawing on the work of Davis et al.'s (1989) Technology Acceptance Model (TAM). ECT is a cognitive psychology theory that explains post-adoption satisfaction as a function of a consumer's expectations, their perceived performance, and disconfirmation of beliefs (Oliver, 1980). On the other hand, based on the Theory of Reasoned Action (TRA) (Fishbein and Ajzen, 1975) the TAM is an information systems theory that explains how consumers come to accept and use technology based on the core factors of the perceived usefulness and the perceived ease of use of the technological system influencing consumers' attitudes and behavioural intentions (Davis et al., 1989). Accordingly, Bhattacharjee's (2001b) ECM-IT provides a combined knowledge from consumer behaviour and IS research, which provides a theoretical framework to enhance our understanding of retailers' mobile applications from both a consumer behaviour and information systems perspective.

Previous research has demonstrated that satisfaction strongly predicts the continuous usage of technologies (Hong et al., 2006; Thong et al., 2006; Kim, 2010; Yuan et al., 2016; Bhattacharjee, 2001b). Studies drawing on the ECM-IT theory introduced additional drivers suggesting that perceptions individuals hold about a technological system may influence continuous intention directly, and/or indirectly through satisfaction (Kim, 2010; Hsu and Lin, 2016; Hong et al., 2006; Thong et al., 2006). The ECM-IT aims to understand continuous usage by accounting for post-acceptance factors (confirmation and satisfaction) and the post-consumption aspect of continuous use in the form of ex-post expectations (e.g. perceived usefulness) (Bhattacharjee, 2001b). The ECM-IT theorises that the consumer's continuous intention to use a technology system is determined by the user's satisfaction (an affect reflected in a favourable, neither, or non-favourable feeling) when using the system (Bhattacharjee, 2001b). Bhattacharjee (2001b) asserts that satisfaction with using a system is influenced by post expectations (e.g. Perceived Usefulness), and confirmation. Importantly, Bhattacharjee (2001b) asserts that the post expectations are mediated by satisfaction towards continuous

usage intention, while also having a direct influence on continuous usage intention, suggesting that consumers may continue to use a technological system because of the productive benefits it provides, even if they are not necessarily satisfied (Bhattacharjee, 2001a).

Moreover, Bhattacharjee (2001b) incorporated only the perceived usefulness variable from Davis et al.'s (1989) Technology Acceptance Model (TAM), while excluding perceived ease of use from the model, by arguing that, in a continuous usage context, the effect of ease of use will reduce over time because it would make sense that a user would become more experienced with the system. Similarly, Hausman and Siekpe (2009) also excluded ease of use when investigating the motivating factors influencing consumers' purchase and revisit intention in online shopping, because the subjects of the study were experienced at using the Internet. However, it is worth noting that some studies show support for the role of perceived ease of use towards continuous usage to use a technology system (Thong et al., 2006; Hong et al., 2006; Hong et al., 2008; Venkatesh et al., 2003b).

Accordingly, the theoretical model presented in this research draws upon the ECM-IT, with some modifications to fit the context of this research. The post expectations from the ECM-IT in this study are viewed as perceived performance dimensions that capture the satisfaction with the app experience of consumers who continue to use and retain a retailer's mobile app. Yüksel and Rimmington (1998, p.63) refer to perceived performance as "The subjective evaluation made by the consumer after a service encounter." Yüksel and Rimmington (1998) state that some academics have argued that expectation and experience of using a service may interrelate in a biased way. The authors suggest that perceived performance is as good at predicting customer satisfaction as is the complete expectancy confirmation-disconfirmation paradigm.

Furthermore, Halstead et al. (1994) argue that, when researching the continuous usage of services, performance becomes a priority to determine satisfaction. Halstead et al. (1994) further argue that it may be wrong to assume that confirming or disconfirming consumers' expectations impacts the satisfaction with a service, as based on Adaptation-Level (AL) theory (Helson, 1959) a consumer's cognitive processing of expectations is "less active" when they are familiar with using the service. Accordingly, Hossain and Quaddus (2012) explain that Roger's (1995) Innovation of Diffusion Theory (IDT) views confirmation as a phase rather than a measurement in the decision-making process for technology adoption. Therefore, in this study, the motivating factors are driven by perceptions arising from consumers' continued usage experience (e.g. current consumers that are familiar with the service) of retail apps, and

its influence on satisfaction and continuous intention to determine the behaviour (e.g. usage and purchase frequency).

## RESEARCH HYPOTHESES

### *Perceived Usefulness*

The role of perceived usefulness in predicting technology acceptance and usage is well-grounded in IS research (Davis et al., 1989; Bhattacharjee, 2001b; Rogers, 1995; Taylor and Todd, 1995; Davis and Venkatesh, 1996; Hong et al., 2006; Venkatesh et al., 2012). Perceived usefulness is defined as “the degree to which a person believes that using a particular system would enhance his or her job performance” (Davis, 1989, p.320). Accordingly, Taylor and Todd (1995) explain that perceived usefulness is a consistent predictor of technology usage.

The ECM-IT asserts that perceived usefulness has a direct positive influence on consumers' continuous intention to use information technologies (Bhattacharjee, 2001b). Recent studies that examine consumers' continuous usage of branded mobile apps continue to reaffirm the importance of perceived usefulness in playing a direct significant role in motivating consumers to continue to use them (e.g. Chung et al., 2016; Kim et al., 2016; Li and Fang, 2019; Natarajan et al., 2017; Jeon et al., 2019; Tseng and Lee, 2018; Stocchi et al., 2020; Yuan et al., 2016).

According to Bhattacharjee's (2001b) ECM-IT, perceived usefulness also has an indirect positive influence on consumers' continuous intention to use information systems through the consumer's satisfaction with the information system in question (Bhattacharjee, 2001b). Li and Fang (2019) confirm that consumers' satisfaction with the branded app mediates the relationship between perceived usefulness and consumers' continuous intention to use the branded app. In addition, perceived usefulness increases consumers attitude toward using mobile retail apps (McLean et al., 2020), influences consumers' satisfaction with mobile banking apps (Yuan et al., 2016), and can lead to consumers' satisfaction when interacting with Self-Service-Technologies (SST) (Meuter et al., 2000).

In this regard, we hypothesise the following:

*H1a Perceived usefulness positively influences the continuous usage intention of a retailer's mobile app.*



*H1b Satisfaction with the app's user experience mediates the relationship between perceived usefulness and continuous intention to use a retailer's mobile app.*

### ***Perceived Ease of Use***

One of the challenges that marketers must overcome when delivering services through mobile apps is making the technology easy to use (Mishra et al., 2021). The perceived ease of use is defined as “the degree to which a person believes that using a particular system would be free of effort” (Davis, 1989, p.320). Winer (2009) encourages marketers to innovate pull-based communications with consumers. Shankar et al. (2016, p.41) assert that “apps need to be sticky to induce shoppers to continue using them and should be continuously updated and redesigned to remain the state-of-the-art.” Building on this notion, retailers may update their branded apps to add new features to accommodate new services and offerings or make improvements to complement the app's ease of use and operation. Interestingly, Yuan et al. (2016) explain that, due to the smartphone's small form factors, firms must creatively implement easy-to-use features in the app's interface due to the smartphone's small screen size.

However, the ECM-IT excludes the perceived ease of use, arguing that when users become more experienced with using a technology system, the effect of the perceived ease of use diminishes (Bhattacharjee, 2001b). In turn, subsequent studies have excluded ease of use in their theoretical models in an attempt to examine newer more pertinent variables that could advance our understanding (see: Kim et al., 2016). Despite this, caution should be noted over the exclusion of the perceived ease of use as several studies find that it plays a significant role in the continued use context of IS studies (e.g. Hong et al., 2006; Thong et al., 2006) and the continued usage of branded mobile apps (e.g. Chung et al., 2016; Natarajan et al., 2017; McLean et al., 2020; Newman et al., 2018; Stocchi et al., 2018). In a continued use context, perceived ease of use is important in motivating consumers to shop digitally (Dennis et al., 2010), it also increases consumers' connection with the app, while consumers are more likely to purchase from the app if it is easy to use, than purchase from the physical store (Newman et al., 2018).

Previous research also suggests that perceived ease of use can indirectly influence consumers' continuous intention to use an information system through consumers' satisfaction with the system (Hong et al., 2006; Thong et al., 2006). A positive significant association is found between perceived ease of use and consumers' satisfaction in the continued use context of mobile shopping apps (Chung et al., 2016). As consumers' use ease of use as a proxy for

predicting the customer experience (McLean et al., 2018) and influencing their attitude towards retailers' shopping apps (McLean et al., 2020), we consider perceived ease of use to play a role in influencing consumer satisfaction and continuous usage intention. Therefore, we hypothesise the following:

*H2a. Perceived ease of use positively influences the continuous usage intention of the retailer's mobile app.*

*H2b. Satisfaction with the app's user experience mediates the relationship between perceived ease of use and the continuous intention to use the retailer's app.*

### **Personalisation**

Service delivery through technological systems, such as a mobile application, enables consumers to receive a personalised experience that is tailored to their needs when communicating with brands (Srinivasan et al., 2002; Blázquez, 2014). The term personalisation of a mobile service can be defined as the ability of the service to adapt to and fit the consumer's needs and tastes to provide a tailored customer experience (Jorstad et al., 2005). Persaud and Azhar (2012) assert that pull-based services and content delivered via a smartphone "must be personalised"; therefore, offering consumers a personalised experience is important for e-services in general (Rowley, 2006). Personalisation is also conceptualised as a motivating factor leading to e-loyalty, which highlights that the concept of personalisation is connected to repeat consumption of an e-service (Yen and Lu, 2008).

While personalisation could be argued as a utilitarian or hedonic factor influencing a consumer's satisfaction with a retailer's mobile app. McLean et al (2020) affirm personalisation of mobile apps as a utilitarian factor due to the practical benefits that personalisation within mobile apps offers consumers. Accordingly, the retail apps investigated in this study provide several practical goal-directed personalised features, such as remembering consumers' login credentials, providing a personal dashboard that includes payment and delivery address information along with past purchase history, saving items in the virtual cart, utilising the user's GPS location, and providing personalised push notifications based on user activity. However, notably Jung-Hwan et al. (2009) did not find personalisation to significantly predict satisfaction when investigating e-loyalty. Despite this, the ability to personalise content to individuals' needs is inherent to mobile applications; drawing upon this, Clarke (2008) suggests that personalisation is important in the context of m-commerce considering the smartphone's small form factor and screen size, and therefore delivering services that are

tailored to consumers is essential to m-commerce. More recently, McLean et al. (2020) found that personalisation enhances consumer attitudes toward using retailers' mobile apps, while Chung et al. (2016) discovered that personalisation increases consumers' satisfaction with using mobile shopping apps (Chung et al., 2016). Drawing on this we expect that personalisation will play a role in motivating consumers' continuous intention to use retailers' apps. In this regard, we hypothesise the following:

*H3a. The personalised experience positively influences the continuous usage intention of the retailer's mobile app.*

*H3b. Satisfaction with the app's user experience mediates the relationship between perceived personalisation and continuous intention to use the retailer's mobile app.*

### **Enjoyment**

Previous research illustrates that brands should focus not only on utilitarian but also hedonic factors when developing branded mobile applications (Shankar, 2016). The role of enjoyment in influencing the acceptance of technologies was highlighted by Davis et al. (1992) and in later theoretical developments in technology acceptance research (Venkatesh, 2000; Venkatesh and Bala, 2008; Venkatesh et al., 2012). Perceived enjoyment is referred to as "the activity of using a specific system which is perceived to be enjoyable in its own right, aside from any performance consequences resulting from system use" (Venkatesh, 2000, p. 351). Previous research in Self-Service Technology (SST) illustrated that an enjoyable experience motivates consumers to use SST (Hilton et al., 2013). Accordingly, as consumers become more familiar with shopping digitally, they are more likely to find the shopping process more enjoyable (Blázquez, 2014). Previous studies support the direct link between perceived enjoyment and consumers' intention to use mobile internet (Venkatesh et al., 2012), the intention to continue to use e-government service delivery (Thong et al., 2006), a mobile data service (Kim, 2010), and mobile branded apps (Hsiao et al., 2016).

Subsequently, Hsiao et al. (2016) demonstrated that the satisfaction with using the app positively mediates the relationship of perceived enjoyment and continuous intention to use branded apps. Relatedly, Hsu and Lin (2016) found that the utilitarian value and hedonic value influence satisfaction in the context of in-app purchases, while McLean et al. (2020) explain that the effect of enjoyment on consumers' attitude toward using retail apps is stronger in the continuous usage phase than the adoption phase. Thus, we hypothesise:

*H4a. Perceived enjoyment positively influences the continuous usage intention of the retailer's mobile app.*

*H4b. Satisfaction with the app's user experience mediates the relationship between perceived enjoyment and the continuous intention to use the retailer's mobile app.*

### ***Escapism***

Grant and O'Donohoe (2007) labelled escapism as a feature of the mobile phone, considering the mobile phone as a great way for consumers to escape (e.g. drift away from current reality to seek a better one). Psychological escapism is characterised by little cognitive thinking and a mental diversion from daily life (Henning and Vorderer, 2001). Hirschman (1983, p.64) explained escapism as an escape from “a reality that the individual finds difficult or is unable to deal with adequately.” It is also suggested that escapism can be reflected in the consumer's enjoyment when they shop through an electronic service (Monsuwé et al., 2004). Hofacker (2008) suggests that multimedia elements (e.g. pictures, videos, or sound) that aim to deliver a hedonic experience in an e-tailing interface may help consumers escape. Research has outlined that psychological escapism is part of the hedonic value in shopping behaviour (Babin et al., 1994; Yu and Bastin, 2010). More so, escapism plays an important role in influencing a consumer's attitude to shop online (Kim and Kim, 2005), or through a mobile device (Tojib and Tsarenko, 2008). Additionally, Chaouali (2016) affirms that escapism positively influences satisfaction in the continuous usage of social networking sites via mobile devices. Supporting such findings, Dennis et al. (2016) highlight that more time spent shopping on a mobile device results in happiness and enhanced well-being. Therefore, we hypothesise the following:

*H5a. Escapism positively influences the continuous usage intention of the retailer's mobile app.*

*H5b. Satisfaction with the app's user experience mediates the relationship between perceived escapism and the continuous intention to use the retailer's mobile app.*

### ***Satisfaction***

The role of affect (e.g. satisfaction) plays an important role in purchase and post-consumption in the consumer decision process (Puccinelli et al., 2009), and plays an important role in the value of service delivery (Hilton et al., 2013). An organisation must understand what leads to consumer satisfaction when using branded apps as it can motivate consumers to continue using them (Kim et al., 2015). Hsu and Lin (2016, p.43) define satisfaction as the “degree to which a user favourably perceives the overall assessment of performing the target behaviour.” In IS

and consumer behaviour literature, satisfaction is known to act as a robust valid predictor of intention (Bhattacharjee, 2001b; Oliver and Burke, 1999). Bhattacharjee (2001b) showed that satisfaction strongly predicts continuous intention and captures the role of affect better than attitude when compared to the Technology Acceptance Model (TAM).

The relationship between satisfaction and behavioural intention is validated in multiple studies. Satisfaction is found to predict consumers' continuous intention to use mobile data services (Kim, 2010), online services (Kang et al., 2009), knowledge-based virtual communities (Jin et al., 2008), and Internet-based learning technologies (Limayem and Cheung, 2008).

Satisfaction also influences loyalty and continuous consumption. For example, satisfaction influences word of mouth, loyalty, and repurchase toward an e-service (Ha, 2006; Verma et al., 2016). Reichheld and Scheffer (2000) suggest that consumers will be motivated to re-consume from a multi-channel retailer when they are satisfied and loyal. Hung et al. (2012) illustrated that, while satisfaction influences continuous intention toward mobile shopping, it also influences trust in the mobile shopping store, suggesting that trust also mediates the relationship of satisfaction with continuous intention.

In this regard, this research theorises that satisfaction will influence continuous intention in two ways: Firstly, satisfaction influences continuous intention directly as suggested by IS continuous usage literature. Secondly, satisfaction influences continuous intention indirectly through loyalty intention toward the retailer. In other words, satisfaction with the app's user experience increases the loyalty intention towards the retailer's brand, which, in turn, will lead to an increase in the consumers' continuous intention to use the app. Therefore, we hypothesise the following:

*H6a. The satisfaction with a retailer's mobile app's user experience positively influences the continuous usage intention of the retailer's mobile app.*

*H6b. Loyalty intention towards the traditional retailer mediates the relationship between satisfaction with the app's user experience and continuous usage intention of the retailer's mobile app.*

### ***Loyalty Intention towards the Brand***

This study is applied to brick-and-mortar retailers, which means that consumers can interact and consume products and services from the brand's various channels such as the brand's physical store, website, app, and social networks. From this perspective, this study introduces

into the theoretical model the notion that, when consumers hold loyal intentions to shop (through any channel) with the brand in the future, while socially speaking of the brand positively, they will be more likely to retain and continue to use the brand's mobile app. Previous research affirms that loyalty toward the brand influences the consumer's decision making (e.g. repurchase and continuous consumption), it socially creates brand awareness, which potentially leads to an increase in the brand's profitability, and it could influence new customers to shop for the brand (Aaker, 1991; Zeithaml et al., 1996; Gremler and Brown, 1999). In addition, previous studies suggest that consumers' perceptions of the brand's offline environment influence their perceptions of the brand's online environment. For example, Kwon and Lennon (2009b) found that in the context of multi-channel retailing, consumers' perceptions toward the physical store influence the establishment of consumers' beliefs toward the store's online website. It is also suggested that consumers' beliefs and attitudes of the brand's offline presence transfer to the brand's online presence in the context of an apparel retail websites (Kwon and Lennon, 2009a), and a magazine website (Marianne et al., 2008). Relatedly, Savila et al. (2019) found that that offline loyalty positively increases consumers' intention to repurchase from the retailer's website.

It is beneficial for brick-and-mortar retailers to utilise the internet and to enhance their digital presence (e.g. website and mobile apps), as it enables them to not only to compete in an increasingly competitive marketplace but to offer services to consumers anytime, anywhere, enhance their geographical outreach and minimise operational costs. However, these traditional brick-and-mortar retailers encounter various substantial challenges caused by the ongoing technological advancements of e-commerce, causing not just changes in consumer behaviour (Peterson et al. 2020; Verhoef et al., 2015; Blázquez, 2014), but also to how the retail business is operated (Verhoef et al., 2015; Klaus and Nguyen, 2013). The enhancements in service delivery which have been brought about by the development of technological innovations and the World Wide Web have made consumers more demanding, where marketers find it challenging to keep them satisfied, especially in a competitive marketing environment (Wu and Wu, 2005). Mclean et al., (2018) outline that the shift in consumer behaviour has caused several known traditional retail brands to exit the market. Therefore, retailers need to understand and adapt their omnichannel business strategies to substantially benefit from having a strong digital presence (Martin et al., 2015; Klaus and Nguyen, 2013; Mclean et al., 2018). Klaus and Nguyen (2013) argue that most marketing research focuses on predicting loyalty in a specific online context (e.g. e-loyalty), while it is important for retailers to understand how an online channel

influences loyalty towards the firm, it is important to understand loyalty in a multi-channel context.

As understanding the users' initial acceptance of newly introduced technologies is essential to firms, a growing interest in the area of Information Systems (IS) research is to understand what motivates consumers to continue to use the services delivered to them by firms after the initial adoption phase (see: McLean et al, 2020). Understanding the continuous usage of services is essential to firms as retaining consumers to continue to use the brand's services is what contributes to its success, survival, and sustainability in the marketplace (Crego and Schiffrin, 1995; Reichheld and Scheffer, 2000; Bhattacharjee, 2001b; Stocchi et al, 2020). In turn, loyal customers can contribute to increasing a firm's value in the marketplace in addition to increasing the brand's customer base by stimulating new more interest towards the brand (Gremler and Brown, 1999). Previous literature on retail mobile applications has focused on loyalty as an outcome of mobile app use (e.g. McLean et al, 2020; Fang, 2019), however, in this research, we posit that loyalty intentions towards the retailer will be a motivating factor in the continuous use of the retailer's mobile application. Therefore, considering the interrelated link between the brand's offline and online environment, we hypothesise:

*H7. Loyalty intention towards the retailer influences the continuous usage intention of the retailer's mobile app.*

### ***Usage and Purchase Behaviour Frequency***

Continuous use intention of branded shopping apps is suggested to influence consumers to use apps and to make purchases from apps in the future (Kim et al., 2015). Lederer et al. (2000) accounted for actual behaviour through the frequency of usage in the context of website acceptance and use, and Venkatesh et al. (2012) accounted for actual behaviour through the frequency of usage in the context of continuing to use mobile Internet. The relationship between the intention towards a behaviour in determining the user behaviour is well documented in the literature (see: Ajzen, 1988; Ajzen, 1991; Davis et al., 1989; Taylor and Todd, 1995; Venkatesh et al., 2003a; Venkatesh et al., 2012). Thus, building on previous conceptualisations (e.g. Bellman et al, 2011) and recent work (McLean et al, 2020; Stocchi et al., 2020), we suggest that the continuous usage intention of retail smartphone shopping apps will result in increased usage and purchase frequency. From this perspective, we hypothesise the following:

H8a. *The continuous usage intention of the retailer's mobile app influences consumers' use frequency through the app.*

H8b. *The continuous usage intention of the retailer's mobile app influences consumers' purchase frequency through the app.*

All of the hypotheses discussed above are presented in Figure 1.

<Figure 1. Research model and hypotheses goes here>



## METHODOLOGY

This study applied a cross-sectional online questionnaire design to collect data from consumers in the UK. This study focused on consumers from four traditional high-street (brick-and-mortar) retailers in the UK; John Lewis, Next, Marks & Spencer's and H&M. We define traditional high-street retailers as those retailers who had a physical store before the introduction of any other service delivery channels such as a website or mobile app. Traditional high-street retailers now offer an interesting context of study due to their provision across multiple service delivery channels (i.e. in-store, website, and mobile app) and their need to introduce such additional service delivery channels beyond their physical store in recent years. At the time of conducting the research, the retailers' apps in this study included features such as enabling consumers to browse and purchase products, locate the nearest store, click and collect (e.g. purchase from the app and collect the product from the nearest store), add items to virtual baskets and to plan future purchases through saving items to wish-lists, save a delivery address or add billing details, save payment information, read reviews on a product, share the experience of products with others, and use GPS location information.

All consumers participating in the online questionnaire must have retained the retailer's smartphone application from one of the selected traditional retailers for more than six months to be in an adequate position to rate their responses in a continuous usage context. According to Legris et al. (2003), while a student sample minimises the costs of conducting research, it is more beneficial to conduct studies in an actual commercial setting. Thus, all participants in this study are non-student consumers, as student samples could inflate the strength of hypothesised relationships and reduce the external validity of the research (Burnett and Dune, 1986). Additionally, since the data was collected via a self-reported online questionnaire, it was important to utilise data collection techniques that would enhance the validity of the data and reduce response bias (Osborne and Blanchard, 2010). A Random Response Scale (RRS) was integrated into the online questionnaire to ensure that respondents were reading the questions and not randomly choosing answers in a computerised environment (e.g. Internet-based survey) (Beach, 1989; Meade and Craig, 2012; Osborne and Blanchard, 2010). Beach (1989, p.102) defines RRS in the following way: "Such a scale is made up of questions that all subjects who read and understand the question can only answer in one way." In addition, a time filter was also added to evaluate speedy respondents. Therefore, each step taken in the study contributed to a well-designed cross-sectional survey.

The data collection involved employing a market research agency to facilitate distributing the online questionnaire to participants. After performing the data collection, a total of 1447 responses were received. To ensure only valid responses were included in the analysis, a data cleansing procedure was performed, which included flagging the responses of those who did not meet the sample characteristics, those who failed to answer the RRS (e.g. Answer this question disagree), missing values, or the speedy respondents who did not meet the industry standard time filter for this research. After screening the data collected based on the criteria mentioned above, a total of 1009 valid responses were achieved. Further information on the sample demographics is presented in Table 2.

<Table 2. Demographics in this study goes here>

### ***Measures***

The measures used in this paper are well established in the literature and were adapted from previous studies to fit the topic and context of this paper (see Appendix). All measures used a 7-point Likert scale and ranged from strongly disagree to strongly agree, except for use and purchase frequency which were measured on a 5-point scale and ranged from never to daily. Perceived ease of use and usefulness were measured with six items that were adapted from Davis (1989); personalisation was measured using three items (Rose et al., 2012). Perceived enjoyment was measured using three items (Davis et al., 1992; Venkatesh et al., 2012). Escapism was measured using three items (Mathwick et al., 2001). Loyalty intention towards the traditional retailer was measured using four items (Zeithaml et al., 1996). Satisfaction with the app's user experience was measured using three items (Song and Zinkhan, 2008). The continuous behavioural intention was measured using three items from Venkatesh et al. (2012), and use frequency and purchase frequency were measured using one item from Dehghani et al. (2018), Lederer et al. (2000), and Venkatesh et al. (2012).

## RESULTS

The analysis started by assessing the reliability of measures using IBM's SPSS 25. The reliability of the measurement scale can vary depending on the sample of the study, and therefore assessing the reliability of the measurement is a highly recommended step during the preliminary analysis (Pallant, 2013).

This study adopted the Structural Equation Modelling (SEM) statistical technique by utilising IBM AMOS version 25. The SEM analysis started by conducting a Confirmatory Factor Analysis (CFA) to evaluate the association of the study's measurement model and sample structure (Byrne, 2016; Lei and Wu, 2007). It is worth noting that the CFA analysis began with conducting a Common Latent Factor (CLF) method to evaluate if the dataset suffered from any bias issues by following the procedure suggested by Podsakoff et al. (2003). This procedure requires the variables to be constrained so that they are equal in the CFA measurement model using an unmeasured CLF, where each standardised regression path value from the constrained measurement model is compared with the corresponding standardised regression path value from the original CFA measurement model. The difference in standardised regression values from the CFA original measurement model and the constrained CFA measurement model showed no noticeable variation. In addition, the CLF value from the constrained measurement model was 0.564 which, once squared, gives a Common Method Variance (CMV) value of 0.3181. Therefore, the CLF assessment shows a CMV value of approximately 32% which is below a threshold of 50% (also see: Lowry et al., 2013; McLean and Osei-Frimpong, 2017).

The CFA result for the estimated measurement model demonstrated adequate Goodness Of Fit (GOF) values. Although that CMIN/DF value is known to be sensitive to large sample sizes, the CMIN/DF = 3.630, was below the suggested threshold value of less than 5 (Schumacker and Lomax, 2004). Furthermore, the CFI = .963, RMSEA .051, TLI = .957, SRMR = .0457. All factor loadings were above .7 which is considered good (Brown, 2006; Byrne, 2016; Hair et al., 2010; Kline, 2010; Stevens, 1992), and all factor loadings had a significant  $p$ -value = .000.

Further analysis was conducted to assess Composite Reliability (CR), convergent, and discriminant validity. The CR evaluates the internal consistency of a construct. All CR values were above the recommended threshold of .7 (Fornell and Larcker, 1981). Furthermore, The Average Variance Extracted (AVE) was calculated to assess the convergent validity, where all the values exceeded the recommended value of .5 (Hair et al., 2010), demonstrating adequate convergent validity for all constructs.

Concerning discriminant validity, none of the correlations in the CFA between constructs exceeded the absolute value of .85, which is an acceptable indication for establishing discriminant validity (Kline, 2010; Weston and Gore, 2006). Additionally, a multicollinearity assessment was conducted to evaluate the Variance Inflation Factors (VIFs) values. The VIF values ranged from 1.558, being the lowest, to 2.961 being the highest, which is below the threshold value of 5 (Hair et al., 2013). The discriminant validity was further evaluated by calculating the square root of the AVE for each construct, where it should exceed the interrelated correlation for each of the constructs in the hypothesised measurement model (Fornell and Larcker, 1981). As the square root value of the AVE exceeded the values of the inter-construct correlation in the measurement hypothesised model, it is concluded that discriminant validity was established.

<Table 3. Composite Reliability (CR), Convergent and Discriminant Validity Results goes here>

Following the CFA analysis, the relationships of the hypothesised structural model were assessed. The structural model demonstrated adequate GOF statistics. The CMIN/DF = 3.707, CFI = .959, RMSEA .053, TLI = .954, SRMR = .059. Following Byrne's (2016) approach, a configural invariance, measurement, and structural invariance tests to compare screen size, preferred shopping method, and app type usage to further investigate the effect between satisfaction with app's user experience, continuous intention, app frequency of use, and app frequency of purchase were calculated. Only the screen size groups passed the validity test for the multi-group analysis. The configural invariance tests for the screen size groups showed that each group fit the measurement model well, as the results reveal that for the small screen size group the CMIN/DF = 3.222; RMSEA = .055; CFI = .958. For large screen size group, the results reveal that CMIN/DF = 2.039; RMSEA = .062; CFI = .958. The results were then compared to the previously presented default CFA measurement model which revealed that CMIN/DF = 3.630; RMSEA .051; CFI = .963. Since all measurement models showed good model fit, it was decided to conduct measurement and structural invariance assessments. For the structural and measurement weights invariance assessments Cheung and Rensvold's (2002) approach was utilised to determine the Delta for the CFI values. The unconstrained structural model CFI = .953 the measurement weight CFI = .953 and the structural weight CFI = .952.

Accordingly, we could proceed with the multi-group analysis. Consumers with a small screen-sized smartphone value satisfaction with the app user experience in influencing the continuous intention to use the app more than consumers with large screen-sized phones. This relation reflects that satisfaction with the app user experience is more important in small screen-sized phones. Furthermore, consumers with a large screen-sized smartphone value satisfaction with the app user experience in reinforcing their loyalty toward the retail brand more than consumers with a small screen-sized smartphone. Additionally, the relationship between loyalty intention toward the retailer and consumers' continuous intention to use the app is slightly stronger for consumers with a large screen-sized smartphone. More so, the results reveal that consumers with a large screen-sized smartphone who hold the intention to continue to use the app use and purchase from the app more than consumers with small-sized smartphones.

Next, the mediation hypotheses relating to satisfaction with the app user experience and loyalty intention toward the retailer were performed through utilising the Hayes (2013) approach. The value of bootstrap samples was set to 5000, and the bias-corrected confidence level value was set at 95%. The results indicate that the perceived usefulness has a significant effect on the continuous intention with a standardised regression weight of .163 and a  $p$ -value of  $<.001$ , confirming hypothesis H1a. Additionally, perceived usefulness had a significant effect on satisfaction with a standardised regression weight of .289 and a  $p$ -value of  $<.001$ . The results also show that satisfaction with the app's user experience partially mediates the relationship of perceived usefulness to continuous intention to use the app, with a standardised regression weight value of .157 and  $p$ -value of  $<.001$ , confirming hypothesis H1b.

Perceived ease of use had no significant effect on continuous intention as the value of the standardised regression weight was  $-.002$  with a  $p$ -value of  $>.05$ . Therefore, hypothesis H2a was not supported. Furthermore, perceived ease of use influenced satisfaction positively with a standardised regression weight of .229 and a  $p$ -value  $<.001$ . The results show that satisfaction with the app's user experience fully mediates the relationship between perceived ease of use and continuous intention to use the app, with a standardised regression weight of .124 and a  $p$ -value of  $<.001$ , confirming Hypothesis H2b. While H2a is not supported, this finding is in line with ECM-IT theory in that perceived the ease of use becomes less important when individuals continue to use technology, but can still influence satisfaction with the user experience as shown in our results, thus marketers should not discard the importance of the on-going perceived ease of use of the app.

The perceived personalisation also had no direct influence on the continuous intention to use the app, as the standardised regression was .034 and the  $p$ -value was  $>.05$ . Therefore, hypothesis H3a was not supported. However, the perceived personalisation had a positive relationship with satisfaction with a standardised regression weight of .189 and a  $p$ -value of  $<.001$ . More so, the results detail that the perceived personalisation is fully mediated by satisfaction with the app experience towards the continuous intention to use the app with a standardised regression weight of .102 and a  $p$ -value of  $<.001$ , confirming hypothesis H3b. Thus, satisfaction with the user experience plays a pivotal role in the continuous usage of the app. Without the mediating role of satisfaction with the user experience, we would find that perceived personalisation has no positive influence on the continuous use of a retailer's mobile application.

Moreover, concerning the hedonic factors, perceived enjoyment had a significant positive direct relationship with the continuous intention to use the app with a standardised regression weight of .164 and a  $p$ -value of  $<.001$ , confirming H4a. Furthermore, perceived enjoyment had a significant positive effect on satisfaction with the app's user experience with a standardised regression weight of .318 and a  $p$ -value of  $<.001$ . The results show that satisfaction with the app's experience partially mediates the relationship of perceived enjoyment towards the continuous intention to use the app, with a standardised regression weight of .172 and a  $p$ -value of  $<.001$ , confirming hypothesis H4b. Thus, our results pertain that the hedonic element of enjoyment is an important variable that motivates the continued use and satisfaction with a retailer's mobile app. Interestingly, escapism has a significant negative effect on the continuous usage intention with a regression weight of  $-.101$  and a  $p$ -value of  $<.01$ . Therefore, H5a was not supported. Furthermore, escapism had a significant negative effect on satisfaction with app user experience with a regression weight of  $-.080$  and a  $p$ -value of  $<.05$ . The results show that satisfaction with app user experience fully mediates the negative relationship of escapism to the continuous intention to use the app with a standardised regression weight of  $-.043$  and a  $p$ -value of  $<.05$ . Therefore, hypothesis H5b was not supported. This surprising result may be due to consumers feeling guilt for spending time becoming immersed and lost in a retailer's app when time could have been used for alternative purposes.

More so, the results indicate that satisfaction positively influences continuous intention with a standardised regression weight of .465 and a  $p$ -value of  $<.001$ , confirming hypothesis H6a. Satisfaction also had a significant positive effect on loyalty intention towards the retailer with

a standardised regression weight of .547 and a  $p$ -value of  $<.001$ . Furthermore, loyalty intention towards the retailer mediates the relationship between satisfaction with the app's user experience and the continuous intention to use the app, with a standardised regression weight of .076 and a  $p$ -value of  $<.001$ , confirming Hypothesis H6b. Additionally, loyalty intention towards the retailer had a significant positive effect on the continuous intention to use the app with a standardised regression weight of .139 and a  $p$ -value of  $<.001$ , confirming hypothesis H7.

Lastly, the continuous intention to use the app had a significant positive effect on the frequency of use with a standardised regression weight of .562 and a  $p$ -value of  $<.001$ , confirming hypothesis H8a. Furthermore, continuous intention to use the app had a significant positive effect on purchase behaviour with a standardised regression weight of .545 and a  $p$ -value of  $<.001$ , confirming hypothesis H8b. Additionally, we also find that use frequency and purchase frequency have a significant positive effect to and from the continuous intention to use the app which creates a positive feedback loop effect. In this regard, use frequency had a significant positive effect on continuous intention to use the app with a standardised regression weight of .244 and a  $p$ -value of  $<.001$ , and the purchase frequency had a standardised regression weight of .141 and a  $p$ -value of  $<.001$ . Accordingly, the theoretical model explains 71% of the variance in users' satisfaction with the app experience, 63% in the continuous intention to use the app, 30% in loyalty intention towards the traditional retailer, 30% in usage behaviour, and 32% for purchase frequency.

The hypothesised relationships in this study were supported with exception of H2a (the perceived ease  $\rightarrow$  continuous usage intention), H3a (personalisation  $\rightarrow$  continuous usage intention), H5a (escapism  $\rightarrow$  continuous usage intention), H5b (escapism  $\rightarrow$  satisfaction with the user experience). The path regression results are shown in Figure 2 and Table 4. The results of the indirect mediated relationships are shown in Table 5. An overview of all supported and non-supported hypothesis tested in this research is presented in Table 6. The following sections will discuss the theoretical and managerial implications of our research.

<Figure 2. Research Model and Hypotheses Results go here.>

<Table 4. Path Regression Coefficients of Hypothesised Structural Relationships.>

<Table 5. Results of Indirect Mediated Hypothesised Structural Relationships.>

<Table 6. Overview of all supported and non-supported hypothesis tested in this research.>

## DISCUSSION

### *Theoretical Implications*

Retailers are continually competing for space on a consumer's smartphone device. Thus, we must understand what influences a consumer's continued use of a retailer's mobile application. Previous research outlines the variables that influence the adoption of a retailer's mobile application; however, this research moves beyond initial adoption and the singular information systems technology adoption viewpoint (e.g. TAM) and provides theoretical insight, drawing upon the ECM-IT theory, on the variables influencing continuous usage of a retailer's m-commerce mobile application. By drawing on information systems, cognitive psychology, and consumer behaviour literature (e.g. McLean et al., 2020; Fang, 2019; Stocchi et al., 2020), this study uniquely uncovers technological, cognitive psychology, and brand-related variables that are capable of influencing the continuous use of a retailer's mobile application. Previous research on the continuous use of mobile applications has failed to look beyond the technological factors in influencing consumer attitudes and behaviours. While this study continues to outline the importance of the utilitarian technological factors, it also affirms the importance of cognitive psychology and brand-related factors.

Our findings show that the perceived usefulness of the app positively influences a customer's intention to continue using the app directly and indirectly through satisfaction with the app's user experience. Thus, from Bhattacharjee's (2001b) ECM-IT perspective, when consumers' perceived usefulness of the app is positive, this results in consumers valuing the app in terms of its ability to enhance productivity while shopping, in turn resulting in satisfaction and continuous use.

Furthermore, the perceived ease of use of the mobile application influences a consumer's intention to continue using the retailer's app indirectly through satisfaction with the app's user experience, while having no direct influence on continuous intention. Therefore, ease of use is found to play an important role in driving the continuous usage of retailers' apps only through satisfaction with the app's user experience. Some studies have conceptualised that, as consumers become more experienced with using a technology system, the ease of use becomes less important. However, within the ever-evolving digital environment, consumers may find that the ease of use of the app is important for a satisfactory experience as retail apps may go through further development when brands offer new services, improve, alter or restructure the user experience of the app. At the same time, such apps may be part of a complex multi-channel



customer journey, thus ease of use continues to present as a pertinent variable in influencing continued use.

Moreover, while personalisation was previously found to have an insignificant influence on satisfaction when investigating the loyalty toward e-services (Jung-Hwan et al., 2009), in the context of mobile apps, this study finds that personalisation influences continuous usage intention indirectly through satisfaction while having no direct influence on continuous usage intention. In other words, satisfaction with the retailer's app's user experience fully mediates the relationship between personalisation and continuous intention to use the retailer's app. In this regard, when consumers perceive that they are receiving services that are specially tailored to their needs, they will be satisfied with the experience, which, in turn, will influence continuous usage. Examples of personalising the user experience may range from saving billing information, login information, a personalised viewing of relevant products and services, and the ability to store shopping items in a virtual basket (Persaud and Azhar, 2012).

Interestingly, in contrast to a body of literature on escapism in ecommerce (Hoffman and Novak, 2009; Rose et al., 2012; Chaouali, 2016; Dennis et al., 2016), escapism was found to be negatively associated with continuous use intention both directly and indirectly through satisfaction with the app's user experience. Thus, we conclude that, although a consumer may encounter escapism during the use of a retailer's mobile application, they may not like doing so, causing an adverse reaction to satisfaction and continuous intention when shopping through the retailer's mobile application. This can be explained in two ways. Firstly, as Wang et al. (2015) highlight, retailers' mobile apps are often used on the go in a utilitarian form; consumers may not want to escape. Secondly, consumers might spend more time than they would have liked on the app while shopping and, therefore, encountering escapism may result in guilt causing a low negative influence on satisfaction and continuous usage intention. The findings on escapism in this study support similar recent findings in the literature. For example, Mclean et al. (2018) show that spending more time than necessary on a retailer's shopping app results in a negative customer experience. In addition, Anderson et al. (2014) show that saving time while shopping, positively influences purchase intention. Additionally, McLean and Wilson (2016) also found that consumers are conscious of time during a utilitarian search for information through a company's website. In addition, Konuş et al. (2008) discussed how consumers who are time conscious value online shopping, because they can complete transactions with retailers quickly. Additionally, such a finding may shed further light on the utilitarian nature of many consumers' usage of such apps, particularly when on the go (Wang

et al., 2015, McLean, 2018) and thus consumers may prefer to use the app to complete tasks rather than to seek escapism. Blázquez (2014) found that while utilitarian and hedonic values are important in shopping online, the utilitarian value was stronger than the hedonic value. However, while the findings in this study highlight that individuals may not want to 'escape' while using a retailer's mobile application, the results show that enjoyment was positively associated with continuous intention directly and indirectly through satisfaction. Interestingly, enjoyment has a slightly stronger influence on satisfaction and continuous intention than perceived usefulness, which is known as a strong, stable driver in technology acceptance research (Bhattacharjee, 2001b). In this regard, consumers value retail apps when they are fun to use but may not want to use them for the hedonic purpose of escapism.

We also found that satisfaction with the app experience influences a consumer's intention to continue to use the app in the future directly and indirectly through loyalty intention towards the retail brand. Accordingly, satisfaction with the user experience strongly predicts the intention to continue using the retailer's app in the future. Importantly, satisfaction with the app's user experience significantly increases the loyalty intention towards the retailer's brand, indirectly influencing the continuous intention to use the retailer's app. Therefore, when consumers have a loyalty intention towards the retail brand and spread positive reviews to other consumers about the retailer, they are willing to purchase from the brand in the future, and thus are likely to retain the retailer's app.

In addition, the direct positive effect of loyalty intention toward the retailer and the continuous intention to use the retailer's app outlines that researchers should not only focus on factors specifically related to the characteristics of the technology when investigating continuous use of technology but also the factors related to the brand (i.e. loyalty towards the brand). Prior research has failed to explore the role of brand-related factors in influencing the continuous use of mobile applications. Given the effect of loyalty towards the brand influencing the continuous usage intention of the app, we call for researchers to further explore pertinent brand-related factors which could influence the continuous use of the ever-growing number of retailers' digital channels.

Moreover, the results affirm that the intention to continue to use a retailer's app positively influences consumers' usage behaviour and purchase behaviour, which reflects that consumers use mobile retail apps to gather information on products and services, and to make brand purchases, in line with other recent research on branded mobile apps (Fang, 2019; Stocchi et

al., 2020). In this study it was noted that usage behaviour and purchase behaviour have a significant positive effect to and from the continuous intention to use the app which creates a positive feedback loop effect that reflects on the relationship continuity between past and future behaviour (see: Stocchi et al., 2020).

While Cortimiglia et al. (2011) highlighted three different types of apps: (1) for communication, (2) for information, and (3) for purchase, in line with Bellman et al. (2011) and Wang et al. (2015), we suggest that for continued usage of a retailer's app, consumers utilise the app for a combination of all three reasons. Therefore, retailers' shopping apps can deliver services to the consumer to accomplish a variety of tasks on the go that may involve communicating with brands for planning or making a relevant purchase, finding directions to the nearest physical store, viewing the latest deals and offerings from the brand, or reading product reviews that may help in the facilitation of a future purchase. Thus, consumers can complete a variety of tasks on a retailer's mobile app.

### ***Managerial Implications***

Several key managerial implications are provided through this study. This research highlights that the utilitarian value of perceived usefulness, ease of use, personalisation, and the hedonic value of enjoyment are important in influencing satisfaction and the continuous usage of retailers' mobile apps. The direct impact of perceived usefulness and enjoyment on continuous intention and the indirect impact through satisfaction suggests that the usefulness and enjoyment influence continuous intention even if the customer was not fully satisfied with the app's experience. However, ease of use and personalisation are also important in increasing consumers' satisfaction with retailers' mobile apps, leading consumers to continue using and retaining the app.

In terms of perceived usefulness, retailers ought to offer consumers an app that provides value to the consumer differentiating it from the mobile website to encourage consumers to retain and continue to use the mobile application. In this regard, mobile apps have the advantage of utilising the smartphone's hardware, in turn, managers can utilise the smartphone hardware to provide consumers innovative shopping features to enhance the shopping experience through the smartphone. For example, managers could utilise the smartphone's camera (e.g. to scan the tag of a product, or offer augmented reality services), use GPS location data (e.g. to locate the

nearest store or to locate the nearest convenient pickup or delivery location, or utilise geofencing technology), send push notifications (e.g. to get useful information on the delivery status of a purchased product, or to be notified of discounts and deals on items the customer is interested in, and/or to be notified when an item is back in stock) to enhance the shopping experience. It is important to note, that managers should always make sure that the consumers are in control of the way they want to shop; for example, concerning push notifications, consumers should be able to choose whether to receive them or not, as it is essential that retailers communicate with consumers through mobile devices in a non-intrusive manner (Winer, 2009; Persaud and Azhar, 2012).

In terms of perceived enjoyment, the findings highlight to managers that consumers value mobile shopping apps that are fun to use and offer a pleasant experience. The importance of the hedonic value is in line with Shankar et al.'s (2016) early research, encouraging brands to update their apps regularly to sustain the ability to offer consumers a fun customer experience. Due to the use of the advanced features available in mobile apps (e.g. saving content to a user dashboard, utilising the camera for an augmented reality experience, or location-specific content), consumers may find their shopping experience more enjoyable than other service channels (i.e. a retailer's website) due to the apps ability to draw on the hardware and software of the mobile device. More so, managers should consider drawing on saved user preferences within their app to develop more playful messages and the use of gamification elements as ways to enhance the hedonic appeal of their app.

The findings demonstrate that the ease of use remains valuable to experienced consumers who already continue to use the app as it increases their satisfaction with the app experience. Marketers can enhance the ease of use of retailers' apps by ensuring the clarity of information, graphics, and layout. For example, all informational content related to products must be easy to read and understand, while graphical content should be appealing and responsive to its environment, i.e. displaying information within the correct dimensions taking account of the screen size of a smartphone. In addition, the layout of the app's home page, user dashboards, and product pages should be developed in a user-friendly manner and well organised to enable consumers to easily navigate throughout the app. Accordingly, consumers should be able to effortlessly search for product features, select relevant categories and filter their selection based on their specific needs. More so, managers need to enable consumers to browse products freely through the app without forcing them to sign or create an account. While the collection of data through such activities can be beneficial to marketers, such action adds an additional step to

the searching experience. For example, returning customers may have logged out of the app, and forcing them to sign in before browsing products adds an additional step to be able to shop which may hinder the perception of the app's ease of use. Similarly, new customers may like to browse first before they decide to invest time into creating an account with the retailer.

Furthermore, this research highlights that personalising the user experience leads to a satisfactory app experience influencing consumers to continue using a retailer's mobile app. Thus, managers should continually innovate and utilise the unique hardware and software features of the mobile application to offer a tailored user experience that corresponds to a consumer's preferences, such as the app's ability to remember the consumer's login credentials, enabling consumers to save information in a personal dashboard (e.g. payment and delivery address information), a personalised view of relevant products and services, enabling the consumer to pre-select favoured categories, product sizes and features, the ability to favourite and save products, and to view previous orders. Retailers should continually test their app and use analytics programmes to identify and introduce the most relevant experiences that provide a personalised shopping experience.

This study also highlights that, although consumers who continue to use a retailer's mobile app value an app that is useful, easy to use, enjoyable, and offers a personalised experience, they may not want to spend much time when using the app, otherwise they may feel they are spending more time than they would like. The results of this research inform managers that, while consumers must enjoy the experience of using the app, they do not use the app to escape from the 'real world'. Therefore, spending more time on the app than is perceived necessary may result in dissatisfaction with the app's experience and consumers may reconsider whether to continue using the retailer's mobile app. Thus, managers should not be overly concerned if consumers are spending less time on the mobile application in comparison to other channels such as the e-commerce website. More so, managers could take a proactive approach and test the introduction of a time monitoring feature, indicating to the user how long they are spending on the app, such an addition could be a useful feature within a customer's dashboard or on each page of the app to keep the consumer informed on the length of time spent on the app.

Additionally, this research informs managers that loyalty intention toward the retailer influences continuous usage of mobile shopping apps, demonstrating that factors that are beyond and unrelated to the technology also influence consumers' continuous use of mobile

shopping apps. Therefore, as traditional retailers operate through multiple (Omni) market channels (e.g. physical store, website, mobile app), traditional retailers must ensure a similar sustainable customer experience across all operating channels. In this regard, it is essential to develop a dynamic marketing strategy that stimulates customer loyalty through the brand's various operating channels, as each channel will influence consumers to continue to use services.

Finally, this study highlights that a favourable continuous usage intention increases the consumer's usage behaviour and purchase behaviour of the retailer's mobile app. In this regard, consumers who continue to use a retailer's app may use the app to search for information on products and services, locate a physical store, plan for future purchases, or make purchases through the app.

### **LIMITATIONS AND FUTURE RESEARCH**

This research is constrained by certain limitations, which provide future avenues for research. This research was conducted on experienced consumers who had already retained and continue to use a retailer's mobile app. In addition, data collected on the actual frequency of use and frequency of purchase are self-reported, and therefore participants may have not recalled how much they use or purchase from the app accurately. Building on this, we encourage future research to explore innovative ways to collect data that reflect an accurate representation of use frequency and purchase frequency. In this regard, it would be interesting to investigate these relationships in a longitudinal setting to understand how the relationships in this study behave over time within the continuous usage context. In addition, it may be more robust for future studies to replicate and extend the theoretical framework in this study by collecting a sample of mobile app users from only one retailer in a longitudinal setting.

Furthermore, although the model in this research has good explanatory power, there may be other factors that impact behaviour. Therefore, further exploration and testing of antecedents related to the utilitarian, hedonic and brand-related factors presented in this study or factors that were not accounted for in this study should be explored. In addition, conducting a comparison between downloaders, and short-term and long-term users could significantly add to our understanding of consumer behaviour and mobile shopping apps. More so, it could also be plausible that the behavioural outcome variables examined in this study could be drivers of continued use, thus it would be advantageous for future research to explore this line of thinking.

It is also important to understand the factors that lead to an overall satisfactory customer experience when retailers integrate services and require customers to complete the service delivery transaction in a physical store, such as the click and collect service. In other words, how can retailers create the ultimate synergy between all operating channels, when services that are offered by retailers in the digital environment extend to the physical environment.

Additionally, as we found that escapism negatively influences satisfaction with the app experience, which is in contrast to the body of literature on escapism within the e-commerce domain, replicating the theoretical model of this study, or integrating the escapism variable into other theoretical frameworks to investigate continuous usage of mobile applications would help in understanding the role of escapism in the continuous usage of services within m-commerce. Given the results of the role of escapism in influencing the continuous use of retailers' mobile apps, future researchers could explore this finding in greater detail through the theoretical lens of flow theory. It is worth noting that this research captures the role of escapism in the continued usage context of retailers' mobile apps in a general sense; therefore, investigating the role of escapism in a situational context could be interesting for future research. For example, can escapism influence satisfaction with the app experience positively in some situations and negatively in other situations? Furthermore, if negative escapism is a result of consumers' app use for a long period of time, at what point in time can a positive escapism effect becomes a negative one? Future research should also aim to understand how the effect of escapism extends to consumers' brand-related factors such as brand perception and loyalty.

Finally, this research was one of the first to combine technology, cognitive psychology, and brand-related factors to understand the continuous use of retailers' mobile applications. We call for future research to move beyond the exploration of technology-related factors and to further examine brand-related and cognitive psychology factors influencing the continued use of retailers' and other service providers' mobile applications.

Figure 1. Research Model and Hypotheses

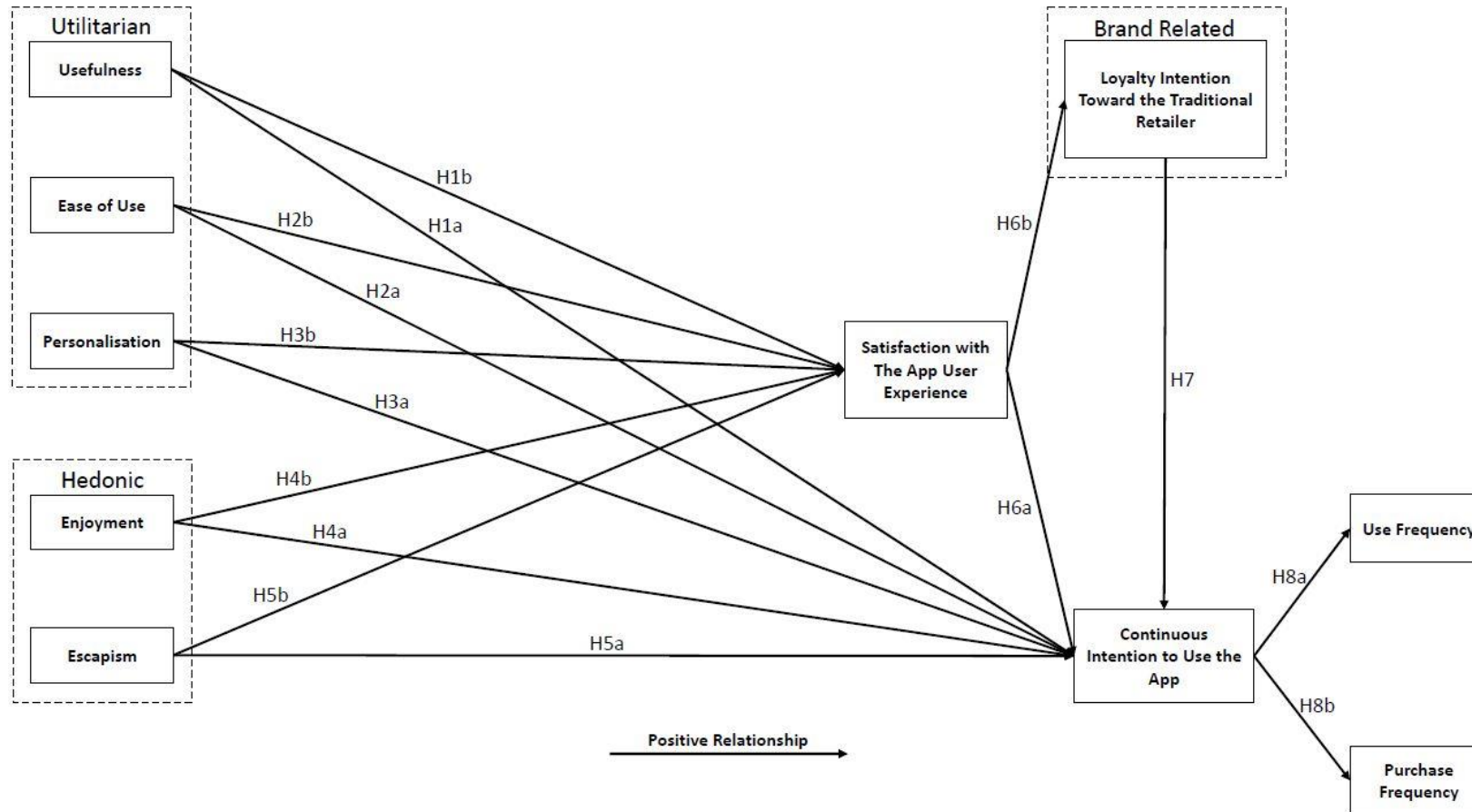




Figure 2. Research Model and Hypotheses Results

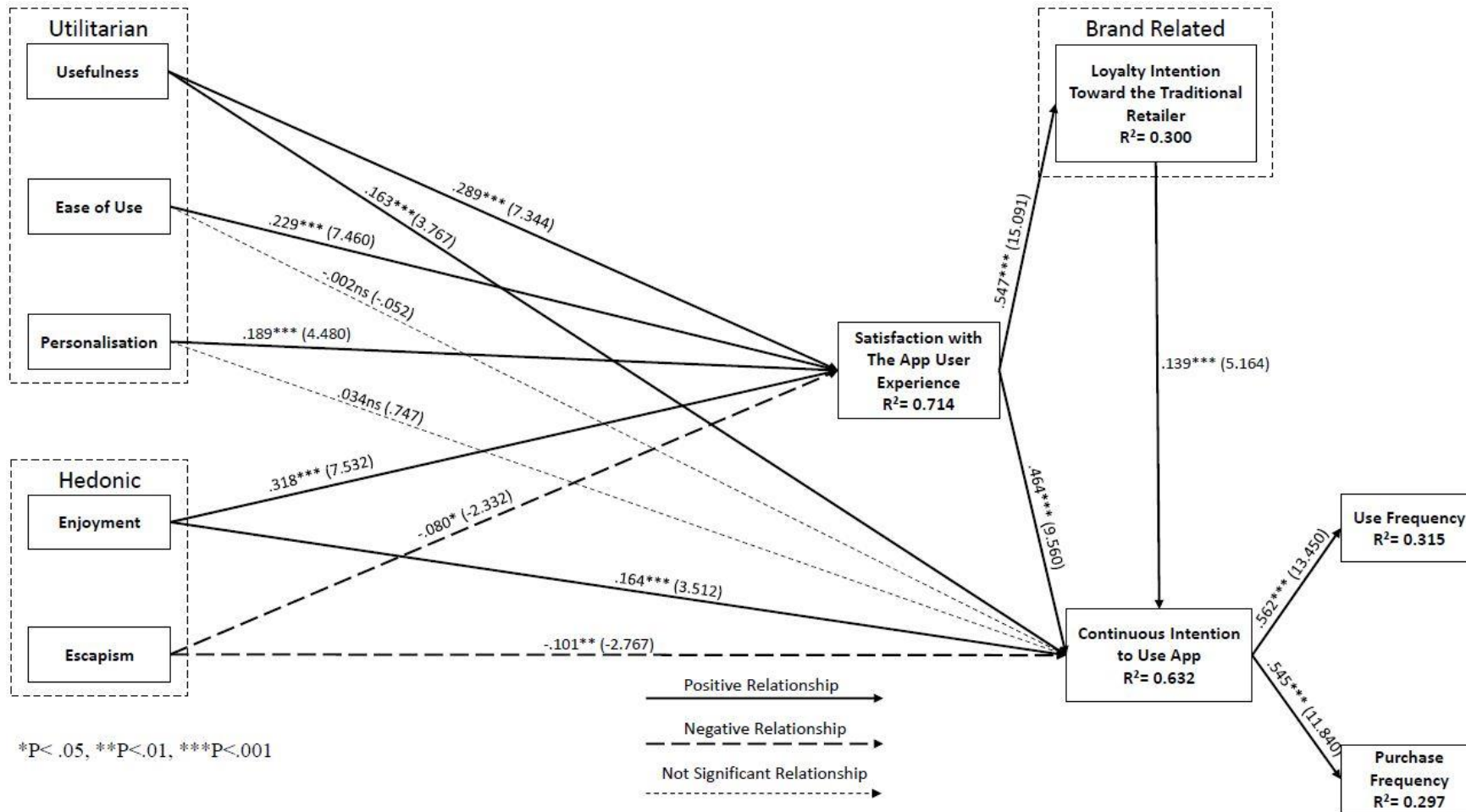


Table 1. Overview of research on the continued use of retail mobile apps

| Reference                 | Research type | Sample size                      | Theoretical foundation         | Antecedents  | Moderators | Outcome   | Description/ findings   |
|---------------------------|---------------|----------------------------------|--------------------------------|--|------------|---|---|
| This study                | Empirical     | 1009 consumer sample             | ECM-IT                         | Ease of use, usefulness, personalisation, enjoyment, escapism, satisfaction with app user experience, loyalty toward the retailer's brand                | NA         | Intention to continue to use retail apps, use frequency, purchase frequency | This study examines variables influencing consumers' satisfaction with using a retailer's app and continuous intention to use the app in a multi-channel retail context with consumers in the UK. Specifically, this research focuses on traditional retailers who had a high-street presence prior to the introduction of other digital channels (e.g. website or app). This study finds that utilitarian (usefulness, ease of use, personalisation), and hedonic (enjoyment) play a positive role in influencing consumers to continue to use a retailer's app. Interestingly, it is found that escapism negatively impacts consumers satisfaction with using the app and continuous intention to use a retailer's app. The study finds that loyalty intention toward the retailer is related to continuous intention to use the app. This research also demonstrates that the consumer's satisfaction with using the app positively influences continuous intention to use the app directly and indirectly through increasing the loyalty intention toward the retailer's brand. |
| Alnawas and Aburub (2016) | Empirical     | 311 consumer sample              | Uses and Gratifications theory | Learning benefits, hedonic benefits, personal integrative benefits, social integrative benefits  | NA         | Consumer satisfaction, purchase intention                                   | This study was conducted in the middle east. The study examined the learning, hedonic, personal, and integrative benefits that result from interacting with branded mobile apps on consumer satisfaction and purchase intention. This study did not focus on a particular industry. The study finds that learning benefits and hedonic benefits influence satisfaction and purchase intentions, while personal benefits influence satisfaction at the initial adoption of branded mobile apps.  |
| Chung et al. (2016)       | Empirical     | 201 students and consumer sample | ECM                            | Perceived usefulness, perceived ease of use, enjoyment, security/privacy, localisation/instant connectivity, personalisation, confirmation, satisfaction | NA         | Continued intention to use mobile apps                                      | This study examined factors influencing mobile shopping apps. This study finds that perceived usefulness, perceived ease of use, enjoyment, and personalisation positively influences satisfaction, while satisfaction positively influences the continued intention to use mobile apps. Confirmation, localisation/instant connectivity, security/privacy hypotheses were not supported. This study was conducted in the US.   |
| Kim et al. (2016)         | Empirical     | 503 consumer sample              | TAM                            | Perceived ubiquity, perceived informativeness, perceived personalisation, mobile app usefulness, playful engagement                                      | NA         | Mobile app stickiness, mobile app WOM                                       | Examined the role of mobile app features (perceived ubiquity, perceived informativeness and perceived personalisation), and mobile app benefits (benefits and playful engagement) and its role on post-adoption behaviours (mobile app stickiness and mobile app WOM). This study was conducted on US consumers, and respondents were asked to recall a mobile app that they use frequently. The study reports that 149 apps were identified from a variety of industries. All relationships were supported with  |

|                         |                        |  |  |  |                                      |   |   |
|-------------------------|------------------------|--|--|--|--------------------------------------|---|---|
|                         |                        |  |  |  |                                      |   | exception of the relationship perceived informativeness on perceived usefulness and playful engagement.   |
| Yuan et al. (2016)      | Empirical              | 434 consumer sample                      | TAM, TTF, ECM-IT   | Perceived Usefulness, perceived ease of use, perceived task technology fit, confirmation perceived risk, satisfaction  | Gender                               | Continuous intention  | This study investigated consumers' continuous intention to use mobile banking in China. The research highlights that satisfaction, perceived usefulness, perceived task-technology fit, and perceived risk are strong predictors of consumers' continuous intention to use mobile banking. Also perceived task-technology fit, perceived ease of use, and confirmation positively influenced perceived usefulness. Furthermore, the study finds that gender significantly moderated the relationship of perceived risk to continuance intention.  |
| Fang (2017)             | Empirical              | 637 consumer sample                      | Information systems research, Consumer Brand Engagement, self-construal theory | Localisation, ubiquity, Interactivity (active control, two-way communication, synchronicity), social presence, perceived usefulness, consumer brand engagement (cognitive processing, affection activation). | Independent Self-construal           | Continuance intention to use the app, repurchase intention from the brand | This study examined the factors that influence consumers' brand repurchase intention and continuous usage intention. The study found that localisation and ubiquity predict perceived usefulness and, interactivity, while social presence predicts consumer brand engagement. Furthermore, perceived brand usefulness and consumer brand engagement positively influence consumers' intention to continue using an app and consumers' repurchase intention from the brand. The study integrated the independent self-construal factor to test several moderating relationships in the theoretical model. All proposed moderating relationships were supported except for the relationship of ubiquity and perceived usefulness and perceived usefulness on repurchase intention from the brand. This study was conducted on branded apps from a variety of industries. |
| Kim et al. (2017)       | Exploratory /Empirical | 785 consumer sample                      | Consumer Behaviour   | Online Experience, Mobile experience, non-shopping apps (breadth, frequency, length), shopping apps, (breadth, frequency, length)  | NA                                   | App possession, mobile purchase   | This study investigates consumers' mobile app possession and mobile app purchase. The study highlights that consumers' online experience derived from online shopping, and consumers' m smartphone usage play a positive role in the possession of shopping apps. The research details that the type of consumer browsing behaviour explains consumer purchasing through mobile devices. The research investigated a variety of industries.   |
| Natarajan et al. (2017) | Empirical              | 675 consumer sample                      | TAM, DOI   | Perceived Usefulness, Perceived ease of use, perceived enjoyment, perceived risk, personal innovativeness, satisfaction, Intention to use  | Gender, experience, frequency of use | price sensitivity   | This study focused on understanding consumers continuous usage of mobile shopping apps while integrating the price sensitivity factor as an outcome of intention and satisfaction in the theoretical model. All hypothesised direct relationships in this study were supported except for the relationship of perceived risk and price sensitivity. The study highlights that personal innovativeness and perceived risk play an important role in predicting consumers' intention to use mobile shopping apps. This study was conducted on consumers from an e-retailer website in India.  |
| Newman et al. (2018)    | Empirical              | 277 consumer sample for study 1, and 212 | Modified TAM   | Study 1 and 2: Ease of use, app connection.  | Study 2: App usage frequency         | Study 1: Intention to recommend, Intention to purchase with the           | This study examines consumers usage of retail mobile apps. Study 1 highlights the importance of perceived ease of use in predicting consumers' connection with retail apps, while examining the effects on consumers intention to recommend the app to others,  |

|                       |                        |  |  |   |   |   |  |
|-----------------------|------------------------|--|--|---|---|---|--|
|                       |                        | consumer sample for study 2            |  |   |   | app, Intention to purchase in-store.<br><br>Study 2: purchase likelihood with the app, intention to purchase with the app instead of in-store | purchase with the app, and purchase in-store. Study 2 accounts for the app usage frequency's moderating role between ease of use and consumers' connection with the app, while examining a consumer's connection with the app, and perceived ease of use on purchase likelihood and intention to purchase with the app instead of in-store. This study focused on retailers that have a physical store.  |
| Baek and Yoo (2018)   | Exploratory /Empirical | 319 consumer sample                    | Usability Evaluation Framework                     | Branded app usability, branded app continuance usage intention, branded app referral intention                  | Moderating variable (retail versus non-retail shopping) | Brand loyalty   | This study focused on developing and validating a measure for branded app usability through undertaking a consumer-centric approach. The study also conducted a multigroup analysis on the theoretical framework to compare retail and non-retail apps. All relationships tested in the theoretical model were significant for retail apps. With regard to non-retail apps, all relationships were positively significant except for the continuous usage of the app on brand loyalty. This study was conducted on a variety of industries.  |
| McLean et al. (2018)  | Empirical              | 1024 consumer sample                   | MACE   | Customisation, convenience, ease of use, enjoyment, timeliness, satisfaction, emotions                          | Gender  | Experience  | This research developed a mobile application customer experience model to examine the factors that influence the customer experience during consumers' use of mobile apps. The research finds that utilitarian variables (convenience, ease of use, and customisation positively influence enjoyment and timeliness, while enjoyment and timeliness influence the customer experience. The results also demonstrate that gender and smartphone screen size plays a moderating role on the customer experience. This study was conducted on consumers from four multi-channel retailers in the UK.  |
| Stocchi et al. (2018) | Exploratory /Empirical | 22 qualitative sample/253 quantitative | Consumer engagement                                | Involvement, security, usefulness, ease of use, interpersonal utility attachment with the device, entertainment | NA  | Willingness to pay, willingness to recommend  | This research investigated the factors that motivate consumers to engage with branded mobile apps. The study is based on a mixed-methods approach. An exploratory qualitative approach was conducted for study 1 to identify relevant factors for theoretical development. Study 2 validated the theoretical framework through quantitative analysis. The results reveal that consumer involvement positively influences the utilitarian dimension (security, usefulness, and ease of use), and the hedonic dimension (interpersonal utility, attachment with the device and entertainment). In this study, a range of factors from the utilitarian and hedonic dimension influenced consumers' willingness to pay for the app and the willingness to recommend it. This research is conducted on apps from a variety of industries. |
| Tseng and Lee (2018)  | Empirical              | 303 consumer sample                    | D&M IS success model, TAM, reinforcement theory of | Functional benefits, experiential benefits, symbolic benefits, monetary benefits, system quality, information   | NA  | In-app Purchase intention, continuous intention (branded app), word of  | This study draws on a framework that utilises a dual-route to examine consumers' loyalty toward a branded app. The study finds that factors related to brand benefits positively influence parasocial interaction, while system characteristics consisting of system quality and information quality positively influence  |

|                       |           |                      |   |   |    |   |  |
|-----------------------|-----------|----------------------|---|---|----|---|--|
|                       |           |                      | friendship development                            | quality, parasocial interaction, perceived usefulness   |    | mouth (branded app)   | perceived usefulness. Furthermore, parasocial interaction and perceived usefulness influence in-app purchase intention, continuance intention to use the app, and word-of-mouth intention. The study was conducted on consumers who use apps from a variety of industries.   |
| Li and Fang (2019)    | Empirical | 497 consumer sample  | ECM-IT  | Perceived usefulness, brand-self congruity, expectation confirmation, perceived complementarity, brand attachment, satisfaction   | NA | Continuous intention  | This study examines the factors that influence consumers' continuance intention to use branded mobile apps through consumers' satisfaction with the app and brand attachment. The study finds there is a positive significant feedback loop between the relationship of brand attachment and satisfaction. More so, perceived usefulness influences satisfaction and continuous intention. Brand attachment and satisfaction positively influence continuance intention. Perceived complementarity positively influences perceived usefulness and satisfaction, and confirmation and brand-self congruity positively influence brand attachment. This study was conducted on consumers who use the 'MyStarbucks' branded mobile app in Taiwan. |
| Fang (2019)           | Empirical | 634 consumer sample  | Service dominant-logic and the lens of affordance | Visibility, persistence, interactivity (active control, two-way communication, synchronicity), association (connectivity, sense of safety), selectivity (customisation, localisation), brand competence, value-in-use (personalisation, experience, relationship), brand warmth | NA | Continuance intention, brand loyalty                                    | This study examines the factors that play a role in influencing consumers' continuance intention to use branded apps and brand loyalty. The study found that visibility, persistence, interactivity, association, and selectivity positively influence value-in-use. Subsequently, value-in-use positively influences brand competence, brand warmth, continuous intention and brand loyalty. More so, brand competence positively influences continuance intention, while brand warmth positively influences brand loyalty. This study was conducted on consumers' who use apps from various industries.  |
| Jeon et al. (2019)    | Empirical | 369 consumers sample | UTAUT   | Performance expectancy, effort expectancy, social influence, facilitating conditions, customer innovativeness, customer involvement, perceived trust  | NA | Behavioural intentions to use smartphone apps for flight ticket booking | This study examined the factors that motivate consumers' intention to use smartphone mobile apps for booking flight tickets. The study found that performance expectancy, facilitating conditions, customer innovativeness, and perceived trust positively influence customer intention to use smartphone apps for flight ticket booking. This study was conducted on consumers in Korea.  |
| Stocchi et al. (2019) | Empirical | 253 consumers sample | TAM   | Privacy of app, security of the app, design characteristics of app, ubiquity, app compatibility   | NA | Usage intention, word-of-mouth, willingness to pay                      | The study investigated the factors that motivate consumers' usage intention of branded mobile apps while revealing the outcomes of consumers branded mobile apps usage intention. The study highlights that privacy, customisation and compatibility positively influence usefulness, ease of use and usage intention. The study also highlights that usage intention positively influences word-of-mouth and the willingness to pay to continue to use the app.   |

|                       |           |  |  |  |             |   |  |
|-----------------------|-----------|--|--|--|-------------|---|--|
| McLean et al. (2020)  | Empirical | 474 consumer sample  | ECM-IT   | Ease of use, usefulness, enjoyment, subjective norms, customisation, attitude toward m-commerce app  | Screen size | Attitude toward the brand, purchase frequency, loyalty toward the brand | This study examines and compares consumers attitudes toward m-commerce retailers' mobile apps in an initial adoption stage versus a usage stage through a longitudinal study. This research finds that perceived ease of use and perceived usefulness influences consumers' attitudes in the initial adoption stage and the usage stage. The study reveals that enjoyment and customisation become stronger over time. Additionally, subjective norms positively influence outcomes in the initial adoption stage but not in the usage stage. Furthermore, consumers' attitude towards the app do not influence purchase frequency or attitudes towards the brand in the initial adoption stage, however, this becomes significant in the usage stage. This study was conducted in the UK with branded mobile apps from a variety of industries. |
| Stocchi et al. (2020) | Empirical | 781 consumers sample for study 1, and 2473 consumer sample for study 2 | Consumer decision-making process while utilising cognitive and psychological characteristics | Unaided branded app awareness, Aided branded app awareness, recent use, frequency of use, usefulness, ease of use practical relevance, self-enhancement, entertainment, visual appeal/layout | NA          | Continued use of branded apps   | This study examines the continued use of branded apps through the identification of two consumer decision-making routes. This research highlights that recent category usage, frequency of category usage, unaided branded app awareness, ease of use, usefulness, practical relevance, and entertainment play a positive role in influencing consumers to continue to use a branded mobile app. The study also reveals indirect effects that play a role in influencing the continued use of a branded app. This study was conducted in Australia on branded mobile apps from a variety of industries.  |

Table 2. Demographics in this study.

|                 |  | <b>n</b> | <b>%</b> |
|-----------------|--|----------|----------|
| Retail App      | H&M  | 228      | 22.6     |
|                 | John Lewis   | 261      | 25.9     |
|                 | Marks & Spencer  | 262      | 26.0     |
|                 | Next   | 258      | 25.6     |
| Gender          | Males  | 466      | 46.2     |
|                 | Females  | 543      | 53.8     |
| Age             | 18-24  | 101      | 10.0     |
|                 | 25-34  | 344      | 34.1     |
|                 | 35-44  | 275      | 27.3     |
|                 | 45-54  | 183      | 18.1     |
|                 | 55-64  | 102      | 10.1     |
|                 | 65+  | 4        | .4       |
| Education       | High school or less                                      | 132      | 13.1     |
|                 | Some further education                                   | 202      | 20.0     |
|                 | Graduated from further education (College/ Diploma etc.) | 277      | 27.5     |
|                 | Graduated from further education (University)            | 398      | 39.4     |
| Occupation      | Working Full-time  | 677      | 67.1     |
|                 | Working Part-time  | 168      | 16.7     |
|                 | Looking for work   | 29       | 2.9      |
|                 | Carer  | 25       | 2.5      |
|                 | Retired  | 32       | 3.2      |
|                 | Unemployed   | 40       | 4.0      |
|                 | Other  | 38       | 3.8      |
| Usage Frequency | Never  | 12       | 1.2      |
|                 | Once to few times a year                                 | 240      | 23.8     |
|                 | Monthly  | 466      | 46.2     |
|                 | Weekly   | 259      | 25.7     |
|                 | Daily  | 32       | 3.2      |
|                 | Never  | 87       | 8.6      |

|                           |   |     |      |
|---------------------------|---|-----|------|
| Purchase Frequency        | Once to few times a year                  | 417 | 41.3 |
|                           | Monthly                                   | 416 | 41.2 |
|                           | Weekly                                    | 81  | 8.0  |
|                           | Daily                                     | 8   | .8   |
| Preferred Shopping Method | Going to the store.                       | 479 | 47.5 |
|                           | Through the website.                      | 221 | 21.9 |
|                           | Through the app via a tablet.             | 107 | 10.6 |
|                           | Through the app via the smartphone.       | 203 | 20.0 |
| Type of App Use           | Shopping.                                 | 353 | 35.0 |
|                           | Browsing.                                 | 591 | 58.6 |
|                           | Keeping up to date with the latest news.  | 65  | 6.4  |
| Phone Screen Size         | Large screen size (iPhone 6+ or similar)  | 231 | 22.9 |
|                           | Regular screen size (iPhone 6 or similar) | 778 | 77.1 |



Table 3. Composite Reliability (CR), Convergent and Discriminant Validity Results.

|        | SFL    |      | CR    | AVE   | ENJOY        | PEOU         | PU           | ESCAP        | CIUA         | PERS         | LITTR        | SAUE         |
|--------|--------|------|-------|-------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| ENJOY  | ENJOY1 | .895 | 0.916 | 0.783 | <b>0.885</b> |              |              |              |              |              |              |              |
|        | ENJOY2 | .896 |       |       |              |              |              |              |              |              |              |              |
|        | ENJOY3 | .864 |       |       |              |              |              |              |              |              |              |              |
| EOU    | PEOU1  | .818 | 0.946 | 0.744 | 0.645        | <b>0.863</b> |              |              |              |              |              |              |
|        | PEOU2  | .873 |       |       |              |              |              |              |              |              |              |              |
|        | PEOU3  | .910 |       |       |              |              |              |              |              |              |              |              |
|        | PEOU4  | .847 |       |       |              |              |              |              |              |              |              |              |
|        | PEOU5  | .846 |       |       |              |              |              |              |              |              |              |              |
|        | PEOU6  | .879 |       |       |              |              |              |              |              |              |              |              |
| USEFUL | PU1    | .835 | 0.948 | 0.752 | 0.778        | 0.678        | <b>0.867</b> |              |              |              |              |              |
|        | PU2    | .877 |       |       |              |              |              |              |              |              |              |              |
|        | PU3    | .892 |       |       |              |              |              |              |              |              |              |              |
|        | PU4    | .897 |       |       |              |              |              |              |              |              |              |              |
|        | PU5    | .880 |       |       |              |              |              |              |              |              |              |              |
|        | PU6    | .819 |       |       |              |              |              |              |              |              |              |              |
| ESCAP  | ESCAP1 | .856 | 0.922 | 0.799 | 0.582        | 0.285        | 0.534        | <b>0.894</b> |              |              |              |              |
|        | ESCAP2 | .952 |       |       |              |              |              |              |              |              |              |              |
|        | ESCAP3 | .870 |       |       |              |              |              |              |              |              |              |              |
| CIUA   | CIUA1  | .948 | 0.961 | 0.891 | 0.677        | 0.581        | 0.678        | 0.352        | <b>0.944</b> |              |              |              |
|        | CIUA2  | .962 |       |       |              |              |              |              |              |              |              |              |
|        | CIUA3  | .921 |       |       |              |              |              |              |              |              |              |              |
| PERS   | PERS1  | .878 | 0.889 | 0.728 | 0.704        | 0.443        | 0.665        | 0.750        | 0.530        | <b>0.853</b> |              |              |
|        | PERS2  | .857 |       |       |              |              |              |              |              |              |              |              |
|        | PERS3  | .824 |       |       |              |              |              |              |              |              |              |              |
| LITTR  | LITR1  | .665 | 0.885 | 0.661 | 0.473        | 0.442        | 0.456        | 0.236        | 0.531        | 0.375        | <b>0.813</b> |              |
|        | LITR2  | .793 |       |       |              |              |              |              |              |              |              |              |
|        | LITR3  | .831 |       |       |              |              |              |              |              |              |              |              |
|        | LITR4  | .939 |       |       |              |              |              |              |              |              |              |              |
| SAUE   | SAT1   | .891 | 0.930 | 0.815 | 0.774        | 0.686        | 0.772        | 0.468        | 0.763        | 0.646        | 0.536        | <b>0.903</b> |
|        | SAT2   | .906 |       |       |              |              |              |              |              |              |              |              |
|        | SAT3   | .911 |       |       |              |              |              |              |              |              |              |              |

Notes: The diagonal bolded values represent the square root of the AVEs. The off-diagonal not bolded values represent the inter-construct correlations. SFL: Standardised Factor Loading, CR: Composite Reliability, AVE: Average Variance Extracted. Enjoy: Enjoyment, EOU: Ease Of Use, USEFUL: Usefulness, ESCAP: Escapism, CIUA: Continuous Intention to Use the App, PERS: Personalisation, LITTR: Loyalty Intention Toward the Traditional Retailer, SAUE: Satisfaction with the App User Experience.

Table 4. Path Regression Coefficients of Hypothesised Structural Relationships.

| Hypotheses | Relationship    |   |       | S.Estimate | S.E  | C.R    | P    |
|------------|-----------------|---|-------|------------|------|--------|------|
| H1a        | Usefulness      | → | CIUA  | .163       | .039 | 3.767  | ***  |
| H2a        | Ease of use     | → | CIUA  | -.002      | .038 | -.052  | .959 |
| H3a        | Personalisation | → | CIUA  | .034       | .036 | .747   | .455 |
| H4a        | Enjoyment       | → | CIUA  | .164       | .044 | 3.512  | ***  |
| H5a        | Escapism        | → | CIUA  | -.101      | .024 | -2.767 | .006 |
| H1b        | Usefulness      | → | SAUE  | .289       | .037 | 7.344  | ***  |
| H2b        | Ease of Use     | → | SAUE  | .229       | .036 | 7.460  | ***  |
| H3b        | Personalisation | → | SAUE  | .189       | .035 | 4.480  | ***  |
| H4b        | Enjoyment       | → | SAUE  | .318       | .042 | 7.532  | ***  |
| H5b        | Escapism        | → | SAUE  | -.080      | .024 | -2.332 | .020 |
| H6a        | SAUE            | → | CIUA  | .465       | .046 | 9.560  | ***  |
| H6b        | SAUE            | → | LITTR | .547       | .029 | 15.091 | ***  |
| H7         | LITTR           | → | CIUA  | .139       | .032 | 5.164  | ***  |
| H8a        | CIUA            | → | UF    | .562       | .049 | 13.450 | ***  |
| H8b        | CIUA            | → | PF    | .545       | .054 | 11.840 | ***  |

\*P&lt; .05, \*P&lt;.01, \*\*\*P&lt;.001

Note: S.Estimate: Standardised Estimates, S.E: Standard Error, C.R: Critical Ratio. SAUE: Satisfaction with the App User Experience, CIUA: Continuous Intention to Use the App, LITTR: Loyalty Intention Toward the Traditional Retailer, UF: Use Frequency, PF: Purchase Frequency.

Table 5. Results of Indirect Mediated Hypothesised Structural Relationships.

| Hypotheses |                 | Relationship |       |   | S.E  | P     |      |
|------------|-----------------|--------------|-------|---|------|-------|------|
| H1b        | Usefulness      | →            | SAUE  | → | CIUA | .157  | ***  |
| H2b        | Ease of Use     | →            | SAUE  | → | CIUA | .124  | ***  |
| H3b        | Personalisation | →            | SAUE  | → | CIUA | .102  | ***  |
| H4b        | Enjoyment       | →            | SAUE  | → | CIUA | .172  | ***  |
| H5b        | Escapism        | →            | SAUE  | → | CIUA | -.043 | .022 |
| H6b        | SAUE            | →            | LITTR | → | CIUA | .076  | ***  |

Note: S.Estimate: Standardised Estimates, SAUE: Satisfaction with the App User Experience, CIUA: Continuous Intention to Use the App, LITTR: Loyalty Intention Toward the Traditional Retailer.

Table 6. Overview of all supported and non-supported hypothesis tested in this research.

| Hypotheses |                 | Relationship |       |   | Result           |                  |
|------------|-----------------|--------------|-------|---|------------------|------------------|
| H1a        | Usefulness      | →            | CIUA  |   | supported        |                  |
| H1b        | Usefulness      | →            | SAUE  | → | CIUA             | supported        |
| H2a        | Ease of use     | →            | CIUA  |   | not supported    |                  |
| H2b        | Ease of Use     | →            | SAUE  | → | CIUA             | supported        |
| H3a        | Personalisation | →            | CIUA  |   | not supported    |                  |
| H3b        | Personalisation | →            | SAUE  | → | CIUA             | supported        |
| H4a        | Enjoyment       | →            | CIUA  |   | supported        |                  |
| H4b        | Enjoyment       | →            | SAUE  | → | CIUA             | supported        |
| H5a        | Escapism        | →            | CIUA  |   | counter evidence |                  |
| H5b        | Escapism        | →            | SAUE  | → | CIUA             | counter evidence |
| H6a        | SAUE            | →            | CIUA  |   | supported        |                  |
| H6b        | SAUE            | →            | LITTR | → | CIUA             | supported        |
| H7         | LITTR           | →            | CIUA  |   | supported        |                  |
| H8a        | CIUA            | →            | UF    |   | supported        |                  |
| H8b        | CIUA            | →            | PF    |   | supported        |                  |

SAUE: Satisfaction with the App User Experience, CIUA: Continuous Intention to Use the App, LITTR: Loyalty Intention Toward the Traditional Retailer, UF: Use Frequency, PF: Purchase Frequency.

## Appendix: Adapted Scales used in this study.

| Scale Items   | Variable                                  | Adapted from                                 |
|---|---|--|
| <ul style="list-style-type: none"> <li>• Learning to use the app is easy for me.</li> <li>• I find it easy to get the app to do what I want it to do.</li> <li>• My interaction with the app is clear and understandable.</li> <li>• I find the app to be flexible to interact with.</li> <li>• It is easy for me to become skilful at using the app.</li> <li>• I find the app easy to use.</li> </ul>   | Perceived Ease of Use                     | (Davis, 1989)                                |
| <ul style="list-style-type: none"> <li>• Using the app enables me to accomplish shopping tasks more quickly.</li> <li>• Using the app enhances my shopping performance.</li> <li>• Using the app increases my shopping productivity.</li> <li>• Using the app enhances my shopping effectiveness.</li> <li>• Using the app would make it easier to shop.</li> <li>• I find the app to be useful.</li> </ul>   | Perceived Usefulness                      | (Davis, 1989)                                |
| <ul style="list-style-type: none"> <li>• I find using the app to be enjoyable.</li> <li>• The actual process of using the app is pleasant.</li> <li>• I have fun using the app.</li> </ul>  | Perceived Enjoyment                       | (Davis et al., 1992; Venkatesh et al., 2012) |
| <ul style="list-style-type: none"> <li>• Shopping from the app "takes me away from it all".</li> <li>• Shopping from the app makes me feel like I am in another world.</li> <li>• I get so involved when I shop from the app that I forget about anything else.</li> </ul>  | Escapism                                  | (Mathwick et al., 2001)                      |
| <ul style="list-style-type: none"> <li>• I feel that my needs have been met using the app or doing transactions with this app.</li> <li>• This app provides me with information and products according to my preferences.</li> <li>• It feels like the app is talking personally to me as a customer.</li> <li>• It is important to me that the app feels like my personal area when I use it.</li> <li>• The requirement to log into the app makes me feel recognized as a customer.</li> <li>• I am satisfied with the experience.</li> <li>• The experience is exactly what I need.</li> <li>• The experience has worked out as well as I thought it would.</li> </ul> | Personalisation                           | (Rose et al., 2012)                          |
|   | Satisfaction with the App User Experience | (Song and Zinkhan, 2008)                     |

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|   |   |   |
|---|---|---|
| <ul style="list-style-type: none"> <li>• I plan to continue to use the app in the future.</li> <li>• I intend to continue to use the app in the future.</li> <li>• I predict I would continue to use the app in the future.</li> <li>• I encourage friends and relatives to shop with the brand.</li> <li>• I say positive things about the brand to other people.</li> </ul> | Continuous Intention to Use the App               | (Venkatesh et al., 2012)  |
| <ul style="list-style-type: none"> <li>• I intend to shop the brand in the next few years.</li> <li>• I would recommend the brand to someone who seeks my advice.</li> </ul>  | Loyalty Intention Toward the Traditional Retailer | (Zeithaml et al., 1996)   |
| <ul style="list-style-type: none"> <li>• How often do you use the app? (The scale for this question ranged from Never to Daily)</li> </ul>  | Use Frequency                                     | (Dehghani et al., 2018; Lederer et al., 2000; Venkatesh et al., 2012) |
| <ul style="list-style-type: none"> <li>• How often do you purchase from the app? (The scale for this question ranged from Never to Daily)</li> </ul>  | Purchase Frequency                                | (Dehghani et al., 2018; Lederer et al., 2000; Venkatesh et al., 2012) |

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Note: The questionnaire was programmed to display the name of the retailer's mobile app, based on the screening process at the beginning of the questionnaire. Similarly, regarding the question on loyalty intention toward the traditional retailer, the question displayed the name of the retailer's brand.

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