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The role of self-efficacy and customer satisfaction in driving loyalty to the mobile shopping application

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Abstract
Purpose – The purpose of this paper is to develop and empirically test a model that examines the relationship between post-adoption self-efficacy, satisfaction, and loyalty in the usage of mobile shopping applications.

Design/methodology/approach – A structured questionnaire was used to collect data from respondents who had used mobile shopping applications to make purchases. Data analysis was done using partial least square structural equation modelling.

Findings – The results show that self-efficacy and satisfaction have a positive impact on continuance intention; however, the same may not lead to advocacy. The results also show that some antecedents of self-efficacy and satisfaction at the post-adoption stage differ from the pre-adoption intention stage.

Practical implications – The findings of the study provide a better understanding of the factors likely to influence loyalty among customers using mobile shopping applications. The findings also provide valuable insights into the factors that e-retailers need to focus to build self-efficacy among their customers using mobile interface.

Originality/value – The contribution of the paper lies in eliciting the differences between customer choice model at the pre-adoption and post-adoption stage for mobile shopping. Furthermore, the study demonstrated the role of a cognitive factor of self-efficacy in loyalty at the post-adoption stage that is pre-dominantly researched with affective factor of satisfaction.

Keywords Word of mouth, Mobile shopping, Structural equation modelling, Loyalty, Self-efficacy, Partial least square, M-retail

1. Introduction
The twenty-first century has seen a paradigm shift in the retail industry by rapid diffusion of web-based technologies. Brick and mortar retailers venturing into e-retail followed by the emergence of pure-play e-retailers changed the retailing landscape in the first decade. The second decade is witnessing the emergence of m-shopping as the new avatar of online retailing. Online retailers are increasingly targeting avid users of smartphones to expand their reach effectively by making huge investments in promoting mobile retail. Mobile applications, or “mobile apps”, are transforming the retail world. A mobile app is similar to a virtual store of that retailer. Retailers have been aggressively promoting usage of mobile apps to their customers in recent years. Initial adoption of mobile retailing and similar technologies in various domains has received considerable attention from researchers across the world (Bittner et al., 2000; Curran and Meuter, 2005). In case of mobile apps, beyond the initial trials, which were led by cash backs, trial coupons, mobile-only offers, there is a need to understand customer experiences acting as enablers and deterrents in continuance usage of mobile apps. The post-adoption customer behaviour towards mobile apps for shopping remains largely unexamined in the academic literature (Taylor and Levin, 2014). With the increasing focus on customer loyalty, it is important to understand the enablers and challenges in fostering loyalty in using mobile apps among customers.
Loyalty has been considered to be a key factor in an organisation’s success and sustainability over time (Flavián et al., 2006; Keating et al., 2003). With increasing focus on the web and the mobile devices as modes of business, researchers are investigating the role of loyalty in several e-commerce sectors including online sale of books, groceries, apparel, consumer electronics, etc. (Reichheld and Schefter, 2000). There is strong literature on the positive effect of post-adoption satisfaction on customer repeat purchase (Casaló et al., 2008; Oliver, 1980; Yoon and Kim, 2000) and advocacy (Bansal and Voyer, 2000; Chevalier and Mayzlin, 2006). Furthermore, some researchers have found the role of self-efficacy in usage continuance (Taylor and Levin, 2014; Wang et al., 2013). Self-efficacy is especially relevant in case of usage of mobile devices. While mobile devices provide advantages of anywhere, anytime convenience, they also add to the challenge of small screen size, unstable environment (usage while travelling, walking, etc.), and chances of errors while entering data as compared to desktops/laptops. However, there is little research on the role of self-efficacy in mobile device usage for shopping and making payments. This study is aimed at exploring self-efficacy (cognitive component) and satisfaction (affective component) as drivers of loyalty in the usage of mobile shopping apps. Towards this aim, the study explores potential drivers of customer loyalty in the mobile application setting that could be useful to enhance previous models explaining online customer loyalty.

This study offers twofold contribution – first, it investigates the role of self-efficacy in addition to satisfaction in the usage of mobile apps for retail. Second, it adds to the body of knowledge by focusing on the post-adoption behaviour of mobile apps that is an enrichment of the existing literature. This is among the initial few studies on post-adoption behaviour towards mobile shopping apps that are fast changing the retailing landscape across the world. In the following sections, conceptual model and hypotheses for the study are drawn based on related literature. This is followed by a description of the research methods and presentation of the findings. The last section of the paper provides conclusions and discussion of the findings as well as research limitations and propositions for future work.

2. Literature review
This study is aimed at exploring the drivers of post-adoption behavioural loyalty towards mobile shopping apps. Researchers have used technology adoption model (TAM) and theories developed in the same genre subsequently (Davis, 1989; Venkatesh et al., 2003) to understand the initial adoption of similar technologies. These theories have essentially looked at usefulness and ease of use of such technologies for initial adoption intention. Other theories in this space have also explored social aspects and self-efficacy with respect to technology usage intention (Bandura, 1982, 1986; Hayashi et al., 2004). Researchers exploring post-adoption behaviour have looked at satisfaction and loyalty through the lens of expectation-confirmation theory (ECT) and theory of exit, voice, and loyalty (Hirschman, 1970). This study looks at an integrative approach building on technology adoption and loyalty theories with specific nuances of consumer behaviour towards relatively newer web and mobile technologies.

2.1 Theoretical underpinning of customer loyalty
Loyalty is a widely researched construct in marketing literature. It has been argued that while the initial trial is a critical step in the adoption process, the ultimate goal is to keep customers continuing using a product on a regular basis. Some of the early studies define loyalty as the repeat purchasing of a particular service or product (Homburg and Annette Giering, 2001). In his seminal work on the theory of exit, voice, and loyalty, Hirschman (1970) proposed that customer responses to a firm’s services at the post-adoption stage are based on the performance experience of the organisation. Those facing problems with an organisation’s service may decide to stop buying exercising the exit option or raise
complaints to the company representatives utilising the voice option. Another set of customers who have good experiences with the firm continue their relationships thereby expressing loyalty to the firm.

With increasing importance of the virtual environment for making purchases, researchers have been investigating online loyalty extending the concept of traditional loyalty in the consumer’s online behaviour. In a meta-analysis of empirical studies on online loyalty, authors looked at around 44 studies in this space (Toufaily et al., 2013). The study observed that e-loyalty is sometimes analogous to the concept of loyalty to a store through repeat visit behaviour and the purchase of various brand items in the store. The authors, in this study, analysed construct operationalization by different scholars and observed that their definitions reflect the behavioural and attitudinal dimensions of loyalty similar to the seminal work of Oliver (1999) or Jacoby and Kyner (1973). Researchers focusing on the behavioural aspect define loyalty as an intention to maintain the behaviour on the web, such as the intention to revisit, reorder, or repurchase while those looking at attitudinal dimension define loyalty as an attitudinal preference, or psychological attachment, accompanied by repeat behaviour. The attitudinal component considers not only the retailer in focus but also the alternatives available including completion. Researchers investigating online have explored the domain through behavioural approach (e.g. Yun and Good, 2007), attitudinal approach (e.g. Yang and Peterson, 2004), or even a composite approach considering attitudinal as well behavioural components (Donio et al., 2006; Ribbink et al., 2004) in their empirical examinations.

As the focus of this study is on customer satisfaction and self-efficacy with the mobile shopping app of a self-chosen retailer(s) and not so much on the competitive offerings, using behavioural loyalty as outcome variable was deemed to be appropriate. Behavioural loyalty may be expressed by customers in multiple ways – by continuing usage of services, and by indirectly promoting usage among other potential and existing customers (e.g. positive word of mouth (WOM)) (Casaló et al., 2008; Kim et al., 2009; Shankar et al., 2003). Accordingly, this study looked at repeat purchase/continuance intention and WOM intention as the two dimensions of loyalty for this study.

There is evidence suggesting that initial adoption and continued use behaviours are influenced by different factors (Karahanna et al., 1999; Parhasarathy and Bhattacharjee, 1998) and pre-adooption models might not be completely applicable to studying post-adoption behaviour. Furthermore, actual usage experience of technology is likely to have a stronger influence on future behaviour as compared to perceptions based on the secondary information before trial. Motivated by these directions, the current study develops a conceptual model that focuses explicitly on the actual continued use of mobile shopping apps over time.

2.2 Mobile retailing

A mobile device is an electronic, portable device that consumers carry with them and engage with frequently during their daily activities (e.g. commuting, working, and shopping). The definition of the mobile device includes not only a mobile phone or smartphone but also other devices such as tablets, mini-tablets, phablets (phone tablets), and wearable technology such as smart watches (Andrews et al., 2016). While internet increased the access and reduced the search costs for the consumers, mobile devices increased the access by being independent of time and place and are customizable based on location and personal profile (Ström et al., 2014). Characteristics of mobile devices that make them unique for the customers as well as firms are portability, personal device, networking across an array of information sources, textual/visual content capability, and convergence (access a wide array of functions and services) (Larivière et al., 2013). By using mobile devices customers get the value that may be informational, personal, social, emotional,
functional, or monetary. At the same time, firms benefit from building deeper relationships, cost reduction, customer co-creation, customer insights, real-time customer tracking, and ability to influence customers using mobile interfaces (Larivière et al., 2013). Mobile devices enable consumers to interact with desired targets (retailers, brands, other consumers) at all times, including when moving from one location to another (Andrews et al., 2016). Usage of mobile devices for shopping is growing at a tremendous pace keeping pace with adoption of mobile devices. Mobile broadband is more pervasive than fixed broadband around the world especially in emerging markets like China and India, which together account for roughly one-third of mobile handsets worldwide (mobiforge.com). For retailers, customers using mobile devices tend to place orders at a higher rate and with higher ticket size (De Canio et al., 2017; Shankar et al., 2016; Wang et al., 2015). To take higher advantage of the mobile platform, there has been increasing shift among retailers to promote mobile shopping apps[1] for ensuring better data security and preventing competition to get customer data stored in cookies (Krishnamurthy, 2015; Taylor and Levin, 2014). Mobile apps tend to be more user-friendly as compared to mobile websites as apps enable firms to take full advantage of mobile operating systems. Also, content on mobile apps can be tailored for specific mobile operating systems as against mobile web pages that render a more generic content (Xu et al., 2014). While there has been the aggressive promotion of mobile shopping apps by retailers, the literature on enablers and challenges in adoption and usage continuance of the same remains sparse (Downes and Nunes, 2013; Muzellec et al., 2016). This platform, therefore, offers an interesting context to study changing consumer behaviour.

2.3 Hypothesis development and conceptual model
Towards building a conceptual model, satisfaction as the affective component (Oliver, 1980) and self-efficacy as the cognitive component (Bandura, 1982, 1997) acting as predictors of loyalty are the focal constructs in this study. Usability of the mobile interface (studied through aesthetics and navigability), trust in the retailer, and the service experience act as antecedents in the research model. The outcome variable, loyalty, is captured through continuance intention and WOM as consequences. In this section, relevant literature on these constructs in the proposed model and their relationships with respect to loyalty is reviewed in detail.

2.3.1 Satisfaction and self-efficacy. Self-efficacy. Self-efficacy is defined as a judgment of a person of his/her own capability to execute courses of action required for attaining desired performance. In a seminal work on social cognitive theory, Bandura (1982) proposed that individual performance is driven by judgments of one’s own skills and not with the actual skill-set. Furthermore, the theory posits that customers’ beliefs about their ability will determine their response to the usage of a product or service (Bandura, 1982). The social cognitive theory has been explored by marketing researchers with the aim of testing whether enhancing customers’ self-efficacy increases their tendency to purchase products (Dabholkar and Sheng, 2009; Hernández et al., 2010; Mukhopadhyay and Johar, 2005). Furthermore, researchers have observed that self-efficacy is specific to a given set of tasks, as against generalised perceptions of self-capability (Gist and Mitchell, 1992) and such judgments are idiosyncratic to particular domains. Specific to the domain of technology acceptance, perceived high computer self-efficacy is related to the use of a variety of technologically advanced products (Compeau and Higgins, 1995) that helps in reducing individuals anxiety to use technological innovations (Fagan et al., 2003; Salanova et al., 2000). Researchers in the space of adoption of online technologies are exploring the role of self-efficacy both in the pre-adoption and post-adoption stages (Pappas et al., 2014). Self-efficacy can be important in usage of mobile shopping apps (a technological innovation) as the customer’s role in a given service encounter may involve interactions varied...
technologies (taking pictures, choosing body shapes for style fit, etc.), with company staff (online chats, call for support), and even other customers (user reviews, sharing product pictures on social media). Researchers have also found that perceived efficacy is likely to move across similar tasks (Bandura, 1997) thereby leading to the understanding of improved self-efficacy after adoption of a system in continuance intention and WOM. There is an increasing interest among researchers on the role of self-efficacy at the post-adoption stage (Dabholkar and Sheng, 2009; Püschel et al., 2010; Wang et al., 2013; Zhao et al., 2008) and requires an in-depth investigation in newer technologies like mobile shopping apps.

Satisfaction. Satisfaction can be defined as a post-usage evaluative judgment concerning a specific decision (Oliver, 1980) and has been used as part of the confirmation/disconfirmation paradigm (Swan and Oliver, 1989). The ECT states that consumers’ repurchase intentions are likely to be influenced by their usage experience of that product or service (Anderson and Sullivan, 1993; Oliver, 1980).

Satisfaction has been widely studied with reference to post-purchase behaviour, such as repurchase (Dabholkar et al., 2000) and customer complaints (Oliver, 1980). A less satisfied customer is harder for the company to retain and enhance a close relationship with (Anderson and Srinivasan, 2003). Researchers have proposed that satisfaction in case of services is an affective customer condition arising out of the comprehensive evaluation of customer relationship with the service provider rather than being a transaction-specific phenomenon (Anderson and Sullivan, 1993; Bayus, 1992; Homburg and Annette Giering, 2001). The role of satisfaction in establishing loyalty is being closely investigated with respect to technologies in retail by researchers in current times (Demirci Orel and Kara, 2014; Vesel and Žabkar, 2009). Researchers have specifically explored the role of satisfaction in building loyalty in online retailing environment thereby popularising the terms e-satisfaction and e-loyalty (Anaza and Zhao, 2013; Sahadev and Purani, 2008). The same should be applicable in case of mobile shopping apps which are an extension of online retailing.

Usability. TAM and its subsequent avatars are built on two key constructs – perceives usefulness and perceived ease of use (Davis, 1989; Venkatesh et al., 2003, 2012) that have a strong influence on adoption intention. However, at the post-adoption stage, perceives usefulness is likely to be a pre-requisite for customers to consider usage continuance and other actions demonstrating commitment. Furthermore, perceived ease of use or usability is likely to improve with repeated usage and build self-efficacy and satisfaction at the post-adoption stage. Defined in the literature as the effort required in using a system, usability would refer to mobile phone interface usage for shopping applications in case of this study. Usability would refer to several aspects such as the ease of learning to manage the system, the ease of remembering the basic functions, the degree of error avoidance, and the general satisfaction of the user in terms of manageability. Perceived usability has been found to have a positive impact on the effective customer satisfaction and company preference for future interactions in the literature on satisfaction and loyalty in online and mobile environments (Casaló et al., 2008; Eroglu et al., 2001; Grob, 2015; Thakur, 2014). Existing studies have shown that the aesthetics of the website positively affects customers’ online experience, usability perception, and subsequent behaviour (Harris and Goode, 2004). For mobile interfaces, usability refers to the interface simplicity, the perceived ease of navigation, and the ease of conducting the transaction. In the context of this study, where customers are looking at fashion merchandise, navigability and aesthetics form a critical part of the shopping experience and hence usability. This study, therefore, uses interface aesthetics and navigability as two dimensions of usability.

Therefore, the following hypotheses are proposed:

H1. Aesthetics of mobile interface has a positive relationship with post-adoption self-efficacy towards mobile shopping apps.
H2. Navigability of mobile interface has a positive relationship with post-adoption self-efficacy towards mobile shopping apps.

H3. Aesthetics of mobile interface has a positive relationship with post-adoption satisfaction towards mobile shopping apps.

H4. Navigability of mobile interface has a positive relationship with post-adoption satisfaction towards mobile shopping apps.

Service experience. Customers decide about continuing with the same service provider for a longer duration based on the experience with the service (Roy et al., 2014). Research has found that experience is one of the strongest generators of self-efficacy (Bandura, 1986; Dabholkar and Sheng, 2009). Furthermore, in case of online shopping, it has been observed that a good experience creates positive attitudes, increases customers’ self-efficacy, and influences future intentions (Pappas et al., 2014). Customers value self-efficacy based on their experience as they feel more confident when it comes to completing an online purchase (Hernández et al., 2010). Higher perceived service quality results in the development of the positive and favourable attitude towards the service provider which may lead to continuance intentions amongst customers (Cronin et al., 2000). Service experience is the ultimate reason a customer goes to an online channel. Collier and Bienstock (2006) proposed that outcome of a service experience can be captured by order timeliness and order condition. Getting the merchandise delivered in good condition and in a timely manner based on the convenience of the customer is really the key to building efficacy and satisfaction. Modelling on the similar lines for mobile apps, it is proposed that:

H5. Service experience has a positive relationship with post-adoption self-efficacy towards mobile shopping apps.

H6. Service experience has a positive relationship with post-adoption satisfaction towards mobile shopping apps.

Trust. Trust has been widely explored as a construct to investigate loyalty to a known brand or service provider, especially in online contexts where the interaction between buyers and sellers is low (Chen and He, 2003; Huang et al., 2004). Commitment-trust theory (Burrell and Morgan, 1994) focuses on establishing, developing, and maintaining successful relational exchanges. The theory proposes that trust is central to successful relationship marketing as it encourages the marketers to work towards preserving relationships, resists short-term alternatives, and not working in an opportunistic manner (Mukherjee and Nath, 2007). Morgan and Hunt (1994) felt that trust exists “when one party has confidence in an exchange partner’s reliability and integrity”. Empirical results too emphasise the importance of trust in explaining and predicting online purchase behaviour (der Heijden et al., 2003; Jarvenpaa et al., 2000). Mobile shopping involves great uncertainty; therefore, trust is critical to facilitating mobile user behaviour. Recent studies have reported the significant role of trust in adoption and continuance of mobile shopping and similar applications (Hung et al., 2012; Zhou, 2011).

Trust is of utmost importance in the context of this study as the customers may be concerned about product quality and counterfeits that are rampant in fashion merchandise. Researchers have considered trust as an important antecedent to loyalty and satisfaction in their studies (Kim et al., 2009; Verhagen et al., 2006). Examining the commitment-trust relationship in the online retail environment, Mukherjee and Nath (2007) found the key role of electronic trust in customer purchase decisions. There is an increasing amount of literature in recent past on the role of trust in building customer satisfaction and beliefs in an online environment (Kim et al., 2009; Luo et al., 2010; Rampl et al., 2012). At the post-adoption stage, trust is likely to build self-efficacy as well as satisfaction in the service.
provider that are likely to mediate the relationship between trust and loyalty. Therefore, this study proposes:

**H7.** Trust in retailer has a positive relationship with post-adoption self-efficacy towards mobile shopping apps.

**H8.** Trust in retailer has a positive relationship with post-adoption satisfaction towards mobile shopping apps.

Loyalty. Loyalty may be defined as a customer’s intention or predisposition to purchase from the same organisation again (Edvardsson et al., 2000). This study has operationalized loyalty with two dimensions – continuance of usage and positive WOM based on extant literature (Brown et al., 2005; Casaló et al., 2008). WOM is defined as “informal, person to person communication between a perceived noncommercial communicator and a receiver regarding a brand, a product, an organization or a service” (Harrison-Walker, 2001). WOM has been found to be more effective than advertising or direct personal sales because it is perceived to be more credible and flexible (Gvili and Levy, 2016).

Satisfaction and loyalty. Bhattacherjee (2001) suggested that users’ continuance intention is determined by their satisfaction with the online application. Dis-satisfied customers are likely to churn and look for alternatives (including offerings from competition) to meet their needs (Anderson and Srinivasan, 2003; O’Malley and Tynan, 2000). Researchers have found that higher levels of satisfaction are likely to lead to higher levels of loyalty among customers (Anaza and Zhao, 2013; Anderson and Sullivan, 1993; Shankar et al., 2003). Satisfaction has been widely studied with reference to post-purchase behaviour, such as repurchase (Dabholkar et al., 2000) and customer complaints (Oliver, 1980). Researchers have specifically explored the role of satisfaction in building loyalty in online retailing environment thereby popularising the terms e-satisfaction and e-loyalty (Anaza and Zhao, 2013; Wang et al., 2013). Studies focusing on the usage of mobile shopping have found that customer satisfaction plays a significant role in repeat purchase intention (Hung et al., 2012; Lin and Wang, 2006). One of the recent investigations on the usage of mobile shopping reported a significant increase in customer spending especially for habitual products thereby demonstrating a relationship with continuance intention (Wang et al., 2015). Researchers have also reported an increase in order size and frequency using mobile shopping among returning customers (De Canio et al., 2017). Consistent with Bitner (1992) and Demirci Orel and Kara (2014), this study hypothesises a positive impact of customer satisfaction on usage continuance intention:

**H9.** Customer satisfaction has a positive relationship with usage continuance intention towards mobile shopping apps.

Satisfied customers are likely to provide positive WOM about the firm’s services (De Matos and Rossi, 2008). Hirschman (1970), in his seminal work on customer loyalty, suggested that customers with a strong attachment to the firm actively look for mechanisms to make themselves influential regarding the products of those firms. Positive WOM is a mode whereby existing customers can influence opinions about the firm’s products among potential customers. Researchers are actively investigating the role of satisfaction in driving positive WOM in the retailing environment (Casaló et al., 2008; Liu, 2006; Mazzarol et al., 2007). Therefore, it is proposed that:

**H10.** Customer satisfaction has a positive relationship with customer WOM towards mobile shopping apps.

Self-efficacy and loyalty. Studies in social psychology suggest that behavioural intentions are not determined by affective drivers alone such as satisfaction, but also by cognitive
drivers like self-efficacy (Bandura, 1997). Research in technology adoption domain has validated that efficacy beliefs of people about their own abilities significantly impacts their subsequent decision to adopt or reject a technology (e.g., computers, software) (Gravill and Compeau, 2008). Moreover, recent studies have also found that self-efficacy increases a customer’s intention to use a technological innovation repeatedly (Zhao et al., 2010). Following this line of thinking, it is hypothesised that customers’ efficacy beliefs after initial trial of mobile shopping apps will have a positive impact on their intentions to continue usage. Hence, it is proposed that:

***H11. Customer self-efficacy has a positive relationship with usage continuance intention towards mobile shopping apps.***

Scholars have found that customers who believe that they are more efficacious in the use of a particular service are more likely to value the same, and exhibit loyalty through positive WOM (McKee et al., 2006). On the other hand, a customer is unlikely to recommend a service to a friend, colleague, or family until he or she is comfortable in the usage (Cheung and Lee, 2012). This study, therefore, hypothesises that:

***H12. Customer self-efficacy has a positive relationship with customer WOM towards mobile shopping apps.***

Control variables: age, gender, and academic background. Researchers in the space of consumer adoption and continuance of technological innovations like computers, internet, and other consumer technologies have sparingly studied control variables like gender, age, academic qualifications, and occupation. However, some of the recent researchers have looked at these variables especially on mobile-based technologies. In a study on mobile entertainment among students subjects (Tan et al., 2014), age, gender, and academic qualification were found to have no association with adoption. In another study on m-commerce, age was found to have significant association while gender and education level were found to have no significant association with adoption (Chong et al., 2012). Tan et al. (2014), in a study on mobile learning, found that while gender and age had no significant association, academic qualifications lead to different intention to adopt m-learning. Based on such emerging trends, it would be interesting to explore the role of such control variables in continuance intention and WOM. This study, therefore, explores roles of age, gender, and academic background that may lead to the different continuance and WOM intention towards mobile shopping apps.

Conceptual model. Based on the review of relevant literature in this section, a conceptual model for this study was proposed (Figure 1).
3. Research methods
3.1 Measures and research instrument
The research model for the study was developed based on a review of the extant literature. The measurement model was developed and tested by identifying scales from previous studies. Measurement items for aesthetics and navigability were adapted from Harris and Goode (2010), service experience from Collier and Bienstock (2006), trust scale was modified from Gefen et al. (2003), self-efficacy from Webster and Martocchio (1992), satisfaction from Brockman (1998), continuance intention from Casaló et al. (2008), and WOM from Bansal and Voyer (2000). Two scholars with similar research background reviewed the final items. Based on their inputs, the items were slightly modified before the data collection. The final instrument had 29 self-reported items related to eight research constructs.

The research instruments had three sections: an introductory section to explain the purpose of the study, a section with items corresponding to research constructs (rated on seven-point Likert scales anchored in “strongly disagree” (1) through to “strongly agree” (7)), and descriptive data. To reduce the occurrence of primacy and recency effects, three different versions of the questionnaire were designed.

3.2 Research context
The research context taken in this study was mobile shopping apps in India with a specific focus on fashion and lifestyle category. This category was deemed to be suitable for the study due to three reasons. First, it is the fastest-growing category in Indian market with a CAGR (2010-2015) of 85 per cent (Euromonitor International, 2016) and an increasing number of players are joining the sector. The study, therefore, is likely to have implications for a large number of practitioners and scholars. Second, customer motives and experiences in this category would have rational as well as hedonic aspects giving more depth to this research as against categories like grocery which would be primarily driven by utilitarian motives. Finally, usage of mobile apps in this category would bring challenges of small screen size and ability to visualise unstandardised product (like apparel), thereby bringing deep insights on self-efficacy dimension.

The study looked at leading fashion e-retailers like Myntra, Jabong, Fashion and You, and lifestyle e-retailers like Snapdeal, Flipkart, and Amazon. Accordingly, specific reference was given to these portals offering mobile shopping applications in introductory section in the research questionnaire as per the objective of this study.

3.3 Research procedures and participants
As the focus of this study was to understand the mobile shopping behaviour of fashion products including apparel, accessories, and lifestyle products, the respondents were advised to focus on e-retailers that specialise in these categories. The respondents were asked to select a mobile shopping application they had last purchased something from and to complete the entire questionnaire for that mobile shopping application only. A set of 424 responses were found to be complete and usable out of the total 1,500 questionnaires distributed. The qualified respondents were current users of mobile devices for shopping (31 per cent female; 66 per cent below 30 years of age; 82 per cent with professional experience of over five years). This sample size exceeds the recommended minimum for such research (Bentler and Chou, 1987; Hair et al., 2010).

4. Data analysis and results
A standard three-step process was used to test the proposed model. First, an exploratory factor analysis (EFA) was performed using SPSS followed by validation of measurement model through confirmatory factor analysis. Finally, relationships between constructs were
analysed using path analysis. Partial least squares (PLS) structural equation modelling (SEM) technique was used for model assessment. PLS-SEM imposes minimal restrictions on measurement scales, sample size, and residual distributions (Chin et al., 2003) and does not assume multivariate normal distributions which are foundations in covariance-based structural equation models (Fornell and Bookstein, 1982). Also, satisfaction and loyalty measures have been observed to be skewed by researchers (Peterson and Wilson, 1992) and therefore may not meet the multivariate normality assumptions required by the covariance-based SEM thereby making PLS more suitable technique for the analysis. Furthermore, PLS-SEM is an appropriate technique for this study as this is an exploratory research with a complex model (Hair et al., 2011). This study used SmartPLS software for PLS analysis.

4.1 Measurement model
As a preliminary step before main analysis, common method variance was tested using Harman’s single-method test (Podsakoff and Organ, 1986). The factor analysis did not produce a single factor or one general factor that accounted for the majority of the variance. Each factor accounted for more than the 5 per cent cut-off thereby establishing that common method variance was not a concern.

To analyse the data, EFA procedures were employed using principal component analysis with varimax rotation separately for independent and dependent variables (Conway and Huffcutt, 2003). A total of 26 items converging into eight factors were retained as proposed in the conceptual model. Three items were dropped due to low loadings and cross-loadings following standard statistical procedures (Hair et al., 2010). The value of Cronbach’s $\alpha$ was above the recommended 0.7 for each of the constructs (Fornell and Larcker, 1981). Subsequently, the measurement model was tested for validity and reliability. Table I depicts the final items with standardised loadings, the value of composite reliability (CR), and Cronbach’s $\alpha$ for each of the constructs (Fornell and Larcker, 1981). Table II depicts the intercorrelations and the square root of average variance for discriminant validity (Fornell and Larcker, 1981; Hair et al., 2010). Intercorrelations between the dimensions were significant and below 0.80, thus (severe) multicollinearity is not a concern in the present data (Tabachnick et al., 2001). Although the correlation between service and satisfaction is slightly above 0.7, the relatively high CR measures (>0.7), and the large sample can effectively protect the data against eventual deleterious effects of multicollinearity (Grewal et al., 2004). The complete model demonstrates evidence of convergent validity (significant loadings, CR > 0.70, AVE > 0.50 for all the constructs) and discriminant validity (square root of AVE of each construct greater than the correlations with other constructs) (Bagozzi and Yi, 2012; Fornell and Larcker, 1981).

4.2 Structural model
Having assessed the proposed research model in terms of reliability and validity for measuring items and constructs, the structural model was assessed. PLS uses a combination of $R^2$ values (coefficient of determination), Stone-Geisser’s predictive relevance ($Q^2$), path coefficients, $t$-values, and significance level for assessing model fit (Figure 2).

4.2.1 Coefficient of determination ($R^2$) and Stone-Geisser’s predictive relevance ($Q^2$). The $R^2$ value refers to the percentage with which the variation in the dependent variable is explained by independent variables; it is used as an indicator of the overall predictive power of the model. The $R^2$ value (see Table III) of 0.59 for continuance intention and 0.26 for WOM indicates that the theoretical model explained a substantial amount of variance in post-adoption customer loyalty. In addition, the model accounts for 56 per cent of the variance in customer satisfaction and 47 per cent of the variance for self-efficacy towards mobile shopping applications. Given the minimum 10 per cent criterion (Falk and Miller, 1992),
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<tbody>
<tr>
<td>Satisfaction ($\alpha = 0.827$; CR = 0.883)</td>
<td>SAT1</td>
<td>I think that I made the correct decision to use mobile application for making purchases</td>
<td>0.793</td>
</tr>
<tr>
<td></td>
<td>SAT2</td>
<td>The experience that I have had in making purchases using mobile applications has been satisfactory</td>
<td>0.815</td>
</tr>
<tr>
<td></td>
<td>SAT3</td>
<td>In general terms, I am satisfied with the way mobile applications carry out transactions while making purchases</td>
<td>0.769</td>
</tr>
<tr>
<td></td>
<td>SAT4</td>
<td>In general, I am satisfied with the service I have received from mobile applications for making purchases</td>
<td>0.845</td>
</tr>
<tr>
<td>Self-efficacy ($\alpha = 0.863$; CR = 0.917)</td>
<td>SE1</td>
<td>I feel comfortable dealing with mobile applications for making purchases</td>
<td>0.902</td>
</tr>
<tr>
<td></td>
<td>SE2</td>
<td>I know how to make a purchase through mobile applications</td>
<td>0.912</td>
</tr>
<tr>
<td></td>
<td>SE3</td>
<td>I am good at evaluating the performance of mobile application for making a purchase</td>
<td>0.851</td>
</tr>
<tr>
<td>Continuance intention ($\alpha = 0.908$; CR = 0.942)</td>
<td>CI1</td>
<td>I will continue using mobile application for making purchases in the future</td>
<td>0.930</td>
</tr>
<tr>
<td></td>
<td>CI2</td>
<td>Given a chance, I predict I will continue using mobile application for making purchases in the future</td>
<td>0.921</td>
</tr>
<tr>
<td></td>
<td>CI3</td>
<td>It is likely that I will continue using mobile application for making purchases in the future</td>
<td>0.902</td>
</tr>
<tr>
<td>Word of mouth ($\alpha = 0.756$; CR = 0.859)</td>
<td>WOM1</td>
<td>I would recommend using mobile applications for making purchases to my friends</td>
<td>0.843</td>
</tr>
<tr>
<td></td>
<td>WOM2</td>
<td>I will recommend mobile applications for making purchases to other customers</td>
<td>0.756</td>
</tr>
<tr>
<td></td>
<td>WOM3</td>
<td>I will point out the positive aspects of mobile applications for making purchases if anybody criticise it</td>
<td>0.844</td>
</tr>
<tr>
<td>Navigability ($\alpha = 0.862$; CR = 0.916)</td>
<td>NAV2</td>
<td>This mobile shopping application provides directions for using the interface</td>
<td>0.874</td>
</tr>
<tr>
<td></td>
<td>NAV3</td>
<td>Navigation through this mobile shopping application is intuitively logical</td>
<td>0.904</td>
</tr>
<tr>
<td></td>
<td>NAV4</td>
<td>There are useful navigational aids on this mobile shopping application</td>
<td>0.882</td>
</tr>
<tr>
<td>Aesthetics ($\alpha = 0.789$; CR = 0.905)</td>
<td>AES1</td>
<td>I like the look and feel of this mobile shopping application</td>
<td>0.901</td>
</tr>
<tr>
<td></td>
<td>AES2</td>
<td>Overall appearance of this mobile shopping application is attractive</td>
<td>0.907</td>
</tr>
<tr>
<td>Service experience ($\alpha = 0.889$; CR = 0.923)</td>
<td>FSE1</td>
<td>This e-retailer gives the customer multiple delivery time options (e.g. next day, 3- to 5-day delivery, or 5- to 7-day delivery)</td>
<td>0.845</td>
</tr>
<tr>
<td></td>
<td>FSE2</td>
<td>The time between placing and receiving an order is short</td>
<td>0.886</td>
</tr>
<tr>
<td></td>
<td>FSE3</td>
<td>This e-retailer's orders are protectively packaged when shipped</td>
<td>0.884</td>
</tr>
<tr>
<td></td>
<td>FSE4</td>
<td>All orders by this e-retailer are delivered undamaged</td>
<td>0.846</td>
</tr>
<tr>
<td>Trust ($\alpha = 0.849$; CR = 0.894)</td>
<td>TR1</td>
<td>I think that mobile application service providers usually fulfils the commitments it assumes</td>
<td>0.793</td>
</tr>
<tr>
<td></td>
<td>TR2</td>
<td>I think that mobile application service providers deliver authentic products to meet the needs of its users</td>
<td>0.656</td>
</tr>
<tr>
<td></td>
<td>TR3</td>
<td>I think that mobile application service providers are concerned with the present and future interests of its users</td>
<td>0.854</td>
</tr>
<tr>
<td></td>
<td>TR4</td>
<td>I think that mobile application service providers offer good quality products to meet the needs of users</td>
<td>0.790</td>
</tr>
</tbody>
</table>

**Notes:** $n = 421$. $\alpha$, Cronbach's $\alpha$; CR, construct reliability
which suggests that the $R^2$ value of a dependent variable should be at least 10 per cent in order to make any meaningful interpretation, the theoretical model demonstrated substantive explanatory power.

Using the blindfolding procedure, Stone-Geisser’s predictive relevance ($Q^2$) was evaluated (see Table III). It was found that the model had good predictive relevance for all of the endogenous variables considering $Q^2$ values larger than 0 for all the endogenous constructs, i.e. continuance intention, WOM, customer satisfaction, and self-efficacy.

Path coefficients. The path coefficients indicate the strengths of the relationships between constructs (Chin and Marcoulides, 1998). This study used a bootstrapping resampling procedure (with 400 samples) to estimate the significance of paths in the structural model. The results of the path analysis are presented in Table IV that summarises the analysis of relationships between different constructs.

Self-efficacy and satisfaction. The results show that self-efficacy is significantly associated with aesthetics, navigability, and service experience at 95% level of confidence, while it is associated with trust at 90% level of confidence. The results thereby support
H1, H2, H5, and H7. Furthermore, the results show that customer satisfaction has a significant positive association with service experience, whereas it has an insignificant association with aesthetics, navigability, and trust. Therefore, H6 is supported while H3, H4, and H8 are rejected.

Continuance intention and WOM. The results validate that post-adoption continuance intention is significantly related to customer satisfaction as well as with self-efficacy, thereby supporting H9 and H11, respectively. Furthermore, the results show that WOM was significantly associated with self-efficacy; however, the same was not significantly associated with customer satisfaction thereby supporting H12.

Control variables. The results of data analysis in this study found no significant relationship of age, gender, and academic background in the continuance intention as well as WOM intention towards mobile shopping apps.

5. Discussion, implications, and limitations

5.1 Findings

The key objective of this study has been to analyse the role of customers’ self-efficacy and satisfaction in building post-adoption loyalty towards mobile retail applications. The results of this study indicate somewhat interesting picture. First, service evaluations, i.e. service experience and navigability serve as experiential cues and influence customers’ self-efficacy and satisfaction in the post-adoption stage. Aesthetics and trust were found to have a mixed influence on customers’ self-efficacy and satisfaction. While aesthetics do help in build self-efficacy, its role in building satisfaction has not been found to be significant. This finding may be attributed to the expectations of customers at the post-adoption stage of interface aesthetics as pre-requisite and not really a delight. Interestingly, customers do not find trust as a significant contributor to self-efficacy as well as to satisfaction. This finding indicates that trust in the retailer related to honouring the order with the expected authentic merchandise is a strong pre-requisite for customers to try a new mobile application. However, once adopted, trust seems to be moving out of the scheme of consideration from the minds of the consumers. Furthermore in India, in around 80 per cent of online purchases, the payments are made using “cash on delivery” mode after checking the product at the receipt. Trust-related aspects with reference to financial fraud and product quality, therefore, have low relevance in the post-adoption stage. Also, leading fashion retailers like Myntra allow customers to try out the clothes and return in case of issues related to feel, colour, size, fit, etc. This makes trust somewhat less important as customers are assured of refund in case of expectation mismatch from the merchandise.

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Path posited</th>
<th>Path coefficient</th>
<th>t-value</th>
<th>p-value</th>
<th>Sig. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>Aesthetics→self-efficacy</td>
<td>0.250</td>
<td>2.635</td>
<td>0.004</td>
<td>***</td>
</tr>
<tr>
<td>H2</td>
<td>Navigability→self-efficacy</td>
<td>0.224</td>
<td>1.889</td>
<td>0.029</td>
<td>**</td>
</tr>
<tr>
<td>H3</td>
<td>Aesthetics→satisfaction</td>
<td>0.093</td>
<td>1.007</td>
<td>0.157</td>
<td></td>
</tr>
<tr>
<td>H4</td>
<td>Navigability→satisfaction</td>
<td>0.183</td>
<td>1.613</td>
<td>0.054</td>
<td></td>
</tr>
<tr>
<td>H5</td>
<td>Service experience→self-efficacy</td>
<td>0.321</td>
<td>2.660</td>
<td>0.004</td>
<td>***</td>
</tr>
<tr>
<td>H6</td>
<td>Service experience→satisfaction</td>
<td>0.557</td>
<td>5.422</td>
<td>0.000</td>
<td>***</td>
</tr>
<tr>
<td>H7</td>
<td>Trust→self-efficacy</td>
<td>0.118</td>
<td>1.454</td>
<td>0.073</td>
<td></td>
</tr>
<tr>
<td>H8</td>
<td>Trust→satisfaction</td>
<td>0.021</td>
<td>0.261</td>
<td>0.397</td>
<td></td>
</tr>
<tr>
<td>H9</td>
<td>Satisfaction→CI</td>
<td>0.303</td>
<td>2.987</td>
<td>0.000</td>
<td>***</td>
</tr>
<tr>
<td>H10</td>
<td>Satisfaction→WOM</td>
<td>0.175</td>
<td>1.553</td>
<td>0.060</td>
<td></td>
</tr>
<tr>
<td>H11</td>
<td>Self-efficacy→CI</td>
<td>0.543</td>
<td>5.199</td>
<td>0.000</td>
<td>***</td>
</tr>
<tr>
<td>H12</td>
<td>Self-efficacy→WOM</td>
<td>0.386</td>
<td>3.223</td>
<td>0.000</td>
<td>***</td>
</tr>
</tbody>
</table>

Notes: *p < 0.1; **p < 0.05; ***p < 0.01

Table IV. Significance testing of the structural equation model path coefficients

Loyalty to the mobile shopping application
Second, customers’ self-efficacy beliefs increase customer usage continuance intentions as well as a propensity to spread positive WOM. Retailers must find ways to increase customer confidence by enhancing customer experiences for fostering usage continuance as well as advocacy. In this space, fashion retailer abof.com offers a 3D virtual trial room where customers can instantly view themselves in any product by inputting their basic body proportions. Some retailers offer online demos on the mobile interface and on their websites to help customers experience the service to build confidence in the usage.

Third, in alignment with the literature, the results demonstrate that satisfaction from the services would lead to future usage intentions among an existing set of customers (Gustafsson et al., 2005; Wang et al., 2013). Furthermore, the study revealed that though satisfied consumers are likely to continue using the services, the same might not become advocates. In this space, retailers may consider offering incentives to advocates for referring their services to their friends (Kumar et al., 2010). Some online retailers like Fashion and You and 99 labels follow a similar approach.

5.2 Theoretical implications

This study provides a number of theoretical contributions to marketing literature by offering insights into loyalty and advocacy dynamics in an online environment. Customer satisfaction has traditionally been regarded as a fundamental determinant of long-term consumer behaviour (Oliver, 1980). Researchers emphasise that the more satisfied the customers are, the greater is their retention (Anderson and Sullivan, 1993; Kim et al., 2009; Shankar et al., 2003) and higher is the positive WOM generated through them (Chu and Kim, 2011; De Matos and Rossi, 2008). This research, however, depicted that while retention or continuance intention of a satisfied customer is high, the same may not necessarily lead to positive WOM.

Furthermore, researchers have traditionally focused on satisfaction as affective antecedent of loyalty; however, cognitive antecedent in the form of self-efficacy has been ignored (Pappas et al., 2014; Wang et al., 2013). Self-efficacy has been found to have a significant association with both continuance intention and WOM intention. While scholars have explored the role of self-efficacy in adoption intention, the same has largely been unexplored in building loyalty. The significant role of self-efficacy in building usage continuance intention and advocacy is an important contribution to this study. With the repeated usage of mobile shopping app, customers are likely to build more self-efficacy in the post-adoption stage thereby leading to continuance intention and likelihood of spreading positive WOM. Self-efficacy is of high significance for mobile retailing as mobile phones are first devices to access internet in India; however, small screen size leads to shopping anxiety especially in fashion merchandise category. This research contributes to a better understanding of the factors that influence self-efficacy of consumers at a post-adoptions stage in case of mobile shopping. This study provided evidence of interface evaluation (aesthetics and navigability) as well as retailer evaluations (service experience) at a post-adoptions stage in building self-efficacy, which is important for firms. At the pre-adoptions stage, it may be difficult to change individuals’ beliefs about themselves via commercial messages; however, this study has demonstrated that usage experience may enhance self-belief that in turn may lead to loyalty.

Another valuable contribution of this study is the establishment of the insignificance of trust in the development of satisfaction at the post-adoptions stage. While researchers have reported the strong role of trust in usage intention at the trial stage and in developing satisfaction (Gefen et al., 2003; Mukherjee and Nath, 2007; Sirdeshmukh et al., 2002), this study found that the relationship may change at the post-adoptions stage. At the post-adoptions stage, trust becomes a hygiene factor and does not impact the service evaluation any further. This finding calls for further research on the role of trust at the post-adoptions stage.
5.3 Managerial implications

5.3.1 Main constructs. The study found that the usability measured through navigability and aesthetics has a significant relationship with customer self-efficacy in using mobile shopping app. Customers using mobile shopping app have to visualise the product being purchased using a very small display area, i.e. the screen size of the mobile device. As against a physical environment where the customer can touch, feel, and try on a product, a mobile shopping app limits the product-customer interaction thereby leading to lack of confidence in the customer regarding making the product purchase. A user-friendly interface with intuitive navigation, interactive features, and easy checkout is likely to build the confidence among customers and thereby enhance efficacy to continue using the shopping app for making purchases. Furthermore, interactive assistance helping customers in choosing the products based on purchase history and complementarities is likely to increase customer efficacy in the usage of a shopping app. Therefore, investing in user-friendly navigation and appealing aesthetics that make shopping using a mobile app easy and enjoyable is absolutely essential for retailers.

Furthermore, the results of this study found that service experience as per customers’ convenience is likely to generate both self-efficacy as well as satisfaction for continuance intention and eventually positive WOM. Convenience is one of the key reasons for which customers shop using mobile apps as compared to other channels. It is, therefore, absolutely essential for retailers to ensure good service experience to customers. This may be in the form of offering timely/flexible delivery as per customers’ convenience including providing an option to choose delivery time and location. Furthermore, fashion being an unstandardised category, easy returns in case of expectation mismatch is an essential part of service experience that retailers should focus on.

E-retailers may further develop/strengthen measures to gauge visitors’ opinions on satisfaction with the relative effectiveness of the various interactive tools and their service strategies. Excellent customer responsiveness reinforces the continued use of those interactivity tools and features that influence an application’s self-efficacy and satisfaction among its users. The study has confirmed that these are predictors of loyalty, and positive WOM, the most desired outcomes for e-retail practitioners.

5.3.2 Control variables. The study indicates that there were no confounding effects of age, gender, and academic background in the continuance intention as well as WOM intention towards mobile shopping apps. Therefore, retailers may consider uniform marketing strategies irrespective of age, gender and academic background of users. This study, however, looked at only urban customers with higher education levels. Scholars may want to explore the impact of similar demographic control variables in a more diverse customer profile.

5.4 Limitations and directions for future research

There are some limitations of this study to consider. The study used the mobile application in retailing as a generic category rather than taking the mobile application of a specific retailer. While this provided ability to cover a large number of categories, it may be beneficial to replicate the study at a mobile application level. Second, a single-country sample was used for this study. Replication of this research in multi-country settings might be useful in generalising the results of the study or comparing the nation-specific preferences. Third, given the focus on utilitarian aspect at the post-adoption stage, this study has not incorporated hedonic service attributes, such as enjoyment, which may affect usage continuance and WOM intentions as well. Furthermore, this study focused on urban, educated, mass-affluent customers only. Future studies may look at expanding customer profile and investigate the possible confounding role of education, geography (urban/rural), and social class as control variables. Also, the role of mobile-application-specific deals in
retaining customers that are emerging in recent times was not studied and may be explored in future. Finally, this study did not establish formal causal relationships, as the study was conducted using a cross-sectional survey approach. Replicating this study in experimental setting could help in establishing causal relationships between constructs.

Note
1. A mobile application (“app”) is a software application designed to run on smartphones, tablet computers, and other mobile devices.

References


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