South African Journal of Economic and Management Sciences
ISSN: (Online) 2222-3436, (Print) 1015-8812

Experiential value and continuance use of retailers' mobile apps: Emerging market perspective

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Dates:
Received: 25 Apr. 2024
Accepted: 01 Aug. 2024
Published: 21 Nov. 2024

How to cite this article:
Chabata, T.T., Nel, J. & Maziriri, E.T., 2024, 'Experiential value and continuance use of retailers' mobile apps: Emerging market perspective', *South African Journal of Economic and Management Sciences* 27(1), a5706. https://doi.org/10.4102/sajems.v27i1.5706

Background: The long-term profitability, marketability and viability of a retailer's mobile applications (apps) depends more on its continuance use than initial adoption by customers. However, mobile shoppers do not continue to use mobile shopping apps, though investigators recognise that the experiential needs of mobile app users are essential in mobile app use. Hence, research investigating the role of experiential value (EV) in post-adoption, continuance use behaviour is lacking.

Aim: This study investigates the dimensions of EV as mediators of the confirmation-satisfaction relationship in the expectation-confirmation model.

Setting: Online-administered surveys were conducted among mobile shopping app users in South Africa.

Method: Online self-administered questionnaires were distributed by a commercial marketing research firm among a sample of 410 retail m-shopping app users. Smart-PLS version 4.0 was used to test the proposed hypotheses.

Results: The indirect effects via customer return on investment and service excellence were statistically significant. However, playfulness and aesthetic dimensions of EV did not mediate the confirmation-satisfaction relationship. Moreover, the direct effects of EV dimensions on satisfaction were not conditional effects based on the age and gender of the respondent.

Conclusion: In the post-adoption use of mobile grocery shopping apps, the utilitarian aspects of EV explain the confirmation-satisfaction relationship.

Contribution: The study's theoretical significance is that it presents much-needed insights into the role of EV in the post-adoption stage of mobile app shopping. The study's results practically lead to managerial recommendations to enhance the post-adoption use of mobile shopping apps.

Keywords: mobile shopping applications; expectation-confirmation model; experiential value; continuance use intention; mobile application, satisfaction, purchasing.

Introduction

Background

Mobile devices have become essential in modern-day consumers' lives. While any mobile device can be used for mobile shopping (m-shopping), consumers prefer smartphones (Fuentes, Bäckström & Svingstedt 2017). With the increasing number of m-shopping apps that consumers can download from app stores, Kim, Wang and Roh (2021) are of the view that consumers' shopping behaviour is shifting from using a desktop computer to purchase products to using smartphone apps, which include m-shopping. M-shopping is a sub-set of mobile commerce (m-commerce) (Chen 2018). Maduku and Thusi (2023) state that the:

> [S]ustained and increased use among existing users is not only central to achieving an increase in online retailing but also sits at the core of the survival of m-commerce innovation, as the success of an innovation relies on repeated use. (p. 2)

M-commerce, just like other online activities such as e-commerce and e-business have been defined in slightly different ways. For instance, Xin (2009a) defined m-commerce as 'e-commerce activities carried out using a mobile device such as a smartphone or personal digital assistant (PDA)'. Xin (2009b) also defined m-commerce as any indirect or direct transaction with a potential monetary value administered through wireless telecommunication networks. Tiwari and Buse (2007) propose that a universally applicable definition for m-commerce relates to any transaction, involving the transfer of ownership or rights to use goods and services, which is conducted by

using mobile access to computer-mediated networks with the assistance of an electronic-related device. The universally proposed m-commerce definition suggests that it involves business transactions that have a direct or indirect monetary value. Whereas m-shopping is defined as using wireless Internet-related services to shop from online retailers using a smartphone (Maduku & Thusi 2023). Shopping using a retailer's mobile app offers benefits to customers, such as ubiquitous shopping, avoiding queues, speedy transactions and flexibility because they do not need to carry cash or cards (Pantano & Priporas 2016).

Several researchers emphasised mobile app retention as an important area in m-shopping research (Kim et al. 2021; Maduku & Thusi 2023; Marriot & Williams 2018).

While some devices have apps pre-stalled, mobile phone users download apps through application stores such as the Google Play store for Android, the Apple App Store for iOS, or third-party providers like the Amazon Appstore. Despite the staggering number of app downloads from the app stores, the concern for retailers is that m-shopping app retention after 30 days is as low as 5% (Statista 2023).

Academic research explicating the post-adoption behaviour of m-shopping app users is only now garnering more attention (Marriot & Williams 2018). Stocchi, Pourazad and Michaelidou (2020) highlight the need for academics to investigate the continuance use of retailers' m-shopping apps. Additionally, Tseng et al. (2022:77) state that 'it is very practically relevant for retailers to know how to retain consumers and ensure that they continue purchasing products and services with m-shopping apps'. Therefore, empirical research on the continuance use of retailers' m-shopping apps is vital for theory building and for retailers to reap the benefits of customers continuously using their m-shopping apps.

The appropriate theory to study the continuance use of m-shopping apps is the Bhattacherjee (2001) expectation-confirmation model (ECM). Within the ECM, satisfaction assumes a superordinate role in shaping the continuance use of technology. Satisfaction is an experiential response emanating from direct experience using the technology (confirmation and/or disconfirmation of expectations). Bhattacherjee and Barfar (2011) state that:

> [*A*]s users gain experience with information technology (IT) usage and the linkage between stimuli and action becomes more fully developed, users are less likely to invest cognitive resources towards the active processing of conscious intentions and instead rely on a more efficient, affective stimuli-based response to decide on the future course of action. (p. 8)

Given the theoretical importance of the confirmation-satisfaction relationship in the ECM, previous research on technology continuance uses mostly focussed on understanding the influence of confirmation on satisfaction.

Although researchers continue to point out that the experiential needs of m-shopping app users must be satisfied (Ng et al. 2022), the role of experiential value (EV) in the continuance use of m-shopping apps was overlooked in the past research. Experiential value comes from the interactions between customers' direct usage or distanced appreciation of goods and services, resulting in relativistic preferences based on perceived benefits (Mathwick, Malhotra & Rigdon 2001). Research incorporating the dimensions of the EV construct consistently shows that independent variables influence EV dimensions differently (Tseng et al. 2022), and that the EV dimensions influence dependent variables differently (Overmars & Poels 2015). Based on the discussion up to this point, the research question that emerges is how do EV dimensions mediate the confirmation-satisfaction relationship in the expectation confirmation model of continuance use intention to use m-shopping apps? An important secondary question this study addresses is whether the influence of EV dimensions on mobile app purchasing satisfaction can be classified as conditional effects based on customer demographics. The debate on age and gender as moderators of technology continuance use behaviour remains open because inconsistent results for age and gender as moderators in a continuance use context are reported (Na, Lee & Yang 2021).

Therefore, the study aimed to investigate how EV dimensions mediate the confirmation-satisfaction relationship of users of mobile retailing apps when purchasing products. There are several important areas where this study contributes to m-shopping literature. In general, research on the continuance use of m-shopping apps is scant (Tseng et al. 2022). Therefore, the study contributes to the existing knowledge in this context. The endeavour to understand satisfaction in the post-adoption phase of technology is enduring. About two decades ago, Bhattacherjee (2001) initiated the call for research to identify salient predictors of information systems (IS) satisfaction and those identified through the ECM lens. Stocchi et al. (2022) recently echoed a call similar to Bhattacherjee (2001), but this time in the mobile app context. This study will provide new insights into the determinants of m-shopping satisfaction based on EV theory. In doing so, and by including the EV dimensions as mediators of the confirmation-satisfaction relationship, the study also addresses the research priority identified by Stocchi et al. (2022), who called for research on the value in use created by m-shopping apps.

Theoretical framework

Experiential value

The notion of EV in marketing was recognised about seven decades ago by Abbott (1955). He wrote that individuals desire satisfying experiences from purchasing products. Thereafter, Holbrook (1996) published an article that helped to lay the foundation of the current literature on EV for researchers to investigate EVs in various settings and environments. Schmitt (1999) established that experiential marketing comprises experiences such as sensory, affective, creative, cognitive, physical behaviours and lifestyles, and social identity. These experiences are delivered through

experience providers such as communications, visual and verbal identity and signage, product presence, co-brand, the spatial environment, electronic media and people. Then Mathwick et al. (2001) conceptualised EV and proposed a measurement scale. Mathwick et al. (2001) also inspired different streams of research. Some researchers investigated the influence of experiential marketing on EV. For example, Yuan and Wu (2008) found that feelings, thoughts and service quality perceptions positively influence the emotional and functional value in hospitality and tourism operations. They also confirmed that EV enhances customer satisfaction. Another stream of research that has evolved and remains prominent and ongoing is investigating the influence of EVs on consumer behaviour. For example, Wu and Liang (2009) investigated the determinants of EV and the influence of EV on customer satisfaction in the luxury hotel setting. Studies focussing on consumers' use of digital applications also contributed to this stream of research. As shown in Table 1, researchers investigated the role of EV in online shopping behaviour, online gaming, blogs, virtual worlds and mobile apps, online EV co-creation by tourists, interactive music and online customisation. Most studies in Table 1 adopted the conceptualisation of EV proposed by Mathwick et al. (2001). The summary in Table 1 also reveals that EV dimensions were used as factors in most studies. Tang and Chiang (2010) and Hwang, Oh and Scheinbaum (2020) operationalised EV as a unidimensional construct. Furthermore, Van Oppen, Odekerken-Schröder and Wetzels (2005) proposed a fourth-order factor, and Rezaei and Valaei (2017) used a reflective-reflective third-order factor operationalisation of EV. In the other studies cited in Table 1, Okazaki (2008) and Merle, Chandon and Roux (2008) conceptualised EV as a reflective-reflective second-order factor, while Junior Ladeira et al. (2016) specified EV as a reflective-formative second-order factor.

Conceptual model and hypothesis development

Figure 1 shows the proposed conceptual model to realise the study's objective. The conceptual model is based on the ECM proposed by Bhattacherjee (2001), an established theory that explains an individual's continuance use of IS. Barnes et al. (2020) have suggested that future researchers should explore different contexts to gain a comprehensive understanding of the mediating role of EV. Therefore, the conceptual model of this study incorporates the four dimensions of EV (customer return on investment [CROI], service excellence, playfulness and aesthetics) as mediators in the confirmation-satisfaction relationship. In addition, the moderating effects of customer demographics (age and gender) on the influence of EV dimensions on satisfaction were also tested. Lastly, we included habit of using the retailer's mobile app to purchase products as a control variable.

The expectation-confirmation model and purchasing products using a retailer's mobile app: The ECM has emerged as the main theory explaining an individual's continuing use of IS. The ECM's central premise is that an individual's continuance intention to use IS depends on the confirmation of expectations, usefulness perceptions, user satisfaction and post-usage beliefs about the technology (Bhattacherjee 2001).

Oliver and Swan (1989) refer to 'confirmation' as the degree to which performance exceeds, equals, or falls short of an individual's expectations. Confirmation can occur in three scenarios: (1) expectation(s) are confirmed when the IS performance is as expected; (2) positive confirmation arises when IS system performance exceeds expectation[s]; and (3) negative disconfirmation arises when experienced performance is less than expectation[s] (Bhattacherjee 2001). The positive influence of the confirmation of expectations on usefulness perceptions and satisfaction with an IS can be explained as follows. Satisfaction is 'the summary of [the] psychological state resultant from emotion surrounding disconfirmed expectation coupled with the consumer's prior feelings about the consumption experience' (Oliver 1981:29). Satisfaction emerges when the performance of an IS is better than expected or equals expectations. Moreover, as shown in Figure 1, usefulness perceptions and satisfaction influence the continuance use of an IS. Satisfaction with an IS signals the unique value of the IS; therefore, motivating future use of the IS. Satisfaction develops trust and commitment, which inevitably results in either consumer loyalty or instances of dissatisfaction (Chong 2013a). Perceived usefulness signifies belief in the usefulness of an action. When a user believes that using a system would enhance their performance, this would positively impact the user's intention to use the system (Venkatesh & Davis 2000). Therefore, an individual's frequent use of IS results from positive beliefs about using it.

Based on the ECM, the following hypotheses were presented for this study:

- **H1:** Mobile app purchasing satisfaction positively influences the continuance use intention of a retailer's mobile app to purchase products.
- **H2:** Perceived usefulness of a retailer's mobile app to purchase products positively influences the continuance use intention of the app to purchase products.
- **H3:** Perceived usefulness of a retailer's app to purchase products positively influences satisfaction in using the app to purchase products.
- **H4:** Confirmation positively influences the perceived usefulness of a retailer's app to purchase products.
- **H5:** Confirmation positively influences satisfaction in using a retailer's app to purchase products.

Confirmation of expectations influencing experiential value dimensions: If the outcomes in Mathwick et al. (2001) are followed, EV comprises intrinsic value (playfulness and aesthetics) and extrinsic value (service excellence and CROI). 'Intrinsic value' refers to the hedonic value, while 'extrinsic value' refers to the utilitarian value of the shopping act (Babin, Darden & Griffin 1994). In purchasing products, utilitarian value arises from purchasing a product deliberately and efficiently, while hedonic value arises from the fun and playfulness of the shopping task (Babin et al. 1994).

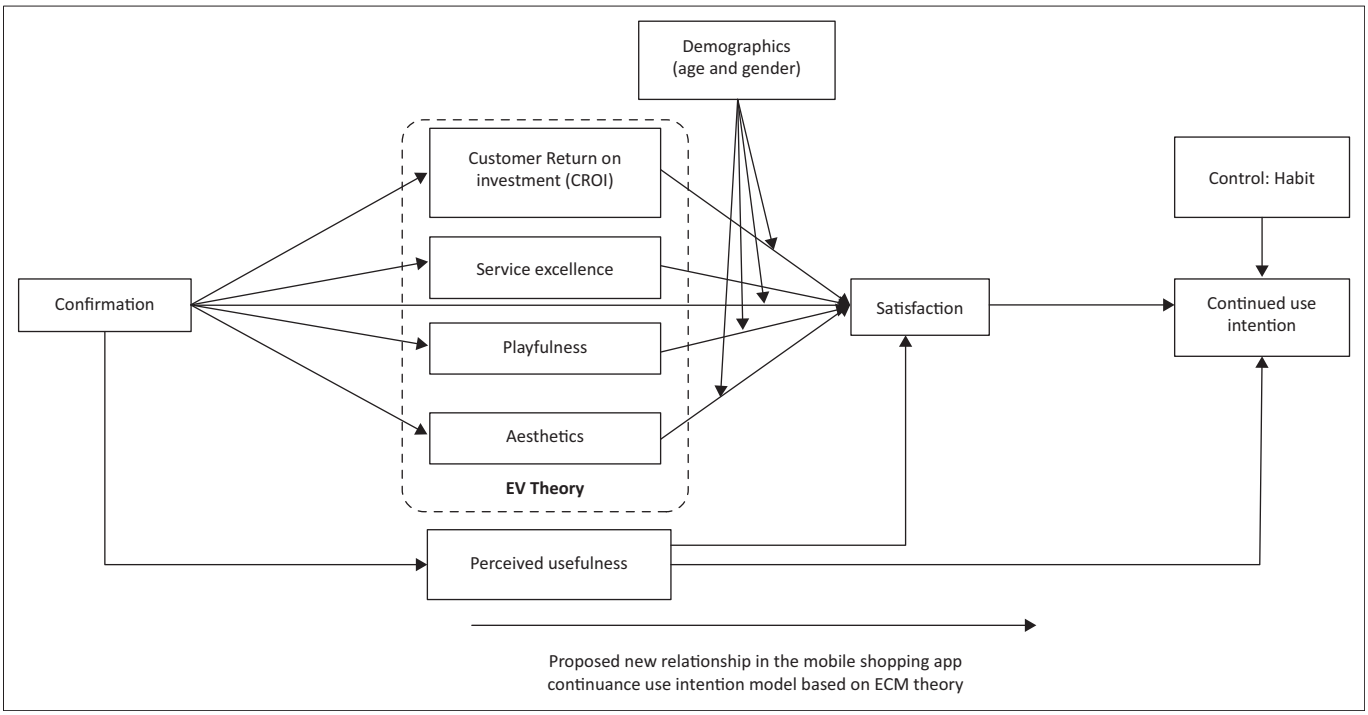
TABLE 1: Summary of experiential value research in a digital application setting.

Author	Context	The primary source(s) for the operationalisation of EV	Incorporation of EV in the conceptual model
Van Oppen et al. (2005)	Online book and CD setting	Mathwick et al. (2001)	Reflective-reflective fourth-order factor First-order factors: Visual appeal, Entertainment, Escapism, Enjoyment, Efficiency, Economic value Second-order factors: Aesthetics, Playfulness, Service excellence, CROI Third-order factors: Hedonic and Intrinsic value, Utilitarian and Extrinsic value
Jin, Lee and Kwon (2007)	Internet shopping mall versus traditional shopping mall	Mathwick et al. (2001)	Used dimensions of EV as factors in the conceptual model Factors: Intrinsic enjoyment, Entertainment value and escapism, Visual appeal, Economic value and efficiency hedonic, Time efficiency
Shieh and Ming-Sung (2007)	Online gaming	Mathwick et al. (2001)	Used dimensions of EV as factors in the conceptual model Factors: Website functionality, Content and multiple options, Connection quality and functionality, Social function, Service response and efficiency, CROI, Sense of belonging, Empathy and escapism, Privacy and anonymity, Economic value, Pursuit of speed and excess consumption
Okazaki (2008)	Online gaming	Mathwick et al. (2001)	Reflective-reflective second-order factor First-order factors: Intrinsic enjoyment, Escapism, Efficiency, Economic value, Visual appeal, Perceived novelty, Perceived risk
Merle et al. (2008)	Online customisation	Holbrook (1999)	Reflective-reflective second-order factor First-order factors: Hedonic value, Creative fulfilment value
Won Jeong et al. (2009)	Online shopping websites	Oh, Fiore and Jeoung (2007)	Used dimensions of EV as factors in the conceptual model Factors: Pleasure, Arousal, Entertainment, Educational, Escapist, Aesthetic
Keng and Ting (2009)	Blogs	Mathwick et al. (2001)	Used dimensions of EV as factors in the conceptual model Factors: Aesthetics, Playfulness, CROI, Service excellence
Tang and Chiang (2010)	Blogs	Mathwick et al. (2001)	Unidimensional factor
Kim (2011)	Apparel websites	Mathwick et al. (2001)	Used dimensions of EV as factors in the conceptual model Factors: Visual appeal, Escapism and excellence, Economic value, Entertainment, Efficiency
Verhagen et al. (2011)	Virtual worlds	Mathwick et al. (2001)	Used dimensions of EV as factors in the conceptual model Factors: Escapism, Entertainment, Economic, Ease of use
Huang and Hsu Liu (2014)	Augmented reality	Mathwick et al. (2001) and Holbrook (1996)	Used dimensions of EV as factors in the conceptual model Factors: Aesthetic, Playfulness, Service excellence, CROI
Maghnati and Ling (2013)	Mobile app usage	Mathwick et al. (2001) and Holbrook (1996)	Used dimensions of EV as factors in the conceptual model Factors: Aesthetic, Playfulness, Service excellence, CROI
Li and Cai (2014)	E-shopping	Mathwick et al. (2001)	Used dimensions of EV as factors in the conceptual model Factors: Aesthetic, Playfulness, Service excellence, Efficiency
Overmars and Poels (2015)	Virtual experiences	Mathwick et al. (2001)	Used dimensions of EV as factors in the conceptual model Factors: Aesthetics, Playfulness, CROI, Service excellence
Junior Ladeira et al. (2016)	Freemium games	Mathwick et al. (2001)	Reflective-formative second-order factor First-order factors: Visual appeal, Entertainment value, Escapism, Intrinsic enjoyment, Efficiency, Economic value
Rezaei and Valaei (2017)	Smartphone app shoppers	Mathwick et al. (2001)	Reflective-reflective third-order factor First-order factors: Efficiency, Economic value, Service excellence, Visual appeal, Entertainment value, Escapism and entertainment value Second-order factors: CROI, Aesthetics, Playfulness Third-order factor: EV
Chiang, Yi Lin and Huang (2018)	Online-to-offline shopping	Mathwick et al. (2001)	Used dimensions of EV as factors in the conceptual model Factors: Aesthetics, Playfulness, CROI, Service excellence
Fan, Hsu and Lin (2020)	Online EV co-creation by tourists	Developed a new scale	Used dimensions of EV as factors in the conceptual model Factors: Intrinsic and extrinsic enjoyment value, Logistics value, Efficiency value
Hwang et al. (2020)	Interactive music and e-commerce	Jiang, Law and Li (2010)	Unidimensional factor
Zhang et al. (2021)	Online mass customisation sites	Pine and Gilmore (1998)	Used dimensions of EV as factors in the conceptual model Factors: Entertainment, Aesthetic, Educational, Escapist
Khlaif et al. (2022)	Continuance Intentions to Use Mobile Technology	TAM	Included Technostress to those in TAM namely perceived usefulness, attitude towards mobile technology and continuance intention

Note: Please see the full reference list of the article, Chabata, T.T., Nel, J. & Maziriri, E.T., 2024, 'Experiential value and continuance use of retailers' mobile apps: Emerging market perspective', *South African Journal of Economic and Management Sciences* 27(1), a5706. https://doi.org/10.4102/sajems.v27i1.5706, for more information.

EV, experiential value; CROI, customer return on investment; TAM, technology acceptance model; CD, compact disc.

Bhattacherjee (2001) draws on cognitive dissonance theory (CDT) (Festinger 1957) to justify the positive influence of confirmation on usefulness perceptions. Cognitive dissonance theory proposes that individuals strive to have consistent cognitions – cognitions being elements of knowledge that people have about their behaviour, attitudes and the environment. Individuals generally apply three dissonance-elimination mechanisms, depending on the prevailing situation (Kwon & Lennon 2009). They can interpret the dissonant information to be consistent with their existing attitude; or they can deny the relevance of the dissonant information; or they can devalue the importance of the information, or the elements of cognition that are consonant with their existing cognitions can be bolstered.



EV, experiential value; ECM, expectation-confirmation model.

FIGURE 1: Conceptual model.

Bhattacherjee (2001) argues that confirmation of expectation would elevate usefulness perceptions. In other words, confirmation's positive influence on usefulness perceptions is because of biased usefulness perceptions based on confirmation perceptions. Extending this CDT-based argument to the relationships between confirmation and EV dimensions leads to the following hypotheses:

- **H6:** Confirmation positively influences the perceived service excellence of a retailer's app.
- **H7:** Confirmation positively influences the perceived CROI using a retailer's app to purchase products.
- **H8:** Confirmation positively influences the perceived playfulness of using a retailer's app to purchase products.
- **H9:** Confirmation positively influences the perceived aesthetics of a retailer's app.

Experiential value dimensions influence satisfaction in using the retailer's mobile app to purchase products: Individual dimensions of EV are potential salient factors influencing overall customer satisfaction (Verhagen et al. 2011). Customer satisfaction is a consequence of value perceptions because customer satisfaction depends on using a product or service (Sánchez et al. 2006). Furthermore, Foroudi, Cuomo and Foroudi (2020:1308) state, 'Undoubtedly, high levels of satisfaction and loyalty arise from EVs accrued by customers in contact with the retailer'. Therefore, the following hypotheses were developed for the influence of EV dimensions on satisfaction in using a retailer's app to purchase products:

- **H10:** CROI from using a retailer's app to purchase products positively influences satisfaction in using the retailer's mobile app to purchase products.
- **H11:** Service excellence of a retailer's app positively influences satisfaction in using the retailer's mobile app to purchase products.
- **H12:** Playfulness of a retailer's app positively influences satisfaction in using the retailer's mobile app to purchase products.
- **H13:** Aesthetics of a retailer's app positively influences satisfaction in using the retailer's mobile app to purchase products.

Individual characteristics (age and gender) as moderators of the influence of experiential value on satisfaction: Since the seminal research by Venkatesh and Morris (2000), researchers have continued to hypothesise age and gender differences in the mobile shopping context. However, some researchers argue that age and gender differences decreased and might no longer be relevant factors to explain differences in the use of technology.

Age differences in customer behaviour can be explained by individuals' self-efficacy, ageing processes and accumulated life experience. The prevalent argument underlying the moderation hypothesis of age is that older adults believe they are too old to learn or adopt a new technology. In contrast, younger adults are more likely to engage in opportunities to learn new technologies while being more efficient in using technology, and they are driven by results and performance from the same technologies (Assaker 2020). Lin et al. (2019) found strong support for gender differences in their study on online consumer purchase decision-making.

However, as early as 2011, age differences in online shopping behaviour have been debated. Hernández, Jiménez

and José Martín (2011) elicited that the age of consumers might not explain online shopping behaviour anymore, as the average age of e-shoppers has continued to rise. They point out that the life stages that have previously been far removed from more technologically inclined generations currently comprise individuals who are familiar with online shopping technologies. At the same time, Bae and Lee (2011) reported that gender differences do not exist in consumers' willingness to buy online, because of the widespread use of the Internet by females. According to Hauk, Hüffmeier and Krumm (2018), age differences in technology adoption behaviour have become weaker and these differences might have reached a stagnation point, but these differences could also persist.

Social role theory (SRT) and gender schema theory (GST) are well-established theories that explain behavioural differences between genders in different contexts (Han, Meng & Kim 2017). Both can be used to predict service aspects important to the various genders in the adoption and continuance use of services (Friedmann & Lowengart 2016). Based on SRT, it can be argued that the utilitarian aspects of an electronic service are more important to male than female users, while the hedonic service aspects are more critical to female users. Similarly, GST can be helpful to justify the argument that performance expectancy would be a more salient determinant for males adopting technology. Conversely, GST suggests that effort expectancy would be a more vital determinant of technology adoption for females than males.

Like the mixed results of age as a moderator of technology use, the moderation effect of gender in technology adoption behaviour can also not be generalised. For example, Ameen, Willis and Hussain Shah (2018) find that the influence of perceived value, habit and culture-specific behaviours on behavioural intention to adopt a smartphone is moderated by gender, but not the influence of perceived relative advantage, effort expectancy and enjoyment on behavioural intention. Tamilmani et al.'s (2018) meta-analysis found that gender did not moderate the influence of the perceived value of technology on behavioural intention. The systematic review of gender differences and similarities in online consumers' shopping behaviour by Kanwal et al. (2022) indicated that several factors might have played a role in manifesting behavioural similarities between men and women in an online shopping context. Firstly, the similarities can be explained by the general increase in Internet usage and e-commerce and by the greater familiarity of both genders with digitised technological devices. Secondly, differences in behaviour between male and female online shoppers are smaller, but they also persist.

The discussion to this point makes the case for possible age and gender differences in mobile shopping behaviour. Recognising the view that age and gender differences might have become smaller because of factors discussed in this section, but these differences persist to exist, the following hypotheses were developed:

H14: Age moderates the positive relationship between EV perception from using a retailer's app to purchase products and satisfaction in using the app to purchase products.

H15: Gender moderates the positive relationship between EV perception from using a retailer's app to purchase products and satisfaction in using the app to purchase products.

Control variable – Habit of purchasing products using the retailer's mobile app: Verplanken et al. (1998:540) define habit as 'learned sequences of acts that become automatic responses to specific situations which may be functional in obtaining certain goals or end state. The definition of habit emphasises that habit is an automatic behavioural response derived from learned behaviour. In this study, 'habit' signifies that retail m-shoppers have learned sequences of acts that become automatic responses that help purchase products through retail m-shopping apps.

Pavlou and Fygenson (2006) believe that habitual behaviour must be controlled when investigating individuals' continuance use of technology. Limayem and Cheung (2008) explain that the repeated use of technology increases familiarity with that technology, and so its use requires limited or no cognitive effort. Hence, the use of the technology would become habitual, and its frequency would increase. Therefore, the following hypothesis was formulated:

H16: The habit of using a retailer's app to purchase products positively influences the continuance use intention of the app to purchase products.

Methodology

Sampling and data collection

The target population for the research was retail m-shopping app(s) users, 18 years of age and older, who purchased from South African retailers using the retailers' mobile apps on a smartphone. The researchers contracted a market research firm to collect the required data using their consumer panel that fits into the sample of interest of this study. Data were collected from August to October 2022. A convenience sample of 410 retail m-shopping app users who had purchased products using a retailer's m-shopping app within the previous 6 months was collected. Convenience sampling is appropriate when the researcher does not have a sample frame (Chabata 2024) as was the case for this study.

Measurement instrument

Thirty-nine items that were adapted from previous empirical studies (Avornyo et al. 2019; Davis et al. 1989; Mathwick et al. 2001; San-Martín, Prodanova & Jiménez 2015; Shobeiri, Laroche & Mazaheri 2013; Sohn 2017; Tang & Chiang 2010; Venkatesh, Thong & Xu 2012) were used to measure the factors of interest in the conceptual model. The respondents' beliefs were captured using a seven-point Likert-type scale anchored on 'strongly disagree' as one (1) and 'strongly agree' as seven (7). When rating the items, the respondents had to keep in mind a retailer's app that was used to purchase products in the last 6 months.

Data analysis plan

The SMART Partial Least Squares (PLS) software (version 4.0) was used to evaluate the measurement model and to test the main effects. Partial least squares structural equation modelling (PLS-SEM) was selected to test the hypotheses as it is a full-fledged SEM estimator that offers much flexibility and produces lower biases in the estimation of latent variable models (Sarstedt, Hair & Ringle 2023). The two-step method to evaluate models in SEM was applied (Hair et al. 2018). This method involves assessing the measurement model, focussing on reliability and validity analyses, followed by testing the structural model.

The construct validity of the measurement model was assessed by investigating the construct measures' convergent and discriminant validity, as Hair, Ringle and Sarstedt (2011) established. The standard criteria for convergent validity were applied, which are: (1) all standardised loadings (in PLS, outer loadings) are statically significant at 0.7 or higher; (2) the average variance extracted (AVE) of each construct is 0.5 or higher; and (3) the composite reliability (CR) value is 0.7 or higher. In assessing the discriminant validity, the Heterotrait-Monotrait ratio (HTMT) of correlations was evaluated (Henseler, Ringle & Sarstedt 2015). The evidence of discriminant validity is a ratio of less than 0.85 between the two factors (Henseler et al. 2015).

The mediation and moderation hypotheses were also tested using SmartPLS 4.0. according to the guidelines in Sarstedt et al. (2023), the percentile bootstrap method was used to obtain *p*-values and confidence intervals (CIs) for the indirect effects as well as the moderation effects.

Ethical considerations

Ethical approval was obtained from the University of the Free State's General and Human Research Ethics Committee (approval number: UFS-HSD2021/0877/21). Consent was obtained from human participants before data could be collected, which included maintaining confidentiality and data collection, storage and disposal. Each participant provided written consent by clicking a 'Yes' icon on the online survey, acknowledging that their participation and personal details are only known within the confines of the study. All questions did not require the personal identification of the respondents to uphold confidentiality and anonymity. Participants were assured that participation was voluntary and that they could withdraw from the study at any point without any implication. Data captured from the online survey was stored and encrypted with password protection to ensure no third party may access the data. Collected data will be stored for 5 years, after which computer-based data will be deleted.

Results

Respondents' demographics

The demographic information of the sample is summarised in Table 2. About 63% of the respondents were female. Most of the respondents were aged between 18 and 30 years (46.6%), followed by those aged between 31 and 40 years (33.9%). Respondents older than 50 years of age accounted for 6.6% of the sample. In respect of occupation, 82.2% of the respondents were employed. Respondents completing the 'Other' category were students, part-time workers and self-employed individuals, while 51 (12.4%) of the respondents were unemployed, mainly explaining why 27 respondents (6.6%) indicated that they did not have disposable income at the time of the study.

Measurement model results

The assessment of the measurement model provided evidence of convergent validity and discriminant validity. The HTMT ratio between satisfaction and perceived usefulness was higher than 0.85, but lower than 0.9. All other HTMT ratios were lower than 0.85. In mobile commerce research, a high correlation between usefulness perceptions and satisfaction was reported in, for example, Lim et al. (2019). Such high correlations between perceived usefulness and satisfaction could make it more difficult to distinguish empirically between the two constructs. Therefore, the use of the 0.9 threshold for the HTMT ratio between usefulness and satisfaction in the conceptual model can be justified (Henseler et al. 2015). The results of the measurement model are summarised in Table 3 and Table 4. Table 3 shows that the outer loadings were higher than 0.7 and statistically significant. The two internal reliability consistency measures for each construct were

TABLE 2: Respondents' information (N = 410).

Demographics	*n*	%
Gender		
Male	142	34.6
Female	258	62.9
Other	10	2.4
Total	410	100.0
Age (years)		
18–30	191	46.6
31–40	139	33.9
41–50	51	12.4
51 >	27	6.6
Did not answer	2	0.5
Total	410	100.0
Employment		
Employed	337	82.2
Unemployed	51	12.4
Retired	5	1.2
Other (please specify)	17	4.1
Total	410	100.0
Monthly disposable income		
No disposable income	27	6.6
< R10 000	65	15.9
R10 000–15 000	61	14.9
R15 001–20 000	53	12.9
R20 001–30 000	67	16.3
R30 001–40 000	54	13.2
R40 001–50 000	28	6.8
R50 001 >	55	13.4
Total	410	100.0

TABLE 3: Measurement model results.

Items	Outer loading	*p*-value (two-tailed)	Cronbach's alpha	CR	AVE
AV	-	-	0.857	0.913	0.778
AV1	0.887	0.000	-	-	-
AV2	0.912	0.000	-	-	-
AV3	0.845	0.000	-	-	-
CON	-	-	0.869	0.920	0.793
CON1	0.905	0.000	-	-	-
CON2	0.919	0.000	-	-	-
CON3	0.846	0.000	-	-	-
CROI	-	-	0.878	0.925	0.804
CROI1	0.882	0.000	-	-	-
CROI2	0.903	0.000	-	-	-
CROI3	0.904	0.000	-	-	-
CUI	-	-	0.807	0.886	0.721
CUI1	0.807	0.000	-	-	-
CUI2	0.869	0.000	-	-	-
CUI3	0.870	0.000	-	-	-
HAB	-	-	0.903	0.927	0.718
HAB1	0.858	0.000	-	-	-
HAB2	0.859	0.000	-	-	-
HAB3	0.759	0.000	-	-	-
HAB4	0.878	0.000	-	-	-
HAB5	0.877	0.000	-	-	-
PU	-	-	0.780	0.871	0.693
PU1	0.849	0.000	-	-	-
PU2	0.840	0.000	-	-	-
PU3	0.808	0.000	-	-	-
PY	-	-	0.871	0.893	0.546
PY1	0.777	0.000	-	-	-
PY2	0.833	0.000	-	-	-
PY3	0.662	0.000	-	-	-
PY4	0.782	0.000	-	-	-
PY5	0.657	0.000	-	-	-
PY6	0.739	0.000	-	-	-
PY7	0.703	0.000	-	-	-
SAT	-	-	0.908	0.929	0.686
SAT1	0.834	0.000	-	-	-
SAT2	0.850	0.000	-	-	-
SAT3	0.853	0.000	-	-	-
SAT4	0.786	0.000	-	-	-
SAT5	0.851	0.000	-	-	-
SAT6	0.793	0.000	-	-	-
SE	-	-	0.868	0.901	0.602
SE1	0.820	0.000	-	-	-
SE2	0.824	0.000	-	-	-
SE3	0.739	0.000	-	-	-
SE4	0.768	0.000	-	-	-
SE5	0.705	0.000	-	-	-
SE6	0.794	0.000	-	-	-

CR, composite reliability; AVE, average variance extracted; AV, Aesthetics; CON, Confirmation; CROI, customer return on investment; CUI, Continuance use intention; HAB, Habit; PU, Perceived usefulness; PY, Playfulness; SAT, Satisfaction; SE, Service excellence.

above 0.7 and the AVE of each construct was higher than 0.5. The measurement model showed adequate evidence of convergent validity. The HTMT ratios of correlations are reported in Table 4. The ratios are acceptable, as previously discussed.

Structural model results

The highest VIF was for the influence of service excellence when using an m-shopping app to purchase products (2.800),

TABLE 4: Discriminant validity empirical results.

Items	AV	CONF	CROI	CUI	HAB	PU	PY	SAT
CONF	0.456	-	-	-	-	-	-	-
CROI	0.396	0.719	-	-	-	-	-	-
CUI	0.342	0.637	0.724	-	-	-	-	-
HAB	0.442	0.351	0.397	0.464	-	-	-	-
PU	0.445	0.828	0.822	0.786	0.464	-	-	-
PY	0.460	0.355	0.284	0.243	0.541	0.35	-	-
SAT	0.381	0.792	0.764	0.782	0.315	0.850	0.252	-
SE	0.614	0.780	0.744	0.678	0.421	0.817	0.453	0.795

AV, Aesthetics; CONF, Confirmation; CROI, customer return on investment; CUI, Continuance use intention; HAB, Habit; PU, Perceived usefulness; PY, Playfulness; SAT, Satisfaction; SE, Service excellence.

which was well below the cut-off of 5.0 (see Table 5). Therefore, it was concluded that collinearity did not threaten the study results.

The in-sample predictive accuracy of continuance use intention was moderate (R^2 = 51.8%). The model explained 69.1% of the variance in respondents' satisfaction with using a mobile app to purchase products – thus also yielding moderate predictive accuracy. The confirmation of the expectations of using a mobile app to purchase products explained the most variance in the service excellence dimension of EV (46.6%) followed by CROI (39.5%); aesthetics (15.6%) and playfulness (11.8%) showed a weak predictive accuracy by confirmation perceptions.

Table 5 shows that the core ECM relationships were statistically significant (H1 to H5 accepted). As hypothesised, confirmation positively influenced the dimensions of EV (H6 to H9 accepted). Customer return on investment and service excellence, two of the four EV dimensions, influenced satisfaction (H10 and H11 accepted, and H12 and H13 rejected). Habit as the control variable in the study influenced continuance use intention positively and statistically significantly (H16 accepted).

Moderation results

Table 6 presents the testing results for the moderation effects of age and gender. The results show that none of the eight interaction effects was statistically significant ($p > 0.05$ [two-tailed]; 95% CI includes '0'). As a result, H14 and H15 were rejected.

Ad hoc analysis

Table 7 summarises the results of testing the EV dimensions as mediators of the confirmation-satisfaction relationship. The results show that the EV dimensions and perceived usefulness partially mediated the influence of confirmation on satisfaction; the direct effect is positive and statistically significant. Only two dimensions of EV mediated the 'confirmation-satisfaction' relationship. The indirect effect via CROI was positive and statistically significant (β = 0.103; p = 0.001 [two-tailed]; 95% CI [0.045–0.164]). The indirect effect through service excellence was also positive and statistically significant (β = 0.181; p = 0.000 [two-tailed]; 95% CI [0.098–0.264]). The indirect effects, including aesthetics

TABLE 5a: A summary of direct effects hypotheses testing and variance inflation factor values.

Hypothesis	Proposed path	Standardised coefficient	*t*-value	*p*-value (two-tailed)	f^2 effect size	Hypotheses decision
H1	SAT -> CUI	0.455	7.85	0.000	0.182	Accepted
H2	PU -> CUI	0.205	3.00	0.003	0.034	Accepted
H3	PU -> SAT	0.352	8.27	0.000	0.156	Accepted
H4	CONF -> PU	0.684	17.75	0.000	0.878	Accepted
H5	CONF -> SAT	0.216	4.94	0.000	0.064	Accepted
H6	CONF -> CROI	0.628	14.03	0.000	0.653	Accepted
H7	CONF -> SE	0.683	18.87	0.000	0.874	Accepted
H8	CONF -> PY	0.343	7.08	0.000	0.134	Accepted
H9	CONF -> AV	0.394	7.55	0.000	0.184	Accepted
H10	CROI -> SAT	0.164	3.68	0.000	0.039	Accepted
H11	SE -> SAT	0.265	5.18	0.000	0.081	Accepted
H12	PY -> SAT	-0.046	1.30	0.197	0.005	Rejected
H13	AV -> SAT	-0.049	1.48	0.141	0.005	Rejected
H16	HAB -> CUI	0.199	3.68	0.000	0.069	Accepted

H, hypothesis; AV, Aesthetics; CONF, Confirmation; CROI, customer return on investment; CUI, Continuance use intention; HAB, Habit; PU, Perceived usefulness; PY, Playfulness; SAT, Satisfaction; SE, Service excellence.

TABLE 5b: A summary of direct effects hypotheses testing and variance inflation factor values.

Factor	CUI	SAT
AV	-	1.47
CONF	-	2.35
CROI	-	2.23
CUI	-	-
HAB	1.19	-
PU	2.11	2.56
PY	-	1.31
SAT	1.91	-
SE	-	2.80

AV, Aesthetics; CONF, Confirmation; CROI, customer return on investment; CUI, Continuance use intention; HAB, Habit; PU, Perceived usefulness; PY, Playfulness; SAT, Satisfaction; SE, Service excellence.

TABLE 6: Moderation results.

Paths	Effect	*p*-value (two-tailed)	Lower limit 2.5%	Upper limit 97.5%
PU -> SAT	0.282	0.000	0.193	0.382
CROI -> SAT	0.154	0.003	0.055	0.254
SE -> SAT	0.264	0.000	0.141	0.387
PY -> SAT	-0.036	0.372	-0.112	0.044
AV -> SAT	-0.078	0.053	-0.158	0.001
CONF -> SAT	0.231	0.000	0.131	0.326
Age -> SAT†	0.021	0.521	-0.044	0.088
Age × CROI -> SAT	0.030	0.603	-0.075	0.150
Age × SE -> SAT	0.009	0.865	-0.105	0.105
Age × PY -> SAT	-0.016	0.665	-0.088	0.055
Age × AV -> SAT	-0.008	0.858	-0.092	0.081
Gender -> SAT‡	0.045	0.213	-0.023	0.118
Gender × CROI -> SAT	0.059	0.286	-0.050	0.166
Gender × SE -> SAT	-0.064	0.258	-0.181	0.045
Gender × PY -> SAT	0.040	0.329	-0.039	0.122
Gender × AV -> SAT	0.046	0.305	-0.042	0.138

†, Hypothesis 14 decision was rejected; ‡, Hypothesis 15 decision was rejected. AV, Aesthetics; CONF, Confirmation; CROI, customer return on investment; CUI, Continuance use intention; HAB, Habit; PU, Perceived usefulness; PY, Playfulness; SAT, Satisfaction; SE, Service excellence.

and perceived playfulness, did not mediate the confirmation-satisfaction relationship ($p > 0.05$ [two-tailed]; 95% CI includes '0').

In addition to the testing of the mediation, the statistically significant indirect effects were statistically contrasted using the bootstrapping results to determine whether or not they were statistically significantly different. The contrast in Table 8 shows that the indirect effect via perceived usefulness when compared with the indirect effect including CROI, was statistically different. The CI for the comparison included '0'. The results in Table 8 further show that the indirect effect including usefulness perceptions and service excellence perceptions, as well as the indirect effect including CROI perceptions and service excellence perceptions, was not statistically significant (the indirect effect includes '0').

TABLE 7: Mediation results.

Path	Effect	*p*-value (two-tailed)	Lower limit 2.5%	Upper limit 97.5%
CONF ->SAT (total effect)	0.706	0.000	0.632	0.769
CONF-> SAT (direct effect)	0.216	0.000	0.133	0.305
CONF -> PU -> SAT	0.240	0.000	0.179	0.302
CONF -> CROI -> SAT	0.103	0.001	0.045	0.164
CONF -> SE -> SAT	0.181	0.000	0.098	0.264
CONF -> PY -> SAT	-0.016	0.224	-0.043	0.009
CONF -> AV -> SAT	-0.019	0.152	-0.048	0.005

AV, Aesthetics; CONF, Confirmation; CROI, customer return on investment; CUI, Continuance use intention; HAB, Habit; PU, Perceived usefulness; PY, Playfulness; SAT, Satisfaction; SE, Service excellence.

TABLE 8: Contrasting indirect effects.

Items	Effect	BootLLCI	BootULCI
PU minus CROI	0.137	0.045	260
PU minus SE	0.059	-0.043	0.159
CROI minus SE	-0.078	-0.184	0.030

CROI, customer return on investment; PU, Perceived usefulness; SE, Service excellence; LLCI, lower limit confidence interval; UUCI, upper limit confidence interval.

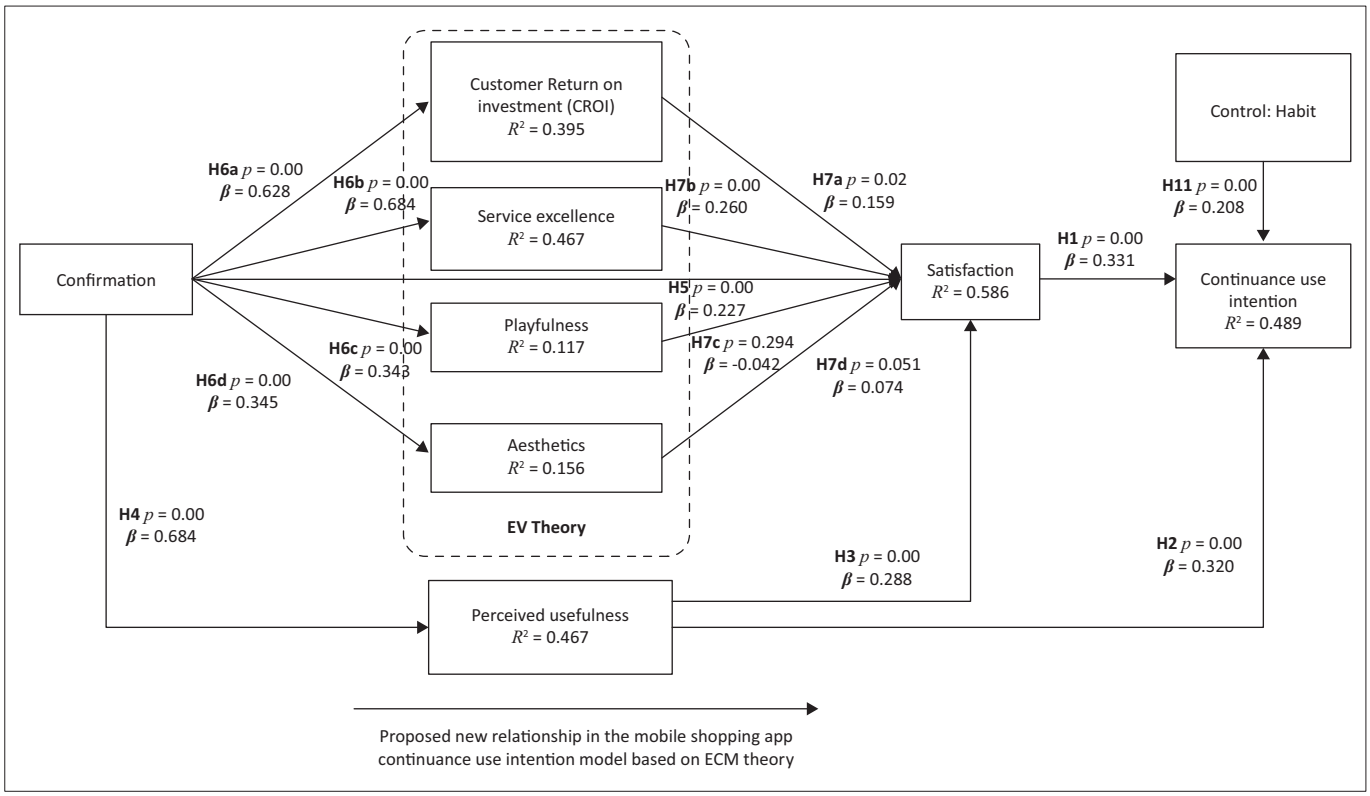
The collective structural equation model of the study is presented in Figure 2.

Discussion

Main findings

This study investigated the role of EV as a mediator in the ECM, particularly in retail m-shopping app usage, wherein scant research has been conducted. The data supported the fundamental ECM relationships.

This study confirmed that confirmation positively influenced the dimensions of EV, like the influence of confirmation on



EV, experiential value; ECM, expectation-confirmation model; β, beta; H, hypothesis.

FIGURE 2: Structural equation model of the study.

usefulness perceptions. Several authors proposed that CROI is regarded as a utilitarian value (Dai et al. 2018; Kim 2010) as well as that of costs incurred in using IS (Chong 2013a; Tam, Santos & Oliveira 2020). Taking this standpoint, the findings of this study do not mirror those of Kim (2010), who found that confirmation negatively influenced the utilitarian value of mobile data services. The views of Tang and Chiang (2010) suggested that perceived usefulness and EV are common IS user motivations, it is rational to believe that confirmed expectations of IS would also have a positive impact on EV. Therefore, the current empirical study echoed that the users of retail m-shopping apps' return on investment is a result of their confirmation expectations when using the app for purchasing motives.

Furthermore, confirmation of expectations influenced the perceived service excellence of the retail m-shopping app and was found to be significant. The conclusion is that higher confirmed expectations influence the perceived service excellence of using the retail m-shopping app for purchasing products. This result can be closely related to those that found that extrinsic attributes are significantly predicted by users' confirmed expectations (Kim, Choi & Han 2009; Thong, Hong & Tam 2006) because service excellence is a dimension of an extrinsic motive (Mathwick et al. 2001).

It was found that the confirmation of expectations by app user positively affects their perceived playfulness. The findings show that confirmation of expectations exerts an influence on the perceived playfulness of retail m-shopping apps. Kim (2010) found that confirmation of expectations in mobile data services is positively associated with perceived enjoyment and further confirms that the findings are in line with CDT. In addition, Chong (2013a) affirms that users' extent of confirmation is positively associated with their perceived enjoyment of m-commerce.

Furthermore, confirmation of expectations of app users positively influences the aesthetics of the app when making use of the app for purchasing purposes. Studies in line with the current findings propose that aesthetics is considered an intrinsic motive (Keng et al. 2007; Okazaki 2008; Sung & Lee 2015) as well as hedonic value (Mathwick et al. 2001; Oghuma et al. 2016). Chung, Chun and Choi (2016) examined the importance of confirmation in influencing the intrinsic attributes of m-shopping apps and found the relationship significant and supported. Lin, Sher and Shih (2005) expressed that confirmation impacts on intrinsic motives when users' prior website user experiences with their intrinsic perceptions are confirmed and are more consistent, then they will probably accept and use a web portal continually.

Among the dimensions of EV examined, the results revealed that only CROI and service excellence had a statistically significant and positive influence on purchasing satisfaction within the context of a mobile shopping app. This finding suggests that customers place importance on the perceived CROI and the level of service excellence they experience while using the mobile shopping app. Contrarily, Griksaite (2016) found that service excellence did not have a positive

impact on satisfaction, though CROI had a positive relationship with satisfaction (Griksaite 2016; Möhlmann 2015). The results of this study underscore the critical role of the proposed dimensions in shaping customer satisfaction within m-shopping environments. This, in turn, is likely to contribute positively to customer loyalty, repeat usage and ultimately, the app's success in the competitive marketplace.

Furthermore, only CROI and service excellence mediated the confirmation-satisfaction relationship. This study's findings align with Tang and Chiang's (2010) study on blog continuance use which revealed that the expectations of confirmation and blog users' satisfaction were mediated by utilitarian value. The indirect effects including perceived usefulness, CROI, and service excellence were not statistically significantly different from one another. Thus, these mechanisms are equally important in customers' satisfaction when using a retailer's m-shopping app to purchase products.

The above results show that the utilitarian value of using a retailer's app to purchase products is a stronger satisfaction determinant than hedonic value. This result aligns with the meta-analysis of Vieira, Santini and Araujo (2018), finding that utilitarian value more strongly influences satisfaction than hedonic value. The context of a study could also explain the stronger influence of utilitarian value over that of hedonic value, and vice versa. When the task is utilitarian, the hedonic value might not be a salient factor influencing technology use (Heijden 2004). Online shopping is driven by rational motives, thus determining the willingness to purchase products online (Liu et al. 2020). Therefore, in m-shopping, the utilitarian value is likely to be a stronger determinant of satisfaction than the hedonic value derived from the task.

The data did not support the hypothesised moderation effects. An explanation for these non-significant results is that age and gender differences in the formation of online purchasing satisfaction have contracted to the extent that consumers' behaviour across age and gender is not different. The non-significant moderation effects support studies such as those of Natarajan, Balasubramanian and Kasilingam (2018) and Kanwal et al. (2022).

Theoretical contributions

This study presents the following theoretical contributions. This study adds new knowledge to the limited literature on the continuance use of m-shopping apps from an ECM model standpoint. Another vital theoretical contribution of the study is to report on the EV dimensions as mediators of the confirmation-satisfaction relationship in the ECM. The need for such research is emphasised by various authors. For example, research investigating EV dimensions as mediators is called for by (Barnes et al. 2020). Additionally, Jin et al. (2007) assert that EV dimensions in other retail channels must also receive more attention of researchers.

In this study, only the CROI and service excellence dimensions mediated the confirmation-satisfaction relationship. These results offer novel insights into EV as a mediator of the confirmation-satisfaction relationship in a mobile app purchasing context. Furthermore, the inclusion of EV dimensions as determinants of satisfaction responds to the call of Stocchi et al. (2022) for more research to identify the drivers of satisfaction when using a mobile app in a retailing context.

Ambalov (2018) opines that additional research on age and gender as moderators in the continuance use behaviour of technology is necessary, as meta-analysis studies cannot investigate these moderation effects. Therefore, including demographics (age and gender) as moderators in the extended ECM added more theoretical weight and contribution for academicians. As previously reported, research presents mixed results for the moderation effect of age and gender on technology adoption behaviour. The influence of EV dimensions on purchasing satisfaction was invariant across age and gender. This study's results support the opinion that individuals' perceptions of technology have contracted across age and gender, to the point that age and gender differences are becoming irrelevant in explaining the use of technology for shopping by consumers.

By including the habitual use of the app to purchase products as a control variable, omitted variable bias in the study was reduced (Ullah, Zaefarian & Ullah 2021). It has been noted that habitual behaviour should be controlled for in technology continuance-use studies. Like Tam et al. (2020), this study found a positive and significant relationship between habit and continuance use intention towards retail m-shopping apps to purchase products.

Managerial implications

Confirmation influences the dimensions of EV while m-shopping app users' perceptions of CROI and service excellence are crucial for retailers to consider as key mediators of the confirmation-satisfaction relationship in using m-shopping apps. Therefore, the first step for retailers is to establish confirmation of expectations. The higher the confirmation of expectations, the stronger the influence on CROI and perceived service excellence, and the stronger the overall influence on satisfaction. M-shopping app developers and marketers should prioritise strategies that enhance CROI and ensure that service excellence yields significant benefits in terms of fostering higher levels of customer satisfaction. By doing so, retailers will further improve continuance use intentions. Some notable CROI factors to enhance use include time and cost savings from using the m-shopping app against competitors.

In practical terms, when users perceive confirmation, such as order accuracy or transaction completion, their satisfaction with the app is significantly shaped by their evaluation of CROI (value for money, discounts) and service quality (responsiveness, support). Understanding these mediation effects is essential for app developers and marketers. Effectively improving confirmation processes may not

directly boost satisfaction unless accompanied by enhancement in perceived CROI and service excellence. Therefore, focussing on optimising these aspects could magnify the positive impact of confirmation on user satisfaction, leading to increased user engagement and loyalty to the m-shopping app. Mobile customers' information quality expectations can be met by studying their information needs to make purchasing decisions, designing category and product pages to make the information readily available to customers, and using personalisation to support customer information-gathering and product evaluation processes. This is essential to meet customers' service quality expectations in m-shopping app purchasing context. Service quality expectations entail the overall support of a m-shopping app purchasing customer, including online and offline support. Retailers should embrace artificial intelligence (AI) in delivering online self-service and invest in offline customer support contact points. Incorporating AI into the m-shopping app service delivery could improve satisfaction levels of use and further prompt the continuance of use intention that enhances service excellence. Because AI is part of the extended innovations in digital devices, retailers should not leave AI out of their digital marketing arsenal. Although not convincing outcomes were derived from the aesthetics and playfulness of the app influencing satisfaction, better understanding of how decomposed hedonic value can positively mediate confirmation and satisfaction will be important for future retail m-shopping research. Finally, customers are also likely to expect net benefits from using a retailer's app to purchase products if the m-shopping app is perceived to be useful. This study assists retailers in understanding how successful they can be in delivering m-shopping app net benefits to customers.

Limitations and future research

A limitation of the study is the cross-sectional design. Mobile app users' value-driven behaviour often changes over time and cannot all be captured in a single study. Future studies could adopt a longitudinal research design. This approach would aid in investigating the user behaviour of retail m-shopping apps over time rather than in a snapshot, in an emerging economy like that of South Africa. In this way, time-specific solutions could be implemented over a time series. Although the research findings must be viewed as tentative because the results are from one country, they provide a rich basis for further understanding the dimensions of EV in other international markets and other retail channels.

The sample used to analyse the conceptual model was sufficient for the study, and reasonable conclusions could be drawn. However, the results cannot be generalised to app users globally. New studies should include respondents from other countries and, preferably, encompass cross-national studies that compare the role of EV between different country samples. Nonetheless, the identified limitations offer a starting point for future studies in the same area of interest, as this study provides general guidelines and suggestions for the proposed antecedents of continuance use intention. Understanding the limitations mentioned would enable future studies to address or scrutinise the listed issues to expand knowledge and improve understanding of this emerging area of research.

Conclusion

Research has shown that individuals quickly discontinue the use of mobile apps. For retailers, as for any app developer, the continued use of their m-shopping app is critical to ensure that their development of the m-shopping app contributes to the business success of the retailer. Therefore, it is essential to investigate how the confirmation of expectations leads to purchasing satisfaction, as purchasing satisfaction is essential for future use of the m-shopping app by customers to make purchases. This study presented novel insights into the confirmation-satisfaction relationship in a m-shopping app context by including a key type of customer value – EV – as a mediator of the relationship and testing the robustness of the mediation effects with moderation analysis. Academics and practitioners can extract value from the study results by taking note of the implications for each audience.

Acknowledgements

This article is partially based on the author's thesis entitled 'The continuance use intention of mobile shopping applications: the role of experiential value' towards the degree of Doctor of Philosophy at the Department of Business Management, Faculty of Economic and Management Sciences, University of the Free State, South Africa, with supervisor Prof. Jacques Nel and co-supervisor Prof. Eugine T. Maziriri, received December 2021, available here: https://tinyurl.com/wjk5ryfc.

Competing interests

The authors declare that they have no financial or personal relationships that may have inappropriately influenced them in writing this article.

Authors' contributions

T.C. was responsible for the study conception and design, writing, data collection, analysis and interpretation of results, and manuscript preparation. J.N. and E.T.M. contributed to study supervision, conception, design, writing, reviewing, editing and sourcing the funding.

Funding information

This research received funding from the University of the Free State Grant.

Data availability

Data that support the findings of this research are available upon request from the corresponding author: T.C.

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