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# The role of hedonic features on use and continuous use of mobile retail apps

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**Abstract:** The cost of developing a mobile retail app is high, so retailers get value for money when shoppers utilise mobile retail apps for their shopping. However, some shoppers either do not use such shopping platforms or those who use it discontinue its use shortly after their first usage. While extant studies predominantly examine adoption, literature is scarce on a mobile app that examines post-adoption consequences. Accordingly, the purpose of this study is to examine factors influencing mobile retail app use and continuous use. This study collects data from 235 experienced Finnish mobile app users and utilised structural equation modelling technique for the data analysis. Findings show that the relationship between performance expectancy and use is stronger than continuous use. Cognitive features that enhance learning the platform have also shown to influence use, while privacy and affective components were critical

determinants of continuous use. Finally, the study offers implications and recommendations.

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## 1 Introduction

With hundreds of thousands of different apps available on different operating systems such as android, windows, and iOS, a mobile app is challenging web app and mobile website (Bellman et al., 2011; Gerlich et al., 2015). The mobile app is regarded as one of the fastest-growing technology markets globally due to its various potentials and benefits. The mobile app is attracting more customers daily and positively impacting the business of app developers, mobile device manufacturers, and internet service providers (Garg and Telang, 2013; Yang, 2013). However, due to factors such as macro-environmental variables, personal characteristics, and mobile app specific functionalities, the adoption, use, and continuous use of this innovative piece of technology have been uneven across different markets (Garg and Telang, 2013). Within the mobile app research stream, Taylor et al. (2011) found that one's contacts influence the use of a mobile banking app.

Similarly, Kumar and Mukherjee (2013) contend that consumers' personalities and perceptions influence their attitude towards the use of the mobile app for shopping. Furthermore, online trust plays a dominant role in consumer's confidence in shopping

through a mobile app (Siau and Shen, 2003; Holmes et al., 2013). Within the mobile app research stream, literature is scarce that examines post-adoption consequences, including the effect of embedding hedonic features on mobile retail app use and continuous use. Accordingly, this study examines the mobile retail app post-adoption consequences. Specifically, with the integration of the unified theory of acceptance and use of technology (UTAUT) and the uses and gratifications (U&G) approach, this study seeks to examine the role of hedonic features on the use and continuous use of mobile retail apps. Research on post-adoption of the mobile retail app is very critical in the retail industry because of immense investment in developing these applications; retailers derive a value for their investments when shoppers use them.

Interestingly, however, the use of a mobile retail app by shoppers varies across markets. Take Finland for example, despite the country's technological advancements, including the ubiquitous use of mobile apps for gaming, education, transportation and banking (Laukkanen, 2016; Oyelere et al., 2016), the use of mobile apps in shopping locally has not measured up to other sectors. According to the International Trade Association (2018), most Finnish people predominantly use international retailers with established mobile retail app platforms for their shopping needs; those who patronise local retailers mostly do so on web-based consumer-to-consumer platforms such as *Tori.fi*. Despite the low usability of the mobile apps by the Finns, some leading retailers such as S-Group and Kesko have made substantial investments in the development of mobile retail apps (Munford, 2017; Kakko, 2017). Accordingly, a study of this nature will be critically useful to the industry as it will highlight functional and affective features necessary to influence the use and sustain continuous use.

This development is particularly vital as results from extant studies show conflicting findings of the motivations for users' adoption and continuous use of a mobile information system. For instance, Kang et al. (2015) found that while affective involvement was positively related to the intention to use the mobile app, cognitive involvement was not positive. However, in a recent study of users of a mobile shopping app, Molinillo et al. (2019) found that both cognitive and affective experiences were positively related to users' satisfaction. Additionally, there have been differences in findings from extant studies regarding the role of effort expectancy and facilitating conditions on the use of mobile applications. For instance, in a study of mobile commerce application users in Cameroon, Verkijika (2018) found that FC and effort expectancy had different influences on behavioural intention to use. While FC positively predicted users behavioural intention, effort expectancy did not. However, in a study of Jordanian mobile bank users, Alalwan et al. (2017) found a contrary result as both effort expectancy and FC were positive influencers. Since these studies were drawn from both the developed and emerging markets, further study must be undertaken in order to balance these conflicting findings.

In the light of the above, the objective of this study are:

- 1 to understand the factors influencing the use of mobile retail apps use
- 2 to understand how technology-related factors and privacy issues influence users' behaviour including continuous use

3 to understand the relationship between mobile retail app use and continuous use.

This study makes both theoretical and managerial contributions to the extant literature in the following ways. One, this study extends the UTUAT2 model by integrating the privacy, cognitive, and affective components of users' experiences. Two, this study advances knowledge on the underlying consumer security concerns about the safety of their private information on mobile retail apps. Finally, by conducting this study in Finland, one of the most technologically advanced countries, the findings of this study will balance extant literature contradictory findings in the mobile app research domain.

To this end, the study is in five parts: Section 1 gives an overview of the mobile app. Section 2 synthesises relevant literature, while Section 3 explores the appropriate methodology for the study. Section 4 displays the data analysis and the result, while the last section shows the theoretical and managerial implications with future study alertness.

## **2 Theoretical development and hypotheses**

Generally, mobile apps have generated substantial interests among academics and practitioners, primarily because of their engagement and positive impact (Bellman et al., 2011). Thus, within the academic cycle, different theories and models have been applied to understand the dynamics of consumer behavioural use of the piece of technology.

The use of the UTAUT is predominant in different contexts, among other theories. Venkatesh et al. (2003) formulates UTAUT and postulates four fundamental constructs: performance expectancy, effort expectancy, FC, and social influence that are critical in explaining user intentions and subsequent use of information systems. Among these constructs, this study adopts performance expectancy and FC as a pointer variable. A study that adopted a similar model recently conducted in the context of internet banking explaining how gamified elements can improve users' adoption (Samar and Mazuri, 2019). Thus, this study utilised the cognitive and affective features as two constructs from the U&G theory. Finally, the study intermingles UTAUT, U&G, with privacy assurance. Below is a brief review of the variables below.

### *2.1 Performance expectancy*

The definition of performance expectancy as "the degree to which an individual believes that using the system will help him or her to attain gains in job performance" (Venkatesh et al., 2003) applies to the use and continuous use of the mobile retail app in this study. Performance expectancy is a derivative of perceived usefulness, one of the constructs of the technology acceptance model (Davis, 1989; Davis et al., 1989; Thompson et al., 1991), and relative advantage (Moore and Benbasat, 1991). Previous studies have highlighted performance expectancy as a criterion for the use of information (Zhou, 2011; Escobar-Rodríguez and Carvajal-Trujillo, 2014). In the same vein, other studies have shown that performance expectancy has a significant effect on users' behavioural intentions (Davis, 1989; Venkatesh et al., 2003; Gupta et al., 2008; Al-Awadhi and Morris, 2008; Ghalandari, 2012). Research is, however, limited that has tested the role of performance expectancy on use and continuous use in a mobile retail app context. This study contends that performance

expectancy is likely to exert a stronger relationship with use than continuous use because the experience gained from the platform will be relied upon by the user. Its performance may be a determining factor for continuous usage and the users' experience. Consequently, the following hypotheses propose that:

H1 Performance expectancy is positively related to the mobile retail app use.

H2 Performance expectancy is positively related to the mobile retail app's continuous use.

## 2.2 *Facilitating conditions*

Facilitating conditions defines as "the degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system" (Venkatesh et al., 2003). FC is a combination of perceived behavioural control (Ajzen, 1991; Taylor and Todd, 1995; Thompson et al., 1991) and compatibility (Moore and Benbasat, 1991). According to Ghalandari (2012), facilitating conditions implies that service providers should incorporate enabling environments including required resources, information, and continuous support to encourage users to employ services consistent with their lifestyles. Various studies have confirmed that facilitating conditions has a significant effect on users' behavioural intentions (Gupta et al., 2008; Al-Awadhi and Morris, 2008; Ghalandari, 2012). Similarly, Heilman et al. (2009) shows that facilitating conditions has a significant relationship with computer usage and increased system use. In the mobile app contexts, Behl et al. (2016) identified a lack of basic needs and easy and quick access to information updates as barriers to facilitating factors of mobile banking adoption in India.

Similarly, among other factors, Khan and Ejike (2017) identified the availability of mobile devices as a facilitating variable of mobile banking in the Nigeria context. Olaleye et al. (2018) argued that facilitating conditions relates to online help and other supports such as chat-based support and real-time conversation with mobile retail app users. As studies related to FC on post-adoption consequences of the mobile retail app is limited, this study, therefore, proposed the following hypothesis:

H3 Facilitating conditions is important and positively related to the mobile retail app use.

H4 Facilitating conditions is important and positively related to mobile retail app continuous use.

## 2.3 *Cognitive*

Cognitive learning features consist of a subject's judgment, physical, and identifiable characteristics in an object (Edell and Burke, 1987). It arises from the ability of the user to identify those components or features that enhance further exploration of the piece of the information systems. The knowledge of retail mobile app can help to make essential decisions and enhance understanding about the product and its usage. This cognition is particularly essential as extant studies reveal that consumer segments differ significantly in their evaluation of the technical and affective features of the mobile information system (Sakkthivel and Ramu, 2018). Cognitive as an element of gratification embodies the acquisition of information that satisfies needs (Olaleye et al., 2018). While enjoyment is

the pleasure an individual derives, cognitive dimensions relate more to the utilitarian motivations (Sherry et al., 2006). Studies that have applied the U&G approach, cognitive features found to influence intentions to use, use significantly, and continuous use of mobile services (Liao et al., 2007; Cole and Griffiths, 2007; Kim et al., 2009). This study argues that the availability of the cognitive features that enhance the learning and exploration of the mobile retail app will influence use. Thus, we propose the hypothesis that:

H5 Identification of cognitive features that enhance learning is positively related to mobile retail app use.

## 2.4 *Affective*

The concept generally is understood to comprise mental phenomena uniquely characterised by consciously experienced subjective feelings, commonly accompanying emotions and moods (Westbrook, 1987). Various numbers of words denote different feeling state. Westbrook (1987) identified some fundamental affective, which is empirically-based taxonomy that has applied in the contemporary emotion literature. They are joy, anger, fear, disgust, and surprise. Westbrook (1987) opined that affective arises as a function of the individual's evaluation of the meaning, causes, consequences, or personal implications of a stimulus. The pleasant emotional experience is invariably outcome-dependent, that is, linked directly to an eliciting stimulus with no further attributional search (Weiner et al., 1979). In the context of online advertising, the affective response based on a subject's feelings during advertising exposure (Edell and Burke, 1987). Yang (2010) found that the influence of enjoyment features on experienced mobile shoppers is more than inexperienced users, and Aiswarya and Ramasundaram (2018) used affective in the context of human resource and information technology. Their result reveals that decision-making and other variables have a positive impact on the component dimensions of commitment. This study argues that embedding affective features in a mobile retail app will likely lead to continuous use. Thus, hypothesised that:

H6 Embedding affective features in the mobile retail app is positively related to its continuous use.

## 2.5 *Privacy assurance*

Privacy exists when consumers can control their personal information (McCloskey, 1980). Thus, Culnan and Bies (2003) extend it further to mean consumers possessing the power to restrict the use of their personal information. Privacy violation exists when individuals cannot maintain an adequate degree of control over their personal information and its use (Chung, 2003; Cheung and Lee, 2006). The ubiquitous use of information systems in modern times has increased the user's privacy concerns (James et al., 2008). Acquisti and Grossklags (2005) and Olaleye et al. (2017) submit that practitioners must address user's privacy concern. Accordingly, Shah et al. (2013) and Dinev et al. (2006) suggest that a mechanism that enables customers to manage the privacy of their data online should be a condition for use. However, to increase users' privacy assurance, service providers should embed features that enhance users' control of their private information (Pearson, 2009).

From the above considerations, this study argues that the perception of privacy assurance in the mobile retail app will influence its use. Accordingly, we hypothesised that:

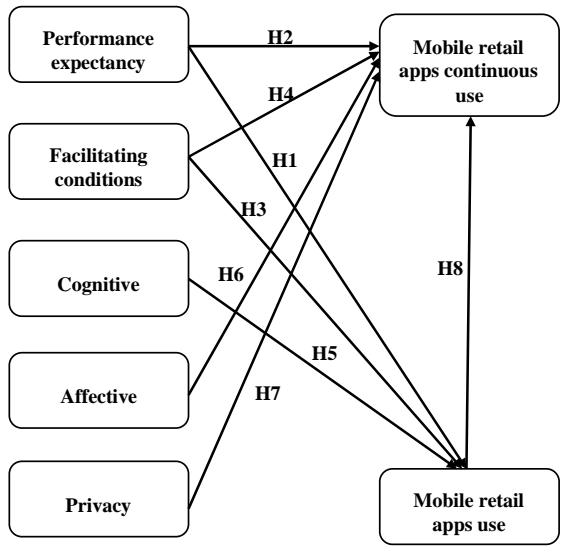
H7 Privacy assurance is crucial and positively related to the mobile retail app use.

### 2.6 Actual mobile retail app use and continuous use

Intention signifies the individual’s readiness to use the information systems and perceived as an antecedent of behaviour (Lu and Yand, 2014). According to Carlsson (2006), there exists a significant difference between intention to use and actual use. On the other hand, continuous use is repeated action or activity. In this study, continuous use is a situation whereby a user uses the retail mobile app platform repeated after initial usage. At the use level, the user might rely mostly on the functionalities of the mobile retail app. However, the reliance or dependence on features of the mobile app decreases or increases at the level of continuous use due to other factors that might have set in. Such factors like experience with the app (Oh et al., 2009), knowledge, and competence in handling the technology use. Several factors can dictate the continuous use of a technology platform, such as performance, gratification, privacy, and use. The study proposed the following hypothesis:

H8 Actual mobile retail app use experience is positively related to continuous use.

**Figure 1** Research model



This study proposed an integrated model of UTAUT, use and gratification theory, and privacy to depict the path coefficient of performance expectancy, facilitating conditions, cognitive and mobile retail apps use. On the other hand, the proposed model also shows the path coefficient of privacy, affective, facilitating conditions, and performance expectancy. The model intends to show the direct and indirect relationship of the chosen constructs to explicate how mobile retail apps use leads to its continuous use. The model supports the



retailers to understand the crucial factors that are responsible for mobile retail apps continuous use.

### **3 Research methodology**

Objective measurements through quantitative methods found suitable for this study with structural equation modelling (SEM) approach. Samar and Mazuri (2019) and Subramani et al. (2019) used similar statistical data analysis in their study. SmartPLS version 3.2.8 was utilised. This study probe into the validity of the measures adopted and utilised SmartPLS statistics software (Akbar et al., 2012; Hair et al., 2014) to ensure the reliability and validity of the study result. This research used variance-based structural equation modelling (VSEM) techniques for mobile retail apps data for measurement and SEM.

#### *3.1 Mobile retail app instrument development*

Most of the study respondents were the Finnish-speaking audience, and the questionnaire was designed in the English language and translated into the Finnish language through three steps for validation. First, a Finnish researcher that understands the study context translated the English version into the Finnish language. A native Finn and a linguistic student checked the flows of the words and made necessary corrections, and lastly, a Finnish teacher cross-checked the final version. The survey instrument was tested online as a pilot study from 11 October 2016 to 21 November 2016, with 30 respondents from the university, where one of the researchers is based. Researchers and students with mobile retail apps participated in the pilot test (Stokes and Senkbeil, 2017). Data was collected online through Webropol 3.0 version. This study conducts reliability analysis with SPSS 24 version with descriptive statistics, and the results were used to improve the arrangement and wordings of the questions to prevent ambiguity. The researchers collect the final data from experienced mobile app users of Finnish departmental stores, and the questionnaire was administered online between 6 December 2016 and 9 February 2017. Generally, 300 mobile apps users participated in the online survey. Out of 300 responses, 235 respondents passed the test of the data cleaning process and met the criteria of mobile retail app users sampling.

#### *3.2 Measurement*

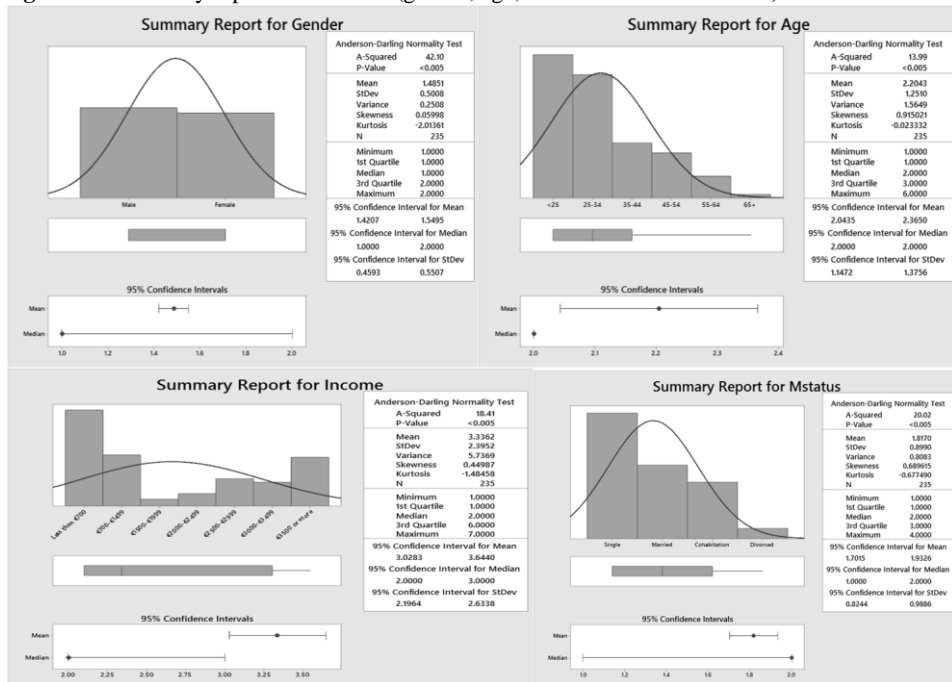
The study adapted items measuring the seven latent variables from the previously validated instruments (see Appendix). Items measuring performance expectancy, facilitating conditions were adopted from Venkatesh et al. (2003). Cognitive and affective scale adopted from Ha et al. (2015). The privacy variable adopted from the study of Flavián and Guinalú (2006). Use behaviour scale adapted from Hoehle and Venkatesh (2015) scale and continuous use scale from Venkatesh and Goyal (2010). The questionnaire used consists of four parts. The first section features the demographic detail of the mobile app users in Finland, the second part examine the mobile app users experience and the question like 'have you ever purchased products or services using a mobile retail app on smartphone or tablet' was asked. The third section focused on mobile app usage, such as 'how many

applications you have on your smartphone and how many do you use daily'. The last section of the questionnaire utilised seven-point Likert scale questions ranging from strongly disagree (1) to strongly agree (7). The questions in the final section are theory driven.

### 3.3 Participants' profile

The study targeted participants who have previously used the mobile retail app, and the sample shown 51.1% male, 48.5% female (n = 235). Singles account for 47.2% of the total sample, 27.7% married, 21.3 cohabitation, and 3.8% divorced. The income of the respondents falls within the range of less than €700 (36.2%), €700–€1,499 (19.1%), €1,500–€1,999 (2.6%), €2,000–€2,499 (4.7%), €2,500–€2,999 (10.2%), €3,000–€3,499 (8.9%) and €3,500 or more (18.3%). The occupation that emerged in the study are students and researchers (60.4%), technicians (10.6%), and teaching professional (6.8%) (Figure 2).

**Figure 2** Summary report of variables (gender, age, income and marital status)



The Europeans that participated in the study reached 94%. Occupation has the highest mean and standard deviation (8.93, 3.38), followed by income (3.34, 2.40). The respondents are flexible in using departmental store mobile apps, and they are using a smartphone for retail apps more than the tablet. The majority of the mobile retail app are using Samsung smartphone or tablet and Apple brands. The result shows that the mobile retail app users buy more electronics and shoes than other products.

## 4 Results

This study subjects the data collected to a reliability test of Cronbach alpha to ascertain its reliability and the result reaching the threshold of 0.7 with a minimum of 0.73 and a maximum of 0.96 (Tavakol et al., 2011). The factor loadings were positive and loaded accordingly between (0.70 and 0.97) as against 0.5 thresholds, average variance extracted (AVE) was between 0.65 and 0.92 and higher than the rule of thumb of 0.5, composite reliabilities (CR) was between 0.85 and 0.97 and better than the cut-off point of 0.7 (Bagozzi and Yi, 1988). Also, the minimum and maximum Rho\_A values were between 0.73 and 0.96. The composite reliability and Rho\_A reached the stipulated cut off points (Table 1).

**Table 1** Overall CFA for the measurement model

<i>Constructs and items</i>	<i>SL</i>	<i>CA</i>	<i>CR</i>	<i>AVE</i>	<i>Rho_A</i>
Affective		0.91	0.94	0.85	0.91
AF1	0.90				
AF2	0.92				
AF3	0.93				
Continuous use		0.96	0.97	0.92	0.96
CU1	0.96				
CU2	0.97				
CU4	0.95				
Facilitating conditions		0.73	0.85	0.65	0.73
FC1	0.83				
FC2	0.88				
FC4	0.70				
Cognitive		0.92	0.95	0.85	0.92
CO1	0.94				
CO2	0.93				
CO3	0.90				
Performance expectancy		0.90	0.94	0.83	0.91
PE1	0.91				
PE2	0.92				
PE3	0.91				
Actual use		0.92	0.94	0.81	0.92
AU1	0.91				
AU2	0.93				
AU3	0.88				
AU4	0.87				
Privacy		0.94	0.96	0.84	0.94
PR1	0.93				

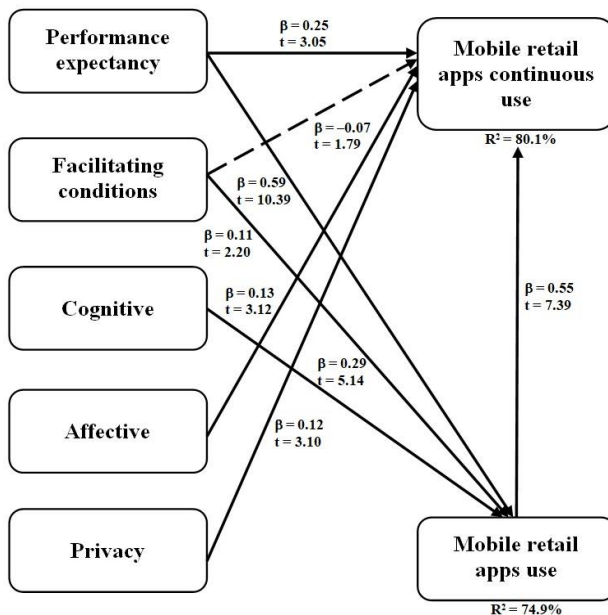
PR2	0.92
PR3	0.92
PR4	0.90

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Notes: SL = standardised loadings, CA = Cronbach alpha, CR = composite reliability and AVE = average variance extracted.

The output of the calculated square root of AVE in each variable was larger than the correlation values of the latent variables diagonally (see Table 2). All the latent variables used in this study met the discriminant validity assumption and confirmed the discriminant validity of the study (Fornell and Larcker, 1981). The results supported hypotheses (H1–H3, H5–H8), and direct relationships of the path coefficient were established (see Figure 1 and Table 3). On the other hand, this study did not establish the significance of (H4). This insignificance may be due to the advancing experience of mobile retail apps users. The initial help required from the retailer is not needed anymore for the mobile app continuous use. The VSEM confirmed that PE → mobile app use, ( $\beta = 0.59$ , p-value  $\leq 0.01$ ), PE → mobile app continuous use, ( $\beta = 0.25$ , p-value  $\leq 0.05$ ), facilitating conditions → mobile app use, ( $\beta = 0.11$ , p-value  $\leq 0.05$ ), The H4 was rejected because the p-value was higher than 0.05 (facilitating conditions → mobile app continuous use,  $\beta = -0.07$ , p-value  $\geq 0.05$ ), CO → mobile app use, ( $\beta = 0.29$ , p-value  $\leq 0.01$ ), affective → mobile app continuous use, ( $\beta = 0.13$ , p-value  $\leq 0.05$ ), privacy → mobile app continuous use, ( $\beta = 0.12$ , p-value  $\leq 0.05$ ), MAU → MACU, ( $\beta = 0.55$ , p-value  $\leq 0.01$ ). See Figure 3 and Table 3 for details. The coefficient of determination ( $R^2$ ) for mobile retail app use variance explained 74.9%, while the  $R^2$  for mobile retail continuous use variance explained 80.1%. According to Leppäniemi et al. (2017), the two-model tested were robust. The result indicates the performance expectancy as the highest predictor of mobile retail apps use, seconded by the path coefficient of mobile retail apps use and mobile retail apps continuous use. There is a likelihood of mobile retail apps users to continue utilising it in the future.

**Figure 3** Results of PLS analysis



**Table 2** Latent variable correlations

	<i>AF</i>	<i>CO</i>	<i>FC</i>	<i>AU</i>	<i>CU</i>	<i>PE</i>	<i>PR</i>
AF	<i>0.919</i>						
CO	0.645	<i>0.924</i>					
FC	0.289	0.467	<i>0.808</i>				
AU	0.629	0.726	0.492	<i>0.898</i>			
CU	0.677	0.704	0.374	0.859	<i>0.961</i>		
PE	0.664	0.656	0.423	0.825	0.817	<i>0.911</i>	
PR	0.484	0.537	0.304	0.522	0.576	0.528	<i>0.919</i>

Notes: The square root of AVEs (shown in italic at diagonal) and factor correlation coefficients.

**Table 3** Standardised path coefficients and corresponding hypothesis results

<i>HYP</i>	<i>Path</i>	<i>sample mean</i>	<i>Standard deviation</i>	<i>P-value</i>	<i>HYP</i>
H1	PE → AU	0.59	0.057	0.000	Yes
H2	PE → CU	0.25	0.081	0.002	Yes

H3	FC → AU	0.11	0.049	0.028	Yes
H4	FC → CU	-0.07	0.041	0.074	No
H5	CO → AU	0.29	0.056	0.000	Yes
H6	AF → CU	0.13	0.043	0.002	Yes
H7	PR → CU	0.12	0.038	0.002	Yes
H8	AU → CU	0.55	0.074	0.000	Yes

Notes: AF = affective, CO = cognitive, FC = facilitating conditions, CU = continuous use, PE = performance expectancy, PR = privacy, AU = actual use. The significance threshold was set at  $p < 0.05$ ,  $p < 0.01$  and  $p < 0.001$ .

## 5 Conclusions, theoretical and practical implications

The use and continuous use of a mobile retail apps can make retailing services customer-centric, which may lead to a higher level of customer satisfaction. Customer centricity was established in the study of Srivastava and Dash (2019). This study aimed to examine the factors influencing the use and continuous use of a mobile retail app and used SmartPLS, variance SEM approach. The researchers tested eight hypotheses, and out of the eight, seven were supported, but the hypothesis (H4) was not supported. In the hypotheses, the relationship between performance expectancy, use, and continuous use was positive.

Similarly, the relationship between FC and use was positive. The study also found the relationship between cognitive features and use positively. The relationship also between affective and continuous use was positive, in the same way, the relationship between privacy and continuous use was found positive. Previous studies have highlighted performance expectancy as a criterion for the use of an information system (Zhou, 2011; Escobar-Rodríguez and Carvajal-Trujillo, 2014). Concerning performance expectancy, this study highlights that the relationship between performance expectancy on use is stronger than continuous use. This result implies that users' dependence on the functionalities of the mobile retail app is higher at the user level. However, their dependence on these features gets weaker at the continuous use level because they had developed the experience, knowledge, and competence to handle the technology. This result echoes a previous finding in which users depend more on their experience for continuous use (Oh et al., 2009).

In like manner, the relationship between FC and use is positive but weaker than performance expectancy at the same level. Structural assurances such as technological and legal structures are quite crucial for the use of the mobile retail app. However, the user evaluates the performance of the retail mobile app more critical than other peripheral inducements such as communication from the service providers and word of mouth from peers. Furthermore, cognitive components were positive; it scores more than double the scores for FC. Among thousands of mobile retail apps competing for user's attention, this result indicates that users will be prone to use apps with easily identifiable features meant to enhance the shoppers' needs. For the fact that the scores for cognitive components are more than the performance expectancy, this shows that cognitive components constitute the

first evaluative metrics and can signal further use and exploration of the mobile retail app or not. To this end, these findings can open further windows to the user to explore the app. It is germane also to state that if the cognitive component of the retail mobile is not appealing, the user may discontinue the use of the mobile app.

Furthermore, the affective dimension was positively related to mobile retail app. This indicates that besides the functional values of the platform, users would be delighted in enjoyment features embedded on the mobile retail app. In line with previous findings, for example, Yang (2010), found that the influence of enjoyment features on experienced mobile shoppers is more than those with less experience. Entertainment features on a mobile retail app range from games, pleasant tones, and educative features. Thus, users will show more preference for mobile retail apps with such features than those without hedonic features. Finally, privacy assurance was also positively related to continuous use. Continuous use predicates on the constant updating of the privacy feature, and this proposition is consistent with Pearson (2009) argument that users' perception of privacy assurance critically underpins their use.

Theoretically, our study extends existing literature in the following ways: first, the integration of the UTAUT with U&G and privacy variable are the first within this stream of literature. Our study highlights the importance of both the cognitive features that enhance learning the use of the platform and the hedonic features that endears the user to the mobile retail app. According to Ndubisi and Sinti (2006), enjoyment features in a mobile application provides a strong emotional pool to the mobile app that is often difficult to resist. Second, this study also highlights the role of experience in non-reliance on the functionalities of the mobile for continuous use. Consistent with Zhou (2011), existing knowledge on the performance of the mobile app usually plays a role in the user's continuous use. This premise explains the reason why the relationship between performance expectancy and use is stronger than continuous use.

Furthermore, this study highlights the role of privacy on consumers' adoption of the mobile retail app. Consumers' data security is of paramount concern to them and embedding security enhancing features to engender use. This finding aligns with Gu et al. (2017) who found that perceived privacy concern was positively related to the mobile app download. Managerially, there are some insights to draw from these results. Concerted efforts should be made at the initial launch of the mobile retail app to provide features that are compelling enough to draw users to it. While updating such a platform with additional features is necessary, future substantial marketing budgets for advertising may no longer be necessary because the users have been convinced of the abilities of the platform to provide their shopping needs. To this end, they can also engage in positive word of mouth to convince others to try such mobile retail app. It is also essential for retailers to provide learning-enhancing tools such as demos, videos or help menus that help users to master the use of the mobile retail app (Olaleye et al., 2019). Finally, users are very concerned about the privacy of their information, particularly mobile retail apps that may contain information on their banking details. To this end, the constant update of privacy policies to assure them of the privacy of their information is necessary.

## 6 Limitations and future research

The first limitation of this study is that the results were based on a single country analysis. Interestingly also, Finland is relatively small in population compared to other markets. To this end, we recommend a multi-country study comprising larger countries as insights derived from them may be different. Furthermore, since mobile retail apps are emerging platforms and experiences of users vary, it is advised that future studies should consider a qualitative study to look at the views, emotions, and opinions of the users. Notably, a quantitative study may not have provided all the underlying assumptions and experiences of the users.

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## **Appendix**

Performance expectancy (Venkatesh et al., 2003)

- I would find the retail mobile app useful for my shopping.
- Using the retail mobile app enables me to shop and checkout more quickly.
- Using the retail mobile app increases my shopping efficiency.
- If I use the retail mobile app, I will increase my chances of getting upgrade.

Facilitating conditions (Venkatesh et al., 2003)

- I have the resources necessary to use the retail mobile app.
- I have the knowledge necessary to use the retail mobile app.
- The retail mobile app is not compatible with other apps I use.
- A specific person (or group) is available for assistance with retail mobile app difficulties.

Cognitive (Ha et al., 2015)

- Retail mobile app provide information that helps me make important decisions.
- Retail mobile app enhance my knowledge about the product and its usage.
- Retail mobile app help me to make good purchase decisions.
- Retail mobile app help me better manage my money.

Affective (Ha et al., 2015)

- Retail mobile app help me to derive fun and pleasure.
- Retail mobile app stimulate my mind.
- Retail mobile app makes me feel excited.
- I think retail mobile app is cool.

Privacy (Flavián and Guinalú, 2006)

- I think this retail mobile app shows concern for the privacy of its users.
- I feel safe when I send personal information to this retail mobile app.
- I think that this retail mobile app will not provide my personal information to other companies without my consent.
- I think this retail mobile app abides by personal data protection laws.

#### Mobile app usefulness

- To me, the retail mobile app is very functional.
- Overall, I think that the retail mobile app is useful.
- Generally speaking, the retail mobile app serves its purpose well.
- In general, the retail mobile app is of value to me.

#### Mobile app continuous use (Venkatesh and Goyal, 2010)

- I want to continue using the retail mobile app rather than discontinue.
- I plan to continue using the retail mobile app.
- I don't intend to continue using the retail mobile app in future.
- Chances are high that I will continue using the retail mobile app in future.