The role of personalization on continuance intention in food service mobile apps

A privacy calculus perspective

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Abstract

Purpose – This paper aims to examine consumers' behaviors toward personalized services offered by branded mobile apps in the food service industry by applying privacy calculus theory and technology acceptance model (TAM). Further, this research identified the moderating role of technology anxiety.

Design/methodology/approach – An online survey was carried out to investigate the role of personalization on continuance intention toward branded mobile apps. In total, 348 valid responses were analyzed to test hypotheses using structural equation modeling.

Findings – The results show that personalization had significantly affected perceived benefit, perceived risk and perceived ease of use. Perceived benefit had positive effects on perceived value of disclosure, but perceived risk did not affect perceived value of disclosure. Perceived value of disclosure and perceived ease of use were linked to trust. Trust, in turn, positively affected intentions to use mobile apps. With regard to the moderating effect of technology anxiety, it had a significant moderating impact on the relationship between personalization and perceived risk. However, it did not moderate the relationship between personalization and perceived benefit.

Practical implications – The findings of this study could provide useful theoretical and practical implications related to the successful implementation of mobile marketing.

Originality/value – This study proposes the integrated model of privacy calculus theory and the TAM for deeper understanding of the customers' responses toward personalization of branded mobile apps.

Keywords Technology acceptance model, Personalization, Branded mobile apps, Foodservice industry, Privacy calculus theory

Paper type Research paper

Introduction

With the rapid growth of mobile communication technologies, mobile apps are embedded in consumers' daily lives (Kim *et al.*, 2013). Branded mobile apps – the latest brand communication channel – present brand identities, create brand experiences and facilitate consumer engagement with brands (Bellman *et al.*, 2011; Kim *et al.*, 2013). One of the most important functions of branded mobile apps is personalization (Morosan and DeFranco, 2015). Personalization enables consumers to access customized information more efficiently any time (Nyheim *et al.*, 2015). From a company's perspective, personalization provides a way to build strong consumer relationships (Nyheim *et al.*, 2015). A branded mobile app downloadable to a mobile device is created and distributed by the company carrying its brand for displaying a brand identity (Bellman *et al.*, 2011).

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In the food service industry, Starbucks might be the leading company actively using branded mobile apps in its marketing activities. They endeavor to create a more personalized service experience for their consumers and have attracted nearly 17 million mobile app users (Perez, 2016). Starbucks branded mobile apps enable consumers to find product and store information, manage their membership, communicate, order and pay (Perez, 2016). Consumers at coffee shops expect speedy service (e.g. ordering, payments and pick-ups); when a coffee shop has a branded mobile app, they are able to deliver service more quickly (Schneider, 2015). Mobile apps have shortened consumer queues and helped increase the efficiency of store operations (Hospitality technology, 2016).

However, personalization presents marketers with challenges as well as opportunities. Because personalization involves the collection and use of various types of personal information it is inevitably associated potential risks, such as privacy concerns (Morosan and DeFranco, 2015). Consumers who perceive privacy risks hesitate to register with mobile apps and refuse to provide personal information to firms. This threat to consumers' privacy undermines a company's marketing performance (Wirtz *et al.*, 2007). Therefore, marketers in the hospitality industry should manage consumers' perceived benefits and risks and make them download and navigate their mobile apps. This research investigated consumer behavior in the context of personalization of branded mobile apps by applying the technology acceptance model (TAM). To date, research on mobile app marketing has applied TAM, theory of planned behavior, theory of reasoned action or extended models by integrating these theories to predict customer behaviors (Kim *et al.*, 2007; Xu *et al.*, 2009). However, it is rare to explore customer responses by integrating TAM and privacy calculus theory, which should be considered critical when discussing matters related to providing personal information. Furthermore, to gain a better understanding of the privacy calculus model, the current study examined the moderating effect of technology anxiety. Technology anxiety is a considerably important individual factor in determining which individuals adopt and use technology (Meuter *et al.*, 2003). Specifically, to receive personalized service consumers must disclose their personal information, which could cause more anxiety about using technology (Yang and Forney, 2013).

As the potential of information technology (IT) as a marketing channel continues to increase, there has been a great deal of research describing the relationship between mobile marketing and value for consumers (Ström *et al.*, 2014). However, there is a paucity of research on branded mobile apps developed for the purpose of providing various services in the food service industry. Further, this study differs from previous studies in that it focused on personalized services among the various utilities (entertainment, information, cost-related incentives, etc.) mobile apps provide and clearly examined customer behaviors. Given these research gaps, the aim of the current study was to explore the influence of personalization on consumers' behavioral intentions toward branded mobile coffee apps by integrating privacy calculus theory and the TAM. In particular, the objectives of this study were:

- to investigate the influence of personalization on perceived benefits, perceived risk, and perceived ease of use;
- to identify the impact of perceived benefits and perceived risk on perceived value of disclosure;
- to verify the effect of perceived value of disclosure and perceived ease of use on trust;
- to assess the impact of trust on consumers' continuance intentions towards the mobile app; and
- to examine the moderating effect of technology anxiety on the relationship among personalization, perceived benefits, and perceived risk.

Literature review

Personalization of mobile apps in the food service industry

Personalization is the ability of a corporation to identify and treat its consumers as individuals through personal messaging, targeted advertisements and other personal transactions (Imhoff *et al.*, 2001). It requires precise technology, such as data mining, collaborative technology, usage patterns, location detection and transaction history (Ho, 2012). Based on a consumer's information, personalized services enable consumers not only to reduce time spent searching for information but also to receive customized services that more precisely address their requests (Nyheim *et al.*, 2015; Piccoli *et al.*, 2017). Moreover, it allows consumers to purchase products/services anytime or anywhere through mobile platforms (Wang *et al.*, 2016). For companies, personalization is an important consumer relationship marketing strategy (Nyheim *et al.*, 2015). Collecting consumer data such as demographics, preferences, purchase histories and buying patterns could provide a strong foundation for designing successful marketing strategies and achieving sustainable competitive advantages (Erevelles *et al.*, 2016).

Despite the enormous potential of mobile apps as marketing communication tools, only a few researchers have explored the personalized service of mobile apps as a driver for acceptance of mobile marketing in the field of hospitality, specifically the food service industry. Nyheim *et al.* (2015) noted that personalized advertising could help restaurant marketers reach potential users individually and create strong relationships with consumers. Aziz *et al.* (2011) suggested personalization as an important feature of hotel websites for closely interacting with consumers. Morosan and DeFranco (2016) asserted that personalization of hotel-branded mobile apps facilitates interactions between consumers and hotels, which signals that marketers should endeavor to construct more elaborate personalized systems.

Privacy calculus theory

When consumers determine to use services related to privacy issues, they evaluate benefits, which are desired in consumption and achieved via threats from disclosing their information, and privacy risks, which could be exacerbated by offering private information (Morosan and DeFranco, 2015; Culnan and Bies, 2003; Xu *et al.*, 2011). Privacy calculus theory explains the exchange between the costs of releasing personal information and data and the utilitarian benefits, such as personalized ads, coupons and information (Culnan and Bies, 2003). By calculating benefits and risks consumers determine whether releasing their personal information is worthwhile (Morosan and DeFranco, 2015; Xu *et al.*, 2011). Subsequently, this overall evaluation of utility and privacy risks determines a consumer's willingness to disclose information (Liu *et al.*, 2016; Morosan and DeFranco, 2015; Xu *et al.*, 2011). Privacy calculus theory has been widely used to address contemporary privacy issues (Culnan and Bies, 2003). Therefore, this theoretical framework was used as the main theory in this research.

Technology acceptance model

TAM is one of the most prominent models to explain the acceptance of technology innovations (Okumus and Bilgihan, 2013). According to TAM, perceived usefulness and perceived ease of use are the main variables to determine an individual's intention to use and adopt a technology (Davis, 1989). Perceived usefulness is the user's subjective evaluation of the utility received from a new technology (Gefen *et al.*, 2003); this could also refer to benefits (Davis, 1989; Horst *et al.*, 2007). Perceived ease of use is the amount of cognitive effort required to learn and utilize a new technology (Gefen *et al.*, 2003). Even though many

researchers have suggested that perceived usefulness is more influential factor than ease of use for determining consumers' attitudes and behaviors toward a specific technology (Davis, 1989; Gefen *et al.*, 2003; Kamarulzaman, 2007; Shaw, 2014), consumers would not continue to use a technology unless it was easy to use (Morosan, 2012). With the importance of perceived usefulness and ease of use, TAM has been extended in this research by adding privacy-calculus theory to understand consumers' responses to personalization of branded mobile apps.

Hypotheses development

Personalization creates benefits for the consumer; it enables consumers to minimize the time needed to search for precise information (Nyheim *et al.*, 2015; Srinivasan *et al.*, 2002). Ho (2012) mentioned that personalized IT services offer the right content in the right form to the right user at the right time and location and proposed that the extrinsic motivation for using mobile personalization systems is precise and accurate recommendation services. In addition, personalization enhances consumers' valuable experiences (Piccoli *et al.*, 2017) and makes them feel that they receive special treatment and extraordinary attention from the company (Nyheim *et al.*, 2015). Franke *et al.* (2009) claimed that personalization offers greater benefits to customers by matching customer preferences with service attributes. However, to offer personalization companies must be able to detect consumers' needs, which inevitably require consumers to disclose their private information including personal profiles, locational information and buying history (Ho, 2012). Featherman *et al.* (2010) stated that privacy risks are a crucial issue that should not be overlooked in predicting consumer behaviors in the context of using systems that rely on personal information trading.

Therefore, if consumers are afraid of disclosing their private information they may fabricate information about themselves or simply refuse to register with online systems, such as branded online communities (Wirtz *et al.*, 2007). Sun *et al.* (2015) proposed that location-based SNSs produce not only utilitarian and hedonic benefits but also privacy risks. Further, Xu *et al.* (2011) revealed that personalization is positively associated with both perceived benefits and perceived risks involving information disclosure. In light of the above literature, it is expected that personalization could be a double-edged sword for consumers. Thus, the following hypotheses were proposed:

H1a. Personalization of mobile apps positively relates to consumers' perceived benefits.

H1b. Personalization of mobile apps positively relates to consumers' perceived risks.

Benefits and risks might not independently affect consumers' responses but instead jointly induce consumers to evaluate the consequences of their potential choices (Au *et al.*, 2008). In the privacy calculus theory, consumer value reflects the tension between perceived benefits and perceived risk (Morosan and DeFranco, 2015). Perceived value of disclosure is a holistic evaluation of the benefits and risks of disclosing personal information (Morosan and DeFranco, 2015; Xu *et al.*, 2011). According to Zeithaml (1988), perceived value is the outcome of a calculus of the cumulative effect of benefits and risks. Morosan and DeFranco (2015) clarified that in the context of hotel apps consumers' perceptions of the benefits and risks of disclosing information affected the perceived value of disclosure. In the context of mobile marketing, Xu *et al.* (2011) identified that perceived benefits are positively related to perceived value of disclosure, while perceived risk is negatively associated with perceived value of disclosure. Therefore, the findings of the above research support that perceived

value of disclosure is intimately linked with perceived benefits and risk. Thus, we proposed the following hypotheses:

H2a. Perceived benefits positively relate to consumers' perceptions of the value of disclosure.

H2b. Perceived risk negatively relates to consumers' perceptions of the value of disclosure.

Personalization of user-centered technology allows each individual consumer to specify information requirements and desired presentation layouts that match their device and preferences (Tam and Ho, 2006). Consumers are able to tailor the presentation of pages, functionality, interface and content to meet their idiosyncratic needs (Lai *et al.*, 2009; Tam and Ho, 2006). Asif and Krogstie (2013) mentioned that personalization reduces cognitive efforts and increases the ease of use. Therefore, this research assumes that personalization of mobile apps helps consumers navigate mobile environments and search for information. In turn this would increase consumers' perceptions ease of use. Thus, the following hypothesis was proposed:

H3. Personalization of mobile apps positively relates to consumers' perceptions of ease of use.

When consumers use personalized technologies they may be seeking greater value, which facilitates positive behavioral responses. Individuals may cognitively integrate their perceptions of what they can obtain and have to give up by choosing an object (Kuo *et al.*, 2009). Min and Kim (2013) stated that if consumers recognize that benefits are higher than risks they will continue to use the technology, which and is mediated by trust. In addition, Lai (2015) found a positive relationship between perceived value of online services and trust and suggested that marketers should concentrate their marketing efforts on facilitating consumer value:

H4. Consumers' perceptions of the value of disclosure positively relate to trust.

Several previous studies have validated the significant effect of perceived ease use on trust (Chinomona, 2013; Gefen *et al.*, 2003; Kamarulzaman, 2007; Zhou, 2012). Zhou (2012) argued that it is important to build easy-to-use mobile systems due to the considerable effect of perceived ease of use on trust. Kamarulzaman (2007) demonstrated the role of perceived ease of use in building trust and suggested that online technology should be designed to allow consumers to use the system easily based on their skill varied levels. Moreover, Chinomona (2013) found that the perceived ease of use of mobile software has a positive effect on users' trust. Therefore, the following hypothesis is offered:

H5. Perceived ease of use positively relates to trust.

Trust and continuance intentions

Trust plays the important role in encouraging consumers' behaviors such as purchase intentions, continuance intentions and adoption (Hong and Cha, 2013). Gefen *et al.* (2003) and Shaw (2014) argued that personalization requires the exchange of personal information in return for well-tailored, customized services. This transaction will only occur if consumers

believe their private data are shared only with appropriate parties (Ganguly *et al.*, 2010; Shaw, 2014). Shaw (2014) showed that trust influences intentions to use a mobile wallet. Moreover, Ponte *et al.* (2015) and Agag and El-Masry (2016) found the importance of trust for facilitating consumer intentions to purchase hospitality products online. Thus, the following hypothesis is proposed:

H6. Trust positively relates to continuance intentions.

Moderating effect of technology anxiety

A consumer's technology anxiety is related to his or her personal competence when handling technology (Celik, 2016). Many researchers have explored the role of technology anxiety in consumer attitudes and behaviors. Lee *et al.* (2009) claimed that the relationship between a consumer's beliefs toward online purchasing and website information satisfaction is influenced by each individual's level of technology anxiety. Furthermore, this negative feeling may be greatly increased due to the personalized nature of mobile devices, which consumers may associate with privacy and security risks (Yang and Forney, 2013). Accordingly, consumers with high levels of technology anxiety have no self-confidence in using the technology and regard dealing technology as a complicated task (Parayitam *et al.*, 2010). Further, these consumers would also be less aware of the benefits of personalized services. On the other hand, consumers with lower technology anxiety perceive the technology as offering more benefits. Thus, the technology is more useful to them compared with consumers with higher technology anxiety. Besides, consumers with higher technology anxiety are also more sensitive to the possibility of privacy invasion and misuse of their private information (Osatuyi, 2014) due to their lack of confidence and skill in dealing with such devices. Thus, we proposed this hypothesis (Figure 1):

H7a. The effect of personalization on perceived benefits is weaker for consumers with higher levels of technology anxiety than for consumers with lower levels of technology anxiety.

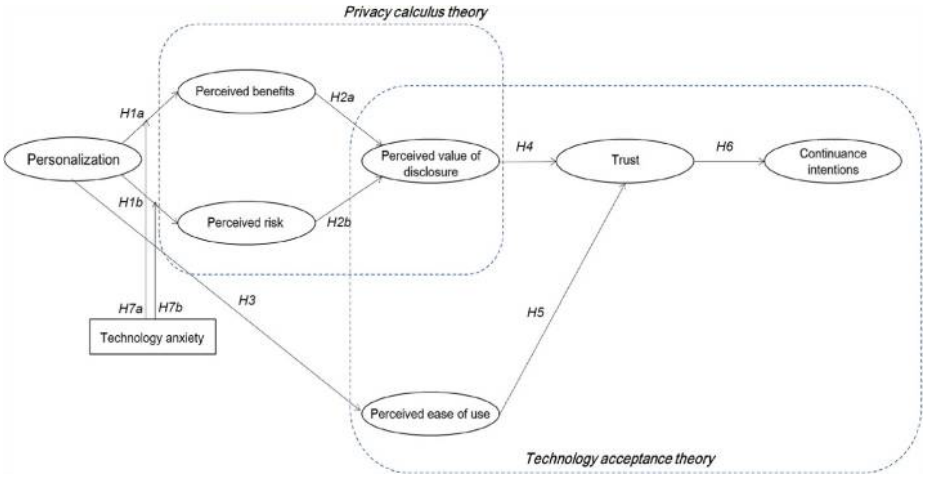


Figure 1.
Proposed conceptual model

H7b. The effect of personalization on perceived risk is stronger for consumers with higher levels of technology anxiety than for consumers with a lower level of technology anxiety.

Methodology

Sample and data collection

This research initiated convenience sampling of users of coffee brands' mobile app using a Web-based survey. To collect data, the questionnaire was distributed to 2,261 randomly selected online panels by an online research company in Korea. In total, 1,595 individuals accessed the survey, and 1,247 participants were excluded based on the screening question on consumers' behaviors toward branded coffee mobile apps (e.g. Have you ever used a mobile apps? and Which brands' mobile apps have you used within the past three months?). Respondents who selected a coffee brand among various restaurant brands were asked to participate in the survey. Ultimately, 348 valid questionnaires from respondents that use branded mobile coffee apps, such as Starbucks, The coffee bean and tea leaf, etc., were used for analysis. Thus, the usable response rate was 15.39 per cent, whereas the response rate for online surveys is generally 16.2 per cent (Medway and Fulton, 2012).

Measures

All variables were selected based on a thorough review of previous research. A translation and back translation method was used to convert the survey instrument from English to Korean by bilingual professors and a Korean graduate student. Personalization of mobile apps was defined as "the ability to provide personalized service and information tailored to individuals' preferences, location and needs." This construct was measured with five items (e.g. "This mobile application recommends menus that match my needs.") adapted from Xu *et al.* (2011) and Komiak and Benbasat (2006). Perceived benefits were defined as "a personal belief about the extent to which he or she will gain advantages from the online interaction with a certain technology" (Kim *et al.*, 2008b) and measured with three items (e.g. "This mobile application allows me to access desired information efficiently") drawn from Xu *et al.* (2011). Perceived risk was defined as "the degree to which an individual believes that a high potential for loss is related with the disclosure of personal information to the mobile app" and assessed based on three items (e.g. "It would be risky to provide my personal information to the service application") adapted from Xu *et al.* (2011) and Crespo *et al.* (2009). Perceived value of disclosure was defined as an individual's overall assessment of the utility of the perceived benefits and perceived risks (e.g. "I think the benefits gained from the use of this mobile application are greater than the risks of my information disclosure.") adapted from Xu *et al.* (2011) and Zeithaml (1988). Perceived ease of use was defined as "the degree to which an individual believes that using the mobile app would be free of effort" and measured with three items (e.g. "This mobile application is easy to use.") from Davis (1989). Trust was defined as "an attitude of confident expectation in an online situation of risk that one's vulnerabilities will not be exploited" (Corritore *et al.*, 2003). It was measured with three items (e.g. "This mobile application is trustworthy.") drawn from Fogel and Nehmad (2009). Continuance intentions were defined as "the willingness to use the mobile app continuously" and measured with two items (e.g. "I am willing to use this mobile application in the future.") adapted from Davis (1989). Technology anxiety – the moderating variable between personalization of mobile apps and perceived benefits/perceived risk – was defined as "the apprehension and fear people feel when considering use or actually using technology"

(Cambre and Cook, 1985; Scott and Rockwell, 1997). This construct was measured with three items (e.g. "I have avoided technology because it is unfamiliar to me.") from Meuter *et al.* (2003) and Raub (1981). All items were measured on a seven-point Likert-type scale with anchors of 1 (strongly disagree) to 7 (strongly agree).

Data analysis

Descriptive statistics were performed to describe respondents' profiles by using SPSS 18.0. To examine the conceptual framework of this study, a two-step approach was used in AMOS 18.0 (Anderson and Gerbing, 1988). In the first stage, confirmatory factor analysis (CFA) was conducted to confirm convergent and discriminant validity of the scales. Then, the hypothesized relationship model was estimated and analyzed by structural equation modeling (SEM). To test the moderating effect of technology anxiety, a multiple group analysis was carried out.

Results

Profiles of respondents

Of the 348 respondents in the sample, 51.7 per cent were female (n = 180) and 48.3 per cent were male (n = 168). In terms of the age distribution, 33.9 per cent (n = 118) of the respondents were 30-39 years old, 28.7 per cent (n = 100) were 20-29 years old, 25.3 per cent (n = 88) were 40-49 years old, and 12.1 per cent (n = 42) were over 50 years old. For frequency of using a coffee brand's mobile app, 32.2 per cent (n = 112) of the respondents use it 2-3 times a month, followed by 1-2 times a week (31.3 per cent, n = 109) and 3-4 times a week (14.1 per cent, n = 49). Further, for frequency of visiting coffee shops, 40.5 per cent (n = 141) of the respondents visit a coffee shop 2-3 times a month, 32.8 per cent (n = 114) visit 1-2 times a week, 10.9 per cent (n = 38) visit 3-4 times a week and 9.5 per cent (n = 33) visit less than once a month. Table I presents the respondents demographics.

Measurement model

The current study performed confirmatory factor analysis to assess the reliability and validity of the measurement model. The CFA results showed that the overall fit of the measurement model was satisfactory (χ^2 = 349.783; df = 188; χ^2/df = 1.861; NFI = 0.941; IFI = 0.972; TLI = 0.961; CFI = 0.971; RMSEA = 0.050). As presented in Tables II and III, all factor loadings were significant and exceeded 0.5. The composite reliabilities of constructs ranged from 0.823 to 0.908, which exceeded the criteria of 0.70 (Nunnally, 1978). The average variance extracted (AVE) of all constructs were higher than 0.5, suggesting that convergent validity of the measurement scales was well established (Fornell and Larcker, 1981). Finally, discriminant validity was assessed by comparing the AVEs with squared correlation between the two constructs (Fornell and Larcker, 1981). AVEs of all measurement items exceeded all squared correlations for each pair of constructs, which ranged from 0.00 to 0.577 (Fornell and Larcker, 1981). Therefore, the reliability and validity of the measurement model were confirmed.

Structural modeling

Structural equation modeling (SEM) was used to evaluate the hypothesized relationships among the constructs in the proposed model (Hair *et al.*, 2009). The overall model-fit indices for the structural model were acceptable (χ^2 = 576.917; df = 201; χ^2/df = 2.870; NFI = 0.902; IFI = 0.934; TLI = 0.916; CFI = 0.933; RMSEA = 0.073). Figure 2 and Table IV showed the results of the hypotheses testing. Personalization influenced perceived benefits (β = 0.804; t = 13.397;

Demographic and characteristics	*n*	(%)
Gender		
Male	168	48.3
Female	180	51.7
Age		
20-29	100	28.7
30-39	118	33.9
40-49	88	25.3
50 or older	42	12.1
Education		
Below Middle school	1	0.3
High school	35	10.1
College/University	274	78.7
Graduated school and above	38	10.9
Occupation		
Student	52	14.9
Office worker	181	52.0
Professional	43	12.4
Self-employed business owner	20	5.7
Housewife	38	10.9
Others	14	4.1
Income		
<US$ 2,000/month		
23	6.6	
US$ 2,000-2,999/month	49	14.1
US$ 3,000-4,999/month	118	33.9
US$ 5,000-6,999/month	87	25.0
US$ 7,000-9,999/month	55	15.8
≥US4 10,000/month	16	4.6
Frequency of using coffee brand mobile apps		
Less than 1 times/month	39	11.2
2-3 times/month	112	32.2
1-2 times/week	109	31.3
3-4 times/week	49	14.1
5-6 times/week	23	6.6
>7 times/week	16	4.6
Frequency of visiting coffee shop		
Less than 1 times/month	33	9.5
2-3 times/month	141	40.5
1-2 times/week	114	32.8
3-4 times/week	38	10.9
5-6 times/week	20	5.7
>7 times/week	2	0.6

Table I.
Demographic profile of respondents

$p < 0.001$) and perceived risk ($\beta = 0.235$; $t = 3.983$; $p < 0.001$) significantly, thus *H1a* and *H1b* were supported. While perceived benefits ($\beta = 0.427$; $t = 7.321$; $p < 0.001$) had a significant influence on perceived value of disclosure, perceived risk ($\beta = 0.096$; $t = 1.731$; not significant) did not have a significant effect on perceived value of disclosure. Accordingly, *H2a* was supported and *H2b* was rejected. Personalization influences perceived ease of use ($\beta = 0.724$; $t = 12.743$; $p < 0.001$); thus, *H3* was supported. Perceived value of disclosure ($\beta = 0.392$; $t = 8.504$;

Construct (Cronbach's alpha)	Standardized factor loadings	Composite reliabilities	AVE
Personalization (0.903)		0.877	0.588
PER1	0.776		
PER2	0.818		
PER3	0.832		
PER4	0.828		
PER5	0.784		
Perceived benefits (0.879)		0.862	0.676
BEN1	0.829		
BEN2	0.803		
BEN3	0.893		
Perceived risk (0.890)		0.823	0.611
RSK1	0.741		
RSK2	0.919		
RSK3	0.907		
Perceived ease of use (0.895)		0.896	0.743
PEU1	0.813		
PEU2	0.887		
PEU3	0.890		
Perceived value of disclosure (0.877)		0.883	0.717
VOD1	0.886		
VOD2	0.902		
VOD3	0.750		
Trust (0.869)		0.845	0.647
TRU1	0.875		
TRU2	0.833		
TRU3	0.802		
Continuance intentions to branded mobile apps (0.910)		0.908	0.831
CON1	0.912		
CON2	0.916		

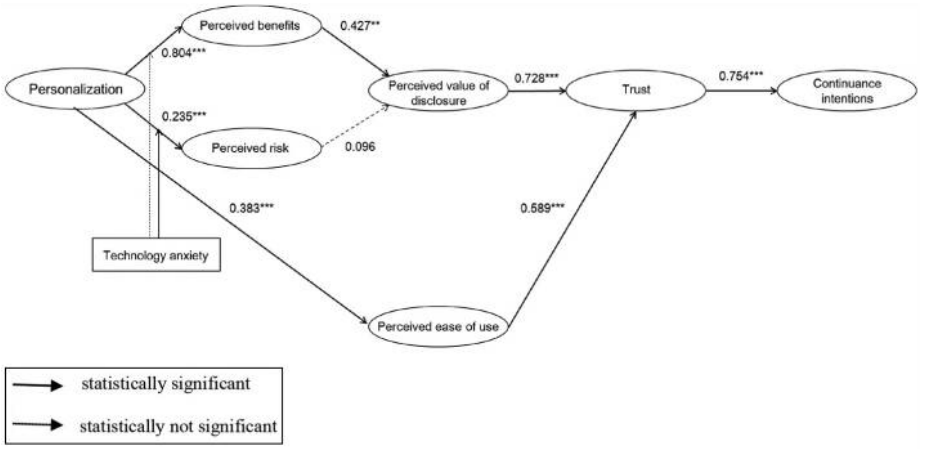
Notes: Fit indices: $\chi^2 = 349.783$; df = 188; $\chi^2/df = 1.861$; NFI = 0.941; IFI = 0.972; TLI = 0.961; CFI = 0.971; RMSEA = 0.050

Table II.
Reliabilities and confirmatory factor analysis properties

Measure	1. PER	2. BEN	3. RSK	4. PEU	5. VOD	6. TRU	7. CON	AVE
1. Personalization	1.000							0.588
2. Perceived benefits	0.760	1.000						0.676
3. Perceived risk	0.253	0.124	1.000					0.611
4. Perceived ease of use	0.674	0.756	0.129	1.000				0.743
5. Perceived value of disclosure	0.472	0.397	0.168	0.487	1.000			0.718
6. Trust	0.649	0.650	−0.002	0.680	0.646	1.000		0.647
7. Continuance intentions	0.533	0.703	−0.076	0.758	0.457	0.725	1.000	0.831

Notes: PER: Personalization; BEN: Perceived benefits; RSK: Perceived risk; PEU: Perceived ease of use; VOD: Perceived value of disclosure; TRU: Trust; CON: Continuance intentions to mobile apps

Table III.
Correlations matrix among the latent constructs



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

Figure 2.
Structural equation model with parameter estimates

Hypothesized path		Standardized path coefficients	C.R.	p-value	Results
H1a	PER → BEN	0.804	13.397	0.000***	Supported
H1b	PER → RSK	0.235	3.983	0.000***	Supported
H2a	BEN → VOD	0.427	7.321	0.000***	Supported
H2b	RSK → VOD	0.096	1.731	0.083	Not supported
H3	PER → PEU	0.383	12.743	0.000***	Supported
H4	VOD → TRU	0.728	8.391	0.000***	Supported
H5	PEU → TRU	0.589	11.073	0.000***	Supported
H6	TRU → CON	0.754	13.127	0.000***	Supported

Notes: $\chi^2 = 576.917$; df = 201 χ^2/df = 2.870; NFI = 0.902; IFI = 0.934; TLI = 0.916; CFI = 0.933; RMSEA = 0.073; PER: Personalization, BEN: Perceived benefits, RSK: Perceived risk, PEU: Perceived ease of use, VOD: Perceived value of disclosure, TRU: Trust, CON: Continuance intentions to branded mobile apps; ***$p < 0.001$

Table IV.
Standardized parameter estimates

$p < 0.001$) had a significant impact on trust; thus, *H4* was supported. Perceived ease of use affected trust ($\beta = 0.581$; $t = 4.539$; $p < 0.001$). Accordingly, thereby, *H5* was supported. Finally, the coefficient between trust and continuance intentions toward a mobile app was significant ($\beta = 0.741$; $t = 14.483$; $p < 0.001$). Therefore, *H6* was validated. In sum, all suggested hypotheses, except for *H2b*, were supported.

The moderating effect of technology anxiety

To investigate the moderating effect of technology anxiety, this study implemented multi-group analyses. Respondents were split into two groups according to the mean value of ethical consumerism (mean = 3.707): a group with high technology anxiety ($n = 179$) and a group with low technology anxiety ($n = 169$). The respondents with a mean of 3.707 or higher were categorized as the high technology anxiety group and those with means below 3.707 were categorized as the low technology anxiety group. As illustrated in Table V, in the path between personalization of mobile apps and perceived risk, the chi-square difference between the

constrained model and the unconstrained model was statistically significant ($\Delta\ \chi^2(1) = 19.99$; $p > 0.01$); thus, *H7b* was supported. This result indicates that the effect of personalization of mobile apps on perceived risk differs depending on the consumer's level of technology anxiety. The path coefficient was 0.524 for the high group, but only −0.059 for the low group. In contrast, chi-square analysis of the difference in the path coefficient of the personalization of mobile apps and perceived benefits was not significant, indicating *H7a* was not supported.

Discussion

Conclusions

The purpose of this study was to examine consumers' responses to personalization of mobile apps. First, consistent with previous research (Woo and Lee, 2010; Xu *et al.*, 2011), the findings of this study indicated significant relationships between personalization of mobile apps and perceived benefits/perceived risk.

These results verified that mobile app's personalized services could be a double-edged sword. When consumers use mobile apps they perceive not only various benefit but also privacy-related risks of disclosing their personal information. However, the benefits consumers perceive they will gain from using branded mobile apps are higher than the risks of using this technology, such as personal information disclosure, misuse of personal information, or invasion of privacy. Thus, consumers seem to regard using mobile apps as more helpful than not. This result shows that providing beneficial services is an important factor for creating value on mobile apps.

Second, prior studies showed that both perceived benefits and perceived risk are antecedents of perceived value of disclosure (Morosan and DeFranco, 2015; Xu *et al.*, 2011). However, the results of this study found a non-significant association between perceived risk and perceived value of disclosure. This result accorded with Keith *et al.*'s (2013) research, which revealed a non-significant relationship between perceived privacy risks and actual personal information disclosure behaviors. As Keith *et al.* (2013) mentioned, customers have control over whether to provide information to a coffee brand's mobile app or adjust privacy settings. Also, this indicates that consumers' perceptions of the risks of disclosing their personal information to branded mobile coffee apps is not considered threatening enough to affect the value of disclosure. Compared with mobile banking or e-commerce where large amounts of money are exchanged, consumers using personalized services offered by branded mobile coffee apps would be less sensitive about providing private information because only small amounts of money are concerned. Besides, consumers do not regard that personal information, such as coffee purchasing history, as private information that must be protected. These results explain that customers are heavily focused on the benefits of branded apps and are not serious about the potential for privacy risks.

Third, our findings revealed that both perceived value of disclosure and perceived ease of use are antecedents of trust, which is consistent with previous research on technology

Table V. Results of multiple group analysis

Hypothesized path		Standardized estimate High group ($n = 179$)	Low group ($n = 169$)	$\Delta\chi^2$ ($\Delta df = 1$)
H1a	Personalization → Perceived benefits	0.808	0.845	0.088
H1b	Personalization → Perceived risk	0.524	−0.059	19.99**

Note: $^{**}p < 0.01$

(Chinomona, 2013; Kamarulzaman, 2007; Lai, 2015; Zhou, 2012). Specifically, perceived ease of use had a stronger impact on trust than perceived value of disclosure. This result indicates that when consumers have trouble navigating mobile app services they are prone to lose confidence in using the technology. According to Chinomona (2013), individuals expect mobile technology that is effortless to use; the more a consumer trusts a technology, then the more likely it is that he or she will using it. Not only do complex systems make consumers aware that they find the app challenging, they also cause stress and confusion (Sokol, 1994). Therefore, unless consumers have confidence in using mobile apps, their certainty about information reliability and privacy protection will also decline. This finding reconfirms that perceived ease of use cannot be overlooked for predicting consumers responses.

Fourth, this study also revealed that trust is a bridge between perceived value of disclosure/perceived ease of use, and continuance intentions. Many researchers have suggested trust as a mediator between a variety of antecedents (e.g. information quality, perceived security, satisfaction, etc.) and behavioral intentions in the context of technology (Chiu *et al.*, 2012; Fang *et al.*, 2014; Ponte *et al.*, 2015). And it clearly demonstrated that trust is a considerably important determinant of continuance intentions for mobile technologies.

Finally, technology anxiety had a significant moderating effect on the relationship between personalization and perceived risk. This explains that consumers become more sensitive about their ability to use new technologies in potentially risky situation. Further, consumers with high technology anxiety would recognize that personalization might pose a serious privacy threat to them. However, the moderating effect on the relationship between personalization and perceived benefits was not supported, which appears to be similar in context to Lee and Yang (2013) and Yang and Forney's (2013) findings. With the prevalence of personalized services, many customers already enjoy various benefits of personalization and fully concede the advantages of personalization of branded mobile apps, regardless of their level of technology anxiety. In addition, the benefit is a positive attribute that everyone desires to receive, so it does not seem to be heavily influenced by technology anxiety. Therefore, branded mobile apps should offer personalized functions, as above all consumers, regardless of technology anxiety, require mobile services suited for their needs.

Theoretical implications

The current research provided several contributions to the theoretical development of SNS/mobile marketing studies. First, this study approached consumers' personalized technology behaviors with an integrated model of privacy calculus theory and technology acceptance theory. The research attempted to consider both the benefits and risks of personalized services in a mobile environment through a privacy calculus lens. The results of this research identified the association between perceived ease of use, trust, and continuance intentions applying the TAM. TAM is a theory that has been widely used in technology-related research, but it has rarely been presented in an integrated model with privacy calculus theory in conjunction with the theme of personalization. This new model could offer a theoretical body of knowledge for future research examining personalization of branded mobile apps.

Second, this research supplements the previous literature regarding personalized IT services in the food service industry. Most of the previous research was interested in IT marketing due to the growing power of internet, SNSs, and mobile technologies in consumers' lives and attempted to investigate the role of these technologies in business marketing. However, most of studies focused on embedded reservation systems, booking services or communication roles (e.g. search, posting and sharing one's opinions) of mobile

apps (Agag and El-Masry, 2016; Kang and Namkung, 2016; Wang *et al.*, 2016). Little research has focused on personalization. This study investigated customers' behaviors using mobile apps by focusing only on personalization features, which are currently becoming important. Therefore, this study was able to obtain more precise insight into customers' responses.

Third, this study improves our understanding of the consumer behavior in using technology by explaining the significant moderating effect of individual consumer characteristics and personalization of mobile apps. Despite the fact that technology anxiety is a critical factor for anticipating consumer behaviors in a privacy related technology context, it has not been investigated meaningfully in the context of the restaurant industry. Technology anxiety has been examined in terms of monetary transaction systems such as mobile payments or mobile banking (Alalwan *et al.*, 2015; Lee *et al.*, 2009; Yang and Forney, 2013). However, a consumer's personal data and profile are more valuable and more sensitive resources than money. Therefore, it is necessary to examine the effect of technology anxiety under personalization, which refers to the exchange of private information in return for customized services that reflect an individual's preferences. This research expands technology anxiety to research on personalization of branded mobile apps.

Practical implications

This study also provides several practical implications for marketers in the food service industry. First, consumers are aware of the immense benefits of personalization, which also enhances brand experience. Marketers should encourage these personalized services to increase the benefits of a particular brand. Although branded mobile apps have a great strength in identifying a consumer's current location, they only provide locational information for nearby stores. Mobile apps should not only offer simple geographical information but also information about promotions in nearby stores so that consumers are able to receive personalized information in real time. Moreover, identifying the time of purchase through purchase history data and providing new menu promotions and coupons according to this time could expand opportunities to sell new menus and create a closer relationship between consumers and the brand.

Second, personalization of branded mobile apps provides various advantages but also disadvantages. Therefore, marketers should endeavor to reduce privacy risks to increase the value of information disclosure. The optimal solution to achieve these two goals – maximizing benefits and minimizing risk – is to obtain precise personal information. The more accurate personal information is, the more a firm is able to customize their services. In turn, consumers who receive well-tailored information, services and advertisements are satisfied with a company. From the perspective of the company, consumers' personal information could be used for marketing to build a strong relationship with consumers and increase business performance. In sum, precise personal data could offer various advantages to both consumers and companies. To gather accurate information, companies should exercise strict internal discipline by protecting consumers' privacy and providing notice of newly implemented policies to consumers periodically. Further, businesses need to share the status of their privacy protection activities with consumers, offer choices on how much personal information consumers disclose, and provide options for whether or not to share personal information with third parties.

Third, branded mobile apps should be easy to use. Perceived ease of use is a fundamental factor determining whether consumers use a technology. In other words, no matter how valuable a specific technology is, it is useless if consumers do not experience it because it is hard to use. Marketers should ensure that adopting and using branded mobile apps is no more complicated than ordering and paying face-to-face with employees in the store.

Technology with too much functionality confuses users and is not always good. Rather, it might be better to provide core functionality and create an uncomplicated consumer experience. Further, companies should deliver services that enable consumers to organize the browser environment, content and menu categories to their tastes and ability to make apps more convenient and easy to use. These suggestions would not only increase perceived ease of use but also reduce consumers' technology anxiety.

Fourth, consumers with high technology anxiety often do not try branded mobile apps in the first place. Thus, it is necessary to encourage consumers to try the apps through reward programs such as price discounts and coupons for using mobile apps. In addition, consumers with high technology anxiety are inexperienced and afraid they will make mistakes. Accordingly, if such customers have trouble, such as mobile billing errors or mistakes, companies should solve the problems quickly. It would be an efficient way to lower consumers' technological concerns and facilitate the use of mobile apps.

Finally, trust acts as mediator between consumer value and continuance intentions toward branded mobile apps. Thus, it is important to build trust through maintaining app quality (e.g. information quality, system quality and service quality), establishing a powerful privacy protection system and providing reliable information. In addition, increasing corporate reputation is another way to enhance trust, as it could provide an initial opportunity for consumers to trust a company.

Limitations and future research

Although this study has several theoretical and managerial contributions, the current work has some limitations. First, as samples in this study came from consumers in South Korea, the results might not be generalizable to all consumers around the world. Thus, a cross-cultural study might help to establish the generalizability of the findings. Second, it is necessary to capture responses to the technology according to age due to the potential growth of the silver market. Gurtner *et al.* (2014) suggested that perceptions of mobile apps vary with the age of users. Therefore, it is vital to understand whether there is a difference in cognitive responses to personalization and usage characteristics of coffee brands' mobile apps depending on age. Also it would be meaningful to examine whether there is a difference in the effect of age on the acceptance intention according to the country. Third, the data were collected for coffee brands. Thus, the results could be only generalized to coffee brand mobile apps. Therefore, replicating and revalidating this study for other types of restaurants or hospitality industries (e.g. hotel, travel and leisure) would contribute to enhancing generalizability and a deeper understanding of differences in consumers' perceptions of mobile apps according to the type of food service. Finally, as Web-based surveys have relatively low response rates compared to paper surveys, non-response bias may occur. Therefore, a paper survey should also be conducted to boost survey responses rate in future research.

References

Agag, G. and El-Masry, A.A. (2016), "Understanding the determinants of hotel booking intentions and moderating role of habit", *International Journal of Hospitality Management*, Vol. 54, pp. 52-67.

Alalwan, A.A., Dwivedi, Y.K., Rana, N.P. and Williams, M.D. (2015), "Consumer adoption of mobile banking in Jordan: examining the role of usefulness, ease of use, perceived risk and self-efficacy", *Journal of Enterprise Information Management*, Vol. 29 No. 1, pp. 118-139.

Anderson, J.C. and Gerbing, D.W. (1988), "Structural equation modeling in practice: a review and recommended two-step approach", *Psychological Bulletin*, Vol. 103 No. 3, pp. 411-423.

Asif, M. and Krogstie, J. (2013), "Mobile services personalization evaluation model", *International Journal of Uand e-Service, Science and Technology*, Vol. 6 No. 2, pp. 1-12.

Au, N., Ngai, E.W. and Cheng, T.E. (2008), "Extending the understanding of end user information systems satisfaction formation: an equitable needs fulfillment model approach", *MIS Quarterly*, Vol. 30 No. 1, pp. 13-28.

Aziz, A.A., Radzi, S.M., Zahari, M.S.M. and Ahmad, N.A. (2011), "Hotel website dimension: analyzing customers' preferences", *Journal of Tourism, Hospitality and Culinary Arts*, Vol. 3 No. 3, pp. 85-108.

Bellman, S., Potter, R.F., Treleaven-Hassard, S., Robinson, J.A. and Varan, D. (2011), "The effectiveness of branded mobile phone apps", *Journal of Interactive Marketing*, Vol. 25 No. 4, pp. 191-200.

Cambre, M.A. and Cook, D.L. (1985), "Computer anxiety: definition, measurement, and correlates", *Journal of Educational Computing Research*, Vol. 1 No. 1, pp. 37-54.

Celik, H. (2016), "Customer online shopping anxiety within the unified theory of acceptance and use technology (UTAUT) framework", *Asia Pacific Journal of Marketing and Logistics*, Vol. 28 No. 2, pp. 278-307.

Chinomona, R. (2013), "The influence of perceived ease of use and perceived usefulness on trust and intention to use mobile social software", *African Journal for Physical, Health Education, Recreation and Dance*, Vol. 19 No. 2, pp. 258-273.

Chiu, C.M., Hsu, M.H., Lai, H. and Chang, C.M. (2012), "Re-examining the influence of trust on online repeat purchase intention: the moderating role of habit and its antecedents", *Decision Support Systems*, Vol. 53 No. 4, pp. 835-845.

Corritore, C.L., Kracher, B. and Wiedenbeck, S. (2003), "On-line trust: concepts, evolving themes, a model", *International Journal of Human-Computer Studies*, Vol. 58 No. 6, pp. 737-758.

Crespo, A.H., del Bosque, I.R. and del los Salmones Sanchez, M.M.G. (2009), "The influence of perceived risk on internet shopping behavior: a multidimensional perspective", *Journal of Risk Research*, Vol. 12 No. 2, pp. 259-277.

Culnan, M.J. and Bies, R.J. (2003), "Consumer privacy: balancing economic and justice considerations", *Journal of Social Issues*, Vol. 59 No. 2, pp. 323-342.

Davis, F.D. (1989), "Perceived usefulness, perceived ease of use, and user acceptance of information technology", *MIS Quarterly*, Vol. 13 No. 3, pp. 319-340.

Erevelles, S., Fukawa, N. and Swayne, L. (2016), "Big data consumer analytics and the transformation of marketing", *Journal of Business Research*, Vol. 69 No. 2, pp. 897-904.

Fang, Y., Qureshi, I., Sun, J., McCole, P., Ramsey, E. and Lim, K.H. (2014), "Trust, satisfaction, and online repurchase intention: the moderating role of perceived effectiveness of e-commerce institutional mechanisms", *MIS Quarterly*, Vol. 38 No. 2, pp. 407-427.

Featherman, M.S., Miyazaki, A.D. and Sprott, D.E. (2010), "Reducing online privacy risk to facilitate e-service adoption: the influence of perceived ease of use and corporate credibility", *Journal of Services Marketing*, Vol. 24 No. 3, pp. 219-229.

Fogel, J. and Nehmad, E. (2009), "Internet social network communities: risk taking, trust, and privacy concerns", *Computers in Human Behavior*, Vol. 25 No. 1, pp. 153-160.

Fornell, C. and Larcker, D.F. (1981), "Evaluating structural equation models with unobservable variables and measurement error", *Journal of Marketing Research*, Vol. 18 No. 1, pp. 39-50.

Franke, N., Keinz, P. and Steger, C.J. (2009), "Testing the value of customization: when do customers really prefer products tailored to their preferences?", *Journal of Marketing*, Vol. 73 No. 5, pp. 103-121.

Ganguly, B., Dash, S.B., Cyr, D. and Head, M. (2010), "The effects of website design on purchase intention in online shopping: the mediating role of trust and the moderating role of culture", *International Journal of Electronic Business*, Vol. 8 Nos 4/5, pp. 302-330.

Gefen, D., Karahanna, E. and Straub, D.W. (2003), "Trust and TAM in online shopping: an integrated model", *MIS Quarterly*, Vol. 27 No. 1, pp. 51-90.

Gurtner, S., Reinhardt, R. and Soyez, K. (2014), "Designing mobile business applications for different age groups", *Technological Forecasting and Social Change*, Vol. 88, pp. 177-188.

Hair, J.F., Black, W.C., Babin, B. and Anderson, R.E. (2009), *Multivariate Data Analysis*, Prentice Hall, NJ.

Ho, S.Y. (2012), "The effects of location personalization on individuals' intention to use mobile services", *Decision Support Systems*, Vol. 53 No. 4, pp. 802-812.

Hong, I.B. and Cha, H.S. (2013), "The mediating role of consumer trust in an online merchant in predicting purchase intention", *International Journal of Information Management*, Vol. 33 No. 6, pp. 927-939.

Horst, M., Kuttschreuter, M. and Gutteling, J.M. (2007), "Perceived usefulness, personal experiences, risk perception and trust as determinants of adoption of e-government service in The Netherlands", *Computer in Human Behavior*, Vol. 23 No. 4, pp. 1838-1852.

Hospitality Technology (2016), "Three reasons why restaurants should offer a mobile app", available at: www.hospitalitytechnology.edgl.com/news/-Three-Reasons-Why-Restaurants-Should-Offer-a-Mobile-App106866 (accessed 30 January 2017).

Imhoff, C., Loftis, L. and Geiger, J. (2001), *Building the Customer-Centric Enterprise, Data Warehousing Techniques for Supporting Customer Relationship Management*, John Wiley and Sons, New York, NY.

Kamarulzaman, Y. (2007), "Adoption of travel e-shopping in the UK", *International Journal of Retail and Distribution Management*, Vol. 35 No. 9, pp. 703-719.

Kang, J.W. and Namkung, Y. (2016), "Restaurant information sharing on social networking sites: do network externalities matter?", *Journal of Hospitality and Tourism Research*, Vol. 40 No. 6, pp. 739-763.

Keith, M.J., Thompson, S.C., Hale, J., Lowry, P.B. and Greer, C. (2013), "Information disclosure on mobile devices: re-examining privacy calculus with actual user behavior", *International Journal of Human-Computer Studies*, Vol. 71 No. 12, pp. 1163-1173.

Kim, D.J., Ferrin, D.L. and Rao, H.R. (2008b), "A trust-based consumer decision-making model in electronic commerce: the role of trust, perceived risk, and their antecedents", *Decision Support Systems*, Vol. 44 No. 2, pp. 544-564.

Kim, E., Lin, J.S. and Sung, Y. (2013), "To apps or not to app: engaging consumers via branded mobile apps", *Journal of Interactive Advertising*, Vol. 13 No. 1, pp. 53-65.

Kim, H.W., Chan, H.C. and Gupta, S. (2007), "Value-based adoption of mobile internet: an empirical investigation", *Decision Support Systems*, Vol. 43 No. 1, pp. 111-126.

Komiak, S.Y. and Benbasat, I. (2006), "The effects of personalization and familiarity on trust and adoption of recommendation agents", *MIS Quarterly*, Vol. 3Vol. 0 No. 4, pp. 941-960.

Kuo, Y.F., Wu, C.M. and Deng, W.J. (2009), "The relationships among service quality, perceived value, customer satisfaction, and post-purchase intention in mobile value-added services", *Computers in Human Behavior*, Vol. 25 No. 4, pp. 887-896.

Lai, Y.H. (2015), "Enhance online purchase intentions: the role of perceived value, trust, and commitment", *Journal of Tourism and Hospitality Management*, Vol. 3 No. 2, pp. 89-99.

Lai, J.Y., Wang, C.T. and Chou, C.Y. (2009), "How knowledge map fit and personalization affect success of KMS in high-tech firms", *Technovation*, Vol. 29 No. 4, pp. 313-324.

Lee, H., Choi, S.Y. and Kang, Y.S. (2009), "Formation of e-satisfaction and repurchase intention: moderating roles of computer self-efficacy and computer anxiety", *Expert Systems with Applications*, Vol. 36 No. 4, pp. 7848-7859.

Lee, H.J. and Yang, K. (2013), "Interpersonal service quality, self-service technology (SST) service quality, and retail patronage", *Journal of Retailing and Consumer Services*, Vol. 20 No. 1, pp. 51-57.

Liu, Z., Shan, J. and Pigneur, Y. (2016), "The role of personalized services and control: an empirical evaluation of privacy calculus and technology acceptance model in the mobile context", *Journal of Information Privacy and Security*, Vol. 12 No. 3, pp. 123-144.

Medway, R.L. and Fulton, J. (2012), "When more gets you less: a meta-analysis of the effect of concurrent web options on mail survey response rates", *Public Opinion Quarterly*, Vol. 74 No. 4, pp. 733-746.

Meuter, M.L., Ostrom, A.L., Bitner, M.J. and Roundtree, R. (2003), "The influence of technology anxiety on consumer use and experiences with self-service technologies", *Journal of Business Research*, Vol. 56 No. 11, pp. 899-906.

Min, J.Y. and Kim, B.S. (2013), "A study on continued intention of social network services by applying privacy calculus model: Facebook and Kakaotalk cases", *Information Systems Review*, Vol. 15 No 1, pp. 1-105.

Morosan, C. (2012), "Theoretical and empirical considerations of guests' perceptions of biometric systems in hotels: extending the technology acceptance model", *Journal of Hospitality and Tourism Research*, Vol. 36 No. 1, pp. 52-84.

Morosan, C. and DeFranco, A. (2015), "Disclosing personal information via hotel apps: a privacy calculus perspective", *International Journal of Hospitality Management*, Vol. 47, pp. 120-130.

Morosan, C. and DeFranco, A. (2016), "Modeling guests' intentions to use mobile apps in hotels: the roles of personalization, privacy, and involvement", *International Journal of Contemporary Hospitality Management*, Vol. 28 No. 9, pp. 1968-1991.

Nunnally, J.C. (1978), *Psychometric Theory*, MacGraw-Hill, New York, NY.

Nyheim, P., Xu, S., Zhang, L. and Mattila, A.S. (2015), "Predictors of avoidance towards personalization of restaurant smartphone advertising: a study from the millennials' perspective", *Journal of Hospitality and Tourism Technology*, Vol. 6 No. 2, pp. 145-159.

Okumus, B. and Bilgihan, A. (2013), "Proposing a model to test smartphone users' intention to use smart applications when ordering food in restaurant", *Journal of Hospitality and Tourism Technology*, Vol. 5 No. 1, pp. 31-49.

Osatuyi, B. (2014), "Personality traits and information privacy concern on social media platforms", *The Journal of Computer Information Systems*, Vol. 55 No. 4, pp. 11-19.

Parayitam, S., Desai, K., Desia, M.S. and Eason, M.K. (2010), "Computer attitude as a moderator in the relationship between computer anxiety, satisfaction, and stress", *Computers in Human Behavior*, Vol. 26 No. 3, pp. 345-352.

Perez, S. (2016), "Starbucks rolls out a more personalized mobile app along with a revamped rewards program", available at: www.techcrunch.com/2016/04/12/starbucks-rolls-out-a-more-personalized-mobile-app-along-with-a-revamped-rewards-program/ (accessed 3 January 2017).

Piccoli, G., Lui, T.W. and Grün, B. (2017), "The impact of IT-enabled customer service systems on service personalization, customer service perceptions, and hotel performance", *Tourism Management*, Vol. 59, pp. 349-362.

Ponte, E.B., Carvajal-Trujillo, E. and Escobar-Rodríguez, T. (2015), "Influence of trust and perceived value on the intention to purchase travel online: integrating the effects of assurance on trust antecedents", *Tourism Management*, Vol. 47, pp. 286-302.

Raub, A.C. (1981), "Correlates of computer anxiety in college students", Doctoral dissertation, University of Pennsylvania, PA.

Schneider, M. (2015), "5 ways coffee apps can drive customer loyalty and user intelligence", available at: www.blog.skyhookwireless.com/user-intelligence-for-coffee-shop-apps (accessed 25 January 2017).

Scott, C.R. and Rockwell, S.C. (1997), "The effect of communication, writing, and technology apprehension on likelihood to use new communication technologies", *Communication Education*, Vol. 46 No. 1, pp. 44-62.

Shaw, N. (2014), "The mediating influence of trust in the adoption of the mobile wallet", *Journal of Retailing and Consumer Services*, Vol. 21 No. 4, pp. 449-459.

Sokol, M. (1994), "Adaptation to difficult designs: facilitating use of new technologies", *Journal of Business and Psychology*, Vol. 8 No. 3, pp. 277-296.

Srinivasan, S.S., Anderson, R. and Ponnavolu, K. (2002), "Customer loyalty in e-commerce: an exploration of its antecedents and consequences", *Journal of Retailing*, Vol. 78 No. 1, pp. 41-50.

Ström, R., Vendel, M. and Bredican, J. (2014), "Mobile marketing: a literature review on its value for consumers and retailers", *Journal of Retailing and Consumer Services*, Vol. 21 No. 6, pp. 1001-1012.

Sun, Y., Wang, N., Shen, X.L. and Zhang, J.X. (2015), "Location information disclosure in location-based social network services: privacy calculus, benefit structure, and gender differences", *Computer in Human Behavior*, Vol. 52, pp. 278-292.

Tam, K.Y. and Ho, S.Y. (2006), "Understanding the impact of web personalization on user information processing and decision outcomes", *MIS Quarterly*, Vol. 30 No. 4, pp. 865-890.

Wang, Y.S., Li, H.T., Li, C.R. and Zhang, D.Z. (2016), "Factors affecting hotels' adoption of mobile reservation systems: a technology-organization-environment framework", *Tourism Management*, Vol. 53, pp. 163-172.

Woo, K.J. and Lee, M.J. (2010), "Study on their perceived personalization, usefulness, flow, internet service encounter satisfaction of online travel company web site", *Korean Corporation Management Review*, Vol. 17 No. 2, pp. 255-275.

Wirtz, J., Lwin, M.O. and Williams, J.D. (2007), "Causes and consequences of consumer online privacy concern", *International Journal of Service Industry Management*, Vol. 18 No. 4, pp. 326-348.

Xu, H., Luo, X., Carroll, J.M. and Rosson, M.B. (2011), "The personalization privacy paradox: an exploratory study of decision making process for location-aware marketing", *Decision Support Systems*, Vol. 51 No. 1, pp. 42-52.

Xu, H., Oh, L.B. and Teo, H.H. (2009), "Perceived effectiveness of text vs. multimedia location-based advertising messaging", *International Journal of Mobile Communications*, Vol. 7 No. 2, pp. 154-177.

Yang, K. and Forney, J.C. (2013), "The moderating role of consumer technology anxiety in mobile shipping adoption: differential effects of facilitating conditions and social influences", *Journal of Electronic Commerce Research*, Vol. 14 No. 4, pp. 334-347.

Zeithaml, V.A. (1988), "Consumer perceptions of price, quality and value: a means end model and synthesis of evidence", *Journal of Marketing*, Vol. 52 No. 3, pp. 2-22.

Zhou, T. (2012), "Examining mobile banking user adoption from the perspectives of trust and flow experience", *Information Technology and Management*, Vol. 13 No. 1, pp. 27-37.

Further reading

Clarke, R. (2001), "Person location and person tracking: technologies, risks and policy implications", *Information Technology and People*, Vol. 14 No. 2, pp. 206-231.

Fishbein, M. and Ajzen, I. (1975), *Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research*, Addison-Wesley, Boston, MA.

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