ⓑ Fashion and Textiles

CrossMark

Proposing value-based technology acceptance model: testing on paid mobile media service

Song-yi Youn[1] and Kyu-Hye Lee[2*]

*Correspondence:
khlee@hanyang.ac.kr
[2] Professor, Department
of Clothing and Textiles,
College of Human Ecology,
Hanyang University,
222, Wangsimni-ro,
Seongdong-gu, Seoul,
Republic of Korea
Full list of author information
is available at the end of the
article

Abstract

Rapid growth of online media markets among world populations led to attempts by companies to exploit mobile services as part of business planning practices. Relatedly, this study examines adoption of paid mobile media service (i.e., Amazon Prime Video) as a source of new information and communication technology with online-offline integrated mobile services. The study's main objective is to identify a technology acceptance model from the perspective of consumer experiences of value perceptions. This study proposed a value-based technology acceptance model, deriving from classic variables related to technology acceptance with regard to relevant consumer value perception literature. The proposed model examined effects of positive and negative experiences of value perceptions on consumers' beliefs about paid service which explained future use of the paid service. Results indicated that consumers' positive experiences—social, emotional, and functional values—derived from using mobile media services positively explained consumers' belief of the usefulness of the paid mobile media service. Consumers' negative experiences with technological barriers negatively influenced consumers' beliefs with regard to the ease of use for paid mobile service, while price risk negatively influenced perceived usefulness. Consequently, consumers' perceptions of ease of use and usefulness related to using the paid service positively influenced behavioral intention for continuous use of the paid mobile media service.

Keywords: Paid mobile media service, Consumer experience, Perceived value, Perceived risk, Technology acceptance model

Introduction

Mobile digital business continues to expand, becoming one of the biggest industries in the world. Billions of smartphone holders use mobile apps daily (Dogtiev 2018). Mobile applications are expected to generate almost 190 billion dollars in revenues via online applications stores by 2020 (Statista 2018). Examples include Apple App Stores and Google Play Store. According to Flurry analytics (Khalaf 2016), U.S. mobile media consumers spend over 1 h a day on mobile media services. Activities include listening to music and watching video contents, such as TV shows and movies. A recent report indicated that global financial spending on video media services exceeded $300 billion in 2017 (Forni and Van der Meulen 2017).

Companies that offer online media service, such as YouTube, Hulu, and Spotify, constructed a business model to provide free music and video streaming services. These companies have profited from commercials as it relates to the streaming library. The online media market is growing with consumers' needs for high-quality media contents. Concurrently, net neutrality law, that maintained internet free, was repealed in the United State in 2017 (Kang 2017). It is expected that broadband providers (i.e., AT&T, T-Mobile, and Verizon) benefit because companies that offer online media contents are likely to incur additional fee for using the Internet; thus, the company consequently charge the additional cost to their consumers (Masunaga and Puzzanghera 2017). Therefore, it is time for online media companies to seek a new business model that will meet consumers' empirical or monetary needs.

Consequently, online media companies suggest subscriptions to mobile users. It involves paying a subscription price to access media contents without commercial breaks on a smartphone application. For instance, Google launched YouTube Red to provide monthly paid subscription services, offering video contents without advertisements to mobile phone users (Constine 2015). Hulu also ended its free streaming service and began a paid no-commercial plan in 2016 (Spangler 2016). By using the paid services, it is possible for subscribers to use online-offline integrated mobile media services on their mobile device. Thus, customers can download on-demand media contents via a mobile application and watch high-quality media contents anytime without needing Internet connection. For example, YouTube Red users are able to download content on YouTube and watch it on the mobile application. Amazon Prime members are also able to download popular movies or TV shows on their mobile application and watch offline. Hulu recently announced that it will start online-offline integrated media service in 2018 (Turner 2018). Notably, through paid mobile media services, smartphone users can enjoy high-quality media contents without additional mobile data charges.

Previous studies on mobile service users focused on adoption behaviors of the services based on new technology such as mobile commerce and mobile payment (Ervasti and Helaakoski 2010; Liébana-Cabanillas et al. 2014; Ramos-de-Lunaet al. 2016). However, consumers' demand for high-quality of mobile media services increase, and companies offering media services extend paid subscriptions of media services to mobile phone users. Therefore, it is necessary to understand current users' experiences of using the paid MMS. To understand users' acceptance of the paid mobile media service (MMS, hereafter), the technology acceptance model (TAM) would be utilized. Previous studies focused on paid mobile services, such as mobile payment service and m-commerce. TAM has been widely used to predict the behavior of mobile services. These are based on perceived usefulness and perceived ease of use for mobile systems (Joo and Sang 2013; Park and Chen 2007). Individuals using paid MMS are consumers who purchase the service. Others are technology users of the mobile device and application. Thus, to predict acceptance behaviors of new Information and Communication Technology (ICT) service, it is necessary to consider the perspectives of consumers' experiences with new mobile media services. According to consumer value literature (Woodside et al. 2008), consumers' experiences of value perception are based on perception: a trade-off between perceived benefit and perceived risk. Since new media services target paid members, actual service users' experiences with value and risk perception register

as external variables. These may explain the continuous adoption of a mobile service. Therefore, the purpose of this study is to identify a consumer value framework, which is informed by negative and positive experiences. It aims to examine the effect of consumer experiences, according to the extended value-based technology acceptance model.

## Literature review

Conceptual research framework

Technology acceptance model (TAM, hereafter) was tested widely. It was extended by a large number of previous literature (Chau 1996; Davis et al. 1989; Legris et al. 2003; Wu and Wang 2005). Indeed, TAM is a useful theoretical model for helping to understand and predict adoption practices of information systems (Legris et al. 2003). These studies proposed extended TAMs for perceived usefulness and perceived ease of use. They explained influence of external variables on adoption behaviors of advanced technology services. The model was applied in many fields, such as online services (Liao et al. 2007), m-commerce (Ervasti and Helaakoski 2010; Mallat et al. 2009), social networking (Rauniar et al. 2014), e-health care services (Holden and Karsh 2010), and mobile payments (Liébana-Cabanillas et al. 2014; Ramos-de-Luna et al. 2016). The current study adopts a TAM, applying it to mobile media services that require subscription payment.

Moreover, literature on consumer value (Claeys et al. 1995; Jensen 2001) explains choices made by individual customers. It suggests that customers' values are a function based on experiences with perceived benefit and loss, and people behave according to a decision based on whether to use the product/service or not, especially when the highest payoff was made. Specifically, early studies suggested that consumer value was a unidimensional construct based on a relation between benefit and sacrifice (Dodds and Monroe 1985). Consumer researchers considered consumer value as a multi-dimensional construct based on a variety of embedded values (Holbrook 1999; Sinha and DeSarbo 1998; Sweeney and Soutar 2001). From the consumer's perspective, consumer value is constructed by two different utilities. These capture the consumer's positive experiences with perceived value and negative experiences with perceived risk (Kim et al. 2007). Consequently, this study proposes and empirically tests a value-based technology acceptance model (VTAM, hereafter). Specifically, it considers a paid mobile media service, technology adoption, and consumer experience of value literature (Fig. 1).

Positive experiences with value perception

Perceived value is identified as benefits that consumers experienced while using a product or service (Holbrook 1999). The theory of consumer value (Sheth et al. 1991) suggests that a consumer's decision to purchase a product can be understood through experience with expected values. Previous studies provided value-based models, specifying that mainly three values—utilitarian, hedonic, and social—stimulate consumers' positive experiences (Chun et al. 2012; Sheth et al. 1991; Yang et al. 2012). Multiple values can independently contribute to consumer's beliefs as regards usefulness or using easiness of the product (Hsu and Lin 2015; Thong et al. 2006).

Moreover, perceived social value refers to the experience of enhancing a social relationship by using mobile services (Park et al. 2012). Emotional value is represented as a perceived hedonic value. It refers to affective experiences (e.g., feeling good or pleasure)

Fig. 1 Conceptual framework of VTAM
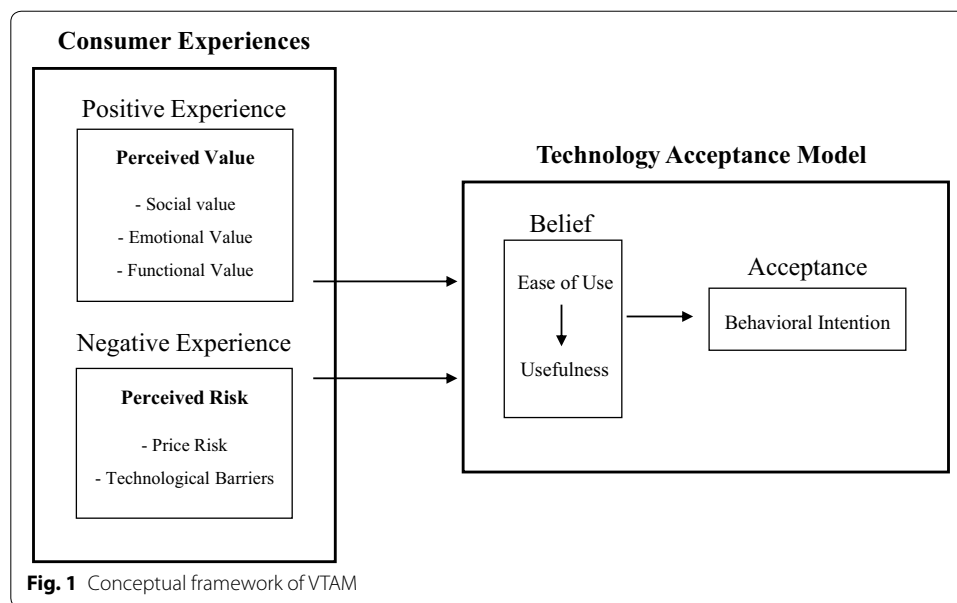
in relation to using mobile service (Chun et al. 2012). Functional value is represented as a perceived utilitarian value. It refers to the experience of accomplishing task-related goals while using mobile services (Cheong and Park 2005; Hong et al. 2008; Luarn and Lin 2005). Different types of perceived value exist in specific situations (Sweeney and Soutar 2001) and independently influence consumer's beliefs regarding using services (e.g., ease of use or usefulness) (Hong et al. 2008; Hsu and Lin 2015). These studies explain that when consumers experienced values (i.e., social, emotional, functional) from using the services, they were more likely to perceived ease or usefulness of the services. Thus, the current study assumes the following statement. Consumers, who experienced values related to utilitarian, hedonic, and social benefits—in relation to using MMS (e.g., listening to music, watching videos, or playing games)—would positively perceive ease of use and usefulness of the paid MMS.

H1   Experience of *social value* from using media services on the smartphone has positive effects on (*a*) *perceived ease* and (*b*) *usefulness* of current use of the paid MMS.

H2   Experience of *emotional value* from using media services on the smartphone has positive effects on (*a*) *perceived ease* and (b) *usefulness* of current use of the paid MMS.

H3   Experience of *functional value* from using media services on the smartphone has positive effects on (*a*) *perceived ease* and (*b*) *usefulness* of current use of the paid MMS.

Negative experiences with risk perception

Perceived risk is defined as the potential for loss as consumers pursue desirable outcomes by using a service or product (Ostlund 1974). Often, mobile users experienced monetary risks and technological difficulties while using services on mobile phones (Abelson et al. 2017; Wu and Wang 2005). Because media contents required by consumers necessitate

high-quality steaming video services, if they experience difficult configuration or poor performance that interferes with streaming, consumers would not feel an ease of use or that using the service was useful.

Previous studies on finance-related mobile services suggested that monetary risk and non-monetary risk are two major factors for understanding consumers' adoption behaviors, as regards mobile services (Luarn and Lin 2005; Shin 2009). For example, to adopt new mobile services, consumers experience monetary expenses related to using the services which include equipment costs and economical values for using the services (Lee 2009; Wu and Wang 2005). At the same time, users often bear non-monetary expenses, such as technical barriers related to using the services. Technical barriers refer to difficulties (i.e., service performance, configurations, and installations of applications) that consumers experience while using mobile services (Shin 2009). Relatedly, this study considers two different perceived risks: price risk and perceived barriers, as external variables and negative experiences of consumers in the VTAM. Previous studies, implementing TAM, found that a negative impact of perceived risk on consumers' beliefs relating to mobile service usage (Kim et al. 2007; Yang et al. 2012). These studies explained that when consumers perceive risk related to cost and technological difficulties they were less likely to believe benefits (e.g., usage easiness, usefulness) from using the services. The following hypotheses were formulated:

H4 Experience of *price risk* from using media services on the smartphone has negative effects on (*a*) *perceived ease* and (*b*) *usefulness* of current use of the paid MMS.

H5 Experience of *technological barriers* from using media services on the smartphone has negative effects on (*a*) *perceived ease* and (*b*) *usefulness* of current use of the paid MMS.

Perceived usefulness and perceived ease of use

According to TAM, perceived usefulness refers to personal beliefs that accepting a technology system positively increases the user's effectiveness and task performance (Davis et al. 1992). Various studies demonstrated that the perceived usefulness of an innovative mobile system bears a direct relationship to intention to use the system (Liébana-Cabanillas et al. 2014; López-Nicolás et al. 2008). The ease of use refers to the degree to which a person believes that using an advanced technology would be effortless or easy to handle (Davis et al. 1992). Mobile service users make future usage determinations based on preferences for usage or usefulness of the services (Liébana-Cabanillas et al. 2014; Thong et al. 2006). Thereby, ease of use and perceived usefulness are considered as the most influential aspects, regarding future acceptance of mobile services. Under such circumstances, this study hypothesized the following:

H6 *Perceived ease of use* the paid MMS would have a positive effect on *perceived usefulness* of the paid MMS.

H7 *Perceived ease of use* the paid MMS would have a positive effect on *behavioral intention toward continuous use* the paid MMS.

H8 *Perceived usefulness* of the paid MMS would have a positive effect on *behavioral intention toward continuous use* of the paid MMS.

Research model

Based on these arguments, the current research proposed VTAM (Fig. 2). It integrates TAM with a perceived value framework, including consumers' positive and negative experiences with regard for perceived value and risk. Consumers' positive experiences with using mobile media services is presented, according to social value, emotional value, and functional value. Consumers' negative experiences with using services are depicted by price risks and technology barriers. The model suggests that consumers' positive or negative perceptions, from using mobile media services, would influence their acceptance of paid mobile media services via belief about ease of use and usefulness of the paid mobile service.

Methods

Data collection and analysis procedure

This study targeted a sample of current users of paid MMS (i.e., Amazon Prime Video) with recent experiences using other media services (i.e., listening to music, watching video, or playing mobile games) on a smartphone. A self-administered questionnaire was used to collect samples. To collect data, Amazon Mechanical Turk (MTurk) was used with a compensation rate of $1. Amazon MTurk can be a useful tool for collecting a

Fig. 2 Proposed research model
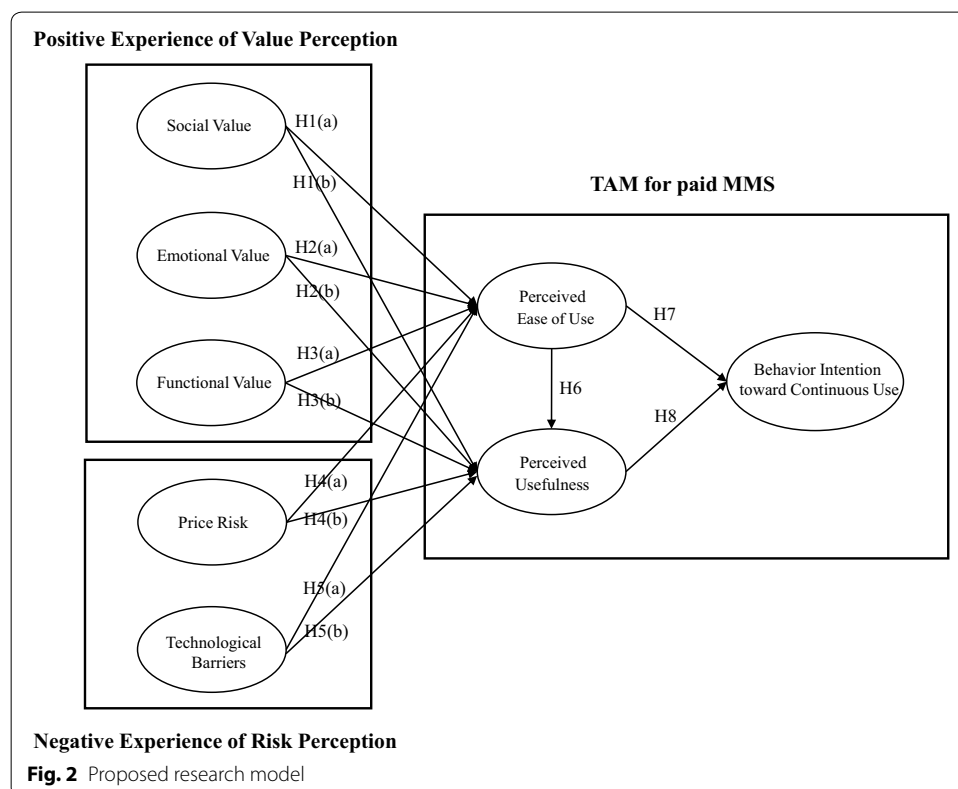
large size of survey participants' data. Survey data is relatively reliable and diverse, when compared to data from an online survey (Buhrmester et al. 2011). Survey questionnaires consisted of two parts. First, it involved a part asking participants about recent experiences using general media services (i.e., listening to music, watching video, or playing mobile games) on the smartphone. For this part, questions related to social value, emotional value, and functional value perceived from using various mobile media services. Additionally, questions related to negativity about price risk and technological barriers were also asked. Second, it involved a part asking participants about current use for the paid mobile media service, Amazon Prime Video Application. Questions include perceived ease of use and usefulness of the service. Questions related to participants' behavioral intentions to continuously use the paid service were also asked. A dataset sample of 606 was used for the current study. This remained after deleting incomplete data and data from the same IP address. Finally, this study used structural equation modeling. To test the measurement model and hypothesized latent model, this study used SPSS 25 and AMOS 25 software.

Measurement development

Scales to measure perceived value—perceived social, hedonic, and utilitarian values—were adopted, according to previous studies (Choi and Chung 2013; Sweeney and Soutar 2001). They were modified for consumers of mobile media services. Scales to measure perceived risk—price risk and technical barriers—were adopted from previous studies (Sweeney and Soutar 2001; Verkasalo et al. 2010). To measure the constructs of perceived ease of use and perceived usefulness, previously developed scales were modified and used (Davis et al. 1989; Park and Chen 2007). To measure behavioral intention to continue using the mobile media services, previously developed scales (Davis et al. 1989). were adopted and modified. Participants were asked additional usage information questions. Subjects considered how much time users spent recently on the mobile services. Demographic characteristics included age, sex, education, household income, and race.

Participant characteristics

Specifically, 650 people participated in the survey. After deleting the incomplete data, a total dataset of 593 were included for final data analysis. About 44% of participants are male and 56% of participants are female. The average age of participants was 34.51. Approximately 40% of participants aged from 19 to 29, 34% of participants were aged from 30 to 39, and about 20% or participant were over 40. The majority of participants (about over 70%) were attending college or college graduates. About 72% of participants were Caucasians. Approximately 30% of participants had an annular household income less than $ 35,000. About 25% of participants indicated an annular household income ranging from $ 35,000 to less than $ 75,000. Approximately 33% of respondents had an annular household income ranging from $ 75,000 to less than $ 100,000. About 12% of participants answered that their annular house hold income over $ 100,000. All participants are currently using paid mobile media services (i.e., Amazon Prime Video). They spend almost 2 h a day on mobile media streaming services, on average. Over 50% of participants indicated that they usually use their smartphone to use mobile media

services. About 40% of participants mentioned that they check their mobile phone 40 to 100 times daily.

Results

Measurement model

A measurement model, using confirmatory factor analysis (CFA), was tested to measure the reliability of the construct used in the proposed research model. Each construct was correlated with other factors for CFA. Multiple fit indices were considered to test the overall model fit. This includes comparative fit index (CFI), goodness of fit index (GFI), standardized root mean squared residual (SRMR), root mean squared error of approximation (RMSEA), *Chi* square (χ^2), and ratio of *Chi* square to degree of freedom (CMIN/DF). Researchers suggested that CFI should be greater than .90 or close to .95 (Anderson and Gerbing 1988). GFI should be greater than .80 (Tabachnick and Fidell 1996). RMSEA and SRMR should respectively have values close to (or lower than) .06 (Hu and Bentler 1999). In addition, researchers suggested that CMIN/DF, ranging from 2 to 5, indicates a reasonable fit (Byrne 1989; Carmines and McIver 1981). The measurement model revealed an acceptable model fit: CFI = .95, GFI = .88, SRMR = .05, RMSEA = .06, $\chi^2 = 1227.90$, $df = 433$, $p = .00$, CMIN/DF = 2.84.

Standardized factor loadings were ranged from .61 to 96 (Table 1). According to Hair et al. (2010), factor loading values should be greater than .5, and .7 or higher. To identify construct reliability, convergent validity and discriminant validity were checked. Composite reliability (CR) ranged from .80 to .96. average variance extracted (AVE) ranged from .58 to .88 (Table 1), which indicates convergent validity. AVE values above .5 and CR values above .7 indicate convergent validity (Anderson and Gerbing 1988). Values of AVE were greater than squared correlation coefficients (Table 2). These results indicated a reliability of the construct and a discriminant validity among the constructs (Anderson and Gerbing 1988; Fornell and Larcker 1981).

Latent model

A latent model was analyzed to test hypotheses (Fig. 3). The structural model registered an acceptable model fit, as follows: CFI = .95, GFI = .88, SRMR = .06, RMSEA = .06, $\chi^2 = 1196.73$, $df = 408$, $p = .00$, CMIN/DF = 2.93. Results of the model fit indicated that the collected data fits the proposed model well. For results, experience of the social value of smartphone media services use registered positive effects on perceived ease of use ($\gamma = .12$, $p < .01$) and the perceived usefulness ($\gamma = .17$, $p < .001$) of using paid MMS. Thus, H1(a) and H(b) were accepted. Further, these results indicated that when individuals believe that using media services on their mobile phone enhanced social relation, such consumers are more likely to perceive an ease of using the paid mobile service and a usefulness of the service. Also, experiences of emotional value revealed a positive effect on perceived usefulness ($\gamma = .10$, $p < .05$). Meanwhile, it did not influence perceived ease of use ($\gamma = .03$, $p = .63$). Thus, H2(a) was rejected, and H2(b) was accepted. This result indicates that when consumers experience pleasure or enjoyment by using media services on the smartphone, they are more likely to perceive a usefulness for using paid mobile media services. The result is supported by previous studies on the acceptance of mobile hedonic services, mobile game (Liu and Li 2011). The previous studies found that the

Table 1 Results of measurement model

Variable	Questions	Cronbach's Alpha	Standardized loading	AVE[a]	CR[b]
Variables of experiences with media services on smartphone					
Social value	Enhanced my effectiveness in building social relationship	.90	.93	.67	.91
	Made it easier to develop social relationship		.88		
	Helped me to build social relationships more quickly		.80		
	Was useful in my social relationship		.74		
	Improved my social relationship		.72		
Emotional value	Made me feel good	.91	.94	.78	.92
	Gave me pleasure		.86		
	Made me feel relaxed		.85		
Functional value	Supported the operation of all the tasks	.79	.87	.58	.80
	Allowed me to do my task effectively		.78		
	Operated consistently overall		.61		
Price risk	My smartphone is not a good product for the price for using the service	.89	.87	.74	.90
	My smartphone is not reasonably priced for using the service		.85		
	My smartphone is not economical for using the service		.86		
Technological barriers	Difficult configuration of the service had a negative impact on my usage	.92	.97	.80	.92
	Difficulties in finding and installing the application for the service had a negative impact on my usage		.90		
	Poor performance of the service had a negative impact on my usage		.81		
Variables related to using the paid MMS					
Perceived ease of use	It is easy for me to become skillful at using the paid MMS	.95	.90	.74	.95
	I find it easy to get the paid MMS to do what I want it to do		.89		
	My interaction with the paid MMS application is clear and understandable		.88		
	I found that the paid MMS is easy to use		.86		
	Learning to operate the smartphone for the paid MMS is easy for me		.86		
	I find the paid MMS to be flexible to interact with		.78		
Perceived usefulness	Using the paid MMS would enhance my effectiveness	.93	.90	.69	.93
	Using the paid MMS would increase my productivity		.90		
	Using the paid MMS would make it easier to do my tasks		.87		
	Using the paid MMS would improve my performance		.83		
	I would find the paid MMS is useful		.75		
	Using the paid MMS would enable me to accomplish tasks more quickly		.70		
Behavioral intention toward continuous use	I will continuously use the paid MMS in the future	.95	.96	.88	.96
	I have a plan to use the paid MMS in the future		.93		
	I expect my use of the MMS to continue in the paid MMS		.92		

[a] Average variance extracted

[b] Composite reliability

Table 2 Discriminant validity: correlation matrix and AVE statistics

	SV	EV	FV	PR	TB	PEU	PU	BI	AVE
SV	1								.67
EV	.52[a] (.27[b])	1							.78
FV	.47 (.22)	.52 (.27)	1						.58
PR	.31 (.10)	.43 (.18)	.36 (.13)	1					.74
TB	.12 (.01)	.13 (.02)	− .12 (.01)	.15 (.02)	1				.80
PEU	.31 (.10)	.29 (.08)	.54 (.29)	.17 (.03)	− .26 (.07)	1			.74
PU	.46 (.21)	.44 (.19)	.57 (.29)	.33 (.11)	− .03 (.09)	.55 (.30)	1		.69
BI	.25 (.06)	.22 (.05)	.43 (.18)	.09 (.00)	− .22 (.05)	.54 (.29)	.39 (.15)	1	.88

SV social value), *EV* emotional value, *FV* functional value, *PR* price risk, *TB* technology barriers, *PEU* perceived ease of use, *PU* perceived usefulness. BI (Behavioral Intention toward Continuous Use) are presented in the table

[a] Correlation coefficient

[b] Squared correlation coefficient

Fig. 3 Path coefficients of latent model
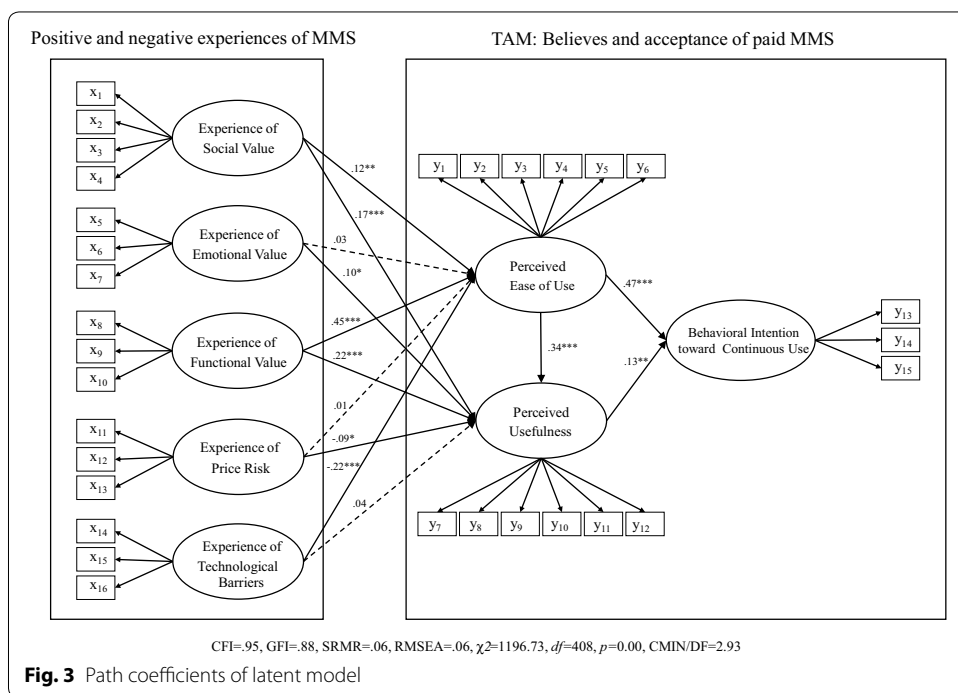
experience of enjoyment is an intrinsic motivation that positively explained perceived usefulness (Liu and Li 2011; Sun and Zhang 2006). In addition, experiences of functional value, using MMS, positively influenced perceived ease of use ($\gamma = .45$, $p < .001$) and perceived usefulness ($\gamma = .22$, $p < .001$). Thus, H3(a) and H3(b) were accepted. Results indicated that multiple values (i.e., social, emotional, and functional values) served important roles for understanding mobile service consumers (Gummerus and Pihlström 2011; Yang et al. 2012).

In addition, the current study found that negative experiences related to price risk negatively influenced perceived usefulness ($\gamma = - .09$, $p < .05$), while price risk did not influence perceived ease of use ($\gamma = .01$, $p = .76$). Thus, H4(a) was rejected, and H4(b) was

accepted. Experiences related to technological barriers had negative effects on perceived ease of use ($\gamma = -.22$, $p < .001$), while technological barriers did not influence perceived usefulness of using the paid MMS ($\gamma = .04$, $p = .29$). Thus, H4(a) was accepted, and H4(b) was rejected. These results indicate that negative experiences related to technological barriers would be considered for understanding consumer belief on ease of use, while negative experiences related to price risk would be a crucial factor to understand perceived usefulness of the paid MMS. Additionally, perceived ease of use had a positive effect on perceived usefulness ($\beta = .34$, $p < .001$). Perceived ease of use ($\beta = .47$, $p < .001$) and perceived usefulness ($\beta = .13$, $p < .01$) had positive effects on behavioral intentions for continuing to use paid MMS. Therefore, H6, H7, and H8 were accepted.

Discussion

This study examined two major research questions. First, it examined the types of consumer experiences that would be important for understanding consumers' acceptance of paid mobile media services. Second, it examined how negative and positive experiences predict future behaviors of continuous use of paid mobile media services. To examine these two questions, this study proposed a value-based TAM (VTAM). It explained how positive experience related to value perceptions (i.e., social, emotional, and functional value) and negative experiences related to risk perception (i.e., price risk and technological barriers). Further, it considered future behavioral intentions through perceived ease of use and usefulness of paid MMS.

Findings in the current study highlight the importance of consumers' experiences with mobile services. It provides implications for companies, proposing a paid service business model. Companies are advised to be aware of negative experiences from the perspective of consumers. It is valuable to recognize experience as an important driver of consumers' beliefs as it relates to usefulness of becoming involved with paid services. Perceived usefulness is an important factor that leads to consumer choices for accepting new technologies. Regarding paid technologies, perceived usefulness is critical for understanding consumers choices (Schierz et al. 2010; Zhou 2013). Further, consumer experience is regarded as an important marketing aspect (Schmitt 2011). Mobile devices provide various values for consumers through media services. Mobile service providers would be advised to diversify services and content, thereby meeting consumer needs of experiences.

Results of this study indicate that consumers held positive experiences related to social value and functional value of using media services on mobile phones. Consequently, they were likely to perceive ease of use for using the paid mobile service. In addition, when consumers had positive experiences related to social, functional, and emotional value of media services on mobile devices, they were likely to perceive usefulness of the paid mobile service. These results reveal that video or music streaming services on mobile device offer multiple values to users. Values include social, functional, and emotional aspects. Specifically, a media streaming service is among popular entertainment functions that mobile services provide. As such, mobile media consumers experience emotional benefits from using media streaming services (Liu and Li 2011). However, the emotional benefit did not influence perceptions of ease of using the paid mobile service.

These results indicate that emotional values, including intrinsic motivations, relate to consumers' rational belief on benefits of using the service (Liu and Li 2011; Sun and Zhang 2006), while the emotional value would not explain ease of using the service on mobile phones. Moreover, using mobile media services could relate to consumers' social or functional benefits from using such services. For example, music or video contents are spread through a social media platform. Users can access information and public opinions about contents through a social media site (Burgess and Green 2009). Thus, it would be easy for consumers to experience social value from using mobile media contents, especially those recommended socially or through public popularity. Further, when consumers experience functional benefits, such as solving an individual task through mobile media services, they are more likely to perceive functional values from using the services. The result coincides with the previous study, indicating that information (i.e., general knowledge, or personal opinions) accessed from YouTube video channels provides functional value to audiences (Thelwall et al. 2012).

Negative experiences related to price risk negatively affected usefulness of using the paid MMS while these experiences did not influence the perceived ease of using the MMS. However, by contrast, experiences related to the technological barriers of using mobile media services negatively affected perceived ease of using the paid MMS, while the barriers did not influence perceived usefulness of using the service. The findings of this study suggest that different types of perceived risk negatively influence consumer belief when using the paid MMS. These findings can be supported by previous research (Kim et al. 2007). The study found that two different types of risk perceptions (i.e., technicality, perceived cost) negatively influence consumer belief on perceived benefits from using mobile services. Moreover, the result in this study suggests that minimizing the negative experience of consumers, such as providing services that can (Joo and Sang 2013) directly solve usage barriers, will be an important factor for offering ease of use for the service. In addition, the findings can be applied to marketing strategies for users of mobile media services. For example, when consumers are exposed to experiencing the services with a price risk, the company can avoid a decrease in consumer belief on benefits by inversely emphasizing the usefulness of the service. The usefulness and ease of use of the paid MMS positively affected the continued use of the service. This result is proved by studies on mobile application consumers, using extended TAM (Ervasti and Helaakoski 2010).

Conclusions

The media market is active with increasing consumer needs for paid mobile media contents. Therefore, it is necessary to examine consumers' mobile service experiences. Understanding negative or positive experiences that relate to technology services is important. This is especially true for marketers or consumer researchers aiming to understand innovative mobile services for adoption-related behaviors. This study investigated how negative or positive experiences of mobile service consumers affect acceptance of paid mobile services. It focused on consumers, a using paid mobile service (i.e., Amazon Prime Video Application). Previous research on consumers of mobile services suggested future intentions for newly launched mobile payment systems or mobile applications related to health information (Holden and Karsh

2010). By comparison, this study targets over 600 current users of the paid mobile media service. The current study provides managerial implications by understanding current users' experiences and belief on the services. It identified how actual consumers' experiences influence users' perceptions of usefulness and continued use of the mobile service. Furthermore, this study provides theoretical implication by applying consumer value theory to the TAM model which expects future adoption of consumers using mobile services. Previous consumer studies have understood consumer values as motivational factors to understand current behaviors (Holbrook 1999; Sinha and DeSarbo 1998; Sweeney and Soutar 2001). On the other hand, this study has an academic contribution that examines the empirical aspect of consumer values to predict the intention of future behavior.

This study would provide future implications to mobile service providers and growing mobile media content markets. We expect that understanding the various experiences of actual consumers in this study could be utilized for attracting new or prospective users of paid media mobile services. For example, experience of social value played an important role in perceiving usefulness of using the paid mobile media service as much as the functional value did. This shows that mobile media users value not only functional benefits of the media services, but also social values that they experience through media use. In the process of watching and sharing media contents through YouTube, for instance, consumers experience functional aspects of media contents as well as social exchanges through them (Thelwall et al. 2012). Therefore, if paid MMS companies apply a social media platform as a marketing channel to introduce new services and consumers share media contents on the platform, it would stimulate experiences of social benefits while using media services.

The technological barriers had a negative impact on the ease of using the services, which indicates that companies focus on technological support to maintain current customers or to attract new customers. In particular, for mobile users, experiencing mechanical barriers at first use has a negative impact on continuous usage (Bouwman et al. 2007). Experiences related to price risk, on the other hand, could not explain consumers' belief on ease of use while it explained usefulness of using the MMS. These results can be supported by previous research that found cost rationality of the mobile device positively influenced usefulness of using mobile services (Shin et al. 2010). This also provide business implications for marketers to understand price-sensitive consumers who care their benefits relate to usefulness of the mobile media services. In addition, since current study targeted actual users of the paid media service, it is possible that their price consciousness on using the services through the smartphone would be low. Thus, they were likely to be less sensitive to prices related to using the services on their mobile phones. If questions measuring experiences of price risks (e.g., transection fee, subscription cost) were directly related to use of the paid MMS (i.e., Amazon Prime Video), it would have been different implications. This is considered to be a limitation in this study. Therefore, for future studies, it is necessary to refine the questions related to negative experiences that consumers have while using paid mobile media services.

Further, this study measured consumer experience and identified it as a general experience of using media services. However, this selection may imply a limitation of this study: an experience may include both free content on YouTube and the use of paid

content on Amazon Prime Video. Therefore, it would provide more meaningful investigation to consider how experiences of using free media services—specifically that consumers held prior to using paid services—influence their currently held beliefs regarding use of the paid services. In addition, this study limited the sample of paid mobile media service users to one channel only. In fact, since there are various paid mobile services in the market, there is a limit to generalizing the findings from this study. For designing future research, it would be insightful for a study to include users of other services. Another strategy would involve distinguishing between users and non-users.

Abbreviations
Amazon MTurk: Amazon Mechanical Turk; AVE: average variance extracted; CFA: confirmatory factor analysis; CFI: comparative fit index; CMIN/DF: ratio of chi square to degree of freedom; CR: composite reliability; GFI: goodness of fit index; MMS: mobile media service; RMSEA: root mean squared error of approximation; SRMR: standardized root mean squared residual; TAM: technology acceptance model; VTAM: value-based technology acceptance model.

Authors' contributions
SY carried out the study on users of mobile media services, participated in the data collecting and analyzing process, and drafted the manuscript. KHL reviewed the manuscript. Both authors read and approved the final manuscript.

Author details
[1] Adjunct Research Assistant Professor, School of Human Environmental Sciences, University of Arkansas, 118 Home Economics Bldg, Fayetteville, AR 72701, USA. [2] Professor, Department of Clothing and Textiles, College of Human Ecology, Hanyang University, 222, Wangsimni-ro, Seongdong-gu, Seoul, Republic of Korea.

Publisher's Note
Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

References
Abelson, J. S., Kaufman, E., Symer, M., Peters, A., Charlson, M., & Yeo, H. (2017). Barriers and benefits to using mobile health technology after operation: A qualitative study. *Surgery, 162*(3), 605–611.
Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin, 103*(3), 411.
Bouwman, H., Carlsson, C., Molina-Castillo, F. J., & Walden, P. (2007). Barriers and drivers in the adoption of current and future mobile services in Finland. *Telematics and Informatics, 24*(2), 145–160.
Buhrmester, M., Kwang, T., & Gosling, S. D. (2011). Amazon's Mechanical Turk: A new source of inexpensive, yet high-quality, data? *Perspectives on Psychological Science, 6*(1), 3–5.
Burgess, J., & Green, J. (2009). *YouTube: Online video and participatory culture*. Malden: Polity Press.
Byrne, B. M. (1989). *A primer of LISREL: Basic applications and programming for confirmatory factor analytic models*. New York: Springer.
Carmines, E. G., & McIver, J. P. (1981). Analyzing models with unobserved variables: Analysis of covariance structures. In G. Bohrnstedt & E. Borgatta (Eds.), *Social measurement: Current issues* (pp. 65–115). Beverly Hills: Sage.
Chau, P. Y. (1996). An empirical assessment of a modified technology acceptance model. *Journal of Management Information Systems, 13*(2), 185–204.
Cheong, J. H., & Park, M.-C. (2005). Mobile internet acceptance in Korea. *Internet Research, 15*(2), 125–140.
Choi, G., & Chung, H. (2013). Applying the technology acceptance model to social networking sites (SNS): Impact of subjective norm and social capital on the acceptance of SNS. *International Journal of Human-Computer Interaction, 29*(10), 619–628.

Chun, H., Lee, H., & Kim, D. (2012). The integrated model of smartphone adoption: Hedonic and utilitarian value perceptions of smartphones among Korean college students. *Cyberpsychology, Behavior, and Social Networking, 15*(9), 473–479.

Claeys, C., Swinnen, A., & Abeele, P. V. (1995). Consumer's means-end chains for "think" and "feel" products. *International Journal of Research in Marketing, 12*(3), 193–208.

Constine, J. (2015). YouTube Red, A $9.99 site-wide ad-free subscription with play music, Retrieved from https://techcrunch.com/2015/10/21/youtube-red/.

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science, 35*(8), 982–1003.

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1992). Extrinsic and intrinsic motivation to use computers in the workplace. *Journal of Applied Social Psychology, 22*(14), 1111–1132.

Dodds, W. B., & Monroe, K. B. (1985). The effect of brand and price information on subjective product evaluations. In Elizabeth C. Hirschman & Moris B. Holbrook (Eds.), *North American Advances in Consumer Research* (Vol. 12, pp. 85–90). Provo: Association for Consumer Research.

Dogtiev, A. (2018). *App download and usage statistics*. Retrieved from http://www.businessofapps.com/data/app-statistics/.

Ervasti, M., & Helaakoski, H. (2010). Case study of application-based mobile service acceptance and development in Finland. *International Journal of Information Technology and Management, 9*(3), 243–259.

Fornell, C., & Larcker, D. F. (1981). Structural equation models with unobservable variables and measurement error: Algebra and statistics. *Journal of Marketing Research, 18*(3), 382–388.

Forni, A. A., & Van der Meulen, R. (2017). *Gartner says spending on consumer video media services to reach $314 billion in 2017*. Retrieved from https://www.gartner.com/newsroom/id/3703117.

Gummerus, J., & Pihlström, M. (2011). Context and mobile services' value-in-use. *Journal of Retailing and Consumer Services, 18*(6), 521–533.

Hair, J.F., Black, W.C., Babin, B.J., & Anderson, R.E. (2010). *Multivariate data analysis* (7th ed.). NJ: Pearson.

Holbrook, M. B. (1999). Introduction to consumer value. In M. B. Holbrook (Ed.), *Consumer value: A framework for analysis and research* (pp. 1–28). London: Routledge.

Holden, R. J., & Karsh, B.-T. (2010). The technology acceptance model: its past and its future in health care. *Journal of Biomedical Informatics, 43*(1), 159–172.

Hong, S.-J., Thong, J. Y., Moon, J.-Y., & Tam, K.-Y. (2008). Understanding the behavior of mobile data services consumers. *Information Systems Frontiers, 10*(4), 431.

Hsu, C.-L., & Lin, J. C.-C. (2015). What drives purchase intention for paid mobile apps?—an expectation confirmation model with perceived value. *Electronic Commerce Research and Applications, 14*(1), 46–57.

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*(1), 1–55.

Jensen, H. R. (2001). Antecedents and consequences of consumer value assessments: implications for marketing strategy and future research. *Journal of Retailing and Consumer Services, 8*(6), 299–310.

Joo, J., & Sang, Y. (2013). Exploring Koreans' smartphone usage: An integrated model of the technology acceptance model and uses and gratifications theory. *Computers in Human Behavior, 29*(6), 2512–2518.

Kang, C. (2017). F.C.C. repeals net neutrality rules. *The New York Times.* Retrieved from https://www.nytimes.com/2017/12/14/technology/net-neutrality-repeal-vote.html.

Khalaf, S. (2016). U.S. consumers time-spent on mobile crosses 5 hours a day. Retrieved from http://flurrymobile.tumblr.com/post/157921590345/us-consumers-time-spent-on-mobile-crosses-5.

Kim, H.-W., Chan, H. C., & Gupta, S. (2007). Value-based adoption of mobile internet: an empirical investigation. *Decision Support Systems, 43*(1), 111–126.

Lee, M.-C. (2009). Factors influencing the adoption of internet banking: An integration of TAM and TPB with perceived risk and perceived benefit. *Electronic Commerce Research and Applications, 8*(3), 130–141.

Legris, P., Ingham, J., & Collerette, P. (2003). Why do people use information technology? A critical review of the technology acceptance model. *Information & Management, 40*(3), 191–204.

Liao, C., Chen, J.-L., & Yen, D. C. (2007). Theory of planning behavior (TPB) and customer satisfaction in the continued use of e-service: An integrated model. *Computers in Human Behavior, 23*(6), 2804–2822.

Liébana-Cabanillas, F., Sánchez-Fernández, J., & Muñoz-Leiva, F. (2014). Antecedents of the adoption of the new mobile payment systems: The moderating effect of age. *Computers in Human Behavior, 35,* 464–478.

Liu, Y., & Li, H. (2011). Exploring the impact of use context on mobile hedonic services adoption: An empirical study on mobile gaming in China. *Computers in Human Behavior, 27*(2), 890–898.

López-Nicolás, C., Molina-Castillo, F. J., & Bouwman, H. (2008). An assessment of advanced mobile services acceptance: Contributions from TAM and diffusion theory models. *Information & Management, 45*(6), 359–364.

Luarn, P., & Lin, H.-H. (2005). Toward an understanding of the behavioral intention to use mobile banking. *Computers in Human Behavior, 21*(6), 873–891.

Mallat, N., Rossi, M., Tuunainen, V. K., & Öörni, A. (2009). The impact of use context on mobile services acceptance: The case of mobile ticketing. *Information & Management, 46*(3), 190–195.

Masunaga, S., & Puzzanghera, J. (2017). Here's who'll benefit—and who might not—if net neutrality is repealed as expected. *Los Angeles Times*. Retrieved from http://www.latimes.com/business/la-fi-net-neutrality-20171213-htmlstory.html.

Ostlund, L. E. (1974). Perceived innovation attributes as predictors of innovativeness. *Journal of Consumer Research, 1*(2), 23–29.

Park, K.-G., Han, S., & Kaid, L. L. (2012). Does social networking service usage mediate the association between smartphone usage and social capital? *New Media and Society, 15*(7), 1077–1093.

Park, Y., & Chen, J. V. (2007). Acceptance and adoption of the innovative use of smartphone. *Industrial Management & Data Systems, 107*(9), 1349–1365.

Ramos-de-Luna, I., Montoro-Ríos, F., & Liébana-Cabanillas, F. (2016). Determinants of the intention to use NFC technology as a payment system: An acceptance model approach. *Information Systems and e-Business Management, 14*(2), 293–314.

Rauniar, R., Rawski, G., Yang, J., & Johnson, B. (2014). Technology acceptance model (TAM) and social media usage: an empirical study on Facebook. *Journal of Enterprise Information Management, 27*(1), 6–30.

Schierz, P. G., Schilke, O., & Wirtz, B. W. (2010). Understanding consumer acceptance of mobile payment services: An empirical analysis. *Electronic Commerce Research and Applications, 9*(3), 209–216.

Schmitt, B. (2011). Experience marketing: Concepts, frameworks and consumer insights. *Foundations and Trends® in Marketing, 5*(2), 55–112.

Sheth, J. N., Newman, B. I., & Gross, B. L. (1991). Why we buy what we buy: A theory of consumption values. *Journal of Business Research, 22*(2), 159–170.

Shin, D. H. (2009). Determinants of customer acceptance of multi-service network: An implication for IP-based technologies. *Information and Management, 46*(1), 16–22.

Shin, Y. M., Lee, S. C., Shin, B., & Lee, H. G. (2010). Examining influencing factors of post-adoption usage of mobile internet: Focus on the user perception of supplier-side attributes. *Information Systems Frontiers, 12*(5), 595–606.

Sinha, I., & DeSarbo, W. S. (1998). An integrated approach toward the spatial modeling of perceived customer value. *Journal of Marketing Research, 35*(2), 236–249.

Spangler, T. (2016). Hulu ends free streaming service. *Variety.* Retrieved from https://variety.com/2016/digital/news/hulu-free-streaming-end-yahoo-1201832578/.

Statista. (2018). *Worldwide mobile app revenues in 2015, 2016 and 2020 (in billion U.S. dollars).* Retrieved from https://www.statista.com/statistics/269025/worldwide-mobile-app-revenue-forecast/.

Sun, H., & Zhang, P. (2006). Causal relationships between perceived enjoyment and perceived ease of use: An alternative approach. *Journal of the Association for Information Systems, 7*(9), 24.

Sweeney, J. C., & Soutar, G. N. (2001). Consumer perceived value: The development of a multiple item scale. *Journal of Retailing, 77*(2), 203–220.

Tabachnick, B. G., & Fidell, L. S. (1996). *Using multivariate statistics* (3rd ed.). New York: HarperCollins.

Thelwall, M., Sud, P., & Vis, F. (2012). Commenting on YouTube videos: From Guatemalan rock to el big bang. *Journal of the Association for Information Science and Technology, 63*(3), 616–629.

Thong, J. Y., Hong, S.-J., & Tam, K. Y. (2006). The effects of post-adoption beliefs on the expectation-confirmation model for information technology continuance. *International Journal of Human-Computer Studies, 64*(9), 799–810.

Turner, D. (2018). Hulu is finally going to let you download shows to watch offline. Retrieved from https://gizmodo.com/hulu-is-finally-going-to-let-you-download-shows-to-watc-1825713203.

Verkasalo, H., López-Nicolás, C., Molina-Castillo, F. J., & Bouwman, H. (2010). Analysis of users and non-users of smartphone applications. *Telematics and Informatics, 27*(3), 242–255.

Woodside, A. G., Golfetto, F., & Gibbert, M. (2008). *Customer value: theory, research, and practice creating and managing superior customer value* (pp. 3–25). Bingley: Emerald Group Publishing Limited.

Wu, J.-H., & Wang, S.-C. (2005). What drives mobile commerce?: An empirical evaluation of the revised technology acceptance model. *Information and Management, 42*(5), 719–729.

Yang, S., Lu, Y., Gupta, S., & Cao, Y. (2012). Does context matter? The impact of use context on mobile internet adoption. *International Journal of Human-Computer Interaction, 28*(8), 530–541.

Zhou, T. (2013). An empirical examination of continuance intention of mobile payment services. *Decision Support Systems, 54*(2), 1085–1091.