

The Adoption of Mobile Self-Service Technologies: Effects of Availability in Alternative Media and Trust on the Relative Importance of Perceived Usefulness and Ease of Use

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Abstract

Self-service technologies (SSTs) are becoming popular in mobile devices. Therefore, we examine the availability of mobile services with regard to wire-line device and user trust in these services as the moderating variables in order to determine the relative importance of the perceived usefulness (PU) and perceived ease of use (PEU) for users adopting new SSTs on mobile devices. We collected data from two distinctive mobile services: mobile banking and location-based (“finding my friend”) services in Korea. The findings of this study reveal that when new services are available with existing wire-line services, PEU is more important than PU in driving the adoption of new SSTs. In contrast, when mobile services are relatively brand new, PU is more important than PEU in the adoption of new SSTs. Further, trust in services does not significantly change the relative importance of PEU for users adopting mobile services that are available in wire-line devices, whereas user trust in services strengthens the influence of PU in their adoption of mobile services that are not available in wire-line devices. These findings can help explain the causal structure whereby SSTs are adopted on mobile devices. We also provide managerial guidance in order to promote the adoption as well as the use of SSTs.

Keywords: *Self-service technology, Availability in alternative media, Service trust, Perceived usefulness, Perceived ease of use, Structural equation modeling*

1. Introduction

Self-service technologies (SSTs), such as automated teller machines (ATMs), automated hotel check-out, telephone banking and Internet transactions, are becoming widely accepted with the development of Internet-based application systems. SSTs can be defined as technological interfaces that enable customers to produce a service independent of direct-service employee involvement [1, p. 50]. Prior research has identified various factors that determine users’ adoption of SSTs and their subsequent satisfaction; these include both technological and individual consumer characteristics. Technical features that appeal to users’ intention to adopt or use SSTs include perceived usefulness, ease of use, newness, risk and fun [2-4]. Individual characteristics include behavioral inertia, technology anxiety and optimism as well as the need for interaction, previous experience and demographics [2, 5].

In this study, we further elaborate on the nature of SSTs that combine a mobile technology

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with a service encounter. We argue that users' mobile service adoption can be better understood by including attributes of both services and the media that delivers the services. With reference to the technology innovation theories of Daft and Becker [6], service innovations associated with SSTs can be categorized as incremental or radical based on two criteria. The first criterion is the availability of similar services in alternative media. Recent developments in mobile technology-based self-services, such as banking, entertainment reservations and advertisements, have extended into various aspects of our lives; accordingly, customers have come to access these services through multiple channels and media. Therefore, the choice of SST among various alternative channels or media has become a critical issue for customers as well as for businesses that introduce such new technologies and services. In this study, we propose that when users choose an SST on a mobile device, the availability of these services in different media can engender an influence on their adoption decision.

The second criterion that is used to classify the innovation level of a new service as incremental or radical is the level of perceived risk. Kim and Prabhakar [7] studied Internet banking and investigated why only a small fraction of users made actual purchases over the Internet, even though the number of Internet users had increased significantly during the 1990s. They conveyed that the slow move to the Internet as a retail distribution channel could be attributed to consumers' lack of trust in the electronic channel and Internet merchants. For example, mobile services offered via a mobile network infrastructure may incur higher perceived risks because these involve commercial transactions and private information for personalization [8]. Therefore, the unprecedented introduction of unique mobile services for the sake of successful market penetration requires for users to trust those services.

We assert that the availability of mobile services in alternative media and users' trust in services should be noted as primary factors that determine users' adoption of mobile devices delivering such services. In pursuing this research, we must clarify the following three issues. First, we clearly distinguish between media and services. In an era of a multiplicity of media repertoires, services can be delivered through various types of media. Therefore, the appropriate conditions for the fit between services and media are important determinants in the adoption and use of SSTs [e.g., 9]. Second, we build on the technology acceptance model (TAM) in order to explain users' adoption of SSTs, specifically, new mobile services. In particular, our study focuses on the relative importance of PEU and PU, an issue that was first raised by Adams, *et al.*, [10] and Gefen and Straub [11], although PU and PEU were conceptualized as attributes of "technology." PEU and PU have different antecedent factors and contingent contexts; hence, identifying as to when each of the two factors is more dominant in the adoption and use of mobile service would allow those new mobile technologies to be implemented more successfully. Third, our study also contributes to the recent interest in media choice from multiple media repertoires. In an era of a multiplicity of media repertoires, users' choice of media is influenced by institutional (e.g., incentives, trust and physical proximity), situational (e.g., urgency, task) and habitual conditions (e.g., temporal preferences) [11]. Our findings can help explain the causal structure by which SSTs are adopted on mobile devices.

2. Literature Review

2.1. Technology Acceptance Theories: the Relative Importance of PU and PEU and Moderators

Several theories and models have been developed to explain the acceptance and adoption of new information technologies. The TAM has been transformed from a theory of reasoned

action, proposed by Fishbein and Ajzen [12], into a comprehensive model of organizational and social factors. Recent efforts to overcome the limitations of the original TAM have helped reduce concerns that this theory cannot adequately explain the relationship between organizational dynamics and technical implementation. Nevertheless, the effectiveness of this initial theory based on PU and PEU has been empirically verified in the realms of information technologies and electronic commerce [13].

Because the relative importance of new technologies was conferred on PU rather than on PEU in early studies, subsequent works have focused on situations in which the relative importance of PU and PEU would differ [14, 15] as well as on the respective antecedents of these two main factors [16]. The adoption of SSTs differs from the adoption of other technologies in the sense that SSTs combine services with media technologies in order to deliver services. We therefore maintain that the attributes of services to be delivered are essential elements in users' adoption of SSTs. Specifically, we add two service-related contexts: service availability in alternative media and service trust.

The first context is the availability of services in alternative media that users perceive based on their own experience. Innovation diffusion theory suggests eight antecedents for the diffusion of innovative technologies among end users: voluntariness, image, relative advantage, compatibility, ease of use, result demonstrability, trialability and visibility [17]. Chen, *et al.*, [18] further suggested that the factors affecting the rate of innovation adoption fall into only three categories: relative advantage, technical compatibility and complexity. Complexity corresponds to the PEU of TAM, whereas relative advantage is similar to PU [18] and technical compatibility is omitted. However, rather than adopting this construct (technology compatibility) *per se*, we refine it to the category of services based on Karahanna, *et al.*, [19] because our focus is on the services delivered through the mobile device. Mobile services available on a wire-line device mean that users have experienced services of similar value on wire-line in the past, whereas mobile services with low availability on a wire-line device are new and unfamiliar to mobile users.

Our second context is user trust in services. Legris, *et al.*, [20] analyzed 22 TAM-related articles and asserted that additional antecedents besides PU and PEU, including risk and stability, should be considered in theories on the adoption of innovative technology applications, such as electronic commerce, e-business and mobile business. Given the recent emphasis on the security and reliability of services [5], we include trust in services in our research model, thereby testing the determinants of new SST adoption.

2.2. Availability of Service in Alternative Media

Availability of services in alternative media can enhance the service compatibility when the service is delivered by the new media. For example, wire-line services, such as Internet banking, may not look as radically innovative on mobile devices as LBS (Location-Based Services) because mobile users have not experienced LBS on wire-line. In the discipline of technology or innovation management, the concept of compatibility has been used in two different literature streams. The first relates to the integration of technical components in a large system for proper functioning [21]. The second can be labeled as expectation compatibility, which is concerned with the extent to which a new technology satisfies or meets the expectations of potential users [22]. To overcome the non-comprehensive definitions of the compatibility construct, Karahanna, Agarwal and Angst [19] suggested four refined dimensions of compatibility: compatibility with existing work practices, compatibility with preferred work style, compatibility with prior experience and compatibility with values. Compatibility with existing work practices measures the extent to which a technology fits with users' current work processes. Compatibility with preferred work style captures the

possibility offered by the technology of being consistent with a desired work style. Compatibility with prior experience reflects a fit between the target technology and a variety of the users' past encounters with the technology. Finally, compatibility with values epitomizes the match between the possibilities offered by the technology and users' dominant value system. Thus, if new mobile services have been delivered by wire-line media, these mobile services are expected to maintain more expectation compatibility compared to the brand-new mobile services unavailable on wire-line media.

Figure 1 shows that similar or equal services may be provided by various kinds of media due to the recent developments in telecommunication technologies. The *x*-axis indicates the similarity of service, whereas the *y*-axis represents the multiplicity of service devices. Businesses have incentives to offer a service across different devices because the popularity and success of one service in a media often shows the potential to succeed in competing or alternative service media. Moreover, incumbent firms find that offering similar services via multiple media is necessary in order to survive or compete with new businesses taking advantage of innovative technologies [7]. In an era of digital convergence, heterogeneous communication-service devices have come to compete against each other in providing identical or comparable services to existing or potential consumers.

From Figure 1, we can identify two distinctive services running on mobile networks: mobile banking (having high similarity) and "finding my friend" (having low similarity). Mobile banking is essentially Internet banking through a mobile wireless device. This service is available via traditional telephone networks, ATM networks, Internet access and mobile networks. These types of services have been available to individual users for more than 20 years, and most banking users are aware of their existence. Koenig-Lewis, *et al.*, [23] found that consumers weigh the compatibility of technology with their lifestyle and the familiarity with established technologies. In contrast, location-based services (LBS, *i.e.*, "finding my friend") are new types of services being offered via mobile networks and are unique features offered over mobile communication networks. Very few competing services are available on other technology devices, and users' awareness of this service is relative low, even though the major players in the mobile phone industry have spent a substantial amount on advertising this innovative service.

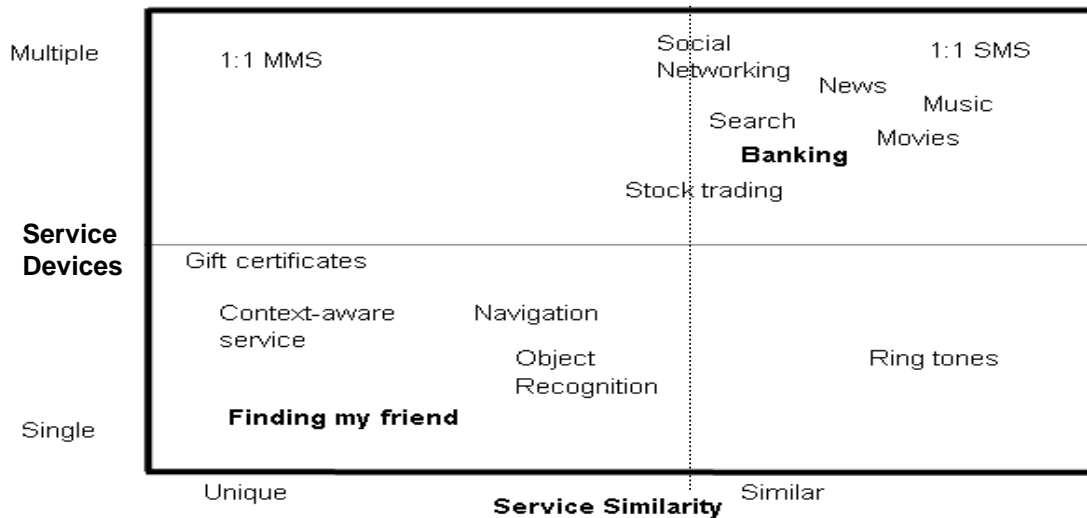


Figure 1. Map of the Availability of Mobile Services in Wire-Line

2.3. Multidimensional Definition of Trust in Services

Trust is the belief that the other party will behave in a socially responsible manner, and by doing so, will fulfill the expectations of the trusting party without taking advantage of his or her vulnerabilities [24]. Trust is a more important factor in Internet technology acceptance than is off-line environment acceptance, particularly when purchasing is involved [25].

Several issues need to be considered when measuring trust in the context of Internet usage. First, trust is a multidimensional concept that consists of ability, benevolence and integrity. Second, in the context of e-commerce, the target of trust includes the elements of both “trust in control mechanisms” (*i.e.*, the Internet environment and infrastructure) and “trust in the other party” (online stores). In short, in e-commerce, trust is a synthesis of party trust and control trust [25]. Menon, *et al.*, [26] was concerned with individual investors’ beliefs about the trustworthiness of online transactions through electronic brokerage firms. Kim and Prabhakar [7] demonstrated that trust in the e-channel and in the bank itself has a considerable influence on the adoption of Internet banking. As customers become more willing to express their vulnerabilities to Internet vendors, they begin to care about the characteristics of the vendor and the technical features of the Internet. In their study to investigate the possibility of using trust in two self-service bank channels, Internet and phone banking to segment potential users of these channels, Dimitriadis, *et al.*, [27] presented that groups of customers with “high” and “low” channel trust are different not only in a number of attitudinal, behavioral and psychographic criteria, but also in terms of intention to use the Internet and phone banking. Particularly in the realm of mobile banking, where users’ initial trust is critical [28], it can be easily expected that their own past experience with the existing services has an important role in understanding and adopting the new ones.

Pavlou [24] maintained that all trust components can converge into the trustworthiness of e-commerce counterparts because those counterparts will implement all the security- and privacy-related functions in the system; he proposed measuring only party trust. However, studies on trust in the context of mobile commerce placed more emphasis on the detailed control mechanisms, which refer to control trust [29], or they proposed measuring both party and control trust [11]. In our study, providers of mobile banking and LBS in Korea (*i.e.*, SK Telecom, Korea Telecom, and LG Telecom) are large wireless communication firms that are highly trusted by their customers. We therefore focus on control trust. The scope of control trust includes security, privacy and reliability.

3. Hypotheses

We investigate how the availability of mobile services on wire-line and users’ trust in mobile services affect the relative influences of PU and PEU of a mobile SST on users’ intention to adopt the mobile SST. In this investigation, we analyze how the effect of user trust in mobile services on their adoption of a mobile SST differs depending on the level of availability of wire-line media.

3.1. Availability of Alternative Media and its Moderating Effect

If many alternatives for comparable functions are available, many factors apart from PU can influence consumers’ choice of a technology. In the case of a technical innovation, after the early stage, when the innovative functions appeal to the market and forge a standard, the subsequent competition focuses on features such as efficiency and convenience [24]. In addition, when similar products and services exist, convenience can be an important factor in users’ acceptance because the basic technology and service have already been tested and standardized. In banking services, Curran and Meuter [2] found that ATM services were far

easier to use than phone banking services; they maintained that ease of use was the primary reason for the difference in popularity of those two SSTs. When comparing the usability components of both wireless and wired sites, Venkatesh and Ramesh [30] found that PEU (in terms of screen size, input devices, and navigation structure) mattered more for wireless interfaces than for wired websites, whereas PU was not mentioned in connection with a difference in web usability between wireless and wired websites. Thus, for services available on wire-line media (e.g., mobile banking), PEU will be an important factor in users' adoption of mobile services.

For services that offer more radical innovations with a relatively low availability of wire-line media, usefulness is a direct variable that determines users' intention to adopt mobile services. As a radical innovative service is developed to satisfy customers' unmet desires or needs, it introduces fresh components and functions that are not compatible with incremental innovative services [31]. Thus, the perception of improved performance does matter in the early stages of market release of an innovative technology. More specifically, for mobile services unavailable on wire-line media, PU is more important than PEU.

H1a: Perceived ease of use has a greater impact on users' intention to adopt a mobile SST when the mobile service is available in the wire-line media.

H1b: Perceived usefulness has a greater impact on users' intention to adopt a mobile SST when the mobile service is not available in the wire-line media.

3.2. Service Trust and its Moderating Effect

We now examine the role of trust in users' adoption of mobile services with high or low availability of wire-line media, where PEU and PU, respectively, have significant roles in the adoption of a mobile SST. Because mobile banking users already understand the characteristics of a mobile banking service through similar services using different devices, such as phone and Internet banking, they will have a clear expectation of PU. Because users have experienced the services in a wired communication environment, they will, in general, feel less risk when using the same services via different media (e.g., wireless environments). Consequently, trust will have little effect on the process of adopting a new service when the new service is similar with previous services available in an alternative device. Therefore, the effect of PEU on the decision to adopt a new SST will be maintained regardless of the level of trust in a new SST that is available in alternative media. In short, trust may not have a significant role as a moderator in the effect of PEU on users' intention to use services available in alternative media.

In contrast, for LBSs (which users would not have experienced previously), PU is an important factor in the intention to adopt a device delivering that service. Because users have no prior experience with similar services, the perception of risk is high; thus, trust can have a strong effect on the role of independent factors (i.e., PU in this case) in users' adoption of the SST. Gefen, et al. [31] empirically found that trust has more influence in the early stage of adoption, when users have little information about or have not gained experience with the new services. However, as users' experiences with certain services accumulate, they come to forge specific beliefs about services that will override the influence of trust [32]. Further, PU will have a stronger effect on the adoption of a SST when there is trust in the service, which reduces the perceived risk of using the SST. Thus, the following hypotheses are presented regarding the effects of PU and PEU on users' intention to adopt mobile devices.

H2a: When a mobile service is available in the wire-line media, the effects of PEU on users' intention to adopt a mobile SST will not be significantly different between groups with high and low trust in the service.

H2b: When a mobile service is not available in the wire-line media, the effects of PU on users' intention to adopt a mobile SST will be greater in groups with high trust in the service than in those with low trust in the service.

4. Research Methodology and Analysis

4.1. Data Collection and Sampling

A random sampling method was used in collecting data for analysis. The primary user groups we targeted were students and adults who owned and used cellular phones in Korea. All the items were adopted from previous studies and modified for our research context. For the sake of content validity, we held a seminar for graduate students in order to confirm that our measurement items were appropriate to survey; we also conducted a pilot survey of these students. The finalized items were distributed in electronic and paper form. Of the 600 questionnaires on mobile banking that were distributed, we received 382 paper and 107 e-mail replies, yielding an 81.5% return rate. Finally, 480 of those replies were submitted for further analysis. For LBS services, of the 500 questionnaires distributed, 292 paper and 94 e-mail replies arrived, a 77.2% response rate. Nine incomplete responses were discarded and the remaining 377 responses were used for analysis.

4.2. Method

Three items on PEU were adopted from Legris, et al. [20] and modified for this research. Four items on PU were also adapted from the same study. Trust was conceptualized as a second-order latent variable consisting of benevolence, integrity and ability, which we measured by two, three and two items, respectively, adopted from McKnight, et al. [32] and Gefen, et al. [31]. We measured the "intention to adopt the mobile device" as the dependent variable in our study. Three items were adapted from Venkatesh, et al. [33] and Gefen and Straub [22].

The moderating effect can be operationalized in three ways [34]: product term regression analysis between two independent variables, subgroup analysis in structural equation modeling (SEM) and indicant product analysis in SEM. These three methods can be repositioned according to whether the moderator also functions as the independent variable. If the research focuses on the interaction effect between two independent variables, regression analysis or SEM is the appropriate method, whereas SEM is recommended more often due to measurement error. Among the SEM tools, LISREL and Amos refer to Ping's measurement modeling [35], whereas PLS requires the interaction component.

If the moderator is a contextual variable, subgroup analysis is the proper method. When the moderator is measured by a continuous variable, the data sample is separated into subgroups. By constraining the path coefficients of one group into the corresponding paths of another group, we were able to compare the path coefficients of the same path between the two subgroups. Our study took this approach, using the Multiple Group Analysis method in Amos 5.0.

We collected data on the services available and unavailable in the wire-line media (*i.e.*, mobile banking vs. "finding my friend," or LBS) from different samples because the registers for each service could be different. We first analyzed the path coefficients for the mobile banking service, and then applied the path coefficient for the mobile banking service to the same path as for the LBS service. We then conducted an SEM of the LBS service and compared the significance of the difference by a chi-square analysis between the free model and the constrained model of the LBS service. If this difference was significant, we were able

to conclude that the particular path was vulnerable to the availability of the wire-line media for the service delivery (*i.e.*, that the availability of the wire-line media moderated the significance of that particular path coefficient). The group with high trust in mobile banking could be separated from the low trust group with reference to the mean value of trust for both groups overall. To test the moderating effect of trust, we were able to repeat the above method for both the high and low trust groups for each path of the research model.

4.3. Descriptive Statistics, and Tests of Reliability and Validity

Table 1 addresses the descriptive data and reliability statistics for mobile banking and LBSs. Reliability was judged by Cronbach’s alpha and exceeded .7, signifying an appropriate level of reliability. Discriminant validity was secured because the values of the square root of the average variance explained (AVE) on the diagonal exceeded .5 as well as the values on the corresponding rows and columns of construct correlation.

Table 1. Statistics for Constructs, Reliability and Square Root of Average Variance Extracted (AVE)

	Reliability	Mean	SD	Correlation						
				PU	PEU	Intention	T-B	T-I	T-C	
Mobile phone banking services										
PU	.943	4.716	1.115	.868*						
PEU	.875	4.286	1.323	.440	.848*					
Intention	.900	3.900	1.583	.518	.484	.871*				
T-B	.713	3.383	1.223	.341	.317	.530	.762*			
T-I	.890	5.613	1.668	.433	.397	.580	.728	*.803		
T-C	.805	3.244	1.198	.258	.166	.457	.498	.614	.850*	
Location-based services										
PU	.942	3.487	1.287	.898*						
PEU	.866	4.993	1.083	.264	.834*					
Intention	.938	3.070	1.621	.640	.198	.919*				
T-B	.712	3.162	1.248	.416	.176	.530	.775*			
T-I	.867	3.860	1.126	.299	.267	.436	.660	.799*		
T-C	.778	3.308	1.237	.292	.129	.476	.575	.614	.811*	

PU, perceived usefulness; PEU, perceived ease of use; T-B, benevolence; T-I, integrity; T-C, competence.

* Square root of AVE

4.4. Goodness-of-fit and Hypothesis Tests

Various goodness-of-fit indices of mobile banking services were used to address the reasonable fit between our research model and the data (GFI = .958, AGFI = .929, TLI = .974, and RMSEA = .070). The same indices of LBSs were quite satisfactory as well (GFI = .951, AGFI = .915, TLI = .972, RMSEA = .075). These indices show that the research model used to test our hypotheses fit the data sufficiently well. Table 2 presents the results of the moderating effect of the availability of alternative media (H1). The service available in the wire-line media (*i.e.*, mobile banking) demonstrated a higher influence of PEU than did the service unavailable in the wire-line media (*i.e.*, LBSs), whereas the former addressed the relatively lower influence of PU compared with the latter. Therefore, H1a and H1b were supported.

Table 2. Differences between Mobile Phone Banking and “Finding my Friend” Services

Path	Mobile phone banking service				“Finding my friend” service				ΔDF	Δχ ²
	Non-std	Standard	S.E.	C.R.	Non-std	Standard	S.E.	C.R.		
PEU → PU	.370	.439	.038	9.726	.346	.282	.066	5.211	1	.104
PU → Intention	.484	.396	.054	8.915	.744	.641	.052	14.321	1	11.941*
PEU → Intention	.364	.353	.047	7.762	.071	.050	.064	1.110	1	13.457*

PEU, perceived ease of use; PU, perceived usefulness; * $p < .05$.

Table 3 presents the results for the secondary moderating effect of trust related to PEU and PU (H2). Table 3 compares the influence of PEU and PU between the high and low trust groups in both settings, the service available in the wire-line media (*i.e.*, mobile banking) and the service unavailable in the wire-line media (*i.e.*, LBS).

Table 3. Moderating Effect of Trust

Path	High level of trust				Low level of trust				ΔDF	Δχ ²
	Non-std	Standard	S.E.	C.R.	Non-std	Standard	S.E.	C.R.		
Mobile phone banking services										
PEU → PU	.346	.442	.052	6.695	.286	.336	.056	5.140	1	0.621
PU → Intention	.352	.289	.089	3.972	.438	.413	.065	6.704	1	0.680
PEU → Intention	.299	.314	.071	4.216	.277	.307	.057	4.890	1	1.209
Location-based (“finding my friend”) services										
PEU → PU	.346	.251	.111	3.113	.256	.240	.080	3.201	1	0.429
PU → Intention	.799	.624	.084	9.514	.567	.565	.066	8.537	1	4.661*
PEU → Intention	.112	.064	.117	.957	.021	.020	.070	.298	1	0.437

PEU, perceived ease of use; PU, perceived usefulness; * $p < .05$.

H2a is exposed to type II error (β). This error occurs when an influence that is actually significant is tested and appears to be nonsignificant in the statistical analysis because an exceptional sample was adopted for analysis. To prevent this type of error, researchers need to test whether the statistical power exceeds the criterion value of .5. If the value is greater than .5, the researcher can conclude that the type II error is trivial and statistical power is secured. Table 3 shows the difference in means between the two groups (.314 vs. .307) in effect size; further, the standard deviation (.071 vs. .057) and sample size (236 vs. 244) are considered to calculate the statistical power. The statistical power was calculated to be .667, exceeding .5 and demonstrating that the type II error was small. Therefore, H2a was supported.

We also compared the influence of PU between the high and low trust groups for the service unavailable in the wire-line media (*i.e.*, LBS) and found that the influence of PU on a service unavailable in the wire-line media was significantly higher in the high trust group than in the low trust group. This finding implies that PU is important when users are adopting a mobile service unavailable in the wire-line media, and that this effect is strengthened by high

trust. Therefore, H2b was supported.

5. Discussion

To understand and predict the adoption and diffusion of a new mobile SST, we need to understand its technological context. Research on technology adoption is often intended to identify the relationship between the intention to use the service and circumstantial factors, such as the objectives of technologies, user types (organizational or individual), first-time use or continuous use, and characteristics of the technology. We argue that for individual users of mobile communication devices, the availability of alternative media (users' exposure to services and the number of available alternative services via various service devices) often influences users' decision to adopt these new services on new media. Users also perceive risks when they use a new mobile communication service. A user's mental image of the perceived risks in services (i.e., the level of trust) will shape the conditions for the adoption and use of the service. In this research, we investigate the influences of the service attributes of the availability of alternative media and trust on the roles of PU and PEU in users' adoption of the SSTs. In particular, the focus of this research is to understand the moderating effect of the availability of alternative media in delivering services and user trust in services with regard to the relative importance of PU and PEU in their adoption of mobile services.

The results of our empirical research confirm that PEU is more important than PU for mobile services available in the wire-line media, and PU is a more significant factor than PEU for services unavailable in the wire-line media. Another interesting finding is that trust (in the service) works as a moderator for the innovative mobile services unavailable in the wire-line media. In this case, PU significantly appeals to the user group with high trust in services. However, trust in services does not play as great a moderating role for the mobile services available in the wire-line media.

These results contradict the assumption of the technology adoption models, that PU is always more important than PEU. That is, the relative importance of PEU and PU in the mobile service adoption should be reevaluated based on contingent factors, such as the availability of alternative media and users' level of trust in those services. Specifically, our findings suggest that when new mobile services are not available in alternative media, PU becomes a critical concern in the deployment of a service. In contrast, when new mobile services are available in alternative media, PEU becomes a major concern in the deployment of the service.

When service vendors launch a new service, they should appeal to its novel value in helping users complete their tasks or work in various settings. At the same time, service vendors need to improve the trustworthiness of their services (such as security, privacy and reliability) in the market through various efforts because improved trustworthiness in services can positively support their pronouncement regarding the usefulness of their new services. However, when an existing service is provided through new mobile media, service vendors may need to highlight the convenience and efficiency of the new media in order to access the same service. In this case, their extra efforts to improve the trustworthiness of services may not help. In short, marketing efforts and technical investments to enhance the trustworthiness of services are worthwhile only when new breakthrough services are launched in the market.

Given that the mobile communication industry is highly regulated and that multiple technology standards are competing in global markets, our study implies that a mobile communication service tested and accepted in one country may not ensure its successful adoption in other countries, where user experience with and exposure to mobile services are different. For instance, the difference in the intimacy level and experience with mobile

banking services in the United States and in Korea can result in discrete relationships among PEU, PU and users' intention to use the mobile service. Furthermore, mobile communication services running on different technology platforms may produce varying levels of trust in these new services among users as well as in their expectations of the new services. These differences can change the dynamics of the relationships among the constructs in our model. Hence, our research calls attention to the possibility that the significance of PU or PEU of the service, or both, is often determined by the attributes of services to be delivered by such media technologies.

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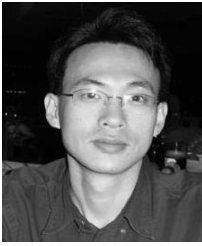
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