

Recommendations from Friends Anytime and Anywhere: Toward a Model of Contextual Offer and Consumption Values

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Abstract

The ubiquity and portability of mobile devices provide additional opportunities for information retrieval. People can easily access mobile applications anytime and anywhere when they need to acquire specific context-aware recommendations (contextual offer) from their friends. This study, thus, represents an initial attempt to understand users' acceptance of a mobile-based social reviews platform, where recommendations from friends can be obtained with mobile devices. Based on the consumption value theory, a theoretical model is proposed and empirically examined using survey data from 218 mobile users. The findings demonstrate that contextual offers based on users' profiles, access time, and geographic positions significantly predict their value perceptions (utilitarian, hedonic, and social), which, in turn, affect their intention to use a mobile social reviews platform. This study is also believed to provide some useful insights to both research and practice.

Introduction

TODAY, LOCATION-BASED service (LBS) can fulfill a wide range of user needs, from productivity and efficiency to social networking and digital entertainment. Examples of LBS include traffic alert, mixed-reality games, point-of-interest service, customer reviews platform, social networking apps, and so on. Compared with the traditional e-commerce conducted on the wired Internet, LBS relates to a unique information environment, where mobile users seek and acquire information based on the time, place, and context that they are experiencing.¹ The ubiquitous connectivity of LBS allows that location, situation, or event-related recommendation can be sent to targeted consumers to promote "point of purchase."² Point-of-purchase promotion is important, because it can reach the potential users at the time and place where decisions are made. In this regard, LBS-based recommendation overcomes the shortcomings of recommendations from desktop-based online Websites, and helps marketers realize the full potential of mobile marketing by providing the consumers with context-aware information.

More important, the combination of LBS, social networking, and user-generated content creates a new consumption mode where one can request and receive a context-dependent recommendation from his/her friends at the time and place

of need. Such kinds of services are often referred to as a mobile-based social reviews platform. Although LBS is widely recognized and accepted by mobile users, the theoretical understanding of this phenomenon is limited. In particular, the unique features that are specific to the mobile environment, such as the delivery of personalized, timely, and location-specific packets of information or service, are seldom examined from an empirical point of view in the literature.^{2,3} In addition, consumption value, which is made up of multiple value components, recently gained considerable attention in mobile commerce research.^{4,5} However, information from users' direct experience with LBS was neglected in the investigation of the antecedents of mobile users' value perceptions.⁶ In order to assess the role of context-dependent recommendations in the adoption and use of a mobile-based social reviews platform, this study examines the three aspects of contextual offer (localization, immediacy, and customization), and develops a theoretical framework from the consumption value perspective.

Research Model

The research model, as shown in Figure 1, is based on consumption value theory and incorporates contextual offer as the antecedents. The constructs and their relationships are discussed in detail in the following sections.

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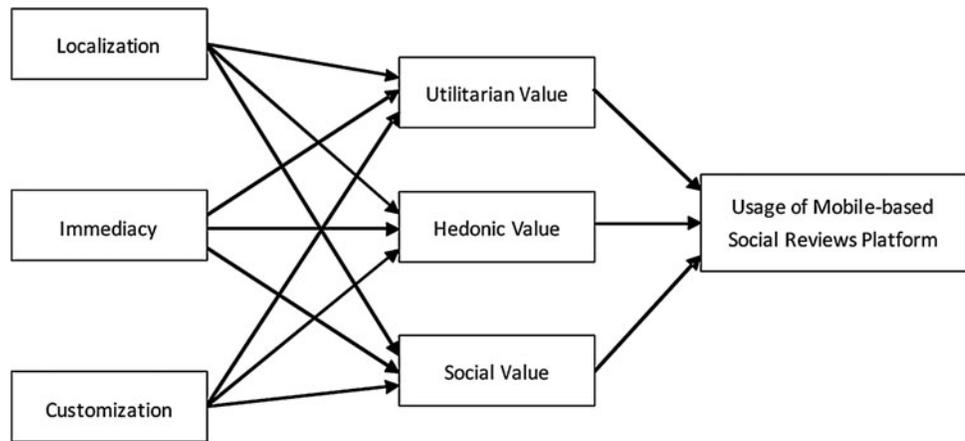


FIG. 1. Research model.

The role of value perceptions

Sheth et al.⁷ first proposed the theory of consumption value based on the implicit assumption that the choices which consumers make are dependent on their perceived values. This theory was further empirically examined in marketing and other disciplines.^{8,9} Recently, the consumption value theory has gained increasing attention in mobile commerce research.^{5,6} For example, Kim and Han⁶ demonstrated that information from relevant others and from mass media significantly predicted the perceptions of customer value obtained from mobile data service. Turel et al.⁵ found that overall perceived value of mobile phone ringtones successfully predicted usage intention of ringtones and positive word of mouth. Kim and Oh¹⁰ further identified utilitarian and hedonic values as the key predictors of mobile data service acceptance and continuance.

In concordance with previous studies, perceived value is regarded as a multi-dimensional construct and includes utilitarian, hedonic, and social dimensions in the current study. The three dimensions are often considered the key factors determining usage intention of mobile service, and they are complementary in nature. In this regard, an individual may evaluate a particular product/service based on a maximization view of overall perceived value.⁶ Utilitarian value is derived from the functions performed by a mobile service, and is closely related to the effectiveness and efficacy that are engendered with the use of this service.¹¹ Mobile information services can meet the utilitarian purposes in different ways. For example, people can use the social and location-based mobile apps to pursue some task-related ends, such as seeking the most recommended restaurant nearby from their friends, or receiving the customized recommendation based on their current position, time, and preference. In this regard, utilitarian value should predict usage intention of a mobile social reviews platform, because users make a rational and balanced assessment of the functional benefits and costs of using this service.

H1: Utilitarian value has a positive impact on intention to use a mobile-based social reviews platform.

Hedonic value is derived from users' subjective feelings of the affective state that stems from the use of a mobile service.¹¹ Mobile information services not only satisfy the functional purposes, but also can be used for some non-

instrumental purposes, such as recreation, pleasure, or interesting experiences.¹² In the current study, the use of a mobile social reviews platform will help the users communicate with their friends, and it thus arouses their emotional feelings of fun and entertainment.

H2: Hedonic value has a positive impact on intention to use a mobile-based social reviews platform.

Social value is derived from the social gains received from the use of a mobile information service, and is often associated with one or more specific social groups.⁷ In this study, recommendation from one's friends on the mobile social networking platform will strengthen social interaction among the user and his/her peers. On the other hand, it is also believed that the use of mobile-based digital artifacts can result in individuals being characterized as innovative, trendy, and sophisticated.⁵ This will enhance one's social image and let him or her to be looked on as the role model by the reference groups. The three dimensions of consumption values are not mutually exclusive but complementary instead, and, therefore, we have the following hypotheses.

H3: Social value has a positive impact on intention to use a mobile-based social reviews platform.

The role of contextual offer

Recommendation based on users' context is often regarded as a key service provided by mobile applications. People can access such applications anytime and anywhere when they need to acquire specific information. In this regard, previous studies have used spatiality, temporality, and contextuality to characterize a mobile setting,¹³ and labeled this phenomenon as "situational dependency"¹⁴ or "contextual offer."² In particular, contextual offer often refers to the extent to which the received recommendation is contextually relevant based on users' position, time, and profile information.² Following this line of research, contextual offer is conceptualized as a three-dimensional factor, involving localization (access position), immediacy (access time), and customization (user profiles) in this study. Localization refers to one's perceptions that the recommendation is specific to his or her current location, immediacy represents one's perceptions of the degree to which the information is time sensitive, and customization means

one's perception of how well the recommendation is customized based on his or her real identity and profile.

The value of mobile information service can be achieved from the time at which the service is used and in this regard, the value perceptions are likely maximized when access time, access position, and users' anticipated needs are considered together.¹⁵ Previous studies on contextual offer² and contextual perceived value¹⁶ have demonstrated that information which is offered at the point of need would enhance users' positive attitude toward the mobile data service. In the current study, we extend previous work by investigating the impacts of the three dimensions of contextual offer on users' diversified value perceptions toward the mobile-based social reviews platform.

In this study, recommendation based on users' identities, access time, and access positions will help filter irrelevant messages, reduce information overload, and, therefore, avoid information flood faced by mobile users and minimize their resistance toward mobile data service.¹⁷ In this regard, contextual offer, which represents the recommendation fitting users' particular needs and specific geographical and temporal situations, will increase the perceptions of mobile service usefulness,¹⁶ and further improve their utilitarian value perceptions.⁶ Therefore, it is expected that localization, immediacy, and customization of the recommendation obtained from the mobile social reviews platform will influence utilitarian value of the platform.

H4: Localization of the recommendation has a positive impact on utilitarian value of the platform.

H5: Immediacy of the recommendation has a positive impact on utilitarian value of the platform.

H6: Customization of the recommendation has a positive impact on utilitarian value of the platform.

Hedonic value occurs in this study when the use of a mobile social reviews platform is pleasurable and rewarding in itself.⁶ Since people mostly use mobile applications to meet some personal needs, if the recommendation from the friends is based on where they are, what they are doing now, and what they are interested in at the point of need, people may experience emotional reactions, such as liking, joy, excitement, and happiness.² Such contextually relevant recommendation, thus, will arouse users' feeling that using the reviews platform is an interesting experience. Based on the discussion given earlier, we hypothesized that the location-specific, timely, and customized information will influence users' perceptions with regard to the hedonic value of the reviews platform.

H7: Localization of the recommendation has a positive impact on hedonic value of the platform.

H8: Immediacy of the recommendation has a positive impact on hedonic value of the platform.

H9: Customization of the recommendation has a positive impact on hedonic value of the platform.

Social value can be achieved if social image and status are enhanced through the use of the mobile social reviews platform.¹⁸ Recent studies on electronic word of mouth have revealed that the online opinion platform provides an easy way for users to obtain collaboratively filtered recommendation related to the best products and services.¹⁹

With regard to the use of mobile devices, the recommendation is closely integrated with users' contexts and further provides them with more precise information. This will provide users with the power to quickly choose the best services around them. In this regard, users may be regarded as trendy and innovative by their friends, colleagues, and acquaintances. In addition, the users may also receive substantial social gains especially when they are out with a group of people. For example, consider a situation when a user is going shopping with his or her friends, and they would like to find a place to have a rest, customized and timely recommendation based on their geographic position will help the user earn social approval and make a good impression on his or her friends. Based on the discussion given earlier, the contextual offer will effectively enhance users' perceptions of the social value of the mobile-based social reviews platform.

H10: Localization of the recommendation has a positive impact on social value of the platform.

H11: Immediacy of the recommendation has a positive impact on social value of the platform.

H12: Customization of the recommendation has a positive impact on social value of the platform.

Research Methodology

Data collection

Mobile Dianping.com was selected as the subject of our interest. Initiated in 2003, Dianping.com is one of the most famous customer opinion and review Websites in Mainland China. As an extension of its local information service to the mobile platforms, Dianping.com launched the mobile Internet service in 2008. As of December 2011, Dianping.com has more than 42 million active users posting 20 million reviews monthly on more than 1.5 million vendors. Mobile Dianping.com provides both customer reviews and social networking services, and the users can follow the updates from their friends to obtain recommendations fitted to their contexts and preferences. Figure 2 shows the screenshots of mobile Dianping.com. The target respondents of this study are users who have used mobile Dianping.com with their friends to obtain recommendations regarding local vendors. A web-based online survey was used, and invitation messages with a URL to the online questionnaire were distributed among potential respondents. The respondents were screened first to ensure that they had some previous experience with mobile Dianping.com. Before starting data collection, the respondents were also asked to recall their recent experiences with the mobile service.

Measures

All the constructs in this study were measured using multi-item scales adapted from rigorously validated measures in previous studies (as shown in Table 1). Minor changes in the wording were made so as to fit the current investigation context of mobile Dianping.com. In addition, measurements for all the constructs were phrased on a seven-point Likert scale, anchored from "1 = strongly disagree" and "7 = strongly agree."



FIG. 2. Screenshots of mobile Dianping.

Demographic characteristics

The final sample consists of a total of 218 valid responses, out of which 118 were male (54.13 percent) and 100 were female (45.87 percent). A large majority of the respondents (71.10 percent) were aged between 20 and 30. Approximately

79.82 percent of the respondents attained education level of undergraduate or above. Generally, nearly 90 percent of the respondents used mobile Dianping.com at least once per week, and 51.8 percent of them stayed on the mobile application for 6–15 minutes each time they visited. Table 2 describes the demographic profile of the respondents.

TABLE 1. CONSTRUCTS AND MEASURES

Constructs	Measures	Sources
Localization (LOC)	LOC1: Mobile Dianping.com provides me information and service based on my location. LOC2: Mobile Dianping.com provides me location-specific packets of information. LOC3: I can receive location sensitive information from Mobile Dianping.com.	Lee ² and Lee et al. ³
Immediacy (IMD)	IMD1: Mobile Dianping.com provides me real-time information and service. IMD2: Mobile Dianping.com offers timely packets of information to me. IMD3: I can receive time-sensitive information from Mobile Dianping.com.	Lee ² and Lee et al. ³
Customization (CSTM)	CSTM1: I feel that my personal needs have been met when using mobile Dianping.com. CSTM2: Mobile Dianping.com provides me with information according to my preferences. CSTM3: The information that the mobile Dianping.com sends to me are tailored to my situation.	Lee ²
Utilitarian value (UV)	UV1: Compared with the effort I need to put in, the use of mobile Dianping.com would be beneficial to me. UV2: Compared with the time I need to spend, the use of mobile Dianping.com would be worthwhile to me. UV3: Overall, the use of mobile Dianping.com would deliver me good value.	Kim and Han ⁶
Hedonic value (HV)	HV1: Mobile Dianping.com would be one that I enjoy. HV2: Mobile Dianping.com would be one that I feel relaxed about using. HV3: Mobile Dianping.com would make me feel good.	Kim and Han ⁶
Social value (SV)	SV1: The use of mobile Dianping.com improves the way I am perceived. SV2: The fact I use mobile Dianping.com makes a good impression on other people. SV3: The use of mobile Dianping.com gives me social approval.	Turel et al. ⁵
Intention to use (INTU)	INTU1: I intend to use mobile Dianping.com in the future. INTU2: I expect that I would use mobile Dianping.com in the future. INTU3: I plan to use mobile Dianping.com in the future.	Kim and Han ⁶

TABLE 2. DEMOGRAPHIC PROFILE OF THE RESPONDENTS

Measure	Value	Frequency (N=218)	Percentage (%)
Gender	Male	118	54.13
	Female	100	45.87
Age	<20	1	0.46
	20–25	68	31.19
	26–30	87	39.91
	>30	62	28.44
Education level	High school and below	4	1.83
	Junior college	40	18.35
	Undergraduate	142	65.14
	Post graduate and above	32	14.68
Internet experience (years)	≤2	2	0.92
	3–4	13	5.96
	5–6	31	14.22
	7–8	51	23.39
	>8	121	55.50
Experience with mobile Dianping.com (months)	≤3	65	29.82
	4–6	62	28.44
	7–9	47	21.56
	10–12	23	10.55
Frequency of using mobile Dianping.com	>12	21	9.63
	Less than once per week	23	10.55
	Once per week	36	16.51
	2–3 times per week	82	37.61
	4–5 times per week	32	14.68
Duration of time using mobile Dianping.com for each visit (minutes)	Once per day	17	7.80
	Several times per day	28	12.84
	≤5	21	9.63
Average expenditure on mobile phone per month (RMB)	6–15	112	51.38
	16–25	52	23.85
	26–35	21	9.63
	>35	12	5.50
	≤15	5	2.29
Average expenditure on mobile phone per month (RMB)	16–30	25	11.47
	31–45	40	18.35
	46–60	57	26.15
	61–75	29	13.30
	76–90	18	8.26
	>90	44	20.18

1 RMB=0.1553 USD.

Results

PLS-Graph version 3.00 was used to test the proposed research framework. The partial least squares (PLS) procedure²⁰ is a second-generation multivariate technique that can assess the measurement model and the structural model simultaneously in one operation. Different from the covariance-based structural equation modeling (SEM) approach (i.e., LISREL), which is more suitable for theory testing, the component-based SEM approach (i.e., PLS) is more predictive oriented²¹ and is considered the most appropriate in the initial exploratory stages of theory development.²² As discussed earlier, this study investigates a relatively new phenomenon of mobile social networking that is exploratory in nature. Based

TABLE 3. PSYCHOMETRIC PROPERTIES

Construct	Item	Loading	t-Value	Mean	SD
Localization (LOC)	LOC1	0.90	53.80	5.27	1.10
	LOC2	0.88	45.74	5.31	1.02
	LOC3	0.90	56.77	5.27	1.01
Immediacy (IMD)	IMD1	0.93	97.09	5.42	1.07
	IMD2	0.93	90.75	5.39	1.12
	IMD3	0.91	73.94	5.39	1.08
Customization (CSTM)	CSTM1	0.86	35.50	5.42	1.07
	CSTM2	0.90	53.96	5.29	1.06
	CSTM3	0.88	41.27	5.26	1.11
Utilitarian value (UV)	UV1	0.91	60.00	5.35	1.09
	UV2	0.93	83.34	5.35	1.06
	UV3	0.92	82.43	5.51	1.07
Hedonic value (HV)	HV1	0.90	54.07	5.56	1.00
	HV2	0.93	82.32	5.42	1.07
	HV3	0.93	78.99	5.37	1.14
Social value (SV)	SV1	0.92	62.26	5.15	1.27
	SV2	0.95	125.87	5.10	1.23
	SV3	0.92	84.21	5.16	1.31
Intention to use (INTU)	INTU1	0.90	45.42	5.54	1.18
	INTU2	0.93	100.27	5.66	1.07
	INTU3	0.92	77.05	5.66	1.06

CR=composite reliability; AVE=average variance extracted.

on this reasoning, we have chosen PLS as the primary data analysis technique. In addition, in comparison with covariance-based SEM, PLS is more robust with fewer statistical identification issues, and suitable for models with relatively small samples,²³ which is also the case in our study. Following the two-step analytical procedures,²⁴ we first examine the measurement model and then the structural model.

Measurement model

Convergent validity indicates the extent to which the measures of a construct that are theoretical related are also related in reality. Table 3 summarizes loadings, the associated t-value, composite reliability, and average variance extracted of the measures. All the items load significantly on their anticipated constructs, and all the measures exceed the recommended thresholds.

Discriminant validity indicates the extent to which a given latent construct is different from other latent constructs. Table 4 shows the correlation matrix of the constructs and the square root of the average variance extracted for each construct. The results demonstrate a satisfactory discriminant validity of the measurements.

Structural model

The results of the analysis are depicted in Figure 3. Tests of significance of all paths were performed using the bootstrap re-sampling procedure. The model accounts for 59.7 percent of the variance in intention to use the mobile-based social

TABLE 4. CORRELATION MATRIX OF THE CONSTRUCTS

	LOC	IMD	CSTM	UV	HV	SV	INTU
Localization (LOC)	0.892						
Immediacy (IMD)	0.781	0.925					
Customization (CSTM)	0.802	0.759	0.880				
Utilitarian value (UV)	0.714	0.751	0.762	0.920			
Hedonic value (HV)	0.746	0.790	0.765	0.798	0.920		
Social value (SV)	0.660	0.703	0.692	0.640	0.795	0.930	
Intention to use (INTU)	0.643	0.703	0.665	0.745	0.717	0.562	0.916

The bold numbers in the diagonal row are square roots of the average variance extracted.

reviews platform, 65.4 percent of the variance in utilitarian value, 69.6 percent of the variance in hedonic value, and 55.7 percent of the variance in social value.

Discussion and Conclusion

The objective of this study is to explore the effects of contextual offer on mobile social reviews platform usage. With integrating consumption value theory and the unique features of mobile technology, a research model is proposed and empirically examined. The results support most of the hypotheses. Discussion of the limitations of this study and the implications for both research and practice are presented in the following sections.

Limitations

Before highlighting the implications of this study, we first discuss the possible limitations that could be addressed in future research. First of all, the research model explains 59.7 percent of the variance in usage intention toward the mobile social reviews platform. Since we have adopted a screen question to ensure that all respondents have some previous experience with mobile Dianping, the usage intention, thus, should be considered a form of continued usage. In this regard, we suggest that future research investigates this phenomenon using continuance-related theories, such as expectation confirmation theory. In addition, although an R-square figure of 59.7 percent in social science research is considered very adequate, future research should, nonetheless, extend this line of research and expand our initial findings by examining factors, such as satisfaction, confirmation, and habit,

which are important to explain IT continuance. Second, we have chosen a web-based online survey for data collection. However, the appropriateness of a web-based survey in conducting mobile-based research is controversial. In this regard, future studies may consider distributing the questionnaire via mobile devices to further improve the validity of the responses.

Implications for research

This study contributes to the existing literature in two important ways. First, this study proposed a context-aware model and empirically examined it with survey data from mobile users. The results of this study demonstrated that friends-voted recommendations based on users' current contexts and specific preferences would enhance their consumption value perceptions, which may further lead to mobile social reviews platform usage intention. In particular, it is also necessary to realize that most of the respondents were frequent users of mobile Dianping.com. The demographic analysis showed that nearly 70 percent of the answerers had been using the mobile service for more than 3 months, and around 90 percent of them had been accessing the service at least once per week. In this sense, this study provides useful and unique insights into the mechanisms that promote continued and sustained use of mobile applications. With the proliferation and expansion of mobile computing, the notion of context has attracted increasing attention and raised a number of issues and challenges. In this regard, this study represents an initial attempt to understand this phenomenon.

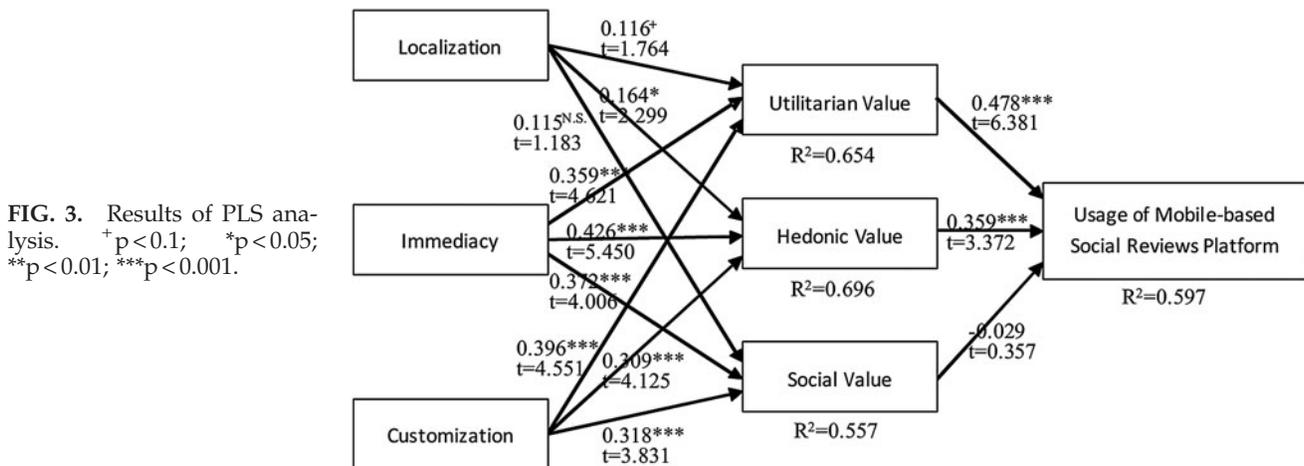


FIG. 3. Results of PLS analysis. ⁺p < 0.1; *p < 0.05; **p < 0.01; ***p < 0.001.

Second, as a valuable contribution to our current understanding of consumption value theory, this study suggested that utilitarian and hedonic values dominate the usage of the mobile social reviews platform, which is often used to achieve some personal information needs. Utilitarian and hedonic values are also the most commonly used dimensions of consumption value, and represent both extrinsic and intrinsic motivations that lead people to engage in recommendation-seeking behavior. Social value was not significant in the current study, and this may be due to the fact that most of the friends on mobile Dianping.com were not those in one's actual life. In this regard, we believe that social value should play a greater role in some social-networking-based mobile services, such as Foursquare. The real-world social relations make the social value of mobile services more explicit, and we hope this study encourages future research on this important topic.

Implications for practice

The rapid spread and expansion of mobile phone and other mobile computing devices have created a new channel for ubiquitous information access. With the increasing availability of LBSs in various forms, some recent studies called for improvement in mobile service from a location-based orientation (time and place) to a relevance-based orientation (time, place, and needs).¹⁰ In this regard, the mobile information service provider should take users' anticipated needs or preferences into account, beyond the access time and spatial location of its users. According to the findings of this study, location-specific, time-sensitive, and customized information is greatly valued by, and can be delivered to, the users through a social-networking-based LBS platform, which may capture users' preferences and actual needs more efficiently than can an algorithm. The results of this study also demonstrated that young and well-educated people are the heavy users of the mobile social reviews platform. In fact, it has now become a natural way for them to search for and discover information. Practitioners, thus, should develop new marketing strategies by integrating users' current situations and future needs into their respective social networks, and exploit the full potential of social mobile marketing by offering contextually relevant socialized recommendations.

Practitioners also should pay special attention to the utilitarian and hedonic values obtained from the use of the mobile-based social reviews platform. In this regard, information service providers need to not only offer the users useful, effortless, and highly personalized information, but also let the usage experience become interesting and interactive. Some social elements, such as collaborative filtering mechanism, badge, and social networking, are also important to improve value perceptions toward the social benefits.

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References

1. Lee YE, Benbasat I. A framework for the study of customer interface design for mobile commerce. *International Journal of Electronic Commerce* 2004; 8:79–102.
2. Lee T. The impact of perceptions of interactivity on customer trust and transaction intentions in mobile commerce. *Journal of Electronic Commerce Research* 2005; 6:165–180.
3. Lee SM, Jeon S, Kim ST. Mobile internet services: assessment of quality and satisfaction from the customer's perspective. *International Journal of Services Sciences* 2011; 4:57–75.
4. Kim HW, Chan HC, Gupta S. Value-based adoption of mobile internet: an empirical investigation. *Decision Support Systems* 2007; 43:111–126.
5. Turel O, Serenko A, Bontis N. User acceptance of hedonic digital artifacts: a theory of consumption values perspective. *Information and Management* 2010; 47:53–59.
6. Kim B, Han I. What drives the adoption of mobile data services? An approach from a value perspective. *Journal of Information Technology* 2009; 24:35–45.
7. Sheth JN, Newman BI, Gross BL. Why we buy what we buy: a theory of consumption values. *Journal of Business Research* 1991; 22:159–170.
8. Sánchez-Fernández R, Iniesta-Bonillo M. The concept of perceived value: a systematic review of the research. *Marketing Theory* 2007; 7:427–451.
9. Sweeney JC, Soutar GN. Consumer perceived value: the development of a multiple item scale. *Journal of Retailing* 2001; 77:203–220.
10. Kim B, Oh J. The difference of determinants of acceptance and continuance of mobile data services: a value perspective. *Expert Systems with Applications* 2011; 38:1798–1804.
11. Babin BJ, Darden WR, Griffin M. Work and/or fun: measuring hedonic and utilitarian shopping value. *Journal of Consumer Research* 1994; 20:644–656.
12. Hong SJ, Tam KY. Understanding the adoption of multi-purpose information appliances: the case of mobile data services. *Information Systems Research* 2006; 17:162–179.
13. Liang TP, Yeh YH. Effect of use contexts on the continuous use of mobile services: the case of mobile games. *Personal and Ubiquitous Computing* 2011; 15:187–196.
14. Figge S. Situation-dependent services—a challenge for mobile network operators. *Journal of Business Research* 2004; 57:1416–1422.
15. Malhotra A, Malhotra CK. A relevancy-based services view for driving adoption of wireless web services in the US. *Communications of the ACM* 2009; 52:130–134.
16. Lee TM, Jun JK. The role of contextual marketing offer in mobile commerce acceptance: comparison between mobile commerce users and nonusers. *International Journal of Mobile Communications* 2007; 5:339–356.
17. Sanford C, Oh H. The role of user resistance in the adoption of a mobile data service. *Cyberpsychology, Behavior, and Social Networking* 2010; 13:663–672.
18. Kim HW, Gupta S, Koh J. Investigating the intention to purchase digital items in social networking communities: a

- customer value perspective. *Information and Management* 2011; 48:228–234.
19. Cheung CMK, Lee MKO, Rabjohn N. The impact of electronic word-of-mouth: the adoption of online opinions in online customer communities. *Internet Research* 2008; 18:229–247.
 20. Wold H. (1989) Introduction to the second generation of multivariate analysis. In Wold H, ed. *Theoretical empiricism: a general rationale for scientific model-building*. New York: Paragon House, pp. 7–11.
 21. Joreskog KG, Wold H. (1982) The ML and PLS techniques for modeling with latent variables: historical and comparative aspects. In Joreskog KG, Wold H, eds. *Systems under indirect observation: causality, structure, prediction* (Vol. I). Amsterdam: North-Holland, pp. 263–270.
 22. Chin WW. (1998) The partial least squares approach to structural equation modeling. In Marcoulides GA, ed. *Modern methods for business research*. Mahway, NJ: Lawrence Erlbaum Associates, pp. 295–336.
 23. Hair JF, Ringle CM, Sarstedt M. PLS-SEM: indeed a silver bullet. *The Journal of Marketing Theory and Practice* 2011; 19:139–152.
 24. Hair JF, Black WC, Babin BJ, et al. (2009) *Multivariate data analysis*. 7th ed. Upper Saddle River, NJ: Prentice Hall.

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