A Cross-Cultural Comparison Analysis Of Customer Attitudes Toward Mobile Phone Services In The U.S. And Korea

Yoon C. Cho, Ph.D., KDI School of Public Policy and Management, Korea

ABSTRACT

Mobile Commerce (m-commerce), as a medium, plays an important role in everyday human life by setting up a hyper media environment that provides a higher level of interactive services. Due to various reasons, including service availability and, personal needs, customers' attitudes and level of satisfaction concerning the mobile phone service are diverse. Therefore, the purpose of this study is to investigate factors that affect customer satisfaction with the mobile phone services. In particular, this study measured customer attitudes toward the basic services vs. value-added services. For the attitudes toward the basic services, this study explored the effects of perception on i) the use of various functions; ii) convenience; iii) ease of connection; and iv) the entertainment factor with basic services, in relation to m-satisfaction. For the attitudes toward the value-added services, this study measured i) customers' expectations and satisfaction in relation to their future usage in the U.S. market and ii) customers' satisfaction with the current usage of such functions in the Korean market. Surveys were conducted in both countries and the results revealed the different attitudes affecting mobile phone usage in the U.S. vs. Korea. This study also found that user attitudes toward the mobile phone business significantly impact the level of m-satisfaction. This study then identifies some managerial implications and offers suggestions to m-businesses.

Keywords: M-Commerce, M-Satisfaction, Mobile Mediated Communication, Basic Services, Value-Added Services, M-commerce CRM.

I.   INTRODUCTION

oday's media play a significant role by providing information, matching with customers/businesses, and building relationships. This paper is based on the premise that the current brick-and-mortar/physical product/service/knowledge /information exchanges that are prevalent today and have been a part of most human cultures for so long will not disappear overnight. With advanced technology, the application of Value-Added Services (VAS), such as payment systems, commerce, and Social Networking Systems (SNSs), has been enhanced. Such value-added services have been utilized throughout electronic (e-) or mobile Commerce (m-commerce), as those are developed by identifying Hypermedia Computer- or Mobile-Mediated Environments (HCME or HMME). A previous study by Cho (2008) stated that m-commerce has been developed as a medium in a Hypermedia Mobile-Mediated Environments (HMMEs[1]) and replicates all of the activities of computer-mediated communication systems such as accessing email messenger, chatting, and social networking systems, watching TV (i.e., DMB – Digital Multi-media Broadcasting system), and downloading coupons, etc. As addressed in the previous study (Cho 2008a), such environments have performed as intermediaries when customers transacted virtual shopping experiences via telepresence in the market-space.

---

[1] The term has been modified from HCMC (Hypermedia Computer-Mediated Environment), proposed by Hoffman, Novak, and Chattered (1995).
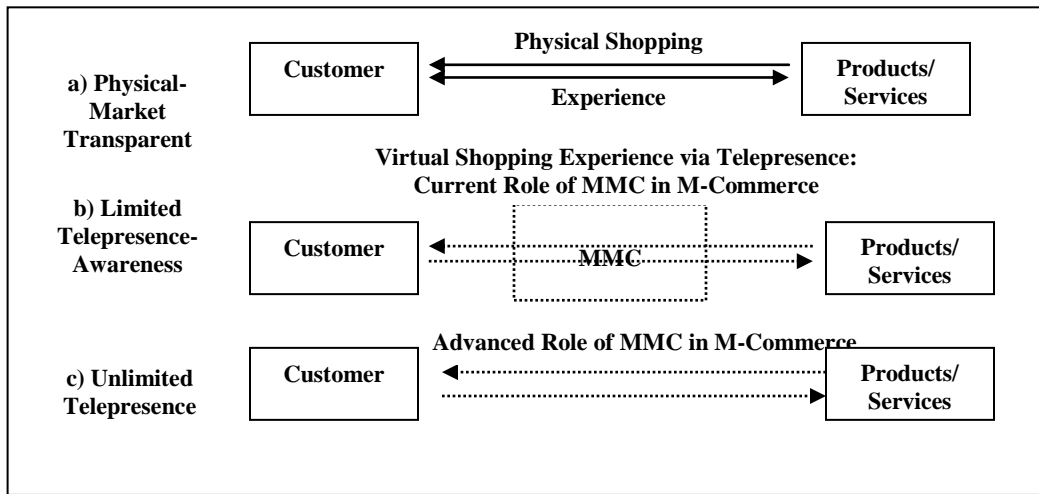
Figure 1: The Evolving Role of Mobile Mediated Communication (MMC) in M-Commerce (Modified from Cho 2008)

According to Durlacher (1999), m-commerce is defined as "any transaction with a monetary value that is conducted via a mobile telecommuncations network." With an internet-enabled service, m-commerce extends the service not just "connecting person to person" but also "sharing information and selling/buying products/services." M-commerce has improved its position as a device without cable that provides integrated services that are available in both physical market place and virtual market space. Therefore, Mobile-Mediated Communication (MMC) as an intermediary is becoming more important by providing basic services (e.g., talking, obtaining information, etc.) to value added services (e.g., paying transit fees, downloading coupons, etc.). As shown in Figure 1, MMCs play a role as intermediaries if customers conduct virtual experience via telepresence in the mobile environment (Figure 1; Cho 2008a). With the development of advanced technologies (c), MMC provides unlimited interactive services, compared to physical services or MMCs with limited interaction (a & b; Cho 2008a).

The author of this paper considers that m-commerce as a tool in the collaborative media environment is appropriate and much more specific than many of the uses of collaborative systems in other areas (Cho 2008a). This study posits that customers' technology adoption rate of, and usage behavior in m-commerce, is diverse due to various reasons such as personal characteristics and market environments. Particularly, this study segmented mobile phone customers into two groups, based on the usage behavior; i) those who adopt basic services and ii) those who adopt value-added services. Based on the segmentation, this study investigated customers' attitudes toward mobile phone usage and m-satisfaction. Detailed research questions included the impact of factors within the basic services such as i) use of functions, ii) ease of connection; iii) convenience; and iv) the entertainment factor toward overall m-satisfaction. Further, this study also explored the impact of factors within value-added services, such as i) downloading coupons; ii) downloading books, and iii) watching TV shows toward overall m-satisfaction. In this paper, the author of this study explored a comparison analysis of customer usage and attitudes toward m-commerce in the U.S. vs. Korean markets.

Previous studies have conducted comparison analyses of attitudes and behavior in different markets. A study by Cho (2008) measured factors that affect customers' mobile phone usage behavior in two markets – the U.S. and Korea – and found different results. Studies by Schwartz (1994) and Hofstede (1991) addressed that people's behavior is diverse based on how customers perceive "desirable" or "desired" values. Hofstede also raised questions to explore people's behavioral preference; a preferred or actual state of being (Mooiji 1994). A previous study by Mooiji (1994) stated that, when considering penetration rates, the impacts of media are different across countries. Studies raised questions about whether the U.S. market is, relatively, in its early stages of m-commerce development (Chew 2006; Cho 2008b) while the development of other medium was in much more advanced stages relatively. Previous studies (Chew 2006) also addressed the fact that the U.S. was a pioneer in the era of the development of the Internet and e-commerce, yet today the U.S. is only in its early stages of m-commerce development and adoption

compared to many European and Asian countries (e.g., Sweden, Japan, and Korea). Markets such as Finland, Japan, and Korea markets are in the mature stages of m-commerce development. Various studies have investigated user attitudes or behavior toward m-businesses in foreign markets (see, e.g., Lim, Widdows, and Park 2006). However, few studies have explored user attitudes or behavior toward m-businesses by comparing two countries.

II.   HYPOTHESES DEVELOPMENT

As defined in various studies (see e.g., Cronin 2003), m-commerce is the use of mobile handheld devices to communicate, inform, transact and entertain using text and data via connection to public and private networks. With the development of new technology, available mobile services have increased. Betrand et al. (2001) also predicted that the increasing convergence of mobile telecommunications and the internet, as well as the growing number of value-added services for mobile devices, will result in a new e-commerce boom. Therefore, the perception of mobile devices in customers' minds has also changed from "a connecting tool" to "a valuable tool," though this depends on the adoption rate (Figure 2). As shown in figure 2, mobile services now provide a growing range of services, from basic functions, such as voice, text-messages, internet access, to advanced value-added services such as watching TV programs. All these are available with technological support that meets customers' needs. Such needs have been encouraged by online experiences, as customers' usage and buying tendencies are similar in both computer-mediated and mobile mediated environments.
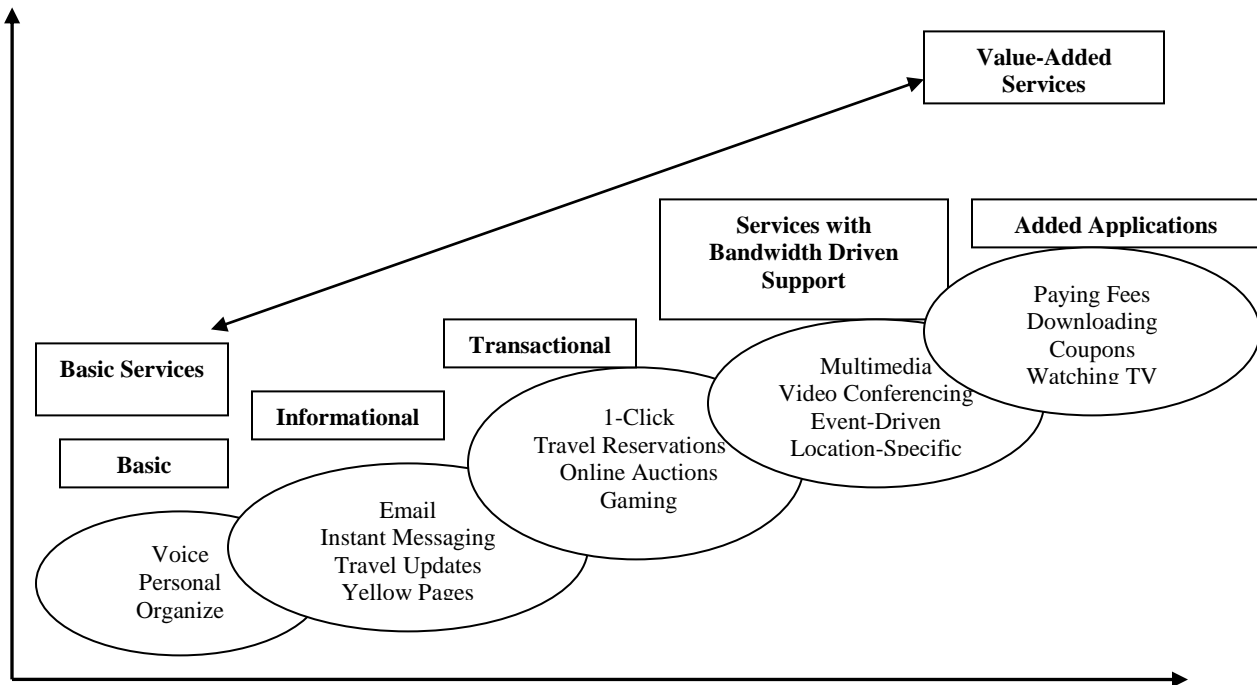

Figure 2: The Evolution of Mobile Services (Modified from Betrand et al. 2001)

With the evolution of technology, m-commerce has provided most of the services that are provided by electronic commerce (e-commerce). Similar to e-business, m-commerce, m-business, and the emergent m-industry have been viewed as a "virtualization" of product, service, knowledge, or information exchanges with the presence of information technology (Cho 2008b). Previous studies state that m-commerce is thought to be the next big phase in technology involvement following the Electronic Commerce (E-Commerce) era (Chew 2006). This study posits that there are opportunities to increase more diverse marketing strategies and theories in order to replicate services that are available in online environments. As O'Daniel (1999) stated for e-commerce, a model of value-added roles must account for the economic, managerial, and marketing perspectives, as well as the evolution of methods to circumvent the twin inconveniences of two-dimensional space and the inherent limitations of computer networks.

Uses and gratification theory (Herzog 1944; McGuire 1974; Luo 2002) has been applied in this study to explain users' attitudes and user satisfaction toward m-commerce usages. Well-known satisfaction theories that have explained consumer attitudes to brick-and-mortar businesses, such as contrast theory (Engel and Blackwell 1982; Cardozo 1965) and dissonance theory (Festinger 1957), have been applied in this study of m-commerce/businesses. *Uses and gratification theory* has been developed from research in the context of traditional media, such as TV, magazines, or radio (Herzog 1944; McGuire 1974). It has been extended to research in the context of the online and mobile environment (e.g., Luo 2002). The present study has been supported by another theory, the *Theory of Reasoned Action* (TRA), which suggests that individuals' performance of a given behavior is primarily determined by their intention to perform that behavior (Ajzen and Fishbein, 1980). The author in this paper expects that model explains why mobile phone users' willingness to adopt sercices how their internal beliefs and attitudes affect their usage behavior (Davis 1989; DeSantics 1983; Ives, Olson, and Baroudi 1983). Diffusion of innovation theory (Rogers 1995) that considered the process by which new ideas and products become accepted by a society also support this study to explain the mobile phone usage behavior that users/customers adopt new technology by considering factors, such as innovation, over time, communication through certain channels, and among the members of a social system.

Factors proposed in this study include the use of various functions, ease of connection, the customers' perception of convenience, and the service's entertainment factor (Figure 3). For the attitudes toward basic services that are available in both markets (i.e., U.S. vs. Korea), this study measures the impacts of such factors that can affect m-satisfaction, though such impacts might be different in the two markets, the U.S. vs. Korea. For the attitudes toward the value-added services that are available in Korea but limited in the U.S. market, this study measured attitudes toward m-satisfaction (in the case of the Korean market) and expectations (in the case of the U.S. market).
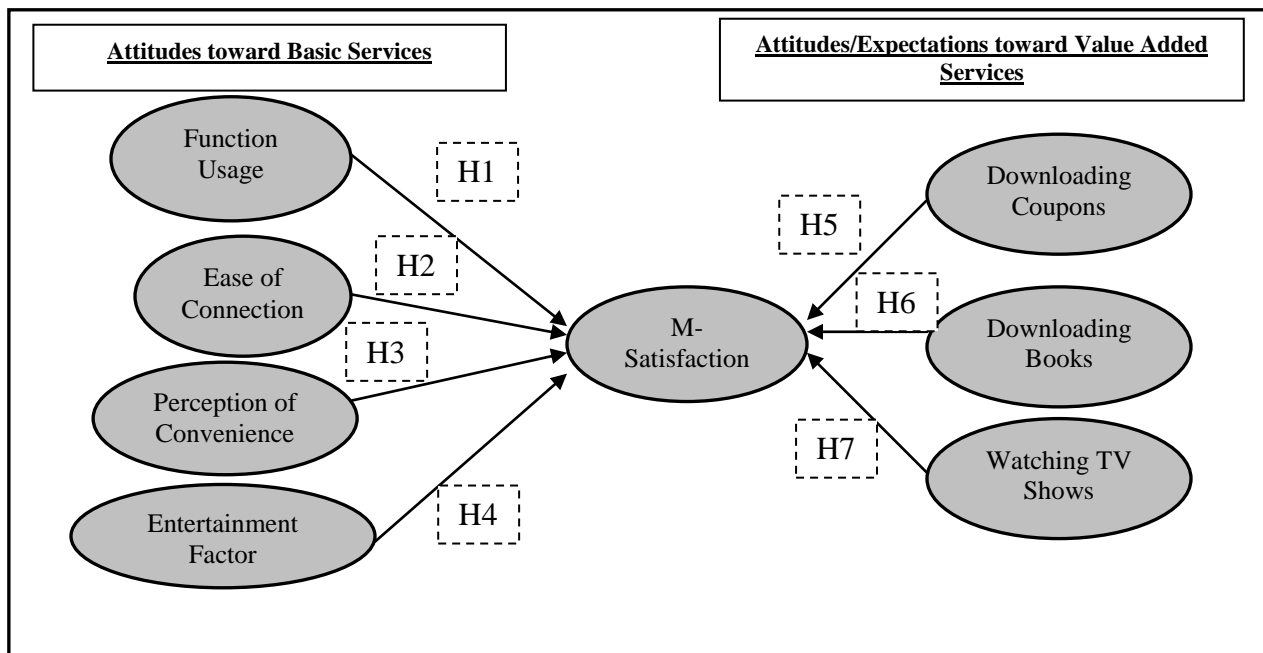

Figure 3: The Proposed Model of Users' Attitudes toward Mobile Phone Usage & M-Satisfaction: Cases of U.S. vs. Korea

2.1   Attitudes toward Mobile Phone Usage and M-Satisfaction

Attitudes toward mobile phone usage have been often considered as a variable to measure the effectiveness of system (e.g., Zhou 2002; Chen and Wells 1999). A previous study by Cho (2008) applied value systems in order to investigate attitudes toward m-commerce. Most of proposed values such as trapped value (e.g., offering more efficient markets and efficient value system such as phone navigation system, download coupons), new-to-the-world value (e.g., customized offerings such as receiving promotional messages, building community, introducing new functionality or experience), and hybrid value (e.g., disrupting pricing by downloading coupons, enabling ease of access such as accessing the net, and radically extending reach values such as watching TV) (modified from Mohammed, Fisher, Jaworski, and Cahill 2002) are available, but limited depends on the service and system availability. This study posits that customer attitudes and m-satisfaction might increase based on the value achieved.

Satisfaction or dissatisfaction theories, such as cognitive dissonance theory (Festinger, 1957), contrast theory (Engel and Blackwell, 1982; Howard and Sheth, 1969; Cardozo, 1965), and adaptation level theory (Helson, 1964) have been applied in this study to measure m-satisfaction. The traditional market places emphasize on "user and customer satisfaction" as a way to earn consumer loyalty and attract new customers. Previous studies (Cho and Fjermstad 2005) have examined the firm's approach to Customer Relationship Management (CRM) in order to account for the new realities of market spaces. Previous studies (Cho, Im, Hiltz, and Fjermestad 2002) have posited that maximizing customer satisfaction and maintaining customer loyalty are major components for Electronic Commerce Customer Relationship Management (E-CRM). It is hypothesized that positive attitudes toward mobile phone increase m-satisfaction. It is also hypothesized that the impact will differ in the U.S. market from Korea market.

2.2   Impacts of Attitudes on Basic Services to M-Satisfaction

Taking a pragmatic approach to functional theory (Katz 1960), attitudes exist because they serve some function for the person (Solomon 1999). A previous study by Schwiderski-Grosche and Knospe (2002) identified the basic functions/services that are available from mobile phones, such as ubiquity, accessibility, convenience, and personalization, etc. Those function/service usages are based on people's basic needs from a mobile phone. This study considered that the majority of customers who used the basic services of a mobile phone, perceived it as a tool that would allow them to use certain functions and to connect easily, and also would provide convenience and pleasure. How customers perceive functions is related to those customers' overall attitudes toward the mobile phone and the way they intend to use it. This study hypothesized that attitudes toward function usage (e.g., voice and text message, picture messaging, internet access, organizer, and alarm system) will affect customers' level of satisfaction toward the mobile phone services. In addition, this study hypothesized that customers' attitudes toward function usage within m-satisfaction might differ between the U.S. market and the Korean market.

H1:   As customers use more functions, overall mobile satisfaction will increase.

H1a: The impact of function usage on overall mobile satisfaction will differ between the U.S. and the Korean market.

Similar to the online environment, users in m-commerce environments are able to find information and communicate easily, 24 hours a day, 7 days a week. As a medium to allow person to person connections, the basic and primary role of the mobile phone has been to reach people. This study posits that the most basic role of a mobile phone in customers' minds is to reach a person easily. Therefore, how customers perceive the mobile phone as a tool to connect efficiently affects m-satisfaction. In addition, this study hypothesized that the impact of customers' attitudes toward ease of connection on m-satisfaction might differ between the U.S. market and the Korean market.

H2:   As customers perceive ease of connection by using mobile phone, overall mobile satisfaction will increase.

H2a: The impact of perceptions of ease of connection on overall mobile satisfaction will differ between the U.S. market and the Korean market.

As a source of communication, the mobile phone significantly affects user behavior. Various researchers found that a major factor in increasing consumer satisfaction from e-commerce and m-commerce is convenience (Cho, Im, Hiltz, and Fjermestad 2002). Mobile users can save time when they manage their businesses, enjoy services, and place orders. Mobile phone users get access to the internet, download music, check email, enjoy m-books, and obtain coupons. This study hypothesizes that user perception of the convenience of mobile phone usage positively affects m-satisfaction. In addition, this study hypothesized that the impacts of customers' attitudes toward convenience on m-satisfaction might differ between the U.S. market from the Korean market.

H3:   As customers' perception of convenience is higher, overall mobile satisfaction will increase.

H3a: The impact of perception of convenience on overall mobile satisfaction will differ between the U.S. market and the Korean market.

Prior studies (Danet et al. 1996) noted that computer-mediated communication (CMC) is strikingly playful. Various studies have recognized the inherently playful nature of the computer as a medium. Danet et al. (1996) mentioned that millions of people are playing with their computer keyboards or mobile devices in various ways. Previous studies (Webster and Martocchio 1992; Gardner, Young, and Ruth 1989) state that playfulness is an important factor in acquainting users with the computer, by shifting attitudes away from the fearful and awesome aspects toward more positive factors. Social escapism refers to consumers' motives for using the Web as a reliever of day-to-day boredom and stress (Zhou 2002: Korgaonkar and Wolin 1999). Mobile phone usage is a pleasurable, fun, and enjoyable activity that allows for an escape from reality (Zhou 2002). As Zhou (2002) cited, users may perceive mobile phone usage as more entertaining than informative. This study proposes that user perceptions about mobile phone usage as an entertainment factor significantly affect overall m-satisfaction. In addition, this study hypothesized that customers' attitudes toward pleasure on m-satisfaction might differ between the U.S. market and the Korean market.

H4:   As customers perceive mobile phone usage more as an entertainment factor, overall mobile satisfaction will increase.

H4a: The impact of the perception of mobile services as an entertainment factor on overall mobile satisfaction will differ between the U.S. market and the Korean market.

2.3   Impacts of Attitudes & Expectations on Value-Added Services

Some researchers have suggested that consumers are "value driven" (e.g., Zeithaml 1988; Levy 1999), and customers' perceived value may be seen as an expression of an overall assessment of the utility of a product (or service), based on perspectives of what is received and what is given (Hansen 2005). Hansen (2005) also stated that attitudes that perform a value-expressive function express the consumers' central values or self-concept.

Value-added services that are provided by mobile phone have developed rapidly. Variable functionality provided by the mobile phone (e.g., map or driving directory, restaurant guide, promotional ads) often reduces users' search efforts and stimulates behavioral intention to use them further (Cho 2008b). Customers' penetration rates of value-added services also have increased drastically, whereas adoption rates still vary by regions (e.g., 82% in Japan, 41% in Europe, and 32% in North America in 2003: Kearney 2003). Existing and potential services vary based on the localized development of mobile technology (Cho 2008b). Services such as SMS (short message service), voice messages, changing or downloading ringtones, accessing the internet, and other basic functions (including alarm, calendar, game, and organizer) are available for most of the mobile phone users in the world, whereas value-added services (VAS) such as downloading or listening to music, receiving receipts for credit card transactions, downloading coupons, watching TV (i.e., called DMB – Digital Multi-Media Broadcasting), reading books, paying for vending machines or transit, and receiving advertising or promotions are available for some mobile phone users, but only in the countries that provide those services (Cho 2008b). Whether such services are available or limited depends on the market situation. By considering the penetration rate, this study hypothesized customers' attitudes toward value-added services in the market where such services are utilized, and customer expectations toward value-added services in the market where such services are not widely utilized. How customers adopt value-added services

that are provided by mobile phones affects their overall attitudes toward interactive communication tools. By offering more marketing strategies, mobile phone users will become m-customers.

This study selected three value-added services including usage of coupons, m-books, and DMB (Digital Multi-media Broadcasting) services. This study considered that couponing services in the mobile environment has been (or is expected to be) applied as a promotional tool in a new world, book downloading services are a good example of replacing physical customer behavior with m-space behavior (i.e., don't need to visit offline bookstore); and watching TV services is the more recently available service. This study hypothesized attitudes/expectations toward the value-added services in the Korean market (H5a-c) and expectations toward such services in the U.S. market (H6a-c).

H5:   As customers' attitudes (expectations) toward coupon-downloading services via mobile phone become higher, overall m-satisfaction is (will be) increased.

H6:   As customers' attitudes (expectations) toward book-downloading services via mobile phone become higher, overall m-satisfaction is (will be) increased.

H7:   As customers' attitudes (expectations) toward DMB services via mobile phone are higher, overall m-satisfaction is (will be) increased.

III.   METHODOLOGY

3.1   Data Collection

Among various mobile devices, this study measures user attitudes toward the mobile phone. This study conducted surveys with about five hundred and fifty randomly-selected subjects in the U.S. and Korea (two hundred seventy from the U.S. and two hundred eighty from Korea) who are mobile phone users and have usage experience with the mobile phone for at least two years. The data was collected both from the convenience sample (i.e., samples selected from Information Systems (IS) and management departments at two major universities in the U.S. and Korea), from mall intercept surveys (i.e., three selected malls in the U.S. and Korea), and from online resources (e.g., selected email addresses from online community). The questionnaire was developed in English, but translated to Korean. Back translation was used to check whether the questionnaire items had been properly translated. This study collected data from respondents who have used mobile phones for more than two years. The response rate was about 73% (U.S.) and 75% (Korea) and approximately 92.9% (U.S.) vs. 93.5% (Korea) of the respondents answered that they had used a mobile phone for over two years.

3.2   Operational Measures

Multi-item scales were used to measure customers' attitudes toward basic and value-added services of the mobile phone. Various scales were used to measure constructs that served as the basis for the questionnaire items. The item scales were taken from previous studies (e.g., Bearden and Teel 1980; Fishbein and Ajzen 1975)[2] and modified to serve the objectives of the present study. Quantitative methods, including regression analysis, ANOVA (Analysis of Variance), and chi-square analysis, were applied to measure customers' attitudes toward mobile phones and their m-satisfaction. The scales in this study were developed from previous studies. Scales for variables were taken from studies by Succi and Walter (1999), Zhou (2002), Schubert and Selz (1999), and Chen and Wells (1999). Likert scales, semantic differential scales, and open-ended questions were used to measure the items. For Likert scale questions, a five-point scale was used, with the extremes labeled "Strongly Disagree" and "Strongly Agree." Multivariate data analyses, such as factor and regression analyses were used to analyze the data in this study.

---

[2] Five-point (e.g., 1 = strongly dissatisfied, 5 = Strongly satisfied) scales were employed.

IV. RESULTS

4.1 Respondent Demographics

Respondents' Demographic Profiles: Of the two hundred seventy respondents, 52.4% (U.S.) vs. 45.3% (Korea) were female and 47.6% (U.S.) vs. 54.7% (Korea) were male. About 46.1% (U.S.) vs. 30.0% (Korea) were in the 21-25 age group; 24.6% (U.S.) vs. 31.0% (Korea) were in the 26-30 age group; 9.2% (U.S.) vs. 16.3% (Korea) were in the 31-35 age group; 3.9% (U.S.) vs. 7.4% (Korea) were in the 36-40 age group; 3.9% (U.S.) vs. 5.2% (Korea) were in the 36-40 age group; 3.1% (U.S.) vs. 0.3% (Korea) were in the 46-50 age group; and 3.9% (U.S.) vs. 0.0% (Korea) were age group of 46 or older. Approximately 13.2% (U.S.) vs. 7.5% (Korea) reported that their highest educational level was high school graduate, while 28.1% (U.S.) vs. 23.6% (Korea) had an associate degree, 35.1% (U.S.) vs. 59.5% (Korea) had an bachelor's degree, and 23.7% (U.S.) vs. 9.4% (Korea) had master's degree or higher. Approximately 73.3% (U.S.) vs. 70.7% (Korea) had an annual average income of between $10,000 and $30,000, while 12.9% (U.S.) vs. 20.5% (Korea) had an annual average income of between $30,001 and $50,000 and 13.8% (U.S.) vs. 8.7% (Korea) had an annual average income of more than $50,001. Approximately 73.3% (U.S.) vs. 18.9% (Korea) were students, while 12.9% (U.S.) vs. 45.5% (Korea) were employed at a company, 13.8% (U.S.) vs. 17.9% (Korea) were own a personal business, and 13.8% (U.S.) vs.1.3% (Korea) were educator. Among the respondents in the U.S., about 21.9% were white American, 42.0% were Asian American, 1.4% were African American, 3.2% were Hawaiian, and 1.8% were Hispanic. A *chi-square* test was conducted to measure whether those selected subject groups from two markets differ in demographics. The results ($X^2 = 0.75$ for gender, $X^2 = 3.96$ for age group, $X^2 = 3.0$ for income level: tested at 0.01 level of significance) show that two groups are not statistically different except educational level.

Analysis of Mobile Phone Usage Behavior: As shown in table 1, about 27.4% (U.S.) vs. 73.1% (Korea) used mobile phones more than 1 hour per day and about 50.3% (U.S.) vs. 21.7% (Korea) spent less than $50 per month. It is also found that on average, about 21.0% (U.S.) vs. 3.2% (Korea) customers used mobile phone more than 2 hrs during commuting time per day. Another *chi-square* tests were conducted to test respondents' mobile phone usage in the U.S. vs. Korea. Results found that customers' mobile phone usages are significantly different in the U.S. vs. Korea by considering three perspectives such as amount of usage time per day, average fee spent per month, and average commuting time per day. Amount of usage time per day was statistically different in the U.S. from in Korea ($X^2 = 61.12$: significant at 0.01 level), monthly average fee spent was significantly different in the U.S. from Korea ($X^2 = 24.07$: significant at 0.01 level), and average commuting time was significantly different in the U.S. from Korea ($X^2 = 41.74$: significant at 0.01 level).

Amount of Usage Time/Day	%		Average Fee Spent/Month	%		Average Commuting Time/Day	%	
	U.S.	Korea		U.S.	Korea		U.S.	Korea
Less than 30 min	36.6	5.5	Less than $30	10.3	2.9	Less than 30 min	24.6	9.1
Between 30 min to 1 hr	36.1	21.4	$31 - $50	40.0	18.8	Between 30 min to 1 hr	26.8	46.0
Between 1hr and 2hr	15.9	41.7	$51 - $70	21.8	39.8	Between 1hr and 2hr	27.7	41.6
Between 2hr and 3hr	6.2	31.4	$71 - $90 minutes	13.7	2.7	Between 2hr and 3hr	10.7	2.9
More than 3hr	5.3	0.0	$91 - $110	9.8	10.0	Between 3hr and 4hr	4.9	0.0
			More than $111	4.4	5.8	More than 4hr	5.4	0.3

Table 1: Summary of Respondents' Mobile Phone Usage: U.S. vs. Korea

This study also ran *chi-square* analyses to examine whether there are statistical relationships among three variables, usage time per day, average fee spent per month and average commuting time per day. It is found that three variables was statistically different each other (in the case of U.S. market, $X^2 = 64.31$ (U.S.) vs. 180.13 (Korea): significant at 0.01 level (both markets), for usage time per day & average fee spent per month, $X^2 = 75.38$ (U.S.) vs. 24.75 (Korea): significant at 0.01 level (U.S.) 0.01 level (Korean), for usage time per & commuting time per day; and $X^2 = 34.31$ (U.S.) vs. 31.52 (Korea): significant at 0.10 level (U.S.) and 0.01 level (Korea), for average fee spent per month & commuting time per day.

M-Customer Usages on Basic Services: This study compared customers' usages of mobile services. This study found that approximately 52.7% (U.S.) vs. 13.1% (Korea) of customers frequently use voice message services (mean = 4.09 (U.S.), 2.87 (Korea)); 31.9% (U.S.) vs. 47.9% (Korea) frequently use text message (mean = 3.32 (U.S.), 4.18 (U.S.)); 1.2% (U.S.) vs. 26.7% (Korea) frequently use a service that take pictures (mean = 1.69 (U.S.), 3.29 (Korea));; and 3.7% (U.S.) vs. 5.3% (Korea) frequently access Internet via mobile phone (mean = 1.54 (U.S.), 1.90 (Korea)).

Services	U.S. (%) 1	2	3	4	5*	Korea (%) 1	2	3	4	5*	Mean U.S.	Korea	Std. Deviation U.S.	Korea
Voice Message	5.0	5.5	17.7	19.1	52.7	20.9	16.7	29.1	20.3	13.1	4.09	2.87	1.17	1.31
Text Message	16.9	12.7	23.5	15.0	31.9	4.2	2.6	12.0	33.3	47.9	3.32	4.18	1.46	1.03
Taking Picture	63.6	13.9	13.9	7.5	1.2	20.5	6.2	23.3	23.3	26.7	1.69	3.29	1.04	1.45
Internet Access	75.5	8.6	5.5	6.7	3.7	58.9	12.9	12.4	10.5	5.3	1.54	1.90	1.10	1.27
Email Check	82.9	3.8	4.4	4.4	4.4	55.1	13.3	16.3	10.7	4.6	1.44	1.96	1.06	1.25
Play Games	56.3	13.6	16.5	8.5	5.1	61.2	10.2	18.4	7.7	2.6	1.93	1.80	1.24	1.14
Listen to Music	85.4	4.5	3.8	5.1	1.3	28.2	7.5	18.8	27.2	18.3	1.32	3.00	0.87	1.49
Organizer	54.8	13.0	11.9	10.7	9.6	20.2	8.7	16.5	28.5	26.0	2.07	3.31	1.40	1.46
Alarm Services	26.2	6.7	11.3	12.8	43.1	75.0	11.2	12.2	1.6	0.0	3.40	1.40	1.67	.76
Download Ring Tone	61.8	11.6	16.2	5.2	5.2	70.9	6.9	13.1	6.3	2.9	1.80	1.63	1.19	1.11

* 1: Hardly Use; 5: Frequently Use

Table 2: Summary of Respondents' Mobile Phone Service Usages: U.S. vs. Korea

4.2   Hypotheses Testing

This study utilized simple linear regression analyses and the analyses of variance (ANOVA). Regression analyses were applied to measure the impact on m-satisfaction of attitudes on basic services and value added services. This study also measured different impacts in the U.S. and Korean markets. Table 3 presents the results of the regression analyses for the effects of predictors of basic services to the m-satisfaction. The results in table 3 show that factors such as functionality, ease of connection, and the entertainment factor of basic services significantly affect m-satisfaction in the U.S., while factors such as functionality, ease of connection, and the convenience factor significantly affect m-satisfaction in the Korean market. Thus, hypotheses 1, 2, & 4 were accepted in the case of U.S. market, while hypotheses 1 ~ 4 were accepted in the case of the Korean market. The results of the analysis of variance found that the models significant at the .01 level with F = 9.653 (U.S.) and 6.165 (Korea) (two-tailed, *r-square* = .310 (U.S.) and .352 (Korea)). In addition, hypotheses 1a, 2a, and 4a were tested and statistically accepted as impacts of functionality, ease of connection, and entertainment factors to m-satisfaction. Their, it is concluded that the impact of the perception of function usage, ease of connection, and of mobile services as an entertainment factor on overall mobile satisfaction will differ between the U.S. market and the Korean market. Another result found that customers in the U.S. do not perceive the mobile phone as a convenience tool. It is expected that customers in the U.S. do not recognize the mobile phone as such a convenience factor due to the limitation of services that are available in other markets.

Variable	U. S.		Korea	
Functional factor	2.281**	.024	2.917***	.004
Ease of Connection	3.236***	.001	2.426**	.016
Convenience factor	.800	.425	1.774*	.077
Entertainment factor	2.031***	.044	2.134**	.025

*** Significant at 0.01 level (2-tailed); ** Significant at 0.05 level (2-tailed); * Significant at 0.1 level (2-tailed).

Table 3: The Effects of Basic Services toward M-Satisfaction: U.S. vs. Korea

This study ran another simple linear regression analyses and the analyses of variance (ANOVA). For the case of Korea, this study classified respondents into two groups based on those who had ever used those selected value-added services (i.e., Korea I) and those who hadn't ever used those value-added services. This study found that in the Korean market, about 45.5% of the respondents had ever used coupon-downloading services, 50.0% of the respondents had ever used DMB (Digital Multi-media Broadcasting that is, the service that provides TV programming), and only 7.9% of respondents had ever used book-downloading services.

The results of the regression analyses and the analyses of variance found that impacts of expectation of coupon-downloading services ($F = 68.98$ at .001 level) and book-downloading services ($F = 11.253$ at 0.05 level) toward m-satisfaction were significant, while the impact of watching TV service (DMB: Digital Multi-media Broadcasting) toward m-satisfaction was not significant in the U.S. market. It is also found that impacts of attitudes toward the watching TV and book-downloading services are not significant, while the impact of attitudes toward the coupon-downloading service was significant ($F = 9.577$ at 0.05 level) in the Korean market. In addition, impacts of expectation of watching TV ($F = 3.044$ at 0.10 level) and book-downloading services ($F = 24.264$ at 0.01 level) toward m-satisfaction was significant. Therefore, hypotheses 5 and 7 were accepted in the U.S. market; hypothesis 5 was accepted in the Korean market among respondents who had ever used services; and 6 and 7 were accepted in the Korean market among respondents who had not used services yet.

Variable	U. S.		Korea I[3]		Korea II[4]	
Downloading Coupon service	8.31	.000***	3.095	.002***	.954	.342
Digital Multi-Broadcasting service	.599	.550	1.027	.306	4.926	.000***
Downloading Book service	2.575	.010*	1.209	.240	1.677	.095*

*** Significant at 0.01 level (2-tailed); ** Significant at 0.05 level (2-tailed); * Significant at 0.1 level (2-tailed).

Table 4: The Effects of Value Added Services toward M-Satisfaction: U.S. vs. Korea

V.   DISCUSSION AND CONCLUSION

This research paper explored users' attitudes toward m-commerce and m-satisfaction. Applying various theories and models, this study investigated which factors affect customer attitudes toward m-satisfaction, particularly for basic services and value-added services (VAS). This study considered attitudes toward the value-added services in order to investigate how customers perceive the use of advanced technologies and how such attitudes affect (or are expected to affect) m-satisfaction. This study also examined cross-cultural analyses in two markets, the U.S. and Korea, to examine whether there are any differences in mobile phone usage behavior.

This study found that customers in the U.S. market perceived a mobile phone as a tool which provides functionality and entertainment and also allows ease of connection, while customers in the Korean market perceived a mobile phone as a tool which provides functionality, convenience, and entertainment, and also allows ease of connection. For both markets, functionality, ease of connection, and entertainment factors affect m-satisfaction. Regarding the impacts of value-added services, this study found that customers who had not yet downloaded books in both markets expected positive satisfaction when they did. It is also anticipated that providing coupon services via mobile phones will be effective in the U.S. market. Interestingly, it was found that those customers who had used DMB and book-downloading services in the Korean market did not perceive high value that affected m-satisfaction. High levels of expectation for the availability of more advanced services in the future might have affected the results. It is also anticipated that customers' expectation levels are quite high before services have been consumed, while levels become lower after services had been consumed.

The findings of the study contribute to the development of the uses and gratification theory and customer satisfaction theories, while also providing implications and suggestions for m-businesses. Furthermore, this study provides implications and offers suggestions for m-businesses development and user acceptance. This study

---

[3] Korea I shows statistical results based on customers who ever used each service.
[4] Korea II shows statistical results based on customers who haven't used each service.

suggests that there are enormous opportunities for the model of m-commerce and m-business that allows for the co-existence of virtual click-and-mortar market spaces with mobile market spaces. This unification seems appealing to us because it does not force on users or customers either virtual or mobile market systems, but instead gives them the opportunity to mix one and the two based on the specifics of their communication and buying situation (Cho 2008b). This study suggests that m-commerce marketers should apply diverse usages, e.g., offering coupons, using mobile phone as a payment tool, watching TV, to evoke solutions for advanced MMC. The author believes that more applications and usages will lead to higher user satisfaction and loyalty toward m-commerce customer relationship management (CRM).

The implications of this study include the idea that to become a leader in a competitive market, m-commerce with maximized user satisfaction should have key success factors in the m-business model. This study suggests recommendations for the future m-commerce markets or businesses, particularly in the U.S., in the belief that a Mobile-Mediated Communication (MMC[5]) system might replicate all of the activities of Computer-Mediated Communication (CMC) systems in the near future.

The study has some limitations. Although this study used multivariate statistics, such as regression analyses and analyses of variance, the study did not measure the cause and effect relationship using a program, such as LISREL. The researchers will consider this issue in future research. A framework to classify the different levels of involvement will be also developed and applied to measure user attitudes toward mobile phone by also considering various cultures. For future studies, researchers will also investigate causes that affect different impacts toward mobile phone usage cross-cultures/countries. For further studies, a larger number of subjects will be surveyed.

AUTHOR INFORMATION

Dr. Yoon C. Cho is Associate Professor at the KDI SCHOOL OF PUBLIC POLICY AND MANAGEMENT, global school, located in Seoul. Previously, she was Associate Professor at Hawaii Pacific University, where she served as advisor of the American Marketing Association (AMA) – HPU Chapter. She received Ph.D. from Rutgers, The State University of New Jersey and MBA from Cornell University. She published research papers in the various academic journals such as Advances in Consumer Research (ACR), Journal of Consumer Satisfaction, Dissatisfaction, and Complaining Behavior (JCS/DCB), Hawaii International Conference on System Sciences, Journal of Business & Economics Research, etc. Email address: ycho@kdischool.ac.kr

REFERENCES

1.   Ajzen, I. and Fishbein, M. (1980). Understanding Attitudes and Predicting Social Behavior. Englewood Cliffs, NJ, Prentice-Hall.
2.   Bearden, William. O.and Jesse E. Teel (1980), "An Investigation of Personal Influences on Consumer Complaining," *Journal of Retailing*, 56, 3, 3-20.
3.   Betrand, Vicente, Caplan, Adam, Chab, Federico, Fernandez-Moran, Eduardo, and Letelier, Cristian (2001), "M-Commerce: Who Will Reap the Profits?" *Kellogg Tech Venture Anthology*, March.
4.   Cardozo, R. N. (1965), "An Experimental Study of Customer Effort, Expectation, and Satisfaction," *Journal of Marketing Research*, 2, August, 244-49.
5.   Chen, Q. and Wells, W. D. (1999), "Attitudes Toward the Site," *Journal of Advertising Research*, September/October, 27-37.
6.   Chew, Anthony A. (2006), "The Adoption of M-Commerce in the United States," *Honors Thesis*, California State University, Long Beach, CA.
7.   Cho, Y. (2008a), "Effects of Social Networking Sites (SNSs) on Hyper Media Computer Mediated
8.   Environments (HCMEs)" *The International Business & Economics Research Journal* (IBER). Vol 7, Issue 7, pp. 27-40.

---

[5] The term has been modified from Computer-Mediated Communication, proposed by Hoffman, Novak, and Chattered (1995).

9.   Cho, Y. (2008b), "Assessing User Attitudes Toward Mobile Commerce in the U.S. vs. Korea: Implications for M-Commerce CRM," *The Journal of Business and Economics Research*, February. Vol 6, Issue 2, pp. 91-102.

10.   Cho, Y. and Fjermestad J. (2005), "Using eCCRM to Maximize/Minimize Customer Satisfaction/Dissatisfaction." *Advances in Management Information Systems*: *Special Issue on Customer Relationship Management*, *Special Issue on Customer Relationship Management*, M.E. Sharpe, Inc., Volume 3, Summer, pp. 34 – 52.

11.   Cho, Y., Im, I., Hiltz, S. & Fjermestad, J. (2002), "An Analysis of Online Customer Complaints: Implications for Web Complaint Management," *Proceedings of the 35th Hawaii International Conference on System Sciences*, January, Big Island, Hawaii, 176b.

12.   Cronin, Mary J. (2003), "Mobile Commerce – Internet Encyclopedia, Boston: Carroll School of Management," Boston College.

13.   Danet, B., Wachenhauser, T., Bechar-Israeli, H., Cividalli, A., and Rosenbaum-Tamari, Y. (1996), "Curtain Time 20:00 GMT: Experiments with Virtual Theater on Internet Relay Chat," *Journal of Computer-Mediated Communication* (JCMC), 2(3) December, http://jcmc.huji.ac.il/vol2/issue3/.

14.   Davis, F. D. (1989), "Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology," *MIS Quarterly*, 13(3), September, 319-340.

15.   DeSantis, G. (1983), "Expectancy Theory as an Explanation of Voluntary Use of a Decision Support System," *Psychological Reports*, 52, 247-260.

16.   Durlacher Research Ltd. (1999), *Mobile Commerce Report*, pp.1-67, www. durlacher .com

17.   Engel, J. F. and Blackwell, R. D. (1982). *Consumer Behavior* (4th ed.). New York, Holt, Rinehart and Winston.

18.   Festinger, L. (1957). *A Theory of Cognitive Dissonance*. Stanford, California: Stanford University Press.

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

20.   Gardner, E. P., Young, P., and Ruth, S. R. (1989). "Evolution of Attitudes Toward Computers: A Retrospective Review," *Behavior and Information Technology*, 8(2), 89-98.

21.   Schwiderski-Grosche, Scarlet and Knospe, Heiko (2002), "Secure M-Commerce," http://www.it.iitb.ac.in/~annanda/papers-280905/Secure%20m-commerce%20ECEJ.pdf

22.   Hansen, Torben (2005), "Perspectives on Consumer Decision Marking: An Integrated Approach," Journal of Consumer Behavior, 4, 6, pp.420-437.

23.   Helson, H. (1964). *Adaptation-Level Theory*, New York: Harper & Row.

24.   Herzog, H (1944). *What Do We Really Know About Day-Time Serial Listeners?: Radio Research*. Paul F. Lazarsfeld and Frank N. Stanton, (eds.), New York: Duel, Sloan and Pearce.

25.   Hoffman, D. L., Novak, T., and Chatterjee, P. (1995), "Commercial Scenarios for the Web: Opportunities and Challenges," *Journal of Computer-Mediated Communication*, 1(3), http://jcmc.indiana.edu/vol1/issue3/hoffman.html.

26.   Hosftede, Geert (1991), *Cultures and Organizations: Software of the Mind*, London: McGraw-Hill, New York: McGraw-Hill.

27.   Howard, J. A. and Sheth, J. N (1969). *The Theory of Buyer Behavior*. New York, John Wiley and Sons.

28.   Ives, B., Olson, M. H., and Baroudi, Jack J. (1983), "The Measurement of User Information Satisfaction," *Communications of the ACM*, 26(10), 785-793.

29.   Katz, Daniel (1960), "The Functional Approach to the Study of Attitudes," *Public Opinion Quarterly* 24, Summer, pp.163-204.

30.   Kearney, A.T. (2003), *Mobile Index #6 – The New Mobile Mindset*, A.T. Kearney, University of Cambridge.

31.   Korgaonkar, P. K. and Wolin, L. D. (1999), "A Multivariate Analysis of Web Usage," *Journal of Advertising Research*, March/April, 53-68.

32.   Levy, M. (1999), "Revolutionizing the Retail Pricing Game," *Discounted Store News*, 38, 18, pp.15.

33.   Lim, Heejin, Widdows, Richard, and Park, Jungken (2006), "M-Loyalty: Winning Strategies for Mobile Carriers," *Journal of Consumer Marketing*, Volume 23, Issue 4, 208-218.

34.   Luo, Xueming (2002), "Uses and Gratifications Theory and E-Consumer Behaviors: A Structural Equation Modeling Study," *Journal of Interactive Advertising*, Volume 2, Number 2, Spring.

35.   Mcguire, W. J. (1974). *Psychological Motives and Communication Gratification*: *The Uses of Mass Communications*. Jay G. Blumler and Elihu Katz, (eds.), Beverly Hills, CA: Sage Publications.

36.   Mohammed, R. A., Fisher, R. J., Jaworski, B. J., and Cahill, A. M. (2002). *Internet Marketing: Building Advantage in a Networked Economy*. McGraw-Hill Irwin, Marketspace U.

37.   Mooiji, Marieke de (1994), *Consumer Behavior and Culture: Consequences for Global Marketing and Advertising*, Sage Publications, Inc.

38.   O'Daniel, Thomas (1999), "Modeling Electronic Commerce: Value-Added Roles," *Proceedings of International Conference on the Measurement of Electronic Commerce, December, Singapore.*

39.   Rogers, Everett M. (1995), *Diffusion of Innovations*, 4th ed., New York: The Free Press.

40.   Schubert, Petra and Dorian Selz (1999), "Web Assessment: Measuring the Effectiveness of Electronic Commerce Sites Going Beyond Traditional Marketing Paradigms," *Proceedings of the 32nd Hawaii International Conference on System Sciences.*

41.   Schwartz, Shalom H. (1994), *Beyond Individualism/Collectivism: New Cultural Dimensions of Values in Individualism and Collectivism*, edited by Uichol Kim, Harry C. Triandis, Cigdem Kagitcibasi, Sang-Chin Choi, and Gene Yoon, Thousand Oaks: Sage, pp.85.

42.   Solomon, Michael R (1999), *Consumer Behavior: Buying, Having, and Being*, Pearson Prentice Hall, New Jersey.

43.   Succi, M. J. and Walter, Z. D. (1999), "Theory of User Acceptance of Information Technologies: An Examination of Health Care Professionals," *Proceedings of the 32nd Hawaii International Conference on System Sciences*, Hawaii.

44.   Webster, J. and Martocchio, J. J. (1992), "Microcomputer Playfulness: Development of a Measure With Workplace Implications," *MIS Quarterly*, June, 201-226.

45.   Zeithaml, V. A. (1988), "Consumer Perceptions of Price, Quality, and Value: A Means-end Model and Synthesis of Evidence," *Journal of Marketing*, 52, pp.2-22.

46.   Zhou, Zheng (2002), "Users' Attitudes toward Web Advertising: Effects of Internet Motivation and Internet Ability," *Advances in Consumer Research*, 29, 71-78.

NOTES