

Predictors of E-commerce Use of the Internet: A Multinational Comparative Study — the U.S., the Netherlands, and S. Korea

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Abstract

With a focus on online consumer behavior in highly-wired countries (the United States, the Netherlands, and South Korea), this study attempted to identify and compare predictors of e-commerce activities in three areas — finance, product, and entertainment. The cross-national comparison revealed that users in each country did not have a compatible pattern of predictors in e-commerce activities. Although an age, web experiences, and a motivation of having less pressure were common predictors, there existed different social and cultural impacts on online consumer behaviors in each country. The main implication of this exploratory crossnational comparative study for e-commerce is that there are both global and local determinants of online consumer behavior. Therefore, researchers and practitioners should consider both

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culture-general and culture-specific components in multinational online commerce services and marketing.

Keywords: online consumer behavior, motivation, e-commerce, cross-national comparison, the U.S., the Netherlands, South Korea, hierarchical regression analysis

INTRODUCTION

The World Wide Web has been credited with producing dramatic social changes as diverse as creating an entirely new world economy. People have become more dependent on the Internet for getting information, maintaining social contacts, seeking entertainment, and doing economic transactions. Among the variety of activities people are doing with the Internet, the online economic transaction is very characteristic to the Internet because, thanks to the establishment of secure e-commerce systems, this revolutionary medium provides several distinctive merits: easy access to information, reduced transaction cost, and elimination of temporal or geographic constraints.

As the Internet has become embedded with people's everyday life, business-to-consumer online transactional activities, or B2C e-commerce, now encompass a wide range of Internet services. Internet users' B2C activities not only include online product shopping, but also browsing books and movies, searching restaurant or travel information, online auction, and online banking/investment. As people enjoy more services such as movie ticket reservation, music downloads (e.g., iTunes), and movie rental (e.g., Netflix), the boundary of commercial use of the Internet is expanding to every corner of our personal lives.

With a focus on Internet use in highly-wired countries in North America, Europe, and Asia, this study investigates the primary predictors that affect online consumers. This study reviews why people are using the Internet for e-commerce and compares the motivations among countries to explore crossnational differences if exist. The consequent aim of this study is to investigate the predictors of e-commerce use of the Internet and to contrast culture-specific variations if any.

The majority of survey research on Internet users has been devoted to describing who online consumers are and what they are doing online. Little attention has been given to why they are

doing it and what factors determine their use. While usage questions give a bit more insight than do simple demographic descriptions of users, they do not provide any indication of motivation for usage, nor of perceived changes that Internet use has produced in the personal lives of the users. Knowing how many people shop online is important, but knowing *why* they do online banking, *why* they chose to use this medium instead of conventional methods of transactions, and how their attitudes and motivations affect the pattern of e-commerce uses are critically important to predict the future impact of the Internet and to develop e-commerce models.

In highly-wired countries, household Internet penetration seems to have reached a maturation point. By 2002, households with access to the Internet had surpassed 50 percent in Sweden, South Korea, Singapore, the United States, the Netherlands, Finland, and Norway (International Telecommunication Union 2008). In fact, though rates of home Internet adoption were just above 10 percent in most of developing countries, the adoption in these top countries had begun to stabilize. For instance, in Norway since 2002, the rate of Internet dropouts was higher than the adoption rate (Raban 2004). Thus, it is a particularly appropriate time to study patterns and predictors of Internet use in highly-wired countries since 2003; the results may provide stable and comparable indicators to understand the evolution of the Internet as a global commerce medium.

INTERNET USE IN THE UNITED STATES, THE NETHERLANDS, AND SOUTH KOREA: CROSSCULTURAL APPROACH

This study is an outcome of a multinational consortium investigating Internet users. A team of researchers from three universities in the United States, the Netherlands, and South Korea participated and designed a survey questionnaire. The three countries represent the most wired society on each continent.

The United States is a leading country in terms of numbers of websites and users (OECD 2007). In 2003, the adoption rate, the number of Internet users, was 55.2 (per 100) which was ranked

the 4th in the world (ITU 2003) and reached 66.3 (ranked 10th) in 2005 (ITU 2006). The broadband adoption in United States households has been relatively low at 22% in 2003 and surpassed 50% by the end of 2007 (OECD 2003; PEW Research Center 2005b, 2008). Europe was a late starter, but many countries on the continent have seen tremendous growth in Internet penetration and broadband usage. Benelux enjoys one of Europe's highest broadband penetration rates (ResearchAndMarkets 2004). The Netherlands was ranked the 5th (52.6 per 100) in the adoption rate in 2003 (ITU 2003). The growth of Internet users in Asia from 2000 to 2004 has been even more phenomenal and South Korea was ranked the 2nd in the world in 2003 (ITU 2003, 2007; NCA 2004). Thanks to the strong government policy and the competitive industry, the household broadband penetration in S. Korea was the top (OECD 2007).

It is arguable whether the Internet should be understood as a culture-general (universal) or culture-specific (national) medium. The physical forms and functions of traditional media (e.g., radio, newspaper, or television) as marketing channels are almost identical across societies, but market structure, consumer preferences, and regulation policies often differ. Language is a typical example of culture-specific factors that limit the range of Internet access and service within a specific country or a region. The difference in the penetration of competing media is another culture-specific factor. For instance, in the Netherlands and South Korea, the rate of mobile phone access surpasses that of Internet access, and banking via mobile phone is quite popular (National Computerization Agency 2004; Raban 2004). Successful applications and services (e.g., online bookstores, auctions, and ticket reservation services) are adopted in many different countries. However, social, cultural, and psychological antecedents in each country also seem to differently affect patterns of e-commerce use. For example, Google is not the top search engine site in S. Korea and Japan. *Cyworld*, the most popular social network service in S. Korea failed to attract U.S. users who prefer local services such as *MySpace* and *Facebook*. This study aims to detect the determinants of e-commerce use and crossnationally explore the pattern of differences if any.

MOTIVATION OF WEB USE: USES AND GRATIFICATION APPROACH

Motivations are key components of media or channel selection and use for behaviors like information search and purchasing. Motivations are defined as general dispositions that cause people to use certain media to fulfill specific needs or as general drivers that direct consumers' behavior toward attaining their needs (Assael 1998; Joines, Scherer, and Schuefele 2003; Papacharissi and Rubin 2000; Zhou, Dai, and Zhang 2007). Uses and gratifications theory fits best with the study of both general Internet use motivations and e-commerce use motivations (Hennig-Thurau and Walsh 2004; Peng 2007; Yang 2004). Uses and gratification analyses have been widely used for the past 30 years in traditional mass media research, but they are particularly relevant in studying new communications media (Katz and Rice 2002; Kraut and Attewell 1997; Parker and Plank 2000; Perse and Greenberg-Dunn 1998; Rice and Webster 2002). There have been studies using the uses and gratifications approach that have looked at home computer use (Perse and Greenberg-Dunn 1998), bulletin boards (Garramone, Harris, and Anderson 1986), and the web (Atkin, Jeffres, and Neuendorf 1998; Charney and Greenberg 2001; Flanagan and Metzger 2001; Kaye and Johnson 2002, 2004; Larose, Mastro, and Eastin 2001; Lin 2001; Papacharissi and Rubin 2000; Parker and Plank 2000; Song et al. 2004; Stafford and Stafford 2001; Stafford, Stafford, and Schkade 2004). Those studies proved the fitness of the theory and importance of motivations as main factors of new media adoption and use.

Recent refinement of the uses and gratification theory assumes that the gratifications received are better predictors of Internet use activities than gratifications sought. Those studies argued that the gratifications received serve as motivations for specific Internet activities. The conceptualization of Internet use on the grounds of motivations and gratifications highlights a cognitive dimension of media behaviors in selection and use.

Instead of viewing media users as passive consumers of a predetermined diet of communication services, uses and gratifications studies assumed that people make active choices.

These choices may be to adopt a specific medium or select certain content within a medium and are based on the benefits the medium or channels can provide. Eventually, these choices reinforce the subsequent selection and use of the specific medium and channels. Given the condition of competing media in a household, problem-solution theory postulates that users seek a particular medium when they perceive a problem with an existing medium and find an alternative solution in a new medium (Rosengren 1974). For example, people feel motivated to choose the Internet over telephone or letter for banking service based on perceived problems with these traditional media such as a processing time delay. Zhu and He (2002b)'s new construct, perceived need for new media, postulates that people use the Internet only when they feel other media do not satisfy a specific need and identify the Internet as an alternative source that meets the need. Those explanations on the choice of the Internet from multiple alternatives set anchor points to identify motivations the Internet uniquely brings to the users.

For television audiences, five areas of gratification were identified — entertainment, escape, social interaction, information & education, and identity (Blumer and Katz 1974). For web users, the number and labels of motivations vary across studies, but the most recurrent are personal relationships, social companionship, identity and status, news, utility and problem solution, learning, acquisition, amusement, and escapism (Charney and Greenberg 2001; Ebersole 2000; Eun and Na 2002; Lin 2002; Papacharissi and Rubin 2000; Stafford, Stafford, and Schkade 2004).

However, as Rubin and Bantz (1987) pointed out, every new medium is invented for new reasons of use and generates new motivations. For e-commerce use, specific motivations have been identified in two categories: utilitarian and hedonic (Kau, Tang, and Ghose 2003; Peng 2007; Zhou, Dai, and Zhang 2007). Online consumers with utilitarian motivations are concerned with searching and purchasing products for efficient and timely transaction in order to achieve their goals. Convenience, freedom, privacy, control, accessibility, and availability of information are found to be factors for utilitarian use of the e-commerce. Hedonic motivations refer to the e-commerce use of the Internet for entertainment and enjoyment. Those e-commerce

specific motivations extracted from uses and gratifications research may be essential predictors of e-commerce activities.

PREDICTORS OF E-COMMERCE USE

The uses and gratifications approach was concerned with the origins of needs that generate expectations of Internet use. These motivation factors lead to differential patterns of general Internet use and specific e-commerce use, resulting in need gratifications (Katz, Blumler, and Gurevitch 1974; Palmgreen 1984; Joines, Scherer, and Scheufele 2003). Palmgreen (1984) posited that needs for media use spring from media users' social and psychological origins. The social origin of media gratification refers to needs shaped by users' location in and interaction with their social environment; the psychological origin of media gratification refers to the cognitive and affective foundations of media use. Social factors include demographics, social contacts, and job satisfaction, whereas psychological antecedents include attitudes, values, and motivations (Blumler 1979; Jayawardhena 2004; McGuire 1974).

For the simplicity of analysis and interpretation, we reorganized the social and psychological needs into three layers of factors that may affect online consumer behavior. The first layer — user demographics such as gender, age, education, and income — gives rise to certain needs that influence attitudes and values. The second layer consists of three components that may generate additional needs: 1) broadband adoption, 2) self-efficacy, such as Internet experience and skills, and 3) value orientations that form the affective underpinnings of Internet use. The third layer is made up of psychological components like actual needs or motivations. They deserve a separate layer because they directly cause the selection and use of specific Internet services or sites.

Demographics

Typically, early adopters and heavy users of the Internet were young, male, highly-educated, mid-to-high income urban dwellers. As adoption reaches maturity, the gaps in all the

demographics have narrowed or disappeared, but newer Internet users tend to be older, female, less educated, and low income (Pew Research Center 2000, 2004b). Because new adopters often have less experience and fewer skills, they are likely to use the Internet less and express lower expectations and satisfaction.

Age, gender, education, and income were the most important demographics used to analyze e-commerce use. The amount of Internet use time was inversely related to age (Pew Research Center 2000) and there existed a generation gap in people's ability to use the Web (Hargittai 2002). However, middle aged users, who are active workforce and financially secure, are more likely than younger and older users to do research on product and online banking (Pew Research Center 2005a, 2008b). Male users reported more Internet experience or skills than female users (UCLA Center for Communication Policy 2003). Men are more likely than women to do online commerce activities: buy travel services or make reservations, online auction, and buy or sell stocks, bonds, and mutual funds (Pew Research Center 2005a, 2005b, 2008b). Education has been a consistent predictor of Internet adoption and use. Because universities were major contributors to online training, higher education affected the level of Internet skills (Hargittai 2002). Highly-educated people also tend to be 'knowledge workers' who are heavy information users (Drucker 1993). Income may be the strongest demographic predictor of transactional activities. Online banking is most likely to be performed by those who have higher socio-economic status (Pew Research Center 2005a).

Antecedents

Broadband. Broadband adoption is both the outcome and the condition of online behavior. Spread of online banking has coincided with the spread of high-speed broadband connections. Thirty-two percent of broadband users had tried online banking, compared with the smaller percent of those with dial-up (Pew Research Center 2005a, 2008a).

Experience. Use of e-commerce websites requires technical knowledge and skills. Web experiences have long been considered predictors of all kinds of Internet activities (Ariguzo 2006; Zhou, Dai, and Zhang 2007). Specifically, an increase in

Internet use period was associated with higher use of online banking service: 51% of those who have more than six years of Internet experience have tried banking online, compared to 27% of those with three years or less of online experience (Pew Research Center 2005a). New Internet users tend not to make purchase within two years: 50% of Internet buyers in 2002 waited more than two years after going online before making their first purchase (UCLA 2003). Also, there is a difference in the types of products purchased between new and experienced users: very experienced users bought more computer equipment, books, software, electronics, stocks and bonds while new users are more likely to purchase CDs, clothes, jewelry, hobby items (UCLA 2003).

Skill. Internet skills may be conceptualized and measured as the number of actual tasks that a user can do perform and those tasks included attaching files to email, downloading files, creating homepages, using spam blocking or firewall software, installing proxy servers, and so on. However, as many Internet applications now include user-friendly interfaces, some of these skills no longer require additional knowledge. In addition, some skills for spam blocking and anti-virus software are sometimes automatically set up by service providers. Instead of the actual skill for specific tasks, perceived skill may be an alternative measurement.

Post-materialist value. The influence of social values on consumer attitude and behavior has been investigated (e.g. Jayawardhena 2004), but there has been a lack of utilization of comparative crossnational value index. Hofstede's cultural dimensions have been widely adopted for crossnational comparison of media use (Hofstede 1984, 1991), but the measure was originally for work-related values in organizations. Developed for crossnational comparison of social values, post-materialist value includes higher levels of self-expression, freedom, and greater focus on quality of life, whereas materialist value is exemplified by security needs, acceptance of authority, and achievement motivation (Inglehart 1997). The premise is that people tend to seek a way of life that downplays the importance of material reward or pragmatism once their basic needs are met. Internet users with higher post-materialist value may be associated with more public discussion, community

participation, and entertainment. Conversely, users with higher materialist value may be involved in more instrumental motivations and financial security. This dimension of materialist/postmaterialist value provides a conceptual basis for linking social values to general Internet use and to diverse types of online consumer behaviors (Danowski and Choi 2001; Zhu and He 2002a, 2002b).

E-commerce motivations

Control and freedom have been highlighted as main motivations of e-commerce. Online consumers take advantage of convenience, unique and broader selection, comprehensive information about the products and prices, time saving, money saving, and freedom from sales person (Ahuja, Gupta, and Raman 2003; Joines, Scherer, and Scheufele 2003; Wolfingbarger and Gilly 2001; Yang 2004). Along with those goal-oriented or instrumental motivations, experimental or hedonic motivations were also considered as strong reasons for online consumer behavior (Childers et al. 2001; Wolfingbarger and Gilly 2001). Thus, finding interesting things or enjoyment is another motivation of online consumer behavior. In addition, getting up-to-date information may be a strong motivation of online banking and investment use.

Based upon our review of theories and past empirical studies, we proposed an exploratory research question about the predictors of online transactional uses in each country.

RQ: To what extent can demographics, antecedents, and motivations variables predict the e-commerce use of Internet (finance, product, and entertainment) in each country of the U.S., the Netherlands, and S. Korea? Are there salient differences in the determinants of the e-commerce use among countries as a sign of culture-specific evolution of the Internet services?

METHOD

Sample and Procedures

An online survey was conducted in the United States, the Netherlands, and South Korea during June and July of 2003. The survey questionnaire was initially written in English, and then translated into Dutch and Korean. Online survey research firms were recruited in each country to get samples and administer the survey in their respective languages. Internet users over 18 years of age were asked to participate.

A total of 1,344 people in the three countries were surveyed about their use of the Internet. The United States sample had 502 respondents: 44% male and 56% female. The average age was 35.3 years old (SD = 13.0) with 14.4 years of education (SD = 3.6). The Netherlands sample had 403 Internet users: 48% male and 52 % female. The average age was 32.8 years old (SD = 11.5) with 13.5 years of education (SD = 4.4). The South Korean sample had 439 respondents: 55% male and 45% female. The average age was 30.2 years old (SD = 9.6) with 14.7 years of education (SD = 2.2).

Measurement

E-commerce activities. We selected six activities identified as major transactional Internet uses from several national surveys (Pew Research Center 2001, 2005 a, b; UCLA Center for Communication Policy 2003). Respondents were asked to report how often they used the Internet for online banking/investment, getting financial or investment information, looking for a product, buying a product, looking for information about books, movies, and travel. Each activity was measured by frequency per month on a 5-point Likert-type scale: Never; 1-4 times per month; 5-9 times; 10-20 times (about every other day); and 20 times or more (about every day). For simplicity of analysis, the six activities were classified into three categories by the type of transactional goods: finance (getting financial or investment information and doing online banking/investment), product (looking for a product and buying a product), and entertainment

(travel, books, movies, and music). A composite index was created for each usage category by summing the frequency value for each set of activities.

Demographics. We asked each respondent for age, gender (male = 1, female = 0), education level, and household income. Because the conversion of Dutch and South Korean incomes into dollar amounts for direct comparison was inappropriate, we normalized the income level in each country for a valid measure of the relationship with the economic status and Internet use.

Antecedents. The following questions were asked to uncover the social and psychological origins of media users' gratifications.

Broadband adoption. Respondents were asked to report the connection type: dial-up, (A) DSL, Cable modem, and Satellite. The latter three types were coded as broadband adoption.

Web experience. Respondents were asked how many months they had used the World Wide Web. The maximum value was set to 10 years.

Perceived skill. Perceived skill in using the Internet was captured through two items: "I consider myself to be very proficient in the use of the Internet" and "I feel my computer skills are inadequate (reversed)." Responses were measured on a 7- point Likert-type scale (1 = strongly disagree, 7 = strongly agree).

Post-materialist value. The post-materialist/materialist value index was originally proposed as a one-dimensional scale. However, given the situation of worldwide economic depression and unstable national security at the time of data gathering, the assumption of dimensionality of scale was questioned and none of the materialist value items were asked. Instead, respondents were asked how much they valued self-expression, de-emphasis of authority, and quality of life. Responses were measured on a 7- point Likert-type scale (1 = strongly disagree, 7 = strongly agree).

E-commerce motivations. Six items measured motivations for online commerce: Five goal oriented motivations (convenience, saving time, saving money, less sales pressure, and stay informed), a hedonic motivation (finding interesting things). All responses were measured on a 7- point Likert-type scale.

RESULTS

Table 1 presents a result of descriptive analysis of social/psychological antecedents, six e-commerce motivations, and three types of e-commerce activities in three countries. Internet connection type showed that almost all Korean users in the sample were broadband service subscribers (99%). Eighty five percent of the Dutch users had broadband connection, but the US users had only 52% of broadband adoption. The U.S. sample had the longest Internet experience ($m = 6.7$ years) and the highest post-materialist value ($m = 5.77$). The Dutch sample had the highest perceived skill in Internet use ($m = 5.52$).

A series of ANOVA and t-test results showed that U.S. users had significantly higher utilitarian motivations than Dutch and Korean users. U.S. users had strong motivations of convenience

Table 1. Means and t-test results of antecedents, motivations, and e-commerce activities in the U.S., the Netherlands, and S. Korea.

	The U.S. ^a Mean (S.D.)	The Netherlands ^b Mean (S.D.)	S. Korea ^c Mean (S.D.)
<i>Antecedents</i>			
Broadband Adoption	.52 (.50) ^{b, c}	.85 (.35) ^{a, c}	.99 (.11) ^{a, b}
Internet Experience (years)	6.67 (2.55) ^{b, c}	6.33 (2.29) ^{a, c}	6.00 (2.39) ^{a, b}
Skill	5.36 (1.30)	5.52 (1.27) ^c	5.33 (1.15) ^b
Post-materialist Value	5.77 (.96) ^{b, c}	5.45 (.92) ^{a, c}	5.15 (.10) ^c
<i>Motivations</i>			
Convenience	6.32 (.92) ^{b, c}	5.90 (1.10) ^{a, c}	5.54 (1.13) ^{a, b}
Save Time	5.72 (.13) ^{b, c}	4.37 (1.79) ^a	4.56 (1.37) ^a
Save Money	5.73 (1.34) ^{b, c}	4.22 (1.89) ^a	4.40 (1.37) ^a
Less Pressure	6.13 (1.19) ^{b, c}	4.99 (1.81) ^{a, c}	4.54 (1.60) ^{a, b}
Stay Informed	5.72 (1.26) ^{b, c}	5.48 (1.13) ^{a, c}	5.26 (1.08) ^{a, b}
Enjoyment	5.87 (1.11) ^c	5.76 (1.14) ^c	4.97 (1.28) ^{a, b}
<i>E-Commerce Activities</i>			
Finance	2.53 (1.98) ^b	2.27 (1.81) ^{a, c}	2.57 (2.06) ^b
Product	3.47 (1.55) ^{b, c}	2.57 (1.38) ^{a, c}	3.79 (1.79) ^{a, b}
Entertainment	2.77 (1.48) ^{b, c}	2.33 (1.36) ^{a, c}	3.82 (1.76) ^{a, b}

Note: Column means with a superscript (^a: the U.S., ^b: the Netherlands, ^c: S. Korea) indicate that means differ significantly from those in other country sample at $p < .05$.

($M = 6.34$, $S.D. = .92$), save time ($M = 5.72$, $S.D. = 1.31$), save money ($M = 5.73$, $S.D. = 1.34$), less sales pressure ($M = 6.13$, $S.D.=1.19$), and stay informed ($M = 5.72$, $S.D. = 1.26$). All the differences between two other countries were significant at .05 level. U.S. users also showed the highest hedonic motivation, finding interesting things ($M = 5.87$, $S.D. = 1.11$), but the mean difference was only significant to Korean users ($M = 4.97$, $S.D. = 1.28$).

S. Korean users had significantly higher frequencies in using the Internet for browsing/purchasing of product ($M = 3.79$, $S.D. = 1.79$) and of entertainment goods and services ($M = 3.82$, $S.D. = 1.76$) than Unites States or Dutch users. Users in the United States had mean scores of 3.47 ($S.D. = 1.55$) for product and of 2.77 ($S.D. = 1.48$) for entertainment. Dutch users shows the lowest mean scores of 2.57 ($S.D. = 2.57$) and of 2.233 ($S.D. = 1.36$) respectively. All the differences between countries were significant at .05 level. However, in using financial services (online banking and investment), S. Korean ($M = 2.57$, $S.D. = 2.06$) and U.S. ($M = 2.53$, $S.D. = 1.98$) users showed no significant difference, but had higher mean scores than Dutch users ($M = 2.27$, $S.D. = 1.81$).

Predictors of e-commerce use

We conducted a hierarchical regression analysis in order to identify predictors of three types of e-commerce services — finance (online banking and investment), product (product searching and buying), and entertainment (browsing books and movies, searching restaurant or travel information) in each country. We began by categorizing the variables into three blocks of predictors. Block 1 contained the demographic variables: age, gender, education, and household income. Block 2 contained the following social-psychological antecedents: web experience, perceived skill, broadband subscription, and post-materialist value. Block 3 included six motivations: convenience, less pressure, save time, save money, stay informed, and find interesting things (enjoyment). In three hierarchical regression analyses all VIF scores of independent variables were below 2.0 and no multicollinearity problem was identified.

Finance

The U.S. The only significant demographic predictor of financial use was Income ($\beta = .10$, $p < .05$). Experience ($\beta = .14$, $p < .01$) and Skill ($\beta = .12$, $p < .01$) were significant social/psychological antecedents. However, no variable in motivations block was significant in predicting the online financial activity. In sum, people who had more web experiences, skills, and income used online banking and investment services more frequently.

The Netherlands. Gender ($\beta = .17$, $p < .01$) was a significant demographic predictor of financial use in Dutch users. That is, male used online banking and investment sites more frequently than female users. Three social/psychological antecedent variables were significant: Broadband ($\beta = .16$, $p < .01$), Experience ($\beta = .14$, $p < .05$), and Post-Materialistic value ($\beta = -$

Table 2. Hierarchical regression analysis of predictors of e-commerce: Finance

	The U.S.	The Netherlands	S. Korea
<i>Demographics</i>	(<i>R</i> ² change) .03**	(<i>R</i> ² change) .10 **	(<i>R</i> ² change) .19 *
Age	.04	.06	.23**
Gender	.07	.17**	.08
Education	.01	-.03	.00
Income	.09*	.11	.14**
<i>Antecedents</i>	(<i>R</i> ² change) .07**	(<i>R</i> ² change) .05**	(<i>R</i> ² change) .04**
Broadband	.08	.16**	NA
Experience	.15**	.14*	.19**
Skill	.12*	-.04	.03
P-M Value	.00	-.12*	.01
<i>Motivations</i>	(<i>R</i> ² change) .03**	(<i>R</i> ² change) .04*	(<i>R</i> ² change) .06*
Convenience	.00	.02	.04
Less Pressure	.08	.15 *	.09
Save Time	-.08	-.04	.07
Save Money	.13	.03	.09
Stay Informed	.07	.10	.02
Enjoyment	-.03	-.04	-.20**
<i>Total variance explained (adjusted R²)</i>	.11**	.14**	.26**

Note: * $p < .05$, ** $p < .01$.

.12, $p < .05$). The Post-Materialist value was a negative predictor. Among motivations, Less Pressure ($\beta = .15$, $p < .05$) was the only significant predictor. Dutch users who use financial sites more often tend to be male, have a broadband connection, have used the Internet longer, have materialist value, and want to have less pressure.

S. Korea. Three variables were significant predictors of financial use of the Internet in S. Korean users. Age ($\beta = .23$, $p < .01$) was the strongest predictor. It was a positive predictor which means older users used online banking and investment more frequently. Because age is associated with income for Korean users ($r = .28$, $p < .01$), the interpretation of this result should be made with caution.

Experience was also a significant predictor. Enjoyment, a hedonic motivation, negatively predicted the financial use. In sum, S. Koreans who are older, have more Web experience, and have more instrumental motivation tend to use online banking and investment sites more frequently. Table 2 summarizes the results of final models of online activities in finance in three countries.

Product

The U.S. Having less pressure from sales person ($\beta = .24$, $p < .01$) was the strongest predictor of product purchasing behavior in U.S. samples. Other motivations were also significant: Information ($\beta = .12$, $p < .05$), Enjoyment ($\beta = .11$, $p < .01$), and Saving Time ($\beta = -.12$, $p < .05$). Enjoyment was a hedonic motivation. Ironically, saving time was a negative predictor. Age ($\beta = -.11$, $p < .05$) was also a negative predictor. Skill ($\beta = .11$, $p < .05$) was a significant social/psychological antecedent. In sum, American Internet users who want to have less pressure but more fun, and who are young and have skills knowing how to get secure Internet transactions use the product related sites more frequently.

The Netherlands. Three variables were significant predictor of browsing product sites and purchasing. Less Pressure ($\beta = .23$, $p < .01$) was the strongest predictor. Broadband ($\beta = .15$, $p < .01$) was also a significant predictor. Among motivations, Convenience ($\beta = .14$, $p < .05$) was the only significant predictor. A hedonic

Table 3. Hierarchical regression analysis of predictors of e-commerce: Product

	The U.S.	The Netherlands	S. Korea
<i>Demographics</i>	(<i>R</i> ² change).03*	(<i>R</i> ² change).05**	(<i>R</i> ² change).01*
Age	-.11*	.09	-.11*
Gender	.05	.09	-.07
Education	.01	-.03	.02
Income	.03	.01	.09
<i>Antecedents</i>	(<i>R</i> ² change) .05 **	(<i>R</i> ² change) .04 *	(<i>R</i> ² change) .03*
Broadband	.09	.15**	NA
Experience	.06	.07	.08
Skill	.11 *	-.03	.03
P-M Value	.00	-.04	-.04
<i>Motivations</i>	(<i>R</i> ² change) .07**	(<i>R</i> ² change) .15**	(<i>R</i> ² change) .09**
Convenience	-.07	.14*	.21**
Less Pressure	.24**	.23**	.16**
Save Time	-.12*	-.07	-.05
Save Money	.10	.03	.10
Stay Informed	-.03	.05	-.09
Enjoyment	.12*	.05	-.07
<i>Total variance explained (adjusted R²)</i>	.11**	.18 **	.09

Note: * $p < .05$, ** $p < .01$.

motivation was not a predictor in Dutch users.

S. Korea. One demographic variable and two motivations were significant predictors of using product sites. Contrary to financial use, Age ($\beta = -.11$, $p < .05$) was a negative predictor: younger users shop online more often. Convenience ($\beta = .21$, $p < .01$) and Less Pressure $\beta = .16$, $p < .01$) were significant motivations. The results of final models of online activities in product are summarized in Table 3.

Entertainment

The U.S. Information was the strongest predictor of using entertainment related e-commerce sites such as books, movies, and travel. Age ($\beta = -.16$, $p < .01$) was a negative predictor. Broadband ($\beta = .15$, $p < .01$) and Experience ($\beta = .14$, $p < .01$)

were significant social/psychological antecedents. American online users who are young, but have used the Internet longer with broadband connection, and who have a strong motivation for staying informed about new books, movies, and travel information, use the entertainment related sites more often.

The Netherlands. Only two variable predicted use of entertainment sites. Information ($\beta = .16$, $p < .01$) and experience ($\beta = .14$, $p < .05$) were significant predictor. Interestingly, an age was not a predictor.

S. Korea. Consistent with the result in product sites use, Age ($\beta = -.14$, $p < .01$) negatively predicted entertainment sites use. That is, younger users tended to visit books, movies, and travel sites more often. Income ($\beta = .13$, $p < .01$) was another significant demographic predictor. Skill also predicted the use of entertainment sites. Less Pressure ($\beta = .14$, $p < .01$) and

Table 4. Hierarchical regression analysis of predictors of e-commerce: Entertainment

	The U.S.	The Netherlands	S. Korea
<i>Demographics</i>	(R^2 change) .05**	(R^2 change) .01	(R^2 change) .03**
Age	-.16**	-.01	-.14*
Gender	-.01	.01	-.04
Education	.01	.01	.06
Income	.02	-.01	.13*
<i>Antecedents</i>	(R^2 change).08**	(R^2 change) .02	(R^2 change) .05**
Broadband	.15**	.07	NA
Experience	.14**	.14*	.07
Skill	.06	-.04	.11*
P-M Value	.04	-.09	-.06
<i>Motivations</i>	(R^2 change) .05**	(R^2 change) .05*	(R^2 change) .06*
Convenience	-.02	.07	.06
Less Pressure	.04	.08	.14**
Save Time	.06	-.05	-.04
Save Money	.02	-.03	-.02
Stay Informed	.19**	.16**	.06
Enjoyment	-.01	-.07	-.10
<i>Total variance explained (adjusted R²)</i>	.17**	.04*	.09**

Note: * $p < .05$, ** $p < .01$.

Enjoyment ($\beta = .09$, $p < .01$) were significant motivations of entertainment use of the Internet. Table 4 summarizes the results of final models of online activities in entertainment.

In all three types of e-commerce use of the Internet U.S. users showed that gender, education, post-materialist value, saving money, and convenience were not significant predictors. The results from Dutch users demonstrated that education, income, age, saving time, saving money, and enjoyment were not significant predictors of any type of online commerce use. In all three types of e-commerce use of the Internet S. Korean users showed that gender, education, post-materialist value, saving time, saving money, and information were not significant predictors.

DISCUSSIONS AND IMPLICATIONS

This exploratory research demonstrated that both culture-general and culture-specific determinants impact on consumer behavior in each country. A research question was proposed to identify predictors of e-commerce use of the Internet in each country and compare differences and similarities in the pattern. Three layers of variables were put into analysis: demographics, antecedents, and motivations.

Age was the most salient predictor in demographics. In all three countries younger users tend to visit product and entertainment sites more frequently. For financial use, only Korean users showed that older people used more often online banking and investment. It may be because younger people have less need for financial management or they tend to depend more on mobile phone for online banking. Also, there was a moderate but significant correlation between age and income for Korean users ($r = .28$, $p < .01$) whereas the association is weaker for Dutch users ($r = .14$, $p < .05$) and void for U.S. users. Gender determined financial use only for Dutch users. Education and income did not predict any type of e-commerce use in all three countries. In those highly wired countries social-economic status seems not anymore to be a determinant of online commerce activities. The interpretation of this finding, however, should be made with caution because there were slight differences in

gender composition and age distribution between samples of each country.

In social-psychological antecedents, Web experience was a common predictor of financial use in all three countries and of entertainment use in the U.S. and the Netherlands. It may be because the longer users have used the Web, the more confident they feel about online transactions and security issues. However, experience did not predict the use of e-commerce for product in any country.

The predicting power of broadband connection was not consistent across countries. Because S. Korean sample in this study reported 99 % of broadband connection, this variable was accountable to only U.S. and Dutch users. Dutch users with broadband connection tend to use financial services more often, but American broadband users tend to visit product and entertainment sites more frequently. The results may be interpreted with the interaction with the income because broadband adoption can be associated with household income. However, household income and broadband adoption had a modest association only for U.S. users ($r = .18$, $p < .01$). Post-materialist value was not a predictor of any e-commerce use in all three countries except that Dutch users who had stronger materialist value reported more usage of online financial services.

Among motivations, 'less pressure' appeared as a strong and common predictor of product browsing and purchase in all three countries. This implies that online consumers tend to avoid interruption or pressure from sales person at stores. 'Convenience' was a main reason of online shopping in the Netherlands and S. Korea. However, contrary to popular beliefs, 'saving money' was not a motivation for any type of transactional use in all three countries. Thus, we can say that online shopping is not for bargain hunt. 'Saving time' was a negative determinant of product sites use among American online shoppers. Hedonic motivation predicted product sites use for American users and entertainment sites use for Korean users.

CONCLUSION

The main contribution of this study is a cross-national approach to online consumer behavior. The main objective was to identify and crossnationally compare predictors of e-commerce activities in three areas — finance, product, and entertainment. A set of hierarchical regression analyses proved that there existed different social and cultural impacts on e-commerce activities in each country.

This exploratory research deserves attention both from online consumer behavior researchers and practitioners. With a broader and interdisciplinary theoretical framework of Internet use, this study provides an empirical basis for a consolidated model for cross-national online commerce marketing by identifying both global and local determinants on the online consumer behavior.

This study provides insights into crosscultural understanding of online consumer behavior. Despite that national boundaries are meaningless in cyberspace in terms of geography-free access to information, there exist different social and cultural impacts on e-commerce in each country. For example, the U.S. Internet users had a strong hedonic motivation for product shopping while Korean users for entertainment. The hedonic motivation is more likely to be a key predictor of online consumers' access to entertainment goods in other countries as commercial services of music and movie become widespread with strengthened copyright protection.

The impact of web experience sheds lights on online financial services and shopping. The fact that new users tend not to start using online financial services may encourage financial institution to develop different strategies for new Internet users. User friendly interface and assurance of security may appeal to new users who don't have much experience and knowledge, and less confidence.

Comparing different predictors that affect B2C e-commerce use in highly-wired societies may also help us understand why and how people use the Internet in rapidly developing technological environments. Because the Internet is still evolving, examining the social and psychological processes associated with its use in countries where adoption has stabilized should help us predict

its ongoing use in the multimedia environment to come (Stafford, Stafford, and Schkade 2004). For instance, 3G mobile phones and digital TVs will extend the functions associated with the Internet: personalized advertising, audiovisual file transfer and playback, online shopping, banking, and other advanced features. Taking a snapshot of current Internet use may tell us how people will adopt and use these new transactional services.

There are some limitations of this study. This study examined online consumer behavior in the three most wired countries, but the result should be interpreted with caution as a generalizable pattern. As there has been very little research on crossnational comparison of online consumer behaviors, there is a strong need for broadening the range of investigation. Although this research specified three different types of e-commerce activities — finance, product, and entertainment, it did not separate purchasing from information search. Future research may analyze those two modes of online activities separately and investigate the pattern of consumer behavior with the combination of online and offline information search and shopping.

REFERENCES

- Ahuja, Manju, Babita Gupta, and Pushkala Raman (2003), "An empirical investigation of online consumer purchasing behavior," *Communications of the ACM*, 46(12), 145-151.
- Ariguzo, Godwin C., Efreem G. Mallach, and D. Steven White (2006), "The first decade of e-commerce," *International Journal of Business Information Systems*, 1(3), 239-255.
- Assael, Henry (1998), *Consumer Behavior and marketing Action*, 6th ed, Cincinnati, Thomson.
- Atkin, David J., Leo W. Jeffres, and Kimberly A. Neuendorf (1998), "Understanding Internet adoption as telecommunications behavior," *Journal of Broadcasting & Electronic Media*, 42(4), 475-490.
- Blumler, Jay G. (1979), "The role of theory in uses and gratifications studies," *Communication Research*, 6, 9-36.
- _____ and Elihu Katz (1974), *The Uses of Mass Communications: Current Perspectives on Gratifications Research*, Beverly Hills, CA: Sage.
- Charney, T. R. and B. S. Greenberg (2001), "Uses and gratifications of the Internet," in *Communication, Technology and Society: New Media*

- Adoption and Uses*, Lin C. and D. J. Atkin eds., Cresskill, NJ, Hampton Press, 379-408.
- Childers, Terry L., Christopher L. Carr, Joann Peck, and Stephen Carson (2001), "Hedonic and utilitarian motivations for online retail shopping behavior," *Journal of Retailing*, 77, 511-535.
- Danowski, Jamse A. and Junho H. Choi (2001), "A global perspective on Internet sexual content: nations' values as predictors of Internet Web sex pages," in *Media, Sex, Violence, and Drugs in the Global Village*, Kamalipour Y. and K. Rampal eds., Boulder, CO, Rowman and Littlefield, 29-50.
- Ebersole, Samuel (2000), "Uses and gratifications of the Web among students," *Journal of Computer-Mediated Communication*, 6(1), <http://jcmc.indiana.edu>, last accessed 1 November 2005.
- Eun, H. and E-Y. Na (2002), "Gratification sought and gratification obtained by Internet users and their relationship with using behavior," *Korean Journal of Journalism & Communication Studies*, 46(3), 214-51.
- Flanagin, Andrew J. and Miriam J. Metzger (2001), "Internet use in the contemporary media environment," *Human Communication Research*, 27, 153-81.
- Hargittai, Eszter (2002), "Beyond logs and surveys: in-depth measures of people's Web use skills," *Journal of the American Society for Information Science and Technology*, 53(4), 1239-1244.
- Henning-Thurau, Thorsten and Gianfranco Walsh (2004), "Electronic word-of-mouth: motivations for and consequences of reading customer articulations on the Internet," *International Journal of Electronic Commerce*, 8(2), 51-74.
- Hofstede, Geert (1984), *Culture's Consequences: International Differences in Work-Related Value*, Sage, Newbury Park, CA.
- _____ (1991) *Cultures and Organizations: Software of the Mind*, McGraw-Hill, London.
- International Telecommunication Union, *World Telecommunication Indicators Database*, 2003, 2007, <http://www.itu.org>, last accessed 1 November 2008.
- Jayawardhena, Chanaka (2004), "Personal values' influence on e-shopping attitude and behavior," *Internet Research*, 14(2), 127-138.
- Joines, Jessica L., Clifford W. Scherer, and Dietram A. Scheufele (2003), "Exploring motivations for consumer Web use and their implications for e-commerce," *Journal of Consumer Marketing*, 20(2), 90-108.
- Katz, Elihu, Jay G. Blumler, and M. Gurevitch (1974), "Utilization of mass communication by the individual," in *The Uses of Mass Communications: Current Perspectives on Gratification Research*, J.

- G. Blumer and E. Katz eds., Beverly Hills, CA: Sage, 19-32.
- Katz, James E. and Rice Ronald E. (2002), *Social Consequences of Internet Use: Access, Involvement, and Interaction*. Cambridge, MA: MIT Press.
- Kau, Ah Keng, Yingchan E. Tang, and Sanjoy Ghose (2003), "Typology of online shoppers," *Journal of Consumer Marketing*, 20(2/3), 139-154.
- Kaye, Barbara K. and Thomas J. Johnson (2002), "Online and in the know: uses and gratifications of the Web for political information," *Journal of Broadcasting & Electronic Media*, 46(1), 54-71.
- _____ (2004), "A Web for all reasons: uses and gratifications of Internet components for political information," *Telematics and Informatics*, 21(3), 197-223.
- Kraut, Robert E. and Paul Attewell (1997), "Media use in a global corporation: electronic mail and organizational knowledge," in *Culture of the Internet*, Kiesler, S. ed., Mahwah, NJ, Lawrence Erlbaum, 323-342.
- Larose, Robert, Dana Mastro, and Matthew S. Eastin (2001), "Understanding Internet usage: a social cognitive approach to uses and gratifications," *Social Science Computer Review*, 19(4), 395-413.
- Lin, Carolyn A. (2001), "Audience attributes, media supplementation and likely online service adoption," *Mass Communication & Society*, 4(1), 19-38.
- _____ (2002), "Perceived gratifications of online media service use among potential users," *Telematics and Informatics*, 19(1), 3-19.
- McGuire, William J. (1974), "Psychological motivations and communication gratifications," in *The Uses of Mass Communications: Current Perspectives on Gratifications Research*, Blumler, J.G. and E. Katz eds., Beverly Hills, CA: Sage, 167-196.
- National Computerization Agency (2004), *White Paper Internet Korea 2004*, Seoul, Korea.
- OECD, *Communications Outlook*, (2003, 2007), <http://www.oecd.org>, last accessed 1 November 2008.
- Palmgreen, P. (1984), "Uses and gratifications: a theoretical perspective," in *Communication Yearbook 8*, Bostrom, R.N. ed., Beverly Hills, CA: Sage, 61-72.
- Papacharissi, Zizi and Alan M. Rubin (2002), "Predictors of Internet use," *Journal of Broadcasting & Electronic Media*, 44(2), 175-196.
- Parker, Betty J. and Richard E. Plank (2000), "A uses and gratification perspectives on the Internet as a new information source," *American Business Review*, 18(2), 43-49.
- Peng, D. W.-J. (2007), "Factors affecting consumers' uses and gratifications of the Internet: A cross-cultural comparison among Taiwan, Hong Kong and China," *International Journal of Computer*

Sciences and Network Security, 7(3), 233-242

- Perse, Elizabeth M. and Debra Greenberg Dunn (1998), "The utility of home computers and media use: implications of multimedia and connectivity," *Journal of Broadcasting & Electronic Media*, 11, 537-562.
- Pew Research Center (2000), *Tracking Online Life: How Women Use the Internet to Cultivate Relationships with Family and Friends*, <http://www.pewinternet.org>, last accessed 1 November 2008.
- _____ (2001), *More Online, Doing More*, <http://www.pewinternet.org>, last accessed 1 November 2008.
- _____ (2004a), Pew Research Center, *The Broadband Difference: How Americans' Behavior Changes with High-Speed Internet Connection at Home*, <http://www.pewinternet.org>, last accessed 1 November 2008.
- _____ (2004b), Pew Research Center, *The Internet and Daily Life*, <http://www.pewinternet.org>, last accessed 1 November 2005.
- _____ (2005a), Online Banking 2005: A Pew Internet Project Data Memo, <http://pewinternet.org>, last accessed 1 November 2005.
- _____ (2005b), Broadband Adoption in the United States: Growing but Slowing, <http://pewinternet.org>, last accessed 1 November 2008.
- _____ (2008a), Home Broadband Adoption, <http://www.pewinternet.org>, last accessed 1 November 2008.
- _____ (2008b), *Online Shopping*, <http://www.pewinternet.org>, last accessed 1 November 2008.
- Raban, Yoel (2004), "Trends in ICTs and future forecasts," paper presented at *e-Living Results Conference*, Essens, Germany, <http://www.eurescom.de/e-living>, last accessed 1 November 2005.
- Research And Markets (2004), *Telecoms in Europe - Benelux: Belgium Luxembourg Netherlands*, <http://www.researchandmarkets.com>, last accessed 1 November 2005.
- Rhee, Kyung Yong and Wang-Bae Kim (2004), "The adoption and use of the Internet in South Korea," *Journal of Computer-Mediated Communication*, 9(4), <http://jcmc.indiana.edu>, last accessed 1 November 2005.
- Rice, R. E. and J. Webster (2002), "Adoption, diffusion, and use of new media," *Communication Technology and Society: Audience Adoption and Uses*, in Lin C. and D. Atkin eds., Cresskill, NJ, Hampton Press, 191-228.
- Rosengren, Karl E. (1974), "Uses and gratifications: A paradigm outlined," in *The Uses of Mass Communications: Current Perspectives on Gratifications Research*, Blumler, Jay G. and E. Katz eds., Beverly Hills, CA: Sage, 269-286.
- Rubin, Alan M. and Charles R. Bantz (1987), "Utility of videocassette

- recorders," *American Behavioral Scientist*, 30(5), 471-485.
- Rubin, Alan M. and Rebecca B. Rubin (1982), "Contextual age and television use," *Human Communication Research*, 8(3), 228-244.
- Song, Indeok, Robert Larose, Matthew S. Eastin, and Carolyn A. Lin (2004), "Internet gratifications and Internet addiction: on the uses and abuses of new media," *CyberPsychology & Behaviors*, 7(4), 384-394.
- Stafford, Thomas F. and Marla Royne Stafford (2001), "Identifying motivations for the use of commercial Web sites," *Information Resources Management Journal*, 14(1), 22-30.
- _____ and Lawrence L. Schkade (2004), "Determining uses and gratifications for the Internet," *Decision Sciences*, 35(2), 259-288.
- Stevens, James (2002), *Applied Multivariate Statistics for the Social Sciences*, Mahwah, NJ, Lawrence Erlbaum.
- UCLA Center for Communication Policy (2003), *Surveying the Internet Future: Year Three*, <http://ccp.ucla.edu>, last accessed 1 November 2005.
- Wonfinbarger, Mary and Mary C. Gilly (2001), "Shopping online for freedom, control and fun," *California Management Review*, 43(3), 34-55.
- Yang, K (2004), "Effects of consumer motivations on search behavior using Internet advertising," *CyberPsychology & Behavior*, 7(4), 430-442.
- Zhou, Lina, Liwei Dai, and Dongsong Zhang (2007), "Online shopping acceptance model: A critical survey of consumer factors in online shopping," *Journal of Electronic Commerce Research*, 8(1), 41-62
- Zhu, Jonathan J.H. and Zhou He (2002a), "Information accessibility, user sophistication, and source credibility: the impact of the Internet on value orientation in mainland China," *Journal of Computer-Mediated Communication*, 7(2), <http://jcmc.indiana.edu>, last accessed 1 November 2005.
- _____ (2002b), "Perceived characteristics, perceived needs, and perceived popularity: adoption and use of the Internet in China," *Communication Research*, 29(4), 466-495.

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