

디지털콘텐츠 불법복제 행동에 관한 연구

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An Empirical Study of the Piracy Behavior on Digital Content

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■ Abstract ■

Digital content piracy has been shown to be an emerging societal problem. However, Studies on digital content piracy are very limited. In this paper, we try to find whether Theory of Planned Behavior(TPB) can explain the online digital content piracy in China. In addition to the finding of TPB's usefulness, We also examine the cross-cultural differences between Korea and China in behavior towards online digital content piracy. we argue that cultural factors moderate the strength of the relationships in the TPB model in online digital content piracy. we use a theoretical model of behavior based on the framework of the TPB(Theory of Planned Behavior) and Hofstede's national cultural dimensions. Our results indicate that the general TPB(Theory of Planned Behavior) model of software piracy is broadly applicable to digital content piracy in China. Our findings also show that most of the hypothesized moderating effects of national cultural factors were found to be significant.

Keyword : TPB, Hofstede's Culture Index Scores, Piracy Behavior on Digital Content

1. Introduction

During the last decade, much research has been dedicated to the study of ethics and ethical behavior in business. Ethical situations arise often in many different areas of business, and this has been complicated by the integration of Information Systems (IS) into business operations. One issue that has been in the news lately is the issue of intellectual property, and specifically software piracy.

Compared to 2006 the worldwide PC software piracy rate increased by three percentage points to 38%, and software industry is estimated to have incurred global revenue losses by \$8 billion to nearly \$48 billion worldwide in 2007. It highlights the significant negative impact of piracy on the software industry.¹⁾

While software piracy has received much interest (with an estimated \$48 billion in lost revenues in 2007),²⁾ a new form of piracy has taken the piracy spotlight and being called the next big piracy arena (Bhattacharjee et al., 2003; Al-Rafee and Cronan, 2006).

As the widespread use of personal computers, it has created new opportunities for criminal activity. One of the most pervasive forms of computer crime is digital piracy (Gopal, Sanders, Bhattacharjee, Agrawal, and Wagner, 2004).

Digital piracy is defined as the illegal act of copying digital goods, software, digital documents, digital audio (including music and voice), and digital video for any reason other than to back up without explicit permission from and compensation to the copyright holder (Gopal et al., 2004; Higgins, Fell, and Wilson, 2006; Wolfe, Higgins and Marcum,

2008). Al-Rafee and Cronan (2006) were also defined the digital piracy in the paper "the illegal copying/downloading of copyrighted software and media files", Despite intellectual property protection, digital content piracy is practiced in most countries around the globe.

Less work has been done to study differences in piracy rates at the country level. Traphagan and Griffith (1998) demonstrate that, although differences in software piracy rates may be due in part to national wealth, culture is also part of the equation. In Western Europe, for example, the wide differences in piracy rates (from a high of 58% in Greece to a low of 21% in Luxembourg) cannot be explained only by differences in national income. As a result, policy recommendations that do not take into account culture will be incomplete. Yet culture clearly plays a role in software piracy. Steidlmeire (1993) explains that intellectual property protection is very much rooted in the Western cultural values of liberalism and individual rights. Indeed, he shows that property is a tremendously fluid concept affected by changing cultural values. The Western focus contrasts sharply with the Asian emphasis on social harmony and cooperation (Swinyard, Rinne, and Kau, 1990; Donaldson, 1996). Many developing countries do not accept the legitimacy of the monopoly claims over intellectual property asserted by business firms. Consequently a few studies are beginning to examine the relationship of culture to software piracy. The U.S. students held attitudes that were more congruent with copyright laws than did their counterparts from Singapore. They also found that the Singaporean groups were more influenced by the consequences of their actions on self, family, and community than by the illegality of copying software (Swinyard, Rinne and Keng Kau, 1990). Some re-

1) Study Highlights : Fifth Annual Global Software Piracy Study, 2008.

2) Business Software Alliance, 2008.

searchers found support for the interaction between culture and computer-use ethics. (Whitman, Townsend, Hendrickson and Rensvold, 1998) They applied an instrument that depicted 14 different scenarios involving ethical dilemmas in information systems management, including software piracy. They found that U.S. students had less permissive attitudes toward computer-use ethics than students from Hong Kong and Singapore.

Even these studies treat culture in a very general way and fail to explain how specific dimensions of culture are related to software piracy. Husted (2000) examines the impact of five cultural variables on the rate of software piracy at the country level and found that software piracy is significantly correlated to the cultural dimension of individualism.

Unfortunately, the researches that how cultural dimension are related to digital content piracy are very limited. Therefore, This study examines the impact of five cultural variables on the rate of digital content piracy.

This paper presents a study on the behavior that impact the piracy of digital content. This paper also examines the cross-cultural differences between Korea and China in behavior towards digital content piracy. This paper argues that cultural factors moderate the strength of the relationships in the TPB model in digital content piracy. This research uses a theoretical model of behavior based on the framework of the TPB (Theory of Planned Behavior) and Hofstede's national cultural dimensions.

2. Literature Review

2.1 Theory of Planned Behavior

In the past three decades, a few general theoret-

ical models of behavior have been proposed; perhaps the two best known are the Theory of Reasoned Action (TRA) and the Theory of Planned Behavior (TPB). The TRA was developed by Ajzen and Fishbein (1969, 1975, 1980); it proposed that one's intention to perform or not to perform an action (behavioral intention) is the immediate precursor to the actual behavior. The TRA model introduced two factors that affect behavioral intention :

Attitude toward the behavior and subjective norms. Attitude involves judgment whether the behavior is good or bad and whether the actor is in favor of or against performing it. Subjective norm is the perception of how one ought to behave. Fishbein and Ajzen define Attitude as "a person's feeling of favorableness or unfavorableness for that behavior", Subjective Norms is defined as "a person's perceptions of that most people who are important to him think he should or should not perform the behavior in question" (Ajzen, 1985). Ajzen later extended the model and called it the TPB, The Theory of Planned Behavior (TPB) is an extension of the TRA, introduced by Ajzen in 1985. which added perceived behavioral control as another factor influencing behavioral intention. Perceived behavioral control is the perception of how easy or difficult it would be to perform the behavior. Ajzen contends that the TRA is insufficient because it does not consider situations where the behavior is not under the individual's control. That is, even if the individual's attitude and subjective norms were in favor of committing the behavior, the individual might not be able to perform the behavior. Both the TRA and TPB models have been the basis of numerous studies. Empirical research supported the proposed relationships in both (Beck and Ajzen, 1991; Madden, Ellen, and Ajzen, 1992) They have

contributed to research in ethical decision-making, though some researchers believe that the TPB is more useful in predicting unethical behavior in the context of IT (Loch and Conger, 1996; Chang, 1998).

As previously, behavioral intention is influenced by attitude, personal normative beliefs, ego strength, sex, and moral judgment (Leonard, Cronan, and Kreie 2004).

To predict and understand the causes of behavior, Ajzen (1989) proposes the TPB, believing that behavior must be preceded by behavioral intentions, which in turns are affected by either the attitudes toward the behavior, the subjective norms toward the behavior, the perceived behavioral control, or all of them.

The Theory of Planned Behavior (TPB) has been used to identify and explain different kinds of behavior including ethical/unethical behavior (Dubinsky and Loken, 1989; Randall and Gibson, 1991).

2.2 Digital Content Piracy

Digital content piracy (DP) is a relatively new phenomenon. There are therefore a limited number of studies which have been conducted on this topic.

Rochelandet and Le Guel (2005) specifically offered evidence that consumers' intentions to engage in DP cause them to forego theater visits and legal DVD rentals and/or purchases. Sinha and Mandel (2008) reported evidence that the tendency to pirate a digital product depends on three key factors : (1) positive incentives (e.g., improved functionality of the Internet), (2) negative incentives (perceived risk associated with DP), and (3) consumer characteristics (e.g., a consumer's optimal stimulation level). However, the focus of their study was descriptive in nature and more closely related to willingness to pay for downloading a

song of choice than for intentions as described herein. Taylor, Ishida, and Wallace (2009) support the theoretical and empirical efficacy of the proposed model and highlight the importance of attitudes toward the act of digital piracy, the frequency of past digital piracy behaviors, and the motivations and intentions underlying digital piracy.

With the fast development of network technology and computing more and more people sharing file through P2P network in recent years. Digitalized music files, retaining almost the same quality as the original, can be reproduced, stored, and transferred at almost zero-cost. The technology of peer-to-peer (P2P) architecture has brought great convenience to and fostered the popularity of illegal downloading of "free" music. P2P architecture provides a platform for people to share resources with others. Many individuals, enabled by this technology, would rather download music from unknown members of P2P platform, than buying CD or music files from legitimate sellers. This is quite detrimental to the music industry (Krishnan, Smith, Telang, 2003; Chen, Shang, Lin, 2008). The file sharing using P2P networks has been called a "killer application" (Krishnan et al., 2003), and a disruptive innovation for the music industry (Liebowitz, 2006). Since the cost of reproducing digitalized information is low and the quality of the copies is almost identical to the original, piracy has been recognized as a major ethical issue in the information age (Mason, 1986). Under current laws, unauthorized copying of copyrighted files are an invasion of intellectual property rights (Lessig, 2002; Von Lohmann, 2003); however, people still share a huge amount of digital music and movies in P2P networks.

Sharing audio files shows some similarities as well as uniqueness compared to software piracy.

Price of music and available bandwidth are found to have significant effects on piracy. The price impact becomes more pronounced as technology improves (Bhattacharjee, Gopal, Sanders, 2003).

User's unauthorized downloading of music files is an invasion of intellectual property. Traditionally, consumers' economic savings and moral judgment are two explanations, among others, for downloading illegal music files. Monetary or economic gains such as cost saving, low price, or low income of customers was frequently suggested as one possible antecedents of this illegal behavior (Gopal, Sanders, Bhattacharjee, and Agrawal, 2004; Chen, Shang, and Lin, 2008).

Like some researches studied on software piracy using TPB model, most of digital content piracy studies used TPB model. Al-Rafee and Cronan (2006) examined factors that influence an individual's attitude toward pirating digital material. The results suggested that attitude toward digital pirating was influenced by beliefs about the outcome of behavior (cognitive beliefs), happiness and excitement (affective beliefs), age, the perceived importance of the issue, the influence of significant others (subjective norms), and machiavellianism. Later they studied factors that influence the intention to pirate media using TPB model, the significant components of this model were attitude, perceived behavioral control, moral obligation, and past piracy behavior. (Cronan and Al-Rafee, 2008). Kwong and Lee (2002) used the theory of planned behaviour in order to explain the intention to swap music on the Web. They found that beliefs in the equity of the record company-consumer relationship and the dissuasive effect of intellectual property protection laws had a significant impact on the attitude toward on-line music piracy. The results show that the intention to swap music on-line

depended on one's attitude toward music piracy, one's perception that important others want that this behaviour be performed, and one's perceived competency in doing so. In addition, having swapped music on-line in the past had a strong influence on one's intention to do it again (Astous, Colbert and Montpetit, 2005).

In China, In the research of exchange mode Internet music piracy, the results obtained are inspiring. the Theory of Planned Behavior (TPB) is proven successful in predicting and explaining individual's behavior on exchanging music on the internet (Kwong and Lee, 2002).

In Korea, some researchers found that individuals' intention to pirate digital music is mainly affected by the moral and ethical standards of the individuals and by the extra resources and abilities they possess (Han and Chang, 2007).

2.3 Theory of Culture

Hofstede (2001) generated and validated a cultural framework that clusters cultures based on five distinct dimensions : 1) Power Distance Index (PDI), 2) Individualism-Collectivism (IND), 3) Uncertainty Avoidance Index (UAI), 4) Masculinity-Femininity (MAS), and 5) Long-Term Orientation (LTO).

The framework was generated through the most extensive examination of cross-national values ever undertaken, with 116,000 respondents and across 40 countries. Culture has been defined as "the collective programming of the mind which distinguishes the members of one group or category of people from another" (Hofstede, 1997). (Hofstede, 2001) defined culture as "the collective programming of the mind that distinguishes the members of one group or category of people from another",

Hofstede's culture theory has been widely referenced and is frequently used as a conceptual framework for presuming, verifying, and explaining cultural differences in research (Blodgett et al., 2001).

Researchers have long recognized the need for cross-cultural research in ethics (Wines, Napier, 1992) and information technology (Gallupe and Tan, 1999). Many studies have confirmed a relationship between national culture and ethical behavior. Armstrong and Sweeney (1994) investigated the differences in ethical perceptions among Australian and Hong Kong managers. They found that the culture of the respondent's country had the most significant effect on the prediction of ethical problems. (Goodwin and Goodwin, 1999) compared attitudes towards ethical dilemmas among business students in Malaysia and New Zealand. Some differences in the responses were observed for both nationality and ethnic origin. Lu et al. (1999) studied the effects of national culture on marketing decisions and found that culture explained differences in behavior between managers in the United States and Taiwan. Other researchers also thought culture as one of the most influential variables influencing one's ethical decision making (Singhapakdi, Vitell, and Leelakulthanit, 1994). A person raised in a particular culture may acquire and cultivate certain attitudes, without even questioning the validity of these attitudes (Christie et al., 2003). Culture seems to be closely connected with one's perception about right or wrong, acceptable or unacceptable, and ethical or unethical (Lu et al., 1999). Many cross-cultural studies have shown that national culture has an influence on one's ethical attitude and behavior (Okleshen and Hoyt, 1996; Singhapakdi, Rallapalli, Rao, and Vitell, 1995). Results indicate that national culture has a strong

influence on business managers' ethical attitudes. (Christie, Kwon, Stoeberl, and Baumhart, 2003)

2.4 TPB and Culture and Digital Content Piracy

Although Hofstede's cultural theory is widely used in IS literature (Pavlou and Chai, 2002; Straub, et al., 1997), there are critics of this theory as well (Ford, et al., 2003). It is important to distinguish between IND in culture and SN in TPB—one is an objective measure of regulations and in-group/out-group relationships in a society, the other is an individual perception about how peer and social pressure would affect his or her personal behavior and its relevance to IT research. While some of the criticism is more relevant to our study than other, it is important to note that culture is relatively enduring (Hofstede, 1980 and 2001; Barsoux and Schneider, 1997; Fukuyama, 1995) and Hofstede's indicators are a stable and slowly changing representation of culture and transcend generations. Notwithstanding the criticism and the limitations, for the purpose of this study, we believe that Hofstede culture theory and its classifications are most appropriate.

Subjective norms in a business setting include social, organizational, departmental, and peer norms (Mathieson, 1991). The closer the affinity of individuals' goals with their reference group at any level, the more likely the individuals is to perform according to reference group expectations. For example, an employee may think that the supervisor will approve his/her using unauthorized software or digital content to solve the problems at work, that is the subjective norms toward the behavior affect by Individualism. where there were significant numbers of state-owned enterprises, many

people thought that stealing from these enterprises was not theft because, according to the dominant political ideology, the state-owned enterprises "belonged to the people." Individuals in such cultures who have in other respects reached the conventional level of moral development might not think twice about engaging in digital piracy (Hill, 2007).

Some researchers argue that adoption of e-commerce depends primarily on consumer behavioral intentions to engage in product purchases. The model first draws upon the TPB to interrelate online transaction intentions with attitude, subjective norm, and perceived behavioral control. The paper's major contribution is to incorporate Hofstede's (2001) cultural dimensions (individualism/collectivism, power distance, and long-term orientation) in studying cross-cultural e-commerce adoption. They argue that these cultural differences influence the proposed e-commerce adoption model and moderate its key relationships.

Several notable studies have discovered the moderating effects of culture on the relationships within the TPB models (Kacen and Lee, 2002; Pavlou and Chai, 2002; Tan et al., 2004). Karahanna et al. (2005) presented a comprehensive treatment regarding the influence of culture on individual behavior based on the TPB model. Dinev, Goo, and Hu (2008) examine the cross-cultural differences between South Korea and the United States in user behavior towards protective information technologies using TPB model and Hofstede's Culture dimensions. They found that cultural factors do significantly moderate the relationships in the Dinev and Hu (2007) model and thus play a significant role in the formation of user attitude and behavior towards using protective information te-

chnologies. They also found that Korean computer users exhibit stronger relationship between subjective norm and behavioral intentions than their US counterparts. This is consistent with their analysis on how the differences in individualism, masculinity, power distance, and uncertainty avoidance should affect individual behavioral intention and behavior.

3. Research Design

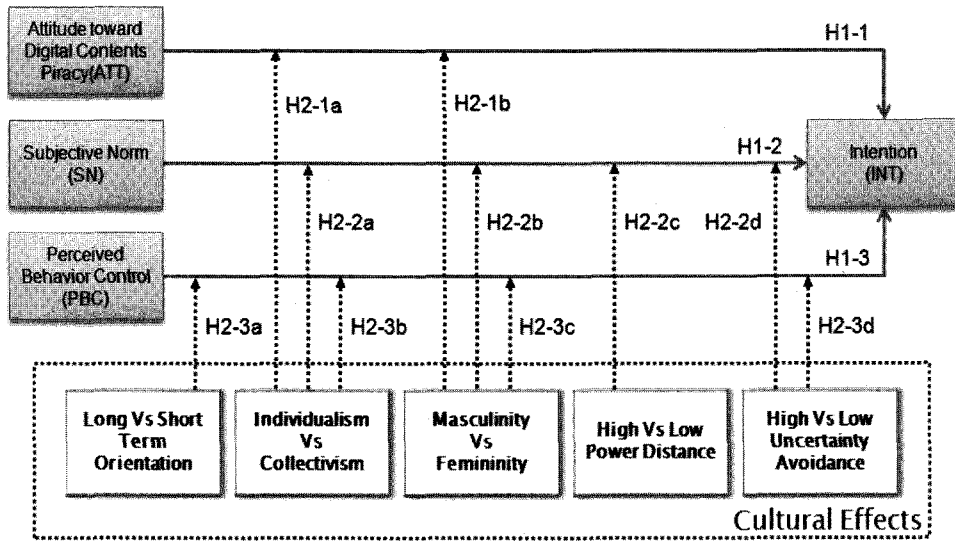
3.1 Conceptual Model

This Paper present a study on the behavior that impact the piracy of digital content. This examine whether the TPB model is a suitable research model to explain the digital contents piracy behavior in China, This Paper also examine the cross-cultural differences between Korea and China in behavior towards digital content piracy. This research argue that cultural factors moderate the strength of the relationships in the TPB model on digital content piracy. This research use a theoretical model of behavior based on the framework of the TPB (Theory of Planned Behavior) and Hofstede's national cultural dimensions. The following [Figure 1] shows the model and hypotheses.

3.2 Hypotheses

Some researchers studied factors that influence the intention to pirate media using TPB model, the significant components of this model were attitude, perceived behavioral control, moral obligation, and past piracy behavior (Cronan and Al-Rafee, 2008).

We examine that how factors influence the intention to pirate digital content using TPB model in China.



[Figure 1] Research Model

- H1-1 : Individuals with higher attitude toward piracy will correspond to a greater intention to pirate digital contents in China.
- H1-2 : Higher subjective norms will correspond with a greater intention to pirate digital contents in China.
- H1-3 : Higher perceived behavior control will correspond with a greater intention to pirate digital contents in China.

- H2-1 : The relationship between attitude and intention is stronger in Individualistic and Masculine culture
- H2-1a : The relationship between attitude and intention is stronger in Individualistic Culture than in Collectivist Culture.
- H2-1b : The relationship between attitude and intention is stronger in Masculine culture than in Masculine culture.

Dinev et al. (2008) posit that attitudes towards behavior would have a stronger effect on behavioral intention in individualist cultures than in collectivist cultures. Tan et al. (2004) argued that the masculinity index also moderates attitudes in the same direction as individualism does. Indeed, a goal and achievement-oriented individual from a more masculine culture will be more prone to act based on his or her individually formed attitudes than an individual in a more feminine culture where personal attitudes will matter less and people's attitudes and relationships will matter more.

A highly collectivist society will exhibit greater influence of the subjective norm on the behavioral intention, since the group norms are of higher priority (Pavlou and Chai, 2002; Tan, et al., 2004). In higher power distance cultures, individuals' reliance on the opinions of superiors will be more pronounced when assessing behavior. This argument is supported by studies of cultural effects on TPB (Pavlou and Chai, 2002; Tan, et al., 2004; Dinev, Goo, Hu, 2008). Individuals in stronger uncertainty avoidance cultures often attempt to minimize risk by following established rules and norms. The

subjective norms thus will be even more important as guidance to behavior for these individuals than for individuals in cultures where people rely more on their own competence to evaluate behavior. a less masculine culture where individuals pay more attention to the opinions and behaviors of the others, in contrast to the more masculine cultures where goal achievement is of greater importance.

Thus, we hypothesize :

H2-2 : The relationship between subjective norms and intention is stronger in Collectivist, Femininity , Higher Uncertainty Avoidance and Higher Power Distance Culture.

H2-2a : The relationship between subjective norms and intention is stronger in Collectivist Culture than in Individualistic Culture.

H2-2b : The relationship between subjective norms and intention is stronger in Femininity Culture than in Masculine Culture.

H2-2c : The relationship between subjective norms and intention is stronger in Higher Power Distance Culture than in Lower Power Distance Culture.

H2-2d : The relationship between subjective norms and intention is stronger in Higher Uncertainty Avoidance Culture than Lower Uncertainty Avoidance Culture.

(Dinev, Goo, and Hu, 2008) submit that long-term orientation is only one of the factors, among masculinity, individualism and the uncertainty avoidance indices that influences the relationship between perceived behavior control and intention. A person in a more individualistic and masculine society will be more prone to act or to form an intention to act if he or she feels to have enough con-

trol over a certain behavior. Thus, the lower masculinity and lower individualism characteristics of a society will render a weaker relationship between PBC and intention.

H2-3 : The relationship between perceived behavior control and intention is stronger in Short Term Orientation, Lower Uncertainty Avoidance, Individualistic, Masculine Culture.

H2-3a : The relationship between perceived behavior control and intention is stronger in Short Term Orientation Culture than in Long Term Orientation Culture.

H2-3b : The relationship between perceived behavior control and intention is stronger in Individualistic Culture than in Collectivist Culture.

H2-3c : The relationship between perceived behavior control and intention is stronger in Masculine Culture than in Femininity Culture.

H2-3d : The relationship between perceived behavior control and intention is stronger in Lower Uncertainty Avoidance Culture than in Higher Uncertainty Avoidance Culture.

3.3 Research Methodology

Our study involves investigating the moderating effects national culture on the TPB Model of behavior towards digital content piracy. The relationships among the constructs in our research model are tested using SPSS 15.0 for Windows.

4. Analysis and Results

4.1 Data Collection

From a research on the literature of software and

digital piracy, most of the studies use the survey research methodology through questionnaires. However, when asking the respondents about some sensitive questions such as whether he or she will perform the illegal act or not, biased results will be obtained and this situation has to be avoided. Indirect questions such as “the people around you that you know will pirated digital content on the Internet?” will be asked instead. In this way, it is expected that the more people that the respondent know have pirated digital files on the Internet, the more tendency will the respondent have to pirated digital files on the Internet. Moreover, in data collection stage, all the questionnaires are anonymous and this can also lower their fear toward answering sensitive questions.

4.2 Sampling

The sample for this study is based on a student sample from colleges at local universities in Korea and China. For the sampling frame, at least 160 (In China) and 147 (In Korea) are students of local universities with experience in surfing the Internet were selected. Students are the target population, since a high proportion of students have been shown to pirate (Solomon and O'Brien, 1990; Im and Van Epps, 1991). According to Gopal and Sanders, young college students tend to be more receptive to pirating digital content on the Internet. Moreover, a student sample would be adequate and a representative sample in a digital piracy context. (Al-Rafee and Cronan, 2006).

A review of the sample indicates that 45 (70%) which were males and 19 (30%) were females in Korea. 53 (66%) of which were males and 27 (34%) were females in China. From the sample we can see that there are no differences between the sex

in two countries. We can also see that nearly 46 (72%) are college students in Korea and 54 (68%) are college students in China.

<Table 1> Population Statistics (Korea and China)

Variables	Korea (%)	China (%)
Sex		
Male	70% (n = 45)	66% (n = 53)
Female	30% (n = 19)	34% (n = 27)
Education		
College Students	72% (n = 46)	68% (n = 54)
Graduate Students	28% (n = 18)	32% (n = 26)
Age		
20~30	100% (n = 63)	100% (n = 80)

4.4 Validity and Reliability Analysis

Reliability and Validity were examined by computing Cronbach's alpha coefficient for the construct. As shown in <Table 2>~<Table 4>, all measures have high levels of reliability, all above the recommended 0.7 levels in both Korea and in China. Discriminant and convergent validity of the scales was initially examined using exploratory principal component factor analysis with a Varimax rotation. All items loaded significantly on their hypothesized factors.

4.5 Analysis Results

Regression Analysis was used to evaluate the TPB model <Table 5>. The results indicate that Attitude, Subjective Norms, Perceived Behavioral Control paths all have significant impact on intention, This is correspond with the studies of Ajzen's (2001). the attitude, subjective norms, perceived behavioral control toward online digital content was $att = 0.251$, $t\text{-value} = 4.045$, $p < 0.01$;

<Table 2> Reliability and Validity Analysis (Korea&China)

Variable		1	2	3	4	Cronbach's Alpha	
Dependent	Intention	INT1	0.882			0.866	
		INT2	0.842				
		INT3	0.827				
		INT4	0.827				
Independent	Attitude	ATT1		0.806		0.716	
		ATT2		0.801			
		ATT3		0.613			
		ATT4		0.547			
	Subject Norms	SN1			0.812	0.832	
		SN2			0.793		
		SN3			0.791		
		SN4			0.700		
	Perceived Behavioral Control	PBC1				0.874	0.901
		PBC2				0.861	
		PBC3				0.846	
		PBC4				0.829	

<Table 3> Reliability and Validity Analysis (China)

Variable		1	2	3	4	Cronbach's Alpha	
Dependent	Intention	INT1	0.890			0.876	
		INT2	0.851				
		INT3	0.840				
		INT4	0.833				
Independent	Attitude	ATT1		0.860		0.637	
		ATT2		0.793			
		ATT3		0.730			
		ATT4		0.833			
	Subject Norms	SN1			0.866	0.846	
		SN2			0.826		
		SN3			0.817		
		SN4			0.806		
	Perceived Behavioral Control	PBC1				0.867	0.855
		PBC2				0.855	
		PBC3				0.829	
		PBC4				0.793	

<Table 4> Reliability and Validity Analysis (Korea)

Variable		1	2	3	4	Cronbach's Alpha	
Dependent	Intention	INT1	0.852			0.841	
		INT2	0.849				
		INT3	0.814				
		INT4	0.783				
Independent	Attitude	ATT1		0.876		0.789	
		ATT2		0.827			
		ATT3		0.644			
		ATT4		0.643			
	Subject Norms	SN1			0.893	0.847	
		SN2			0.864		
		SN3			0.769		
		SN4			0.628		
	Perceived Behavioral Control	PBC1				0.932	0.958
		PBC2				0.921	
		PBC3				0.916	
		PBC4				0.914	

subjective norms = 0.717, t-value = 11.535, $p < 0.01$; perceived behavioral control = 0.160, t-value = 2.58, $p < 0.01$, all the paths are significant. So HI-1, HI-2, HI-3 are supported.

As several notable studies have discovered the moderating effects of culture on the relationships within the TPB model (Kacen and Lee, 2002; Pavlou and Chai, 2002; Tan et al., 2004). Dinev, Goo, Hu (2008) examine the cross-cultural differences between South Korea and the United States in user behavior towards protective information technologies using TPB model and Hofstede's Culture dimensions. so we presented a comprehensive treatment regarding the influence of culture on individual digital piracy behavior based on the TPB model and Hofstede's culture dimensions. <Table 6> are the culture index scores introduced by Hofstede's (2001).

Firstly, we made two groups and did the T-test to examine whether the data we collected can get the same scores like Hofstede's culture index scores, <Table 6> shows that China has a score

at 80 (PDI) which higher than 60 (PDI) of Korea, our results of T-test indicated that except Masculine all of the scores had the same results compare to the Hofstede's culture results.

However, in order to test the moderating effect of cultural differences, the traditional test for moderators (Baron and Kenny, 1986; Sharama, Durand, and Gurarie, 1981) was conducted. as shown in [Figure 2]. we compared the simple regression model with three independent variables versus the moderated regression model. A significant interaction effect suggests that culture indeed moderates the relationship.

H2-1a : which that argues that attitude is more important in individualistic culture, received support since China are influenced ($b = .251$ $p < 0.01$) higher than Korea ($b = .137$ $p < 0.1$) It shows that the interaction of attitude in China would have a greater effect on intentions than It would have in Korea. so the interaction of attitude was

<Table 5> Regression Analysis

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	
China	(Constant)	-.279	.173		-1.609	.112
	ATT	.473	.089	.473	5.295	.000***
	SN	.331	.089	.331	3.707	.000***
	PBC	.072	.041	.138	1.777	.080*
Korea	(Constant)	-.555	.273		-2.030	.047
	ATT	.134	.061	.250	2.222	.030**
	SN	.380	.112	.380	3.388	.001***
	PBC	.256	.113	.256	2.273	.027
China and Korea	(Constant)	-1E-016	.061		.000	1.000
	ATT	.325	.062	.325	5.289	.000***
	SN	.558	.062	.568	9.230	.000***
	PBC	.215	.062	.215	3.493	.001***

Note) *** $P < 0.001$, ** $P < 0.05$, * $P < 0.1$.

<Table 6> Hofstede's Culture Index Scores, and Culture Index Scores in this paper

Variables	China	Korea	P-Value
Hofstede's Culture Index Score			
PDI (Power Distance)	80	60	
MAS (Masculinity)	66	39	
UAI (Uncertainty Avoidance)	30	85	
IND (Individualism)	20	18	
LTO (Long-Term Orientation)	118	75	
Culture Index Score In this Paper			
PDI (Power Distance)	4.74	4.71	.049**
MAS (Masculinity)	3.89	4.11	.000**
UAI (Uncertainty Avoidance)	4.14	4.16	.000**
IND (Individualism)	4.69	4.48	.178
LTO (Long-Term Orientation)	4.40	4.28	.000**

Note) *** P < 0.001, ** P < 0.05, * P < 0.1.

significantly with culture. H2-1a was supported.

H2-1b : which the relationship between attitude to intention will be more important in Masculinity culture do not receive support, as china (b = .251, p < 0.01) higher than Korea (b = .137, p < 0.1), so H2-1 is partly support.

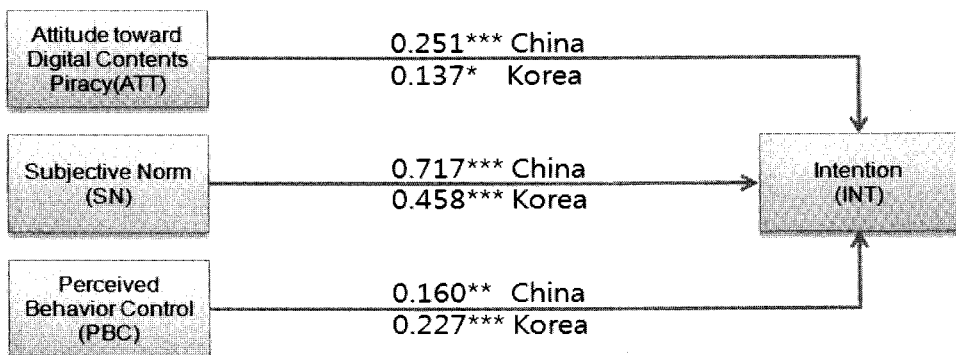
H2-2 : which the relationship between subject norms to intention will be more important in Collectivism, Femininity and higher power distance and uncertainty avoidance culture do not totally receive support, because china (b = .717, p < 0.01) Higher than Korea (b = .458, p < 0.01) As china is in higher power distance and higher uncertainty avoidance, there is juse support partly.

H2-3 : which the relationship between perceived behavioral control to intention will be more important in individualism, Masculinity and lower uncertainty avoidance and short term orientation culture do not totally received support, As korea is in short term orientation and masculinity culture, because Korea (b = .227, p < 0.01) Higher than China (b = .160, p < 0.05) the hypotheses H2-3a and H2-3c are significantly support. but Korea is not individualism and lower uncertainty avoidance than China so hypotheses H2-3b and H2-3d are not support.

5. Discussion and Implications

5.1 Discussion and Implications

The findings of this paper are mostly in accord-



[Figure 2] Cultural Moderating Results

〈Table 7〉 Hypotvheses Testing

Hypotheses		Contents	Results
H1	H1-1	Individuals with higher attitude toward piracy will correspond to a greater intention to pirate digital contents in China.	Support
	H1-2	Higher subjective norm will correspond with a greater intention to pirate digital contents in China.	Support
	H1-3	Higher perceived behavior control will correspond with a greater intention to pirate digital contents in China.	Support
H2	H2-1a	The relationship between attitude and intention is stronger in Individualistic culture than in Collectivist Culture.	Support
	H2-1b	The relationship between attitude and intention is stronger in Masculine culture than in Femininity Culture.	Not Support
H3	H2-2a	The relationship between subjective norms and intention is stronger in Collectivist Culture than in Individualistic culture.	Support
	H2-2b	The relationship between subjective norms and intention is stronger in Femininity Culture than in Masculine culture.	Not Support
	H2-2c	The relationship between subjective norms and intention is stronger in Higher Power Distance Culture than in Lower Power Distance Culture	Not Support
	H2-2d	The relationship between subjective norms and intention is stronger in Higher Uncertainty Avoidance Culture than in Lower Uncertainty Avoidance Culture.	Support
H4	H2-3a	The relationship between Perceived behavior control and intention is stronger in Short Term Orientation Culture than in Long Term Orientation Culture.	Support
	H2-3b	The relationship between Perceived behavior control and intention is stronger in Individualistic culture than in Collectivist Culture.	Not Support
	H2-3c	The relationship between Perceived behavior control and intention is stronger in Masculine culture than in Femininity Culture.	Support
	H2-3d	The relationship between Perceived behavior control and intention is stronger in Lower Uncertainty Avoidance Culture than in Higher Uncertainty Avoidance Culture.	Not Support

ance with expectations. As hypothesized, attitude, subjective norms, perceived behavior control had a significant effect on digital content piracy intention for the collectivist society of China. using data collected from two cultures, Our findings also indicate that half of the hypothesized moderating effects of national cultural factors were found to be significant.

This paper observed a notable difference in the relationship between subjective norm and behavioral intention, with statistical significance at $p < 0.001$ which was corresponded with the results of

Dinev, Goo, Hu (2008), while the relationship between subjective norms and behavioral intention for both Korea and China people were statistically significant and strong. As argued in the theoretical section, this difference in the two cultures is a cumulative result of masculinity and uncertainty avoidance. which lack two insignificant dimensions in the studies of them (Dinev, Goo, and Hu, 2008).

This research also found that the hypothesized difference between attitudes towards behavior, perceived behavioral control and intention was just partly significant. Prior studies (Pavlou and Chai,

2002; Tan, et al., 2004) reported mixed results about this relationship. at this point do not have a strong and clear explanation about why the hypothesized moderating effect of culture on this relationship was just partly supported. More studies are needed to clarify and refine this complex relationship.

5.2 Limitations and Implications

This study contributes to our understanding of the drivers of digital content piracy in comparing China and Korea. A main contribution is the placement of fundamentally important variables- attitude, subjective norm, perceived behavioral control as determinants of digital content piracy. this study integrates a cultural effect that significantly moderates key relationships in the proposed model, reflecting the growing importance of digital content piracy in a world setting. The integration of cross-cultural differences as moderators of key antecedents of online digital content piracy behavior is the key contribution of this study to the emerging cross-cultural copyright protection and digital content piracy literature.

While these findings could have significant theoretical and practical implications, as discussed in the previous section, our research has some clear limitations which also suggest future research opportunities. the most important limitation is that our culture dimensions can not build up factor analysis. Further research may do more studied on the factors' compositions.

As is the case with any research, varied and interesting results from this study provide new tracks for future research directions. Future research directions are suggested within these areas : (1) study verification, (2) the role of moral intensity, (3) enhancement the extended TPB model (to include other appropriate variables such as

equity and importance of the issue), and (4) further study of the antecedents of these components. To verify the results of this study, research should be replicated with a larger and a possibly different sample.

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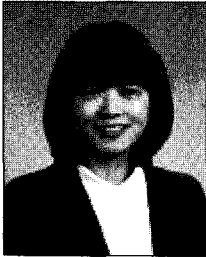
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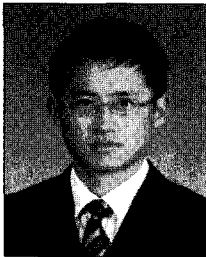
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조지아 주립대학에서 보험수리학 석사를 하고 동 대학에서 의사결정정보시스템으로 경영학 박사를 받았다. 현재 송실대학교 경영대학 교수로 재직 중이며 주요 연구관심 분야로 서비스사이언스, 데이터마이닝, 고객관계관리, S/W 산업정책 등이며, Information Science, Fuzzy sets and System, 경영정보학회, 경영과학지 등에 다수 논문을 실었다. 주요저서로는 비즈니스 컨설팅서비스의 이해와 활용(2008), 서비스사이언스(2006), 고객관계관리(CRM)를 위한 데이터마이닝의 활용과 실습(2005), e-비즈니스 시대의 경영정보시스템(2004) 등이 있다.