HOW TO RETAIN CUSTOMERS OF IPTV
Interactivity, Trust, and Emotion

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Abstract: Television is currently in the throes of a paradigm shift. IPTV, which has already secured a subscriber base of 1.5 million individuals in South Korea, is evidencing rapid growth in the global market. The development of IPTV is also increasing the interactivity between users and the IT media. The existing interactivity between users and IT from the cognitive perspective is insufficient to describe the usage behavior and continuous use intentions of consumers, who evidence a broad diversity of sentiment. This paper begins by addressing the effects of IPTV users' trust and emotions on the basis of the perception of interactivity. According to the results of empirical research into the users of IPTV services, the perception of interactivity was directly related with trust. Users' trust bolsters users' emotion in a positive/negative aspect, and such emotion was verified to affect the intention continuously use IPTV. The results of the following research indicate that the trust and emotion of users should be considered from the MIS perspective in an attempt to build the intention to use IPTV. Additionally, from the executive perspective, cost-effectiveness should be considered to enhance positive emotions for user retention and eventually bolster intentions to continue to use IPTV.

1 INTRODUCTION

Television is evolving. We are recently experiencing a paradigm shift in the TV industry. If TV was originally to be perceived as a medium of 'seeing', we are currently facing a new generation of 'doing' over IPTV (Internet Protocol Television). IPTV is a new concept in television, which employs Internet protocols to provide real-time broadcasting, multi-media contents and two-way services. There are more than 1.5 million subscribers in three firms that provide IPTV in Korea only; and the scale of this service is increasing considerably. This implies that IPTV is now past the experimental stage of its services and is presently repositioning itself as a practical medium for the next generation.

Unlike television in previous years, IPTV is capable of two-way services including VOD (Video on Demand), games, finance, and shopping. Moreover, IPTV is branching out toward internet-only services such as widget services. Such capabilities permit IPTV to be used as a medium that enables interactivity via CMC (Computer Mediated Communications), which is the combination of network devices and TV including commerce, SMS (Short Message Service), chatting, and e-mailing (Quico, 2003).

The new IPTV media features superior functions relative to the former media. However, such functions require user participation, and are also useless if the usage intentions are unclear.

Therefore, it is important to conduct research into the manner in which interactivity enhanced by

IPTV protocols influences usage intentions and related variables.

In regard to its functional aspects, IPTV provides a more diverse menu of features than TV previously. Additionally, Shin (2007) stated in a prior study that: 'If former TV used a Push-mechanism, IPTV is based on a Pull-mechanism due to the fact that IPTV induces user participation". Recently, a series of research studies into interactivity as the principal influence on IT media were conducted (Rafaeli, 1988; Steuer 1992; Zack, 1993; Ha and James, 1998; Liu and Shrum, 2002; Stromer-Galley, 2004; Johnson *et al*., 2006). The results of current research indicate that the interactivity users perceive when using the information system positively influences usage intentions (Wu, 1999; Liu and Shrum, 2002; McMillan and Hwang, 2002; Fiore and Jin, 2003; Johnson *et al*, 2006). Former research into interactivity has focused on the cognitive area, and individual features such as trust and emotion were not considered prominently. The cause of such a cognitive perspective was the predominant TAM (Technology Acceptance Model) approach (Davis *et al*. 1989), which holds that the use of IT devices is dependent on cognitive factors. In particular, unlike former offline services in which direct communication is possible, an online medium requires an extraordinary function that attracts consumers, thus allowing them to communicate continuously with the medium. However, such requirements have been considered only glancingly, if at all. The principal task begins in focusing on the internal features of the IT medium--for instance, trust and emotion--as opposed to functional features. Similar acts may appear in IPTV however, in order to attract continuous usage intention; fundamentally building trust and understanding the mechanisms of emotion are critically important.

Based on the results of various studies concerning the rapid development of interactivity, this work confirms the perceived interactivity in IPTV and attempts to assess the influence of perceived interactivity on trust and emotion, which eventually confirms the cause-and-effect relationship previously elucidated.

The primary questions this study sought to answer are as follows:

A. Via what mechanisms, specifically, does per ceived interactivity affect usage intention?
B. How does the perceived interactivity affect the individual features of trust and emotion?
C. What influences might perceived interactivit y have on trust according to the level of web experience?

2 RESEARCH MODEL

2.1 Research Model

The principal objective of this study was to measure the effects of perceived interactivity in order to examine the impact of perceived interactivity on usage intentions. Only a minimal amount of research has been conducted thus far on the effects of trust in non-face-to-face services, such as IPTV which is run off the web. Some previous studies have provided us with important insights into trust in the online context; however, further research is clearly warranted into the function and role of trust in the new media, including IPTV with its panoply of interactive features.

Emotion is a crucial factor that cannot be ignored in the process of decision making. Finding the reason for users selecting a particular IT has its limits only through cognitive factors, including ease of use. This is because similar IT products with basically the same cognitive factors, which include ease of use, are clearly being discriminated by users. The following research model assumes that users familiar with interactive environments would experience different results, depending on the level of experience.
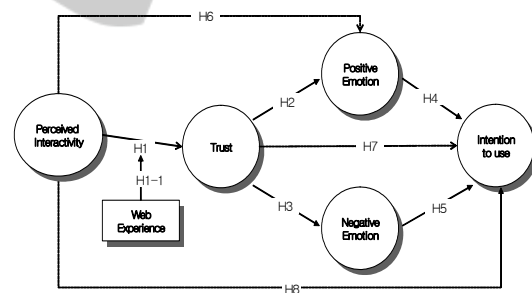

Figure 1: Research Model.

2.2 Hypothesis

2.2.1 Perceived Interactivity and Trust

With regard to the relationship between perceived interactivity and trust, Park (2002) previously stated that trust can be formed among internet shopping mall consumers by providing more accurate information on a product and enabling consumers to share information amongst themselves through active communities. According to Woszczynski (2002), there were PC users who operated in a voluntary and innovative manner when interacting with computers, and this interaction allowed to individuals to enjoy a high level of trust and

satisfaction. Using reinforced Information systems with more online interactivity, such as IPTV, would be expected to be affected by former experience with an interactive medium. Venkatesh and Davis (2000) proved that usage experience increases continuous usage intentions, thereby proving that usage experience is an appropriate control variable. Using the former research results as evidence, the relationship between perceived interactivity and trust are expected to be as follows:

1: In IPTV, perceived interactivity should result in a positive effect on trust.

1-1: In IPTV, users with extended web experience would have a greater level of perceived interactivity and trust than those with inferior web experience.

2.2.2 Trust and Emotion

Wang and Huff (2007) pointed out that trust involves both cognitive and emotional aspects. Additionally, they emphasized that emotions may trigger a cognitive re-evaluation of trust and experience from the perspective of trust and emotion. Wang and Huff (2007) asserted that the objective of trust is to allow the relationship to mature, such that the provider will represent the consumers. Moreover, consumers respond in a manner that is simultaneously emotional and reasonable.

Young (2006) claimed previously that emotion is the principal factor affecting behavior, and is an indispensable aspect of business relations. Young (2006) proposed that positive emotions are the principal component, prerequisite, and final outcome of trust; in fact, the terms are frequently employed synonymously. However, this study will attempt to clarify the complex relationship between trust and emotions, focusing on the manner via which trust affects emotions. In particular, this study hopes to approach the concept of trust in a way that resolves the inconsistencies of previous research results. Additionally, the following research includes the hypothesis that positive emotions would strengthen as trust is built, whereas negative emotions would grow as trust is reduced.

2: In IPTV, positive emotions would strengthen as trust is built.

3: In IPTV, negative emotions would increase as trust is reduced.

2.2.3 Emotions and Usage Intentions

In a previous study of consumer intentions, emotions such as happiness or disappointment from perceived performance were shown to evidence a direct and positive relationship with intentions in the future (Swan and Trawick, 1981; Patterson and Spreng, 1997). Additionally, satisfaction in portal websites was shown to exert a profound impact on intentions (Van Riel et al., 2001). In relation to Information Technology, it is expected that users will use a particular information technology continuously, so long as the users evaluate the technology positively. Additionally, Kim Yong Young (2007) previously demonstrated that habits may affect emotional attitudes, and that expectancy and self-efficacy have profound effects on cognitive/emotional attitudes, stating that emotional factors are strongly related to intentions. The term 'positive emotions' is related to the individual's decision to maintain such feelings, but the term 'negative emotions' is oppositely related to decision-making. Bagozzi (1999) stated that positive emotions lead to sharing of emotions with others; however, negative emotions lead to negative behavior.

Hypotheses 4 and 5 can be proposed as a background for related research results:

4: In IPTV, positive emotions would have a positive effect on continuous usage intention.

5: In IPTV, negative emotions would have a negative effect on continuous usage intention.

2.2.4 Mediating Effect of Trust and Emotions

In regard to trust, greater usage of IT services results in an effect on trust in a particular aspect of IT, which can be either positive or negative in its direction. For example, the results of Chaudhuri and Holbrook's (2001) study revealed a relationship between brand trust and emotions with brand likeliness. Additionally, brand trust and emotions are important sources of brand likeliness or concentration. In other words, as trust accumulates, it generates a positive impact on emotion, and thus user concentration.

Positive emotions such as favorability influence others's behaviors, and a variety of studies are currently underway to determine how emotions influence the perception of trust (Kumar, 1997). Positive outcomes, such as interactivity, tend to strengthen trust, whereas negative outcomes tend to damage it (Anderson and Kumar, 2006).

Until now, studies into this topic have primarily focused on negative emotions; however, DeWitt (2008) previously addressed both positive and negative emotions. Dewitt's study also revealed the

huge role played by trust and mediation of emotions, by empirically researching the effects of trust and emotions on the recovery process.

Considering hypotheses 1, 2, 3, 4, and 5, hypotheses 6, 7 and 8, which are related to trust and emotion, may also be possible:

6: In IPTV, the relation between perceived interactivity and emotions could be mediated by trust.

7: In IPTV, the relation between trust and intention could be mediated by emotions.

8: In IPTV, the relation between perceived interactivity and continuous usage intention could be mediated by trust and emotions.

3 EMPIRICAL RESEARCH

3.1 Definition and Measurement of Construct

The survey regarding interactivity research involves two factors: response and reaction time, both of which measure the perceived interactivity on the basis of the former interactivity research (Johnson, 2006; McMillan and Hwang, 2002; Davis, 1992). Additionally, validity and reliability are appropriately modified and selected as measured variables via trust (Gefen, 2002), emotion (Davis, 1992), and intention (Venkatesh and Davis, 2000). Prior to conducting the survey, the collected articles were confirmed twice to ensure the accuracy and specificity of the data.

The verified measured variables of reliability and validity identified in previous research were collected to enhance the tool of measurement. The perceived interactivity was employed as a measured variable, and then supplemented and modified to the following research from Wu's (2000) 9 indices.

3.2 Research Method and Data Collection

The targets of the following study were experienced consumers above the age of 20 who are capable of continuous IPTV use, as well as subscribers who are provided with similar levels of the IPTV service in the capital area.

Data Collection was assessed for 3 months, from 1st July to 30th September 2009, with the target population consisting of the IPTV users surveyed by the interviewers. A total of 480, excluding 22 with response errors among 502, were used as the dataset

Table 1: Operant Definition of Construct.

Construct	Definition	Related Research
Perceived Interactivity	The level of perception related to communication such as suitable response and fast reaction in a particular situation.	Alba *et al.*(1997), Burgoon *et al.* (2002), Johnson *et al.*(2006), Rafaeli(1998)
Trust	The level of reliance the other party: expectancy satisfaction through promised performance and consumption.	Gefen(2000), Park Chul(2002)
Positive Emotions	The level of positive emotion, self-reinforcement, on the basis of joyful emotions through accomplishment.	Hoffman and Novak (1996), Anderson and Kumar(2006)
Negative Emotions	The level of negative emotions, self-reinforcement, on the basis of depressing experience when failed to accomplish goals.	
Intention	The level of tendency using IPTV continuously.	Venkatesh and Davis (2000)
Web experience	The level of web experience which can be divided into two: high and low	Kim Sung Byuk (2005)

Table 2: Measurement factors of Variables.

Observed Variable	Measurement factor	No.	Related Research
Perceived Interactivity	All time reaction, suitable response, interactive communication	3	Jonhson *et al.* (2006), Wu (2003), McMillan and Hwang (2002)
Trust	Accuracy, convenience, stability	4	Park Soo Young (2003)
Positive Emotions	Happy, warm, admiration, fun feelings	5	Heijden (2003), Davis *et al.* (1992)
Negative Emotions	confusion, anger, boring, worried feelings	4	
Intention	Will use continuously Tendency to recommend	3	Venkatesh and Davis(2000)
Web experience	Familiarity	1	Kim Sung Byuk (2005)

for analysis. 221 (46%) were women and 259 (54%) were men; the age distribution was categorized into three groups: 20~29 (28%), 30~39 (41%) and above 40 (30%).

4 DATA ANALYSIS

8 of the hypotheses were supported by the results of our investigation. However, as web experience was anticipated to have an effect between perceived interactivity and trust, it showed no signs of significance. This may be attributable to the fact that it proved impossible to consistently translate the web experience to IPTV usage. As a consequence, web experience may not directly accelerate IPTV use, owing to differences between web-based user interfaces and IPTV.

5 CONCLUSIONS AND IMPLICATIONS

The principal objective of the following research was to confirm the effects of perceived interactivity, trust, and emotion on intentions to use IPTV service. In service of this objective, we empirically researched the effects of individual features such as trust and emotions in perceived interactivity on users' intentions. As a consequence, the relationships between perceived interactivity and trust, trust and emotions, and trust and user intentions were all as anticipated; therefore, the stated hypotheses were supported. Trust was affected as perceived interactivity was high and a positive relation appeared when trust was high; however, a negative relation was observed in terms of emotions as trust was low. The results of our empirical research demonstrated that positive and negative emotions influenced user intentions positively and negatively. Moreover, the relation between perceived interactivity and emotions was mediated by trust, and the relationship between trust and perceived interactivity was mediated by emotions.

The results of our research clearly show that the trust and emotion of users should be considered from the MIS perspective in order to build consumer intentions to use the product. Additionally, viewed from the executive perspective, cost-effectiveness should be regarded as a factor to enhance positive emotions, thus improving user's intentions to retain and continue to use IPTV.

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