DOES FLOW EXPERIENCE MATTER?

Research-in-Progress

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Abstract

Different types of information systems (IS) have different impact on IS designs as well as users' activities. Most IS researchers are focused on 3D virtual community and online Role-Playing Games (RPG). In spite of such growth of simulations (e.g., trainings and games) and interests on them, the academic discussion regarding factors inducing flow experience to simulations, is relatively limited. Cheating is prevalent in the current simulation games but not well understood. The purpose of this research is to identify and examine the influencing factors including cheating for flow experience in simulations. To meet this goal, we take qualitative interview analysis as well as quantitative questionnaire analysis. This study will yield important implications for the developing and operating simulations; furthermore, the understanding of the cheating behavior of users and its relationship with loyalty can contribute in the study of flow experience.

Keywords: Flow, cheating, loyalty, perceived reality

1 INTRODUCTION

There are various simulation genres such as Action, Adventure, Role-Playing, Strategy, and Sports (Rapeepisarn et al. 2008). Most of researchers and practitioners in the field of information systems have studied why people continue to play online simulations (e.g., Massively Multiplayer Online Role-Playing Games [MMORPGs]) (Choi & Kim 2004; Yee 2006). However, considering that the growth of online simulations (e.g., sport-related games) and interests on it have grown (Crawford 2006; Hsu & Lu 2004; Moeller et al. 2009), the academic discussion regarding factors inducing flow experience to simulations, is relatively lacked.

A sport-related simulation user may have a different motivation than other MMORPG simulation users. Moreover, sport-related simulations are divided into two forms: player mode and manager mode. First, most of these sports simulations are about playing a player's role in a sport tournament. For instance, a user takes a role of a football player in FIFA online matches or Winning Eleven series. Meanwhile, in the football management simulation games such as FIFA Manager and Football Manager (FM) series, a user plays out the career of a soccer manager, for example, taking control of possible teams and managing their tactics to succeed in leading his or her team (Crawford 2006). Choi and Kim (2004) revealed that flow experience directly affected intentions to play online simulations and suggested that simulation designers should keep gamers in a flow state. Therefore, we suppose that most of online simulation users also intend to play continuously what they are completely immersed.

Cheating has paradoxically emerged as a conspicuous phenomenon in current simulations, even though fairness is essential to any simulation game (Yan & Randell 2009). To enjoy playing and to hold flow state in simulation games, the process of playing a simulation is important. However, results-oriented users tend to cheat their peers and simulation systems to get what they want. This is a significant issue for simulation operators as well as users because cheats change the experience of the other users as well as the cheater (Kuecklich 2004).

The purpose of this research is to identify and examine the influencing factors for the users' flow experience to a Football Management (FM) game as one of simulation tools. To meet this goal, we take a multidisciplinary approach. Investigating uses' flow experiences on a football simulation, we will examine how the perceived control and the act of 'cheating' simulation influence the flow experience and the loyalty of the user. In addition, we are going to study how various users select different types of functional simulation modes that have different effects in simulation gaming. We have conducted a Focus Group Interview (FGI) and a pilot test to develop a research model. The next section explains the conceptual framework of FM gamer loyalty.

2 THEORETICAL FRAMEWORK AND RESEARCH MODEL

2.1 Flow Experience and Gamer Loyalty

Academic studies have identified factors that increase flow experience and retain user loyalty in online network simulations (Choi and Kim 2004). According to Csikszentmihalyi (1991), flow is "the holistic sensation that people feel when they act with total involvement". When people are in flow, they "shift into a common mode of experience when they become absorbed in their activity" (Csikszentmihalyi & Csikszentmihalyi 1988). Flow is too broad and ill defined because of the numerous ways it has been operationalized, tested, and applied (Koufaris 2002). Dimensions of flow include focused attention, heightened enjoyment, curiosity, a sense of being in control, and a transformation of time (Agarwal & Karahanna 2000; Csikszentmihalyi 1991; Trevino & Webster 1992).

Meanwhile, in marketing research area, many researchers have interests in customer loyalty, because loyal customers are willing to pay more for products and services provided by a company (Koufaris

2002). User loyalty for an online simulation is defined as users' intention to play the simulation repeatedly based on their prior experiences and expectations of the future (Choi & Kim 2004). To be truly loyal, a user must hold flow state toward a simulation because it gives enjoyable experience. Moreover, when people in the flow state, their awareness is narrowed to the activity itself; they lose self-consciousness, and they feel in control of their simulation environment (Hsu & Lu 2004). According to Chou and Ting (2003), users who have experienced flow are more likely to play again. We therefore expect:

Hypothesis 1: *Flow experience in simulation gaming is positively related to user loyalty.*

2.2 Predicting the Flow Experience

Many studies suggest that challenges presented by an activity are the key predictors of flow (e.g., Csikszentmihalyi 1991; Ghani & Deshpande 1994; Hoffman & Novak 1996). Likewise, FM users should be challenged in devising strategies to win soccer tournaments so that the users can fall into the flow state. Flow occurs when the user perceives a balance between the challenge of the activity and his or her own skill (Csikszentmihalyi 1991). As Figure 1 (Csikszentmihalyi & Csikszentmihalyi 1988; Nacke & Lindley 2008) shows, flow can occur when both challenges and skills are high. High challenges but low skills result in anxiety, the reverse situation results in boredom (Kivikangas 2006). Therefore, flow requires sufficient expertise with corresponding difficulty of a given task. Drawing upon this literature we test:

Hypothesis 2: *The level of challenges is positively related to flow experience.*

Hypothesis 3: *The level of skills is positively related to flow experience.*

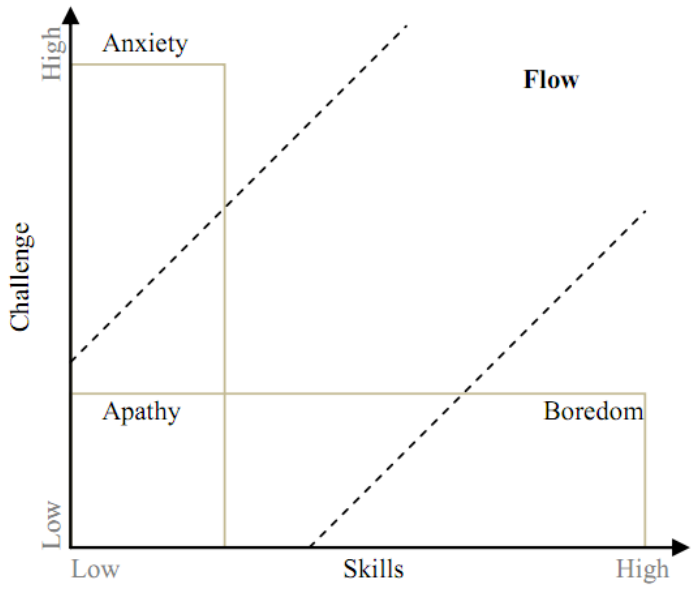

Figure 1. Reformulated Model of Flow

People tend to experience flow when they perceive themselves as being in control of actions (Csikszentmihalyi 1991). According to Koufaris (2002), perceived control is the level of one's power over environment and actions. In general, control is closely related to simulation characters, units or user interface. For example, when a user has a feeling of control over her/his own avatar, s/he is more likely to experience flow state in sports simulation games. Hence, we test:

Hypothesis 4: *Perceived control is positively related to flow experience.*

2.3 Perceived Reality in Simulation Games

Perceived reality is the experience of a blended virtual and real world (Hughes 2003). As Kirkley and Kirkley (2004) state, it includes a broad range of applications in which some elements of the real world (e.g., physical space, real objects, and environmental conditions) can be blended with digital objects. The virtual world and the real (actual) world can intersect with each other and impact one another. Lantz (2009) calls this concept the '*porous border*'. Most simulation games provide interesting ways to access and interact with the real environment. For example, sports simulation games have evolved by following the actual rules and regulations that define sports worldwide. Likewise, the perceived 'realism' has continued to be a main focus in FM (Crawford, 2006).

According to our face-to-face interview, one of FM users states:

> *I'm very surprised at a lot of data of real-life leagues and clubs in FM... I often change the position of football players by managing the Roman team... I'm in flow when I make tactics with Francesco Totti, my favorite football player!!!*

Most of game developers try to improve the graphic quality to increase perceived reality; however, the graphic quality should not be exaggerated in simulations. Although FM series are primarily text based and involved in limited graphical content, it is the most popular football management simulation. As the quality of simulation graphics improves, the feeling of reality may visually increase, but a loading time decreases. Since massive database of FM simulation provides a wealth of information to support players and teams from the real-life football world, the loading time is a major issue because users want an immediate reaction to simulation systems, which means that the improvement of simulation graphics can decrease the feeling of reality in term of time. It seems that the level of reality is not based on the quality of simulation graphics in FM games. Interestingly, many FM players do not care about the sophisticated images but take a profound interest in reflection of actual football simulations such as a transfer of real soccer teams. An undergraduate participant in our FGI says,

> *I've played FM series since I was a high-school student. The simulated reality is fantastic, so I feel like I'm a real manager in a real team... I will download the newest patch to experience the most up-to-date version of FM 2011.*

Therefore, we hypothesize:

Hypothesis 5: *Perceived reality is positively related to flow experience*

2.4 Simulation Cheating, Flow Experience, and User Loyalty

A result-driven user can overly use all possible functions to win simulation games. This action becomes so called 'modding' or 'adapting' in playing simulations (Crawford, 2006). For example, some users overly produce these adaptations and add-on functions for their own use, and then distribute them through friendship networks or via the Internet. Some security researchers call this behavior as a 'cheating' in online simulation games.

Although many users have been familiar with a cheating, this complex phenomenon has not been well studied yet. Yan and Choi (2001) redefine a cheating as "any behavior which player uses to gain an advantage over her/his peer players or achieve a target in an online game s/he is not supposed to have achieved." Yan and Randell (2005) summarize the various known methods of cheatings in simulation games and have classified common forms of cheating into 15 categories. One of ways of cheating in some games is tweaking or scripting, also called a macro, which allows the user to have some advantages. They have also found that a cheating in online simulations is largely due to various security failures (Yan & Randell 2009). However, the aspects of security should not be overstated because they are insufficient to explain a cheating and its consequences.

For online simulations, a cheating is more based on an achievement motive (Engeser & Rheinberg 2008). A cheater can trade virtual assets such as characters, items, and cyber money (Yan & Randell 2009). As *Figure 1* shows, people need the balance between skill and challenge to get flow experiences. Users might feel more tempted to cheat when they confront challenges that are beyond their skills. On the other hand, users with higher skills are less tempted to cheat because of the pride of their skills. Most of users tend to fear failure and want to achieve their goals, so some users use a cheating tool such as Real Time Editor or Data Editor that they can edit the game database. Therefore, we test:

Hypothesis 6: *The level of challenges is positively related to simulation cheating.*

Hypothesis 7: *The level of skills is negatively related to simulation cheating.*

A user can take an advantage over other users to achieve a goal by tweaking and scripting (Yan & Randell 2002) in simulations. For instance, the user in the World of WarCraft wrote a script which allowed he/she to leave the simulation running while the avatar continued fishing in a lake and gathering experience points and items (Zetterström 2005). Thus, this result-oriented character of simulation cheaters can negatively influence on them falling into the flow state during actually playing simulations. Hence, we test:

Hypothesis 8: *Simulation cheating is negatively related to flow experience.*

There are various reasons for simulation cheating. According to Zetterström (2005), users cheat to be the best, to receive economic incentives, to deliberately destroy the fun for others, and so on. Generally speaking, cheating is related to reward systems so that users often cheat. Furthermore, Wright et al. (2002) regard cheaters as creative users because they can even change simulation rules and technical limits. Some simulation developers have not forbidden such tweaks, but rather encourage cheating to offer an opportunity to explore new creative uses, beyond the intentions of the designers. Finding creative uses even though cheating can provide pleasure to users. Consequently, the cheating function can lead users to be loyal to a simulation. Therefore, we expect:

Hypothesis 9: *Simulation cheating is positively related to user loyalty.*

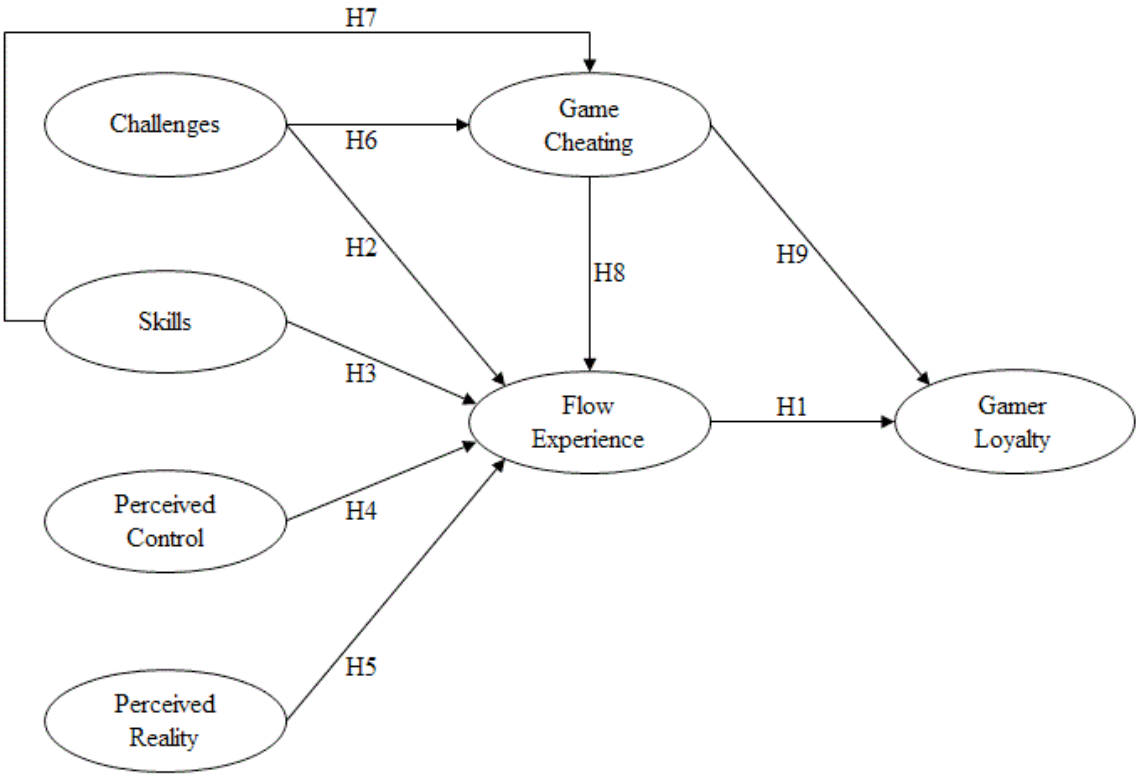

Figure 2. Research Model

3 RESEARCH METHODOLOGY

In this study, two methodologies are employed, that is, qualitative interview analysis and quantitative questionnaire analysis to develop and to test our hypotheses. First of all, we asked eleven participants what made them experience flow in FM series. Each interview was approximately 20 to 30 minutes in duration. Participant responses were recorded using an audio digital recorder. Most research samples consisted of a group of FM users, who were identified through a FM community bulletin board for FM series. All respondents were male users between 20 and 30 years old.

We expect that the collected qualitative data can complement the quantitative data that we will collect because interview data may provide additional perspectives as to what leads to flow state in FM series. Questionnaire items were either adapted from existing scales or developed for this research as in Table 1. To develop new scales for intention to cheat and perceived reality, we have conducted literature reviews and exploratory interviews with 6 researchers.

Answer options are based on a 7-point Likert scale, ranging from strongly disagree to strongly agree. To ensure that questionnaire items are clearly articulated, we have conducted a pilot test of the survey instrument using 27 FM users. We have then modified our survey questions based on the comments and suggestions obtained from the pilot test participants. Table 1 shows the survey instrument.

• Challenges (adapted from Hoffman & Novak 1996)
1. Playing FM series challenge me to perform the best tactic. 2. Securing my job with a better club provide a good test of my strategy.
• Skills (based on Engeser & Rheinberg 2008)
1. I feel just the right amount of skill. 2. Managing my tactics to success in leading my team stretch my capabilities to the limits..
• Flow Experience (adapted from Engeser & Rheinberg 2008; Hoffman & Novak 1996)

1. I am totally absorbed in when I am playing FM series. 2. I don't notice time passing while I am playing FM series. 3. I identify myself with the soccer manager when I am playing FM series.
• Gamer Loyalty (based on Choi & Kim 2004)
1. I prefer FM series to other football management games. 2. I will say positive things about FM series to other people. 3. After playing FM series, I am very satisfied. 4. I intend to continue playing FM series, even though the graphic quality is not fancy.
• Perceived Control (modified to Koufaris 2002)
1. I know how to control the position on my football team efficiently. 2. In general, I have enough control my game characters and user interface. 3. I feel in total control of my skills to make tactics securing a new job with a better club.
• Game Cheating (developed by authors 2011)
1. I intend to use Real Time Editor or Data Editor for leading my team to success. 2. I frequently cheat to scout my favorite football players or staffs.
• Perceived Reality (developed by authors 2011)
1. I am fascinated to see that FM series reflect the real-life football leagues and clubs. 2. I feel like I am playing in the actual world as well as in the virtual world in FM series. 3. I sometimes hope that a real soccer manager refers to my tactics of FM series.

Table 1. Survey Items

Next steps for this study are online surveys and data analysis. The samples will consist of FM users who have played FM series repeatedly. Some of them may have experienced a cheating in FM series to support his or her favorite Premier League club as a promising soccer coach. Based on the result of the interview and the questionnaire survey, statistical analysis using SPSS and PLS will be conducted.

4 IMPLICATIONS

This research investigates the effects of perceived challenges, skills, control, and reality with flow experience on IS user loyalty. Additionally, this paper addresses the relationship between the presence of cheats and flow state. In simulations such as FM series, lack of cyber funds and severe constraints of time limit the range of actions that users can choose from (Kuecklich 2004); therefore, they try to break these limitations. However, it can lead to a loss of flow. Paradoxically, users can be much more creative and innovative to break the given limitations, which can be positively related to loyalty. Therefore, this study will reveal these complex and dynamic relationships among cheating, flow, and loyalty in the context of simulation as one type of IS. Our findings can be used to develop simulations for a training purpose. Organizations often invest a great amount of resource to implement an information system without well adopted by their employees. Such cases, organizations can develop simulation games to train their employees so that they can effectively adopt the system. During the simulation games, if an employee find a way to cheat, it will be a good signal to indicate that the employee innovatively find a way to use the system, which can stimulate others. In conclusion, the overarching goal in this study is to yield important implications for developing and operating simulations.

Since this research is in progress, it has to be developed more; however, we hope that this study will stimulate others to expand the research about the relationships among cheating, flow, and loyalty. Moreover, we expect that IS researchers have interested in various simulation genres that can be used for a training and education purpose.

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