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Rethinking Fantasy as a Contributor to Intrinsic Motivation in Digital Gameplay

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Chapter 5

RETHINKING FANTASY
AS A CONTRIBUTOR TO INTRINSIC
MOTIVATION IN DIGITAL GAMEPLAY

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ABSTRACT

Playing digital games is a part of life for current natives. Games make people engrossed, and are optimized environments where fun prevails. Of making people motivated in gameplay, fantasy is a paramount element. Research has discovered that fantasy plays a critical role in enhancing intrinsic motivation. This chapter thus revisits the role of fantasy while playing digital games, focusing on what brings a state of fantasy in a gaming world. Specifically, the purpose of this chapter is to probe factors creating fantasy state while gameplay. To this end, 153 junior high students aged from 11 to 13 were participated in this study, and 35 commercial off-the-shelf games including most game genres were utilized. Exploratory factor analysis (EFA) was employed to extract the factors making fantasy state while gameplay. As a result, four factors were extracted as fantasy components, and labeled as identification, imagination, analogy, and satisfaction. By thinking about such subcomponents, fantasy in gaming can be understood as the individualized psychological state, which is satisfied with certain gaming situation and/or events being evoked by identifying in the game world from both extrinsic and intrinsic stimuli.

INTRODUCTION

Playing games is a vital part of daily life for recent digital natives. Since games provide a lot of fun, people want to continuously play games. When people play digital games, they are extremely engrossed in the game world. Such extremely enjoyable experiences often refer to as 'flow' or 'engagement', enabling people to experience deep concentration and a feeling of spontaneous joy, even rapture. Digital games actually are captivating environments in which

stimulate the immersed mental state. As such, many researchers have been interested in learning through games (Gee, 2003; Prensky, 2001; Squire, 2006; Van Eck, 2006). For last decade, empirical research has shown that games enhance motivation (Cordova and Lepper, 1996; Lopez-Morteo and Lopez, 2007; Tüzün, YIlmaz-Soylu, Karakus, Inal, and KIzIlkaya, 2009). Games appear inherently to motivate users intrinsically by its environmental features (Thomas and Macredie, 1994). According to Garris, Ahlers and Driskell (2002), there are six characteristics of games: fantasy, rules/goals, sensory stimuli, challenge, mystery, and control. They stressed that such game characteristics should be activated within instructional context so as to enhance learning. Additionally, Malone and Lepper (1987) stated that game features, such as challenge, curiosity, fantasy, control, cooperation, competition and recognition, make learning fun in terms of game-based learning.

Of these game features, fantasy in particular, plays a pivotal role in enhancing motivation (Crawford, 1982; Malone and Lepper, 1987), and is a key factor in making people engaged in gameplay. As with its inherent value, fantasy also plays a predominant role in distinguishing games itself from other media in terms of attributes of media. According to Malone and Lepper (1987), fantasy is an environment that "evokes mental images of physical or social situations not actually present" (p. 240). They noted that fantasy fosters intrinsic motivation in computer games. Crawford (1982) also indicated that fantasy is the main reason for playing game; that is, people want to fulfill their needs from fantasy in games. Taken as a whole, fantasy is a crucial factor that fertilizes intrinsic motivation while gameplay.

Despite its significance, it is surprising that fantasy, one of most predominant component of intrinsic motivation, has received little attention from researchers in game-based learning. Even though fantasy is a predominant factor affecting intrinsic motivation, it's still ambiguous to practically measure or explore, and even define. Many people have a propensity to look at fantasy as being intuitional and extraneous (e.g., imagination, illusion). Malone (1981) already mentioned these attributes as an emotional aspect of fantasy. Furthermore, he addressed a cognitive aspect of fantasy, such as metaphor and imaginary. Although these two aspects are subset of fantasy environments, such a clarification provides an insight into how we should look at the concept of fantasy in a holistic approach. In short, fantasy can be considered as the inclusion of diverse subcomponents. For this debate, we further might be able to think about an essential aspect of fantasy as a holistic approach, comparatively sustainable in accordance with game genres. This research thus aims to identify fantasy components contributing to intrinsic motivation in gaming, as well as to provide a solid framework for exploring fantasy with respect the holistic concept in digital gameplay.

FANTASY AND INTRINSIC MOTIVATION IN GAMES

Many researchers have agreed that fantasy is not only one of the striking games feature, but also a crucial key component of making games fun. Games are the imaginary world where is portrayed people's desire and needs. Players are willing to dive into such a new world spontaneously; that is, they play games in fantasy world with getting intrinsically motivated. Of various game features, fantasy might be the first catalyst by far that catches players' eyes on gameplay. All the tangible entities existing in games evoke fantasy, enabling players to get engaged in gameplay. Fantasy thus plays a crucial role in keeping and provoking players'

interest and engagement in gameplay. In this regard, Asgari and Kaufman (2004) addressed how important fantasy is in gameplay, saying that "game with no fantasies involve only abstract symbols (p. 4)."

Many empirical research have shed light on the relationship between fantasy and intrinsic motivation in gameplay (Cordova and Lepper, 1996; Parker and Lepper, 1992; Vos, Meijden, and Denessen, 2011). These studies concluded that fantasy is a critical factor in increasing intrinsic motivation in gameplay. Such research, albeit partially, have accounted for the role of fantasy in gameplay in light of intrinsic motivation. Driskell and Dwyer (1984) said that fantasies facilitate focalization of attention and the self-absorption that users become immersed in game activity. Although fantasy rests on environmental features of games, it is by no means visible and tangible embellishments. What makes players act something intrinsically might be determined by diverse fantasy contributors. For instance, thinking about the reasons why people enjoy role-playing games and action games, chances are that the answer definitely could be very diverse. Embellished environmental entities obviously evoke fantasy, contributing players' motivation. Far beyond such tangible entities, other side of game features such as story and role also play a pivotal role in making players motivated in such game genres. In such games, players are the heroes of that game; they make the story through their action in the game world. What make play such games are their personal identities assigned in games and missions given to them so that continue to make the game story. These intangible but truly striking attributes make players engrossed in gameplay, so to speak, provoking intrinsic motivation. Malone (1980) has already described this attribute as an intrinsic fantasy, which is an activity related to games.

Overall, through revisiting the relationship between fantasy and intrinsic motivation in games, it turns out that fantasy is a cardinal and paramount component in making players engaged in gameplay needed to consider as a holistic view of environmental attribute of games not only tangible entities but also intangible ones.

CONSTRUCT OF FANTASY

Piaget (1951) explains fantasy in children's play primarily as an attempt to assimilate experience into existing structures in the child's mind with minimal needs to accommodate to the demands of external reality. In a somewhat similar vein, Freud's (1950) explanation of symbolic games that children invent for themselves emphasizes an attempt by the ego to actively repeat traumatic events. Psychiatric researchers define fantasy as a "defense mechanism for the fulfillment of wishes and the resolution of conflict (Caughey, 1984; Hume, 1984). According to Hume (1984), fantasy is any departure from consensus reality, an impulse native to literature and manifested in innumerable variations, from monster to metaphor. Furthermore Garris et al. (2002) stated fantasy as and activity in which has no impact on the real world.

Malone and Lepper (1987) defined fantasy as one that evokes mental images of physical or social situations not actually present. They indicated that fantasy plays a crucial role of contributing to intrinsic motivation in several ways. They made a significant theoretical claim by attributing educational benefits produced by the positive affect of fantasy to the distinction between intrinsic and extrinsic fantasy (Habgood et al., 2005) According to them, in

designing instructional environment, it is important to distinguish between intrinsic and extrinsic fantasies. Malone and Lepper (1987) explained such a distinction by the relationship between fantasy and skill in game environment: an intrinsic fantasy is defined as "one in which the skill being learned and fantasy depend on each other" and " there is an integral and continuing relationship between the fantasy context and the instructional content being presented".

In contrast to this, extrinsic fantasy is defined as "one in which the fantasy depends on the skill being learned but not vice versa" and the relationship is arbitrary and periodic. Based on the number of empirical studies it was proposed that, intrinsic fantasies are both more interesting and more educational than extrinsic fantasies (Malone and Lepper, 1987).

Malone (1981) said that fantasy have two important aspects for designing user interfaces: emotions and metaphors. And these aspects apply only to intrinsic fantasy, not to extrinsic fantasy. Malone and Lepper (1987) further stated this aspect as emotional aspect of fantasy and cognitive aspect of fantasy. When it comes to emotional aspect of fantasy, it almost derives much of their appeal from emotional needs they help to satisfy. In fact, it is very difficult to know which fantasies might be appealing to particular individuals. However one general mechanism that may explain these differences is identification.

Namely fantasies are most likely to fulfill emotional needs when they provide imaginary characters with whom the individual can identify, such as perceived similarity between the self and the character, admiration for the character, and salience of that character's perspective. In addition to the emotional needs that fantasies may serve, there is also a cognitive component to involvement with fantasy.

In the cognitive aspect of fantasy, fantasies frequently offer analogies or metaphors that may provide learner with leverage for better understanding new information by relating it to past knowledge.

Reiber (1996) has further noted that fantasy contexts can be exogenous or endogenous to the game content. An exogenous fantasy is simply overlaid on some learning content. For example children nay learn fractions and by doing so slay a dragon in and enchanted forest. This type of game is likely to be more engaging than a long page of fraction.

However, the fantasy in this case is external to and separate from learning example. In contrast and endogenous fantasy is related to the learning content. For example, students may learn about physics by piloting a spaceship on reentry earth's orbit. He noted that because endogenous fantasies are more closely tied to the learning content, if the fantasy is interesting, the content become interesting.

Although its definition varies from each scholar, fantasy, in turn, is a mental image evoking imagination, identification and satisfaction. Such fantasy in game environments may technically arise from an action with ostensible attributes of games, such as graphics, sound, story, events, and control.

In a sense, fantasy in games should take into account the control under this game environment, not only tangible entities (i.e., embellishment) but also intangible ones (e.g. game story, role and so forth). We thus focus on the game features as beaning able to evoke a mental image. So to speak, the extent to which game features evoke imagination, identification and satisfaction will provide us with an understanding of the state of fantasy in games.

METHOD

Initial Item Development

Items were developed from the definition of fantasy by various scholars (Crawford, 1982; Caughey, 1984; Hume, 1984; Malone and Lepper, 1987; Garris et al., 2002) and experimental research on fantasy (Parker and Leper, 1992; Cordova and Lepper, 1996; Habgood et al., 2005). Afterward, five researchers who are familiar with the fantasy concept evaluated an initial pool of 36 items independently.

In this process, several negatively or ambiguously worded items were found to be less effective in item analyses. These weak items were replaced with more clearly stated, positively worded items. These items were also evaluated by a group of experts.

The expert group consisted of five faculty members and four research assistants all studying games for learning at either the department of education or the department of educational technology from two universities in united State and South Korea. These evaluators rated each item in terms of perceived relevancy to its proposed dimension and provided feedback in terms of item wording.

Items rated as less relevant was removed, and the wording of items was improved based on the feedback from these evaluators. This review resulted in the removal of six items for similar meaning. As a result, 30 items were generated to administer for this study.

Participants and Procedures

In order to examine construct of fantasy state, 153 respondents were participated in this study. Participants are from South Korea and varied in age from 11 to 13. 53 % of the students were male and 47 % of the students were female. 19 % of the participants were 11 years, 22 % of them were 12, and 59% of them were 13 years olds. In this study, 35 commercial off-the-shelf games were used to analyze: 12 online action games, 7 massively multiplayer online role-playing games (MMORPG), 5 first-person shooter (FPS) games, 5 social network games (SNGs), 3 adventure games, 2 real time strategy (RTS) games, and 2 online sports games. Participants first answered one of their favorite games, and then they replied to the questionnaires as underlying their preference game. When answering fantasy state, participants were asked to think of one specific game and write down in which is their favorite game. They then responded to the fantasy items using five-point Likert scales anchored by 1=strongly disagree to 5=strongly agree.

Measures

In order to explore construct of fantasy state, exploratory factor analysis (EFS) was conducted. Principal component analysis was used to determine the number of extracted factors, and varimax structure was used as a suitable method of orthogonal rotation. The

criterion for valid variables was decided at 1.00 of eigen value and factor loading above .50. In the exploratory analysis, factor loadings are generally considered to be meaningful when they exceeded .30.

Table 1. Factor loadings for EFA with varimax rotation of Fantasy

Items	Factors			
	1	2	3	4
Item 23	.778			
Item 8	.685			
Item 28	.677			
Item 27	.632			
Item 18	.624			
Item 20	.602			
Item 19	.585			
Item 22	.582			
Item 26	.552			
Item 12		.712		
Item 7		.676		
Item 3		.668		
Item 10		.642		
Item 1		.634		
Item 2		.627		
Item 30		.571		
Item 17		.531		
Item 6			.803	
Item 15			.652	
Item 24			.638	
Item 11			.636	
Item 29			.580	
Item 4			.557	
Item 16				.745
Item 14				.713
Item 25				.657
Extraction Method: Principle Component Analysis				
Rotation Method: Varimax with Kaiser Normalization				

RESULTS AND INTERPRETATIONS

Exploratory Factor Analysis of the Fantasy in Gameplay

For factorability of the data for the fantasy, an exploratory factor analysis (EPA) was adopted. To validate the communality, the Kaiser-Meyer-Olkin measure of sampling

adequacy (KMO) and the Bartlett's test of sphericity were utilized. As a result, the KMO measure of sampling adequacy was .91, and the Bartlett's test of sphericity was 2445.195 (df = 325, p =.00) at significance level .01.

Table 2. Extracted factors and items determined by EFA

Dimen-sions	No.	Items	
Identifi-cation	ID1	Item 23	I can control myself and use my will as I do in my real life.
	ID2	Item 8	I am satisfied to be able to control of this game.
	ID3	Item 28	I feel satisfied that this game continues as I control.
	ID4	Item 27	The story of this game makes me feel like hero.
	ID5	Item 18	I can go around here and there according to my will.
	ID6	Item 20	I feel it's real me in this game, while playing.
	ID7	Item 19	The sound of this game makes me immersed.
Dimen-sions	No.	Items	
	ID8	Item 22	I am the main character during the course of this game.
	ID9	Item 26	The graphics of this game are realistic.
Imagi-nation	IM1	Item 12	The story of this game is mysterious.
	IM2	Item 7	The story of this game includes an ideal entity which does not exist in real life.
	IM3	Item 3	I can control the events in the game in which I can only imagine in my real life.
	IM4	Item 10	Environment exhibited in this game reflects well my desired image.
	IM5	Item 1	The graphics help me imagine a new world.
	IM6	Item 2	The story of this game gives me clues at what happens later in this game.
	IM7	Item 30	Various game activities, which I cannot do in my real life, make me enjoy this game.
	IM8	Item 17	This game leads me to a new experience that I've never had before.
Analogy	AN1	Item 6	The game scenes make me imagine something.
	AN2	Item 15	The tasks within the game help me imagine something in real life.
	AN3	Item 24	The sound in the game makes me feel that I am in the real world.
	AN4	Item 11	The tasks in this game recall me certain ways to solve problem.
	AN5	Item 29	The sound in this game makes me imagine something.
	AN6	Item 4	The game sound constantly makes me imagine something in real life.
Satisfac-tion	SF1	Item 16	The environment of this game makes me satisfied.
	SF2	Item 14	The sound of this game adds enjoyment to the game.
	SF3	Item 25	A variety of game activities add to my satisfaction with this game.

Thus, it could be interpreted as fit for factor analysis, and that there were common factors. The number of factors to be retained was guided by three decision rules: Kaiser criterion (eigen value above 1), inspection of the Scree plot and comprehensibility. Principle

component analysis (PCA) with varimax rotation was performed to extract factors. Table 1 shows factor loadings after varimax rotation.

To eliminate insignificant item for the fantasy, first the items with statistically insignificant factor loadings at the 0.05 level were deleted. Second, the items with communality less than 0.50 were dropped because they did not meet acceptable levels of explanation and were poorly represented in the factor solution. Lastly, the items with the difference of the factor loadings less than 0.10 were deleted. Although PCA of the 30 items revealed five factors with eigenvalue above 1, according to inspection of the Scree plot four factors were chosen as it exhibited simple structure and clearly defined factors. To shorten the factor, items were removed from these processes, a rotated factor matrix generated after each removal. At the end of this process 26 items were retained (see Table 1). The four factors were extracted resulting in EFA, factor 1 was organized in nine items, factor 2 was eight items, factor3 was six items, and factor 4 was organized in three items. The four factors were labeled as identification, imagination, analogy, and satisfaction.

Each factor can be described as follows: Identification refers to as "the psychological state in which identify oneself with the game world." Imagination is defined as "the psychological state in which is able to constantly experience and imagine diverse events that is unlikely to happen in real world." Analogy, in contrast to Imagination, refers to as "the extent to which evokes diverse experience related to real world." And lastly, satisfaction refers to as "the level of satisfaction being given to environmental factors."

Among the extracted factor to be able to examine fantasy state, identification accounted for 21.53% of the total variance explained, imagination was 17.068%, analogy was 13.933%, and satisfaction accounted for 10.073% of the total variance explained. The result from the extracted factors and items were shown in table 2.

CONCLUSION

Fantasy is a catalyst for getting engrossed in gameplay. A variety of research related to fantasy and gaming have been focused on its role in playing games. Many researchers have agreed that fantasy plays a pivotal role in gameplay, which is a critical factor increasing intrinsic motivation. Despite its consensus and significance, fantasy in gaming is still regarded as a vaguely psychological concept such as illusion. Broadly speaking, it is true that fantasy is an intuitively psychological concept. However, when we narrow down this concept as being encountered in gameplay, we might generalize this concept as a gaming-specified psychological concept. And this specified concept could account for how fantasy occurs in gameplay and further what is the role of fantasy in gameplay in terms of intrinsic motivation. The study thus aims to identify fantasy components as features contributing to intrinsic motivation in gaming.

In light of the results, conclusions of this study are as follows: First of all, this study identified fantasy concept, resulting in exploring fantasy subcomponents in such ways that not only glean from relevant literature but also empirically analyze its components. That is, this study presented the generalized fantasy concept existing in game environments. This finding might provide more specific approach, which is able to understand and account for fantasy in gaming. Secondly, the extracted factors were named as identification, imagination,

analogy and satisfaction. Identification refers to as "the psychological state in which identify oneself with the game world." Imagination is defined as "the psychological state in which is able to constantly experience and imagine diverse events that is unlikely to happen in real world." Analogy, in contrast to Imagination, refers to as "the extent to which evokes diverse experience related to real world." And lastly, satisfaction refers to as "the level of satisfaction being given to environmental factors." By thinking about such subcomponents, fantasy in gaming can be understood as the individualized psychological state that is satisfied with certain situation and events being evoked by identifying in the game world from both extrinsic and intrinsic stimuli. Thirdly, since a variety of previous research about fantasy in game environments stated that fantasy plays a critical factor in enhancing intrinsic motivation, the proposed components of fantasy, such as identification, imagination, analogy, and satisfaction, should be critically considered when we develop an educational game as a motivational learning environment.

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