Factors that influence consumers’ intention to invest in virtual goods on Massive Multiplayer Online Games: an empirical research

Alexios Pantazis

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Alexios Pantazis

Department of Business Administration,
Technological Educational Institute Of Kavala

Abstract

Purpose – Virtual good is a newly developed term which describes an item which is primarily in an online environment with a virtual structure. The present study seeks to introduce a conceptual framework that investigates which factors affect the consumers’ intention to invest in these goods inside an online game environment.

Design/methodology/approach – The examination of the proposed conceptual framework was made with the use of a newly developed questionnaire. The questionnaire was distributed to forums of different online games. After the completion of 6 month research period, 150 people from different countries answered. The empirical data were analyzed using the S.P.S.S. and S.P.S.S. AMOS program.

Paper type: Research paper
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Introduction

Massive multiplayer online games (MMOG) occupy a large part of game industry’s income which continues to grow rapidly over the past few years and now that everyone has the possibility to have internet connection with high speed all over the world, playing a MMOG is the new way to have fun and spend your time pleasant.

The rise of massively multiplayer games represents a revolution in the game industry. This claim can be justified by referring to their unprecedented technological requirements (Esbensen, 2005) their strong social significance (Kolo and Baur, 2004) and the new revenue models associated with them (MacInnes, 2005). Massively multiplayer games have also taken the complexity of games to a new level, prompting the use of the term “virtual world”.

There are many types of MMOGs such as: Massive Multiplayer Online Role Playing Game (MMORPGs) and Massive Online Battle Arena (MOBA). There are many MMORPGs in the market and some of them are World of Warcraft, Lineage 2, Guild Wars 1, 2 and EVE online. In the other hand there are three world known MOBA, League of Legends (LOL), Heroes of Newerth (HON) and Defend of the ancients 2 (DOTA). Other online games are the “Browser Games” such as Travian, Ogame and Runescape.

This research proposes an innovative conceptual framework that investigates the factors that influence consumers’ intention to invest in virtual goods on MMOGs with the requirement that they participate in an online game. Furthermore the relation between 12 affective or experiential motives is investigated which lead the user to participate and invest in virtual goods on a MMOG. These factors, mostly social, economic and psychological, influence the consumer and lead him to participate in an MMOG and invest his money to it, buying monthly subscription fee or buying virtual items in order to enchant his gameplay.

In the next section, a detailed literature review is presented followed by the description of the proposed conceptual framework and research methodology.
Literature Review

Massive multiplayer games in general

Massively multiplayer online games (MMOGs) are highly graphical 2-D or 3-D videogames played online, allowing individuals, through their self-created digital characters or “Avatars”, to interact not only with the gaming software (the designed environment of the game and the computer-controlled characters within it) but with other players’ avatars as well. These virtual worlds are persistent social and material worlds, loosely structured by open-ended (fantasy) narratives, where players are largely free to do as they please – slay ogres, siege castles, barter goods in town, or shake the fruit out of trees. They are notorious for their peculiar combination of designed “escapist fantasy” yet emergent “social realism” (Kolbert, 2001).

Before you are ready to explore the vast areas of any MMOG you have to create your digital character also known as “Avatar” which represents your actual self but in game. The avatar is the most conspicuous online manifestation of people’s desire to try out alternative identities or project some private aspect of them (Hemp, 2006). (The word, which originally described the worldly incarnation of the Hindu god Vishnu, was popularized in its ‘cybersense’ by Neal Stephenson in his 1992 cult novel Snow Crash.) Broadly defined, “Avatar” encompasses not only complex beings created for use in a shared virtual reality but any visual representation of a user in an online community (Hemp, 2006).

Many users worldwide pay subscription fee in order to have access to the most famous MMOGs. While many MMOGs have subscription fee the more common ones are the MMORPGs such as: World of Warcraft, Second Life and until recently Lineage 2. Nevertheless there are many free to play MMOGs the so-called freemium games in which most of the time can have full access to the game but you have to pay a fee via micro transaction system for some special features of the game. Most of the game companies adopted this kind of micro transactions in order to attract more players and have an economic growth and were successful. Many of these games
provide a unique business transaction environment: thousands of participants may not only interact with one another, but also buy and sell virtual items in a virtual world. (Guo and Barnes, 2009) This approach in gaming combined with the use of internet led the users to acquire large amount of virtual asset which can be sold or bought inside the virtual world. The so-called virtual assets are intangible valuables that exist solely in the computer systems known as “virtual worlds”.

What is Virtual world

A virtual world is defined as “an electronic environment that visually mimics complex physical spaces, where people can interact with each other and with virtual objects, and where people are represented by animated characters also known as ‘Avatars’ (Bainbridge, 2007). At present, popular 3-D virtual worlds are mainly divided into two categories: game-oriented virtual worlds (e.g. World of Warcraft, RuneScape and EverQuest) and socially-oriented virtual worlds (e.g. Second Life, There and HiPiHi) (Bainbridge, 2007; Guo and Barnes, 2007).

Game-oriented virtual worlds include an avatar which is the main tool for the player in order to interact with the world. In these worlds there is a scripted open scenario which you can follow; it includes the possibility to gain different levels for your character which comes with the increase stats that it obtains with each level. The main goal for the player is to reach the maximum level the game requires in order to participate in different functions which the developers of the game included in order to enchant the game experience even more.

In social-oriented virtual worlds a creation of an avatar is also required but the difference of game-oriented virtual worlds is that there is no particular goal for the player to achieve. So the possibility of the player to act like he is living “a real life” is increased in contrast with the player who is participating in a game-oriented virtual world.
**Definition of MMORPG**

MMORPGs are by definition, immersive virtual worlds that are also games, but since there are quite a few of these worlds that have little or no gameplay, we will use the term “virtual worlds” to describe them. The usually evolve around a theme that defines the goals of the game or encourages a freestyle of playing, leaving it up to the participants to do whatever they like in the virtual worlds. In MMORPGs there are hundreds, if not thousands of people, playing in one expansive world (Barnett and Coulson, 2010).

Referring to these environments as worlds “captures the open-ended and broad nature of these arenas, pointing to the ever-increasing possibilities for action within them” (Malaby, 2006). On the other hand, referring to them as ‘virtual’ misses their ‘real’ elements. Consequently, instead of calling them virtual worlds they are often referred to as synthetic worlds, highlighting the fact that these worlds are products of human actions (Malaby, 2006). MMORPGs generally have the same features and functionality found in Virtual Worlds but have a focus on character development, player vs. player (PVP) and player vs. environment (PVE) combat, static magic and crafting mechanics, community conflict (clan vs. clan), and item collection.

This all takes place within a fictional world, complete with history, stories, monsters, heroes, legends, and villains. Players are offered a chance to temporarily escape from the mundane repetition of daily life, and experience what it would be like to live in a different time or space, contribute to a society, save the day, explore new places, solve mysteries, fall in love, or experiment in their social interactions with others. This all occurs in large persistent virtual environments, usually 3D, where several thousand players can be at the same time (Rice, 2006).

These games allow users to create a virtual character of themselves (Avatar), to react with the virtual world and the other virtual characters (avatars) in it (Kolbert, 2001).
What is MOBA games

Multiplayer Online Battle Arena (MOBA) also known as action real-time strategy (action RTS or ARTS), is a sub-genre of the real-time strategy (RTS) genre, in which usually two teams of players compete with each other in discrete games, with each player controlling a single character through an RTS-style interface. It differs from traditional RTS games in that there is no unit construction and players control just one character.

MOBA games are currently taking the e-Sports or online video gaming scene by storm. The genre originated from the Aeon of Strife map in StarCraft 1 which paved the way for development of the Defend Of The Ancients (DOTA) map for Warcraft III. Since then, a multitude of other games have been created on stand-alone engines such as Heroes of Newerth (HON), League of Legends (LOL), Bloodline Champions and the upcoming DOTA 2! Multiplayer Online Battle Arena games are also commonly referred to as: DOTA Based Games or DOTA Clones and AoS (Aeon of Strife) Style Games. (http://www.urbandictionary.com/define.php?term=MOBA)

Definitely the leading gaming company for MOBA games is RIOT Games Company. This company was the first one which introduced the real “free-to-play” system for an online game. RIOT Games is the company behind the many times awarded game League of Legends a MOBA based game which is free-to-play, no need of monthly free, the user must only play the game and he earns experience points which improve his level. Also at the end of every round of game he earns an amount of “influence points” (IP), either he lost or he won, which he can use in order to buy new characters or skins to enchant the appearance of the already owned characters.

Although it’s a free-to-play online game, LOL uses a micro-transaction system with which you can buy other type of points (RIOT points) which you can use them again to buy characters, skins and other stuff that enchant your gameplay. Riot Games announced that over four million people play League of Legends every day – a staggering increase of more than double since Riot last announced the size of its community in July 2011. With 11.5 million monthly active players, peak concurrency reaching 1.3 million, and a registered player base of over 30 million worldwide,
League of Legends is about to enter its second competitive season as one of the top five PC games in North America and Europe. (http://www.riotgames.com/news/league-legends-community-more-doubles-just-four-months-surpassing-11-million-active-players)

According to Xfire which is a proprietary freeware instant messaging service for gamers that also serves as a game server browser and has various other features, shows that Riot Games’ League of Legends is now officially the most played PC game in North America and Europe. “The fact that online games such League of Legends eclipsed more than a billion hours of online game time in a year is simply incredible and a testament to the fundamental shift currently sweeping through the games industry.” (Cole, 2012)
Trading opportunity in virtual worlds and how to make a living from it.

In virtual worlds players have other virtual item obtaining manners than web-based shopping in addition to the in-world purchase manner. For example, players may get desired virtual items in virtual worlds through in-world non-purchase manners, e.g. fighting with non-player characters (NPCs), which may randomly drop virtual items, or by finishing quests in game-oriented virtual worlds, and via self-design in socially-oriented virtual worlds, in addition to buying from other players. In the game, players (Avatars) purchase various items required by using the virtual currency the game use. However some players, despite the forbid of some games, trade the items in the real world using real currency through auction sites of the Internet, such as eBay (Yamagushi, 2004).

Buying from other players can be achieved through Web-based platforms or face-to-face approaches (i.e. out-of-world purchasing manners). Compared to virtual items, perhaps purchasing in the real world (i.e. using real money) is the only method to get desired real products/goods and very limited in-world trading platforms have been used for purchasing real products/goods so far (i.e. using virtual currencies) (Guo and Barnes, 2009). Hemp in his article for Harvard Business Review said that the real-world marketing potential of online worlds is suggested by the active virtual commerce that already takes place within them (Hemp, 2006). Virtual items transactions are growing quickly. According to DFC Intelligence, the online game market will reach $13 billion and over 40% of revenues will be produced by trading virtual assets by 2012 (DFC Intelligence, 2007).

Trading virtual goods in the Virtual Worlds has created a new opportunity. Many Second Life residents have built seven-digit income (in real US dollar) from creating and selling virtual items (such as clothes for avatars) or virtual land development. Consumers like to purchase virtual items (as gifts or for themselves) to customize their experience, and Linden Lab recently acquired and eBay-like web marketplace to
help consumers find their key items and to expand the reach merchants (Morgan, 2009). However, it could be argued that allowing these transactions via the e-bay can harm the gameplay of a game-oriented virtual world such as World of Warcraft in which the character developing and gaining experience is a primary aim. The potential problem is allowing a user to progress through the game by buying new skills, weapons and resources using real money can alienate other users, who feel this is a form of cheating and that it breaks the sense of achievement for those who progress without buying their progress. This is not an issue that applies to Second Life as there is no predetermined goal and users decide what to make out of it.

On the contrary for Second Life, allowing users to capitalize on their creation acts as a strong incentive and motivation to innovate and find market gaps to fill. Many users have already started new businesses, which could be termed meta-businesses, and which are a hybrid of electronic business and real world organizations. Some of the most successful in-world entrepreneurs are already making significant annual income and have been enjoying considerable growth (Papagiannidis et al., 2008)

An example of how to make a living by selling virtual items is an anonymous user, who is known by the nickname WishboneTheDog, who made more than 10.000$ by selling items using the real money auction house of Diablo 3 a game of Blizzard Enter. He had provided some partial evidence of this feat by posting screen shots of his PayPal transactions as well as item trades, which shows that he has consistently been having hefty sales. This evidence also shows that he was able to make about $2,700 in just 12 days, which means he made roughly $1,600 a week only by spending an average of 8 to 14 hours a day hunting for items in and making transactions over the game’s real money auction house and his PayPal account. (http://www.justd3.com/diablo-3-player-makes-10000-on-rmah-proof-included.html)
Technology Acceptance Models

The Technology Acceptance Model (TAM) was developed by Davis. According to TAM “users' adoption of computer system” depends on their “behavioral intention to use”, which in turn depends on “attitude”, consisting of two beliefs, namely Perceived Ease of Use and Perceived Usefulness (Davis, 1989).

Davis actually developed TAM by building upon an early theory the Theory of Reasoned Action (TRA) by Fishbein and Ajzen. In TRA, Fishbein and Ajzen proposed that intention is “the immediate determinant of the corresponding behavior”, which is divided into (1) “attitude toward behavior”, and (2) “subjective norm concerning behavior” (Fishbein and Ajzen, 1975).

Davis posited in TAM that the two theoretical constructs, Perceived Usefulness and Perceived Ease of Use, are fundamental determinants of system use in an organization. These constructs also provide better measures for predicting and explaining system use than other constructs (Davis, 1989).
Empirical Research

According to our search there was only one empirical research which had similar theme as the research we are conducting. Guo and Barnes, (2009) for the sake of the 17th European Conference on Information Systems (ECIS) made of presentation of an empirical test of a conceptual model of “Why do people buy virtual items in virtual worlds”.

Specifically their purpose was to make an empirical research on why people buy virtual items in virtual worlds. They develop and tested a conceptual model of purchase behavior in the context of virtual world. They used an large-scale online survey which was conducted in Second Life and they used SEM-PLS (Structural Equation Models by Partial Least Squares) in order to confirm the conceptual model. Among the statistically significant paths they found in the conceptual model, effort expectancy, performance expectancy, perceived value, customization, habit, advancement and enjoyment all have strong impact on virtual world residents’ purchase intention.

Finally they concluded that their research was the first explanatory study of virtual item purchase behavior, which is the heart of virtual world transactions. The rigorous testing of the conceptual model will not only extend the application of established theory models (eg. TAM) to a new environment but also offer a theoretical foundation for further studies on virtual item purchase behavior. They claim that if their research findings were to be successfully replicated in other virtual world settings, they could be of value assisting virtual world developers in the development and design of virtual worlds. Also the knowledge of factors influencing players’ virtual item purchase behaviour, coupled with effective items of measurement are useful for virtual world developers to prioritise their resources in terms of manpower, investment, time and allocation, in the most effective and efficient way.
According to their results, transaction platforms should be integrated into gameplay in an intuitive and enjoyable manner and provide clear benefit and value to the players. Players should also be afforded the freedom to easily customise their own avatars, which provides an important driver for purchase behaviour – as individuals will seek to purchase items to fulfil this desire. Developers should use interface and game design that is easy to use that enforces habitual transaction behavior.

As for the limitations and possible future directions of the research Guo and Barnes cannot claim that the results obtained by their research hold equally well in other virtual worlds especially in game-oriented ones because of the characteristics which are unique to a specific virtual world can potentially alter the relative importance of factors influencing players’ purchase intention and actual purchase behavior so a further research in game-oriented worlds such as World of Warcraft (WoW), RuneScape or EverQuest can be made. Another potential limitation of their research is that the research itself adopted self-reported measures of previous purchase frequency and money spent as a proxy for actual purchase also although the research developed most measurement items which were based on previous studies that was the first time that these items had been examined in the context of virtual world. Finally they propose that a future research targeted at more fully developing and validating appropriate measurement with an emphasis on new constructs lacking previous empirical testing, such as advancement, customization and perceived values should be made.

Papagiannidis et al. (2008) discussed in their paper the business opportunities and challenges of a social-oriented virtual world, that of Second Life, and examined the resultant corporate social responsibility implications focusing on the ethical and policy-related ones. They concluded that in Second Life, where there is no defined goal for the users to achieve, other than what they feel is of interest for them, the activities that take place are more often similar to the activities undertaken in real life. As a result, one would expect that the ethics sets would be comparable in most cases. This argument could be extended to user ethics as well, as most of the transactions undertaken are based on real transacting models and the in-world currency is linked to real world currency. Second Life itself has a defined set of Community Standards, but
these are mostly behavioral guidelines rather than an attempt to provide a user or business behavior framework.

Nick Yee traced out a player life-cycle from open-ended survey data in his website http://www.nickyee.com/daedalus/ in order to find whether the players’ motivations for playing MMOGs had changed over time. Yee conducted a model of 5 factors or staged of the player life circle.

These are 1) Starting: The player has just started playing the game and everything is new and exciting. 2) Ramping Up: The player has learned the basics and is now busy progressing through the content (whether leveling or crafting). They have a sense of where they want to be and are heading for that goal. 3) Mastery: The player is at the higher-end of the game and is either well-situated in a guild and doing raids, or happily soloing high level quests, or competing in PvP content. 4) Burn Out: The player feels like they’ve done everything they can do in the game, or they are beginning to feel burned out from all the raid and social obligations from their guild. They wonder where all the fun went. 5) Casual / Recovery: The player has figured out a way to play the game without burning out. They may be doing intermittent raids, logging in casually to play with friends, casually leveling alts, etc.

A player’s life-circle determines their willingness to invest in their virtual life. With logic we can say that being in the Ramping Up stage in which the interest of the player is at maximum level as they are progressing through the many features of the game can make them more interested in buying some extra stuff the game may offer in order to enchant their gameplay experience.
Research model and hypotheses

The present study introduces a newly developed conceptual framework build by research variables which they were used in previous researches. This mixed conceptual framework will help us understand why players invest in virtual good by examining the following 12 research variables:

1. Participation in a MMOG
2. Intention to invest in virtual goods
3. Addiction
4. Escapism
5. Sociability
6. Personal Innovativeness
7. Perceived Enjoyment
8. System Characteristics
   8.1 Challenge
   8.2 Feedback
   8.3 Speed
9. Game Loyalty
10. User’s Experience
Addiction

In the past few years much has been written about the idea that some peoples involvement with the Internet can become so intense as to be pathological (e.g., Davis, 2001; Beard and Wolf, 2001; Brenner, 1997; Caplan, 2002; Davis et al., 2002; Griffiths, 1998; Griffiths et all, 2003; Morahan-Martin and Schumacher, 2000; Pratarelli, et al, 1999; Pratarelli and Browne, 2002; Shapira et al., 2003; Young, 1996). The term adopted in describing this behavior has varied, problematic Internet use, pathological Internet use and Internet addiction being but three names used. Usage of the term addiction has been considered controversial.

Also, in a study of the socio-demographic characteristics of online game players, Griffiths et al. (2003) analyzed data provided by players of the MMORPG game Everquest. In this survey, it was found that 25% of players played for more than 41 h per week, and the authors suggested that these people may well have been addicted since playing to this extent would be highly likely to have an impact upon other aspects of a person’s life.

Thus, these games may be addictive because they are particularly good at inducing operant conditioning via variable-ratio reinforcement schedules (a highly effective conditioning paradigm [Wallace, 1999]). Second, since other players are also online and interacting with the character one has adopted, the acclaim and attention of others provides social reinforcement: another important feature of potentially addictive Internet activities (Morahan-Martin and Schumacher, 2000; Wallace, 1999). So a highly addicted person is more likely to continue playing a MMOG and invest in the virtual goods it provides.

H1a: Addiction has a positive effect at the intention to invest in virtual goods

H1b: Addiction has a positive effect at the participation in a MMOG
Escapism

Holsapple and Wu (2007) in their research “User acceptance of virtual worlds: The Hedonic Framework” developed a theoretical framework that recognizes the potential of imaginal and emotional responses in explaining user acceptance of virtual Worlds. According to the “Hedonic Theory” which has been developed to study consumers behavior, specifically why the individual forms the intention to use esthetic products such as ballet, music, drama and movies (Hirschman and Holbrook, 1982).

The theory asserts that the main driver of hedonic consumption is the unique consumption experience, namely imaginal and emotional responses (Lacher and Mizerski, 1994). Escapism, mainly referred as an imaginal response (Hirschman, 1983), is by definition the extent to which online game playing is perceived to be a relief of boredom and an escape from routine even from daily life problems[(Bloch et al., 1994), (Wood et Al, 2004)]. So a person who would like to live the experience of escapism through participating in a MMOG would be more in acceptance to invest in the virtual goods this game has to offer.

H2a: Escapism has a positive effect at the intention to invest in virtual goods

H2b: Escapism has a positive effect at the participation in a MMOG
Sociability

This factor will be divided in two forms sociability in real life and sociability in online communities. Sociability is the “tendency to affiliate with others and to prefer being with others to remaining alone” (Cheek and Buss, 1981). High sociability people tend to seek friendships and opportunities to engage in relationships (McAdams, 1988), including retailing relationships (Reynolds and Beatty, 1999), online relationships (Blais et al., 2008), and sports activities (Ko and Pastore, 2005) in order to fulfill social needs.

There is no accepted definition of ‘online community’. The term means different things to different people (Preece, 2000). For some, the concept creates fuzzy, warm, reassuring feelings; for others it conjures up concern about people operating at the margins of society to create networks of hatred or support for deviant behavior. Some people view online community as a social phenomenon, others focus on the structure of the supporting software.

A virtual community is a group of people who may or may not meet one another face-to-face, and who exchange words and ideas through the mediation of computer bulletin boards and networks. Rheingold (1994) and Preece (2001) examined the concept of sociability for online communities, meaning the ease with which members can interact and communicate with each other.

Preece identified three determinants for sociability: purpose, people and policy. For purpose, she identified such criteria as number of messages sent, how ontopic the discussion is, and how much interaction is taking place. For people, she identified such criteria as how many and what kind of members a community has, and the roles the members play. For policy, she identified how effective any moderating policies are to control unwanted behaviour, any policies to encourage the development of relationships, and the level of trust.

So in an online community people may or may not have the same reaction as they do in real life. Nevertheless sociability both real and virtual has an impact in both participation and investment in virtual goods. Since we are going to use 2 parts of
sociability we are going to measure it with different hypothesis. We are going to take the extreme situation of sociability (real) by making the hypothesis that a person who has a lively sociability (real) is less likely to participate in a MMOG and therefore have no intention to invest in virtual goods. As for the sociability (virtual) we are going to make the hypothesis that it has positive effect in both participation and intention to invest.

H3.1a: Sociability (real) has a negative effect at the intention to invest in virtual goods

H3.1b: Sociability (real) has a negative effect at the participation in a MMOG

H3.2a: Sociability (virtual) has a positive effect at the intention to invest in virtual goods

H3.2b: Sociability (virtual) has a positive effect at the participation in a MMOG

**Personal Innovativeness**

Rogers, Shoemaker (1971) and Rogers (1995) conceptualize the “personal innovativeness” construct as the degree and speed of adoption of innovation by an individual. This construct has been of particular interest in innovation diffusion research in general (Rogers, 1995) and the domain of marketing in particular (Midgley and Dowling, 1978; Flynn and Goldsmith, 1993; Roehrich, 1994). It has recently been applied to the domain of information technology (Agrawal and Prasad, 1998). Personal innovativeness is a personality trait that is possessed by all individuals to a greater or lesser degree (Midgley and Dowling, 1978), as “some people characteristically adapt while others characteristically innovate” (Kirton,
Participating in a MMOG and investing in virtual items is an innovative behavior that is more likely to be adopted by innovators than non-innovators.

H4a: Personal Innovativeness has a positive effect at the intention to invest in virtual goods

H4b: Personal Innovativeness has a positive effect at the participation in a MMOG

**Perceived Enjoyment**

Perceived Enjoyment is by definition the extent to which the activity of participating in an online game is perceived to be pleasurable, exciting, enjoyable, fun and happy (Moon and Kim, 2001; Ghani and Deshpandes, 1994; Chou and Ting, 2003). The experiential motives of enjoyment were derived from the concept of flow. This flow concept is defined by Csikszentmihalyi (1990) as the state in which people are so intensely involved in an activity that nothing else seems to matter; the experience itself is so enjoyable that people will do it even at great cost, for the sheer sake of doing it.

From the literature review and conceptual framework presented above, it is apparent that the experiential motive perceived enjoyment is likely to have a positive effect at the participation in online games. Therefore for a person who is enjoying the game he is participating is more likely to buy virtual goods that this game provides.

H5a: Perceived enjoyment has a positive effect at the intention to invest in virtual goods

H5b: Perceived enjoyment has a positive effect at the participation in a MMOG
System Characteristics

Kiili (2005) proposes an experiential gaming model that stresses the importance of providing online game players with immediate feedback, clear goals and challenges that are matched to players’ skill levels in order to facilitate flow experience. Thus, based on the previous literature, we select three system characteristics as critical external antecedents of perceived playfulness in the context of online games: (1) challenge (Chen et al, 1999; Chung and Tan, 2004; Ghani and Deshpande, 1994; Ghani et al, 1991; Hoffman and Novak, 1996; Hsu et al, 2005; Kiili, 2005; Koufaris, 2002; Novak, Hoffman and Yung, 2000; Webster and Ho, 1997), (2) feedback/interactivity (Hoffman & Novak, 1996; Hsu et al, 2005; Webster and Ho, 1997) and (3) speed (Skadberg and Kimmel, 2004; Chung and Tan, 2004; Kiili, 2005).

Challenge

According to Chung and Tan (2004) and Kiili (2005), challenge is defined as the extent to which perceived positive challenges presented by an online game are matched to perceived playing skills of the user. Namely, challenge in this study is conceptually a construct of challenge–playing skill match. It is worth noting that playing skills mean the skill level of playing a specific online game, which is conceptually different from computer skills mentioned earlier. In fact, an online game itself is a big problem that is composed of smaller, causally linked problems.

Generally, a problem can be anything that somehow restricts a player’s progress in the game world (Kiili, 2005). Rollings and Adams (2003) also suggest that gameplay is one or more causally linked series of challenges in a simulated environment. Thus, the aim of an online game is to provide players with challenges related to a specific virtual problem or task so that playful experience is possible. Most people begin playing an MMOG because of its advance gameplay, graphics and system characteristics, therefore the system characteristics of a MMOG will have a positive impact on a person’s participation and intention to invest in it.
H6.1a: Challenge has a positive effect at the intention to invest in virtual goods

H6.1b: Challenge has a positive effect at the participation in a MMOG

**Feedback**

Feedback is defined as the extent to which an individual perceives that playing online games has interaction between game players (Chung and Tan, 2004; Hoffman and Novak, 1996; Webster and Ho, 1997). Kiili (2005) suggests that digital games should provide immediate feedback to the player in order to facilitate flow experience.

H6.2a: Feedback has a positive effect at the intention to invest in virtual goods

H6.2b: Feedback has a positive effect at the participation in a MMOG

**Speed**

Speed is defined as the extent to which an individual perceives that playing online games has a fast system response (Chung and Tan, 2004).

H6.3a: Speed has a positive effect at the intention to invest in virtual goods

H6.3b: Speed has a positive effect at the participation in a MMOG
**Game loyalty**

Despite the various views researchers adopt to examine online gaming, researchers mostly are interested in a limited number of behavioral consequences. The study considers consumer loyalty as the criterion variable because it is an indicator of continuance and represents an important behavioral consequence in online gaming (Flavian et al., 2006). Most people have been a victim of the fanaticism of players who support the MMOG they are currently playing, even though it’s a negative factor in our research has a positive effect in both participation and intention to invest.

H7a: Game loyalty has a positive effect at the intention to invest in virtual goods

H7b: Game loyalty has a positive effect at the participation in a MMOG

**User’s Experience**

In many different areas of human-computer interaction the experience received from a technology use is gaining increasing attention. In virtual realities (VR) and movies the concept of the sense of presence is used to describe the special experience caused by the VR-technology and large screens of the movie theatres (Lombard and Ditton, 1997). The specialists of the display technology are concentrating on the image quality experience (Keelan and Keelan, 2002) and in digital gaming the concept of immersion is used to describe the deep engagement to a game (Juul, 2005).

User Experience (UX) is considered essential also in the cognitively and task-oriented field of human-computer interaction (HCI). It has become a popular research topic different from more work-related usability-studies, which have traditionally dominated the field of HCI (Hassenzahl and Tractinsky, 2006). Also the optimal experience, that is, flow (Csikszentmihalyi, 1975.) has become an object of study in various human-computer interaction contexts such as in Internet use (Novak et al., 2000). Many of the above concepts are somewhat mysterious and often times
ambiguously used buzzwords in describing human experience. In many cases sound empirical research is absent. The term experience can be used in numerous ways and it can refer to almost any level of human consciousness. In the following we are going to measure User’s Experience as the time which a person have invested in playing a MMOG and also we will measure how much time spends on playing a MMOG per week.

H8a: User’s Experience has a positive effect at the intention to invest in virtual goods

H8b: User’s Experience has a positive effect at the participation in a MMOG

**Participation in a MMOG**

Participation in a MMOG is the action the players take when he is playing a MMOG. It includes both the long term participation, by being an active user who is playing many hours per day, and short term participation, by being a user who had joined the game once and stop being active. In order to have the intention to invest in virtual goods you must first participate in a MMOG therefore participation will have a positive effect at intention.

H9: Participation in a MMOG has a positive effect at the intention to invest in virtual goods
**Intention to invest**

Since the process to invest in virtual goods is in digital form, which can be achieved by advanced information systems such as transaction systems, the use of TAM theory is required in order to measure the intention of the players to invest in virtual goods. As we presented earlier in 2.6 the Technology Acceptance Model, measures “users' adoption of computer system” as it is depended on their “behavioral intention to use” For our research we will only measure the “intention to use/invest” factor to meet our requirements.

From the presentation of these factors gives the following research model:
SYSTEM CHARACTERISTICS

- Challenge
- Feedback
- Speed
Research Methodology

Sample

The conceptual framework of the present study was tested with the use of a newly developed questionnaire on a sample of 150 questionnaires which were published online. The questionnaires were answered from users that are or had participated in an online game before. This particular research will try to identify the factors that influence these consumers simultaneously to participate in a MMOG and buy virtual goods for the game.

Method of data collection

The data collection will be achieved by an online questionnaire. This questionnaire will be uploaded to various game sites of the most famous MMOGs such as: World of Warcraft, Lineage 2, League of legends, Heroes of Newerth, World of Tanks, RuneScape, Lord of the Rings Online, Aion Online, Runes Of Magic, Darkfall Online and DC Universe Online. Also it was uploaded in the forum of PCmaster Mag, a Greek magazine for pc games. Both premium and freemium online games were included in the research. Also it will be uploaded to the fan pages of these games in Facebook and Twitter.

Description of how to measure these variables

The questionnaire of the present study is based on items (questions) that have been used by various previous researchers. The five-point Likert scale was used for the measurement of all variables (1 = “strongly disagree” to 5 = “strongly agree”). This research includes 12 factors which influence consumers to buy virtual goods. Addiction will be measured by 10 questions which were modified by Charlton (2002). Escapism will be measured by 6 questions which were modified by Koo et al., (2007) and Holsapple and Wu (2007). Sociability will be measured by 5 questions for real
sociability which were modified from Spake and Megehee (2010) and 4 questions for sociability in online communities which were modified by Choi and Kim (2004). Personal innovativeness will be measured by 4 questions which were adapted from Hurt et al. (1977). Perceived Enjoyment will be measured by 7 questions which were adapted from Koo et al. (2007). Challenge will be measured by 3 questions, feedback will be measured with 3 questions and finally speed will be measured with 3 questions. All the questions that measure the system characteristics were adapted from Wang and Want (2008). Game loyalty will be measured with 4 questions which were adapted from Huang and Hsieh (2011). User’s experience will be measured by 2 questions, intention to invest will be measured by 4 questions and finally participation in a MMOG will be measured by 3 questions.

**Content Validity**

The purpose of the questionnaire’s content validity is the correction or even the rejection of questions which are unclear and create confusion in the respondent. The ultimate goal of the process is the formulation of questions in a way that is easily understood by the person filling out the questionnaire. Checking the validity of the content included:

(a) Discussions with academics dealing with the subject of consumers’ intention to buy virtual goods

(b) Discussions with professionals (player support in MMOG).

(c) Completion of the questionnaire by the above persons (pilot study) and discussion with them for any questions you felt that need correction, different wording or removal.
Construct Validity

In order to check the construct validity of the questionnaire we used the Exploratory Factor Analysis. The Exploratory Factor Analysis is used when the validity of the research variables haven’t been checked from previous researches. All the variables which were used for our research have been measured by questions that have been used in previous researches; hence all of them haven’t been tested in whole in the past for their validity.

Exploratory Factor Analysis

As we said above for the factors’ measurement we used the Exploratory Factor Analysis. More specifically we tested the following variables:

1. Participation in a MMOG
2. Intention to invest in virtual goods
3. Addiction
4. Escapism
5. Sociability
6. Personal Innovativeness
7. Perceived Enjoyment
8. System Characteristics
   8.1 Challenge
   8.2 Feedback
   8.3 Speed
9. Game Loyalty
10. User’s Experience

Each variable was tested for their unidimensionality and their reliability, in order to make these tests we used S.P.S.S. program. For the variables’ unidimensionality we
used the method of the Principal Component Analysis by using the Varimax method which accordance with Sharma (1996) and Hair et al. (1995) is one of the most reliable and famous methods. In order to test the content’s adequacy for the factor analysis we used the statistical test a) Bartlett’s Sphericity which tests if the factors’ creation is possible and we used the statistical test b) Kaiser-Meyer-Olkin-KMO also the statistical meter c) Measure of Sampling Adequacy and d) Principal Component Analysis. Bartlett’s Sphericity and Measure of Sampling Adequacy tests measure the adequacy of one statistic sample and they take values from zero (0) to one (1). Values over 0.8 are satisfactory while values over 0.5 are acceptable (Kaiser and Rise, 1970). From the other hand in order for a factor model to be created Bartlett’s test of Sphericity must be significant in significance level 0.01 or 0.05. Finally the Principal Component Analysis must have values over 0.05.

To specify the extraction of the factors’ multitude we used the criterion of eigenvalue. According to this criterion we choose those factors which have eigenvalue above one.

In order to test the degree in which every question contribute in the creation of each factor we tested the Factor Loadings. When the research sample is over 100 questionnaires the Factor Loadings which are over 0.55 are considered significant (Hair et al., 1995) in significance level 0.05.

The completion of all these checks shows that all the variables which were tested are unidimensional. Specifically the Principal Component Analysis showed that all the questions except the question “I often experience a buzz of excitement while playing online games.” from the factor “Addiction” is not suitable for the factor analysis. Also from the factor “Escapism” questions “I don’t need a good reason to play an online game” and “I don’t need to be looking for a reason to play an online game” are not suitable for the factor analysis. The following table includes some of the basic results of the Explanatory Factor Analysis for these variables.
### Table of: Explanatory Factor Analysis

<table>
<thead>
<tr>
<th></th>
<th>Kaiser-Mayer-Olkin</th>
<th>Bartlett’s Test Of Sphericity $p&lt;0.01$</th>
<th>Eigenvalue</th>
<th>Percent of Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participation</td>
<td>0.740</td>
<td>257,674</td>
<td>2,461</td>
<td>82,036</td>
</tr>
<tr>
<td>Intention</td>
<td>0.807</td>
<td>227,664</td>
<td>2,700</td>
<td>67,505</td>
</tr>
<tr>
<td>Addiction</td>
<td>0.858</td>
<td>292.716</td>
<td>3,395</td>
<td>48,497</td>
</tr>
<tr>
<td>Escapism</td>
<td>0.5</td>
<td>169.802</td>
<td>1,827</td>
<td>91,344</td>
</tr>
<tr>
<td>Sociability Real</td>
<td>0.826</td>
<td>332.385</td>
<td>3,188</td>
<td>63,754</td>
</tr>
<tr>
<td>Sociability Virtual</td>
<td>0.791</td>
<td>201.148</td>
<td>2,595</td>
<td>64,863</td>
</tr>
<tr>
<td>Personal Innovativeness</td>
<td>0.5</td>
<td>7.462</td>
<td>1,222</td>
<td>61,105</td>
</tr>
<tr>
<td>Perceived Enjoyment</td>
<td>0.681</td>
<td>240.534</td>
<td>2,533</td>
<td>63,336</td>
</tr>
<tr>
<td>System Characteristics (Speed)</td>
<td>0.722</td>
<td>222.379</td>
<td>2,375</td>
<td>79,170</td>
</tr>
<tr>
<td>System Characteristics (Feedback)</td>
<td>0.629</td>
<td>184.941</td>
<td>2,202</td>
<td>73,403</td>
</tr>
<tr>
<td>System Characteristics (Challenge)</td>
<td>0.647</td>
<td>115,801</td>
<td>2,006</td>
<td>66,875</td>
</tr>
<tr>
<td>Game Loyalty</td>
<td>0.737</td>
<td>169,077</td>
<td>2,391</td>
<td>59,764</td>
</tr>
<tr>
<td>User’s Experience</td>
<td>0.5</td>
<td>16,237</td>
<td>1,323</td>
<td>66,143</td>
</tr>
</tbody>
</table>

Now that we have tested the unidimensionality of the variables we should make another test about their reliability. In order to measure the reliability of the variables we used the S.P.S.S. program to measure the meter Cronbach Alpha which showed
that all the variables except “Personal Innovativeness” are reliable in what they measure. So we had to take out the “Personal Innovativeness” variables from the analysis. According to Nunnaly (1978) the value of the Cronbach Alpha meter must be over 0.7 in order to be a criterion of reliable scale.

The results of the reliability analysis are shown in the following table:

**Table of: Reliability Analysis:**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Number Of Questions</th>
<th>Cronbach Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participation</td>
<td>3</td>
<td>0.887</td>
</tr>
<tr>
<td>Intention</td>
<td>4</td>
<td>0.838</td>
</tr>
<tr>
<td>Addiction</td>
<td>7</td>
<td>0.821</td>
</tr>
<tr>
<td>Escapism</td>
<td>2</td>
<td>0.905</td>
</tr>
<tr>
<td>Sociability Real</td>
<td>5</td>
<td>0.856</td>
</tr>
<tr>
<td>Sociability Virtual</td>
<td>4</td>
<td>0.816</td>
</tr>
<tr>
<td>Personal Innovativeness</td>
<td>2</td>
<td>0.363</td>
</tr>
<tr>
<td>Perceived Enjoyment</td>
<td>4</td>
<td>0.803</td>
</tr>
<tr>
<td>System Characteristics (Speed)</td>
<td>3</td>
<td>0.868</td>
</tr>
<tr>
<td>System Characteristics (Feedback)</td>
<td>3</td>
<td>0.799</td>
</tr>
<tr>
<td>System Characteristics (Challenge)</td>
<td>3</td>
<td>0.727</td>
</tr>
<tr>
<td>Game Loyalty</td>
<td>4</td>
<td>0.756</td>
</tr>
<tr>
<td>User’s Experience</td>
<td>2</td>
<td>0.687</td>
</tr>
</tbody>
</table>
Results and conclusions of the research

In this final chapter we are going to draw our conclusions and test if the conceptual framework is correctly constructed like this or if it needs another shape from which we can draw better conclusions in a further research. We used S.P.S.S. AMOS for this test in which we measure the CMIN/DF, GFI and CFI of the model fit. CMIN/DF must be over or close to 1 to be acceptable also GFI and CFI must be around or over 0.9. This test showed that the goodness of fit model statistics is very low and therefore must change to a new one. In order to achieve the creation of the new model we must test the relation between each variable. Since most of the variables had sig > 0 we decided to create a new model based on Estimates output of AMOS. Therefore a new model was created which is attached in the next pages. The new model has the following values:

<table>
<thead>
<tr>
<th>Model Fit</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMIN/DF</td>
<td>2.129</td>
</tr>
<tr>
<td>GFI</td>
<td>0.903</td>
</tr>
<tr>
<td>CFI</td>
<td>0.891</td>
</tr>
<tr>
<td>RMSEA</td>
<td>0.87</td>
</tr>
</tbody>
</table>

With the creation of the new model new relations have occurred because the P value from the previous relations was over 0.00 except the following relations:

- Perceived Enjoyment ⇒ Participation
- User’s Experience ⇒ Participation
- Participation ⇒ Intention

In order to achieve the best results in “Participation” and “Intention” the program suggested some relations between our variables in order to have a better model. From them we took the ones who had “Modification Index” (M.I.) over or close to 20 and the highest value of Par Change. Our entire new relations (R) are the following:
R1: System Characteristics (Speed) ⇒ System Characteristics (Feedback)
R2: System Characteristics (Challenge) ⇒ Sociability Real
R3: System Characteristics (Challenge) ⇒ Game Loyalty
R4: System Characteristics (Feedback) ⇒ System Characteristics (Challenge)
R5: System Characteristics (Feedback) ⇒ Game Loyalty
R6: System Characteristics (Feedback) ⇒ Sociability Virtual
R7: System Characteristics (Feedback) ⇒ Perceived Enjoyment
R8: Game Loyalty ⇒ Sociability Virtual
R9: Game Loyalty ⇒ Perceived Enjoyment
R10: Perceived Enjoyment ⇒ Addiction
R11: Perceived Enjoyment ⇒ Participation
R12: Addiction ⇒ User’s Experience
R13: Addiction ⇒ Escapism
R14 User’s Experience ⇒ Intention
R15: User’s Experience ⇒ Participation
R16: Escapism ⇒ Intention
R17: Participation ⇒ Intention

All the new relations were occurred having in mind the Significance level within each one of the variables and the Estimates; also the theory helped us interpret the connection of variables by logic. We can see the Estimates and the Significance Level as well as the new model in the following page:
<table>
<thead>
<tr>
<th>Path</th>
<th>Estimate</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCFEEDBACK &lt;--- SCSPEDD</td>
<td>.432</td>
<td>0.00</td>
</tr>
<tr>
<td>SCCHALLENGE &lt;--- SCFEEDBACK</td>
<td>.387</td>
<td>0.00</td>
</tr>
<tr>
<td>GAME_LOYALTY &lt;--- SCCHALLENGE</td>
<td>.265</td>
<td>0.00</td>
</tr>
<tr>
<td>GAME_LOYALTY &lt;--- SCFEEDBACK</td>
<td>.404</td>
<td>0.00</td>
</tr>
<tr>
<td>PERCEIVED_ENJOYMENT &lt;--- GAME_LOYALTY</td>
<td>.425</td>
<td>0.00</td>
</tr>
<tr>
<td>PERCEIVED_ENJOYMENT &lt;--- SCFEEDBACK</td>
<td>.337</td>
<td>0.00</td>
</tr>
<tr>
<td>ADDICTION &lt;--- PERCEIVED_ENJOYMENT</td>
<td>.147</td>
<td>0.071</td>
</tr>
<tr>
<td>UX &lt;--- ADDICTION</td>
<td>.330</td>
<td>0.00</td>
</tr>
<tr>
<td>PARTICIPATION &lt;--- PERCEIVED_ENJOYMENT</td>
<td>.481</td>
<td>0.00</td>
</tr>
<tr>
<td>ESCAPISM &lt;--- ADDICTION</td>
<td>.382</td>
<td>0.00</td>
</tr>
<tr>
<td>PARTICIPATION &lt;--- UX</td>
<td>.485</td>
<td>0.00</td>
</tr>
<tr>
<td>INTENTION &lt;--- UX</td>
<td>-.161</td>
<td>0.056</td>
</tr>
<tr>
<td>INTENTION &lt;--- ESCAPISM</td>
<td>.174</td>
<td>0.017</td>
</tr>
<tr>
<td>SOCIREAL &lt;--- SCCHALLENGE</td>
<td>.343</td>
<td>0.00</td>
</tr>
<tr>
<td>INTENTION &lt;--- PARTICIPATION</td>
<td>.514</td>
<td>0.00</td>
</tr>
<tr>
<td>SOCIVIRTUAL &lt;--- GAME_LOYALTY</td>
<td>.299</td>
<td>0.00</td>
</tr>
<tr>
<td>SOCIVIRTUAL &lt;--- SCFEEDBACK</td>
<td>.359</td>
<td>0.00</td>
</tr>
</tbody>
</table>
Interpretation of the new relations

R1: System Characteristics (Speed) $\Rightarrow$ System Characteristics (Feedback)

Since both of them are part of system characteristics we can assume that the faster a MMOG is the better response can be perceived between the players in the virtual world. The Estimate value of this relation is 0.432 which is not very strong but the influence is a satisfactory one.

R2: System Characteristics (Challenge) $\Rightarrow$ Sociability Real

A player who is likely to find high level of challenge in a MMOG and spend time in order to achieve the completion of a quest or a victory in a PvP is more likely to be more eager to meet new people and create different types of relation between them and him. The Estimate value of this relation is 0.343 which is not very strong but the influence is a satisfactory one.

R3: System Characteristics (Challenge) $\Rightarrow$ Game Loyalty

A player who feels that the MMOG in which is participating have high levels of challenge will make him more loyal to it and it is possible that he is going to invite friends to join him. The Estimate value of this relation is 0.265 which shows that there is an influence between the one and the other but not a strong one.

R4: System Characteristics (Feedback) $\Rightarrow$ System Characteristics (Challenge)

In some MMOGs the possibility of cooperation between the players will increase the game’s challenge to higher levels in order to meet the challenge requirements that a group of people might have. The Estimate value of this relation is 0.387 which shows that the influence is not very strong but is a satisfactory one.
R5: System Characteristics (Feedback) ⇒ Game Loyalty

There are many different things that a MMOG can create and maintain the loyalty of the players who are participating to it. By giving the possibility of cooperation between the players it might achieve the creation of strong relationship between the players which in return will make them more loyal to the game because of the new friends they made. The Estimate value of this relation is 0.404 which is a satisfactory one and shows that there is an influence from one to another.

R6: System Characteristics (Feedback) ⇒ Sociability Virtual

The purpose of this relation is the same as with Game Loyalty. Players who have the change to cooperate with other players inside a MMOG is more likely to be active in the community of this game. The Estimate value of this relation is 0.359 and like the previous ones the influence is not very strong but a satisfactory one.

R7: System Characteristics (Feedback) ⇒ Perceived Enjoyment

By having the change to cooperate with other players to explore the virtual world together and hence have the change to meet new people and establish new relations with them the level of “Perceived Enjoyment” can be increased. The Estimate Value of this relation is 0.337 which shows that the influence is not very strong but a satisfactory one.

R8: Game Loyalty ⇒ Sociability Virtual

This relation can be interpret as the more loyal you are to a game the more active you will be in its’ online community. The Estimate value is 0.299 which shows that the influence is rather weak.
R9: Game Loyalty $\Rightarrow$ Perceived Enjoyment

This relation is more like being addictive and loyal at the same time. If you support the MMOG in which you are part of is more likely to experience higher level of enjoyment. It is more psychological, by being part of something it makes you even happier. The Estimate value of this relation is 0.425 which shows that the influence is a good one.

R10: Perceived Enjoyment $\Rightarrow$ Addiction

In this relation we can say that the higher levels of enjoyment a player experience from a MMOG the more likely is to get addicted to it. The Estimate value of this relation is 0.147 which shows that the influence is a weak one.

R11: Perceived Enjoyment $\Rightarrow$ Participation

The higher is the level of enjoyment a player experience the higher is the change to continue to participate in this MMOG. The Estimate value of this relation is 0.481 which shows that the influence is a good one.

R12: Addiction $\Rightarrow$ User’s Experience

If a player is addictive to one MMOG is more likely to continue his participation to it and therefore become more experienced and be an active participant for a long time. The Estimate value of this relation is 0.330 which shows that the influence is a good one.

R13: Addiction $\Rightarrow$ Escapism

A player who is more addictive to one MMOG is more eager to continue playing it because it helps him escape from things unpleasant and worrisome. The Estimate value for this relation is 0.382 which shows that the influence is a good one.
R14 User’s Experience ⇒ Intention

Since the Estimate of this relation is a negative one with value -0.161 which is rather weak. We can say that the higher experience a player has the less intention he has to buy virtual goods for the MMOG in which he is participating because he wants to get those virtual goods by playing the game and by making an effort to obtain them.

R15: User’s Experience ⇒ Participation

The higher is the experience and the time a player have invested in a MMOG the higher is the change to continue his participation in one or more MMOGs. The Estimate value of this relation is 0.485 which shows that the influence is a satisfactory one.

R16: Escapism ⇒ Intention

Some people feel like escaping from things that are unpleasant and worrisome by buying goods for their one satisfaction. The same thing can be assumed here. If a player is feeling like escaping for his problems by playing a MMOG is more likely to have the intention to invest in virtual goods to increase his satisfaction inside this virtual world.

R17: Participation ⇒ Intention

This relation can be interpreted by logic and we can say that a person in order to invest in virtual goods and have the intention to do it he must first participate in a MMOG. The Estimate value of this relation is 0.514 which first of all is the highest in the model and second it shows that the influence is a strong one and therefore a satisfactory one.
Managerial Implications and future research

The present study has proposed a conceptual framework that investigates the main factors which affect consumers’ intention to invest in virtual goods. Even though the original’s model fit was not good enough to draw conclusions the model which was created through AMOS is very interesting and the variables’ connection can give interesting information for a future research in which the use of the new model will have different results. Also enterprises, which are developers of a MMOG, can use the new model to extract information about the factors that influence users’ intention to buy the virtual items and therefore decide which kind of marketing will choose to promote their products. Moreover the developers have the chance to adapt the game’s community to have a big positive impact in the players’ intention.

Study Limitations

It is impossible for every empirical research not to have several study limitations. In our research two limitations can be identified. One study limitation is that the sample of the current research could be higher in order to have more representative results. The second limitation is that the questionnaires were not shared in specific MMOGs forum but in a group of them. Because of this the answers do not concern a specific MMOG and there is the possibility that the respondents may have answered differently if they were asked about a specific game.

Overall conclusions

In general, the present study argues that the factors from the original model have an influence in “Participation” and “Intention” either it is direct or indirect. So the hypotheses which were about the factors’ influence in both “participation” and “intention” were partly correct. The three factors “Escapism”, “UX”, “Perceived Enjoyment” are the only ones which have direct influence in “Participation” and “Intention” but only the factor “UX” has direct influence in both of them.
In other words a game developer must have in mind that the game he developed, in order to succeed in having higher levels of participation and at the same time to stimulates its participants’ intention to buy virtual goods it provides, must have a friendly environment which helps the player to get away from real life’s problems and at the same time make him feel happy that is playing this particular game.

Finally the empirical research included in the present paper has a dual impact. On the one hand, offers newly information about gamers intention and participation and shows that the factors which influence the players tend to change from one year to another and on the other hand develops a new conceptual model which can be used in future research in order to have more precisely results about which factors actually have a bigger impact in users’ participation and intention.

In summary MMOGs and virtual goods are parts of young and old peoples’ daily lives and in order to create one as high as possible profitable product developers must pay attention in the consumer and treat their final product with the same care as they would like their customers to treat it. As the internet is part of a MMOG with continuous updates and by adding more innovative ideas in their current product the game developer would achieve keeping the enjoyment of their customers and make them continue participating in the MMOG by stimulating their interest with the creation of virtual goods they think it is worth buying.
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