

Psychological motivation in online role-playing games: A study of Spanish *World of Warcraft* players

Héctor Fuster¹, Ursula Oberst^{1*}, Mark Griffiths², Xavier Carbonell¹, Andres Chamarro³, and Antoni Talarn⁴

¹ Universidad Ramon Llull, ² Nottingham Trent University, ³ Universidad Autónoma de Barcelona, ⁴ Universidad de Barcelona

Título: Motivación psicológica en los juegos de rol online: un estudio de jugadores españoles del *World of Warcraft*.

Resumen: La popularidad de los videojuegos ha aumentado considerablemente en los últimos años, convirtiéndose en uno de los mayores productos de ocio siendo los Juegos de Rol Online (MMORPGs) uno de los mayores exponentes; sin embargo, también ha aumentado la sospecha y alarma social de que puedan poseer cierto potencial adictivo enmarcado en el contexto de las adicciones conductuales o que los usuarios puedan desarrollar conductas desadaptativas entorno a esta tecnología. El objetivo del presente estudio evalúa las motivaciones psicológicas para jugar al *World of Warcraft (WoW)* y las relaciona con variables sociodemográficas y estilos de juego. Se aplicó un cuestionario para evaluar diferentes motivaciones online a un colectivo de jugadores de *WoW*. A partir de una muestra final de 253 jugadores españoles (hombres jóvenes) el análisis factorial mostró la presencia de cuatro motivos de juego: socialización, exploración, logro y disociación. Además, los jugadores españoles, preferían el entorno Jugador contra Jugador, un aspecto que parece prevenir las potenciales consecuencias negativas al impedir el juego solitario. Los resultados indican que una de las motivaciones más importantes es la socialización y el estilo de *Jugador contra Jugador*, lo cual indica en gran parte el uso de este juego se hace de forma psicológicamente adaptativo.

Palabras clave: World of Warcraft; Massively Multiplayer Online Role Playing Games (MMORPGs); motivación; adicción; estudio instrumental.

Abstract: The popularity of playing videogames has increased considerably during the last few decades, and has become one of the most popular leisure activities worldwide. Some of the most popular game types are the Massively Multiplayer Online Role-Playing Games (MMORPGs). However, there has also been increased suspicion and social alarm that these games may possess an addictive potential, similar to other behavioural addictions, and that the user may develop maladaptive behaviours with respect to these games. The purpose of the present study was to assess the psychological motivations of playing *World of Warcraft (WoW)* and to relate them to socio-demographic variables and gaming styles. A questionnaire for assessing these motivations was developed and applied online to a collective of games. The final sample comprised 253 Spanish *WoW* players (all young males). Factor analysis of the questionnaire scores showed the presence of four motivations for gaming: socialisation, exploration, achievement, and dissociation. Results indicated that socialisation was one of the main motivational factors and that the gamers preferred the *Player-versus-Player* environment. Both of these aspects appear to be factors that may prevent potentially negative outcomes by inhibiting solitary play.

Key words: World of Warcraft; Massively Multiplayer Online Role Playing Games (MMORPGs); videogames; addiction; instrumental study.

Introduction

Over the last decade, videogames have become one of the most profitable leisure-related industries, with millions of players worldwide. As new technologies have developed there have been an increasing number of players across multiple platforms (Entertainment Software Association [ESA], 2009; Asociación Española de Distribuidores y Editores de Software de Entretenimiento [aDeSe], 2010). One of the fastest growing platforms in which to play videogames is that of online role playing games, more commonly known as MMORPGs (Massively Multiplayer Online Role Playing Games). The popularity of these games, in particular, has risen substantially since 2000, with over 20 million players currently registered in these virtual gaming worlds. Some of the most popular MMORPGs include *Archlord*, *EverQuest*, *Lineage*, *Final Fantasy* and *Ultima Online*. However, the appearance of *World of Warcraft (WoW)* in 2004 marked the beginning of a period of progressive escalation in numbers of online gamers. There are now over 20 million registered online gamers worldwide, with *WoW* players accounting for more than half of all online gamers (Woodcock, 2008).

MMORPGs have established themselves as ever present virtual worlds on the Internet, characterised by their extent

and level of graphical detail. Moreover, given their nature as role-playing games, players assume the roles and identities of self-created fictitious characters (i.e., *avatars*) through which they interact with the virtual world that they inhabit. The personalisation of avatars allows the player to manipulate their identities. They can change their age, gender, race, and even their species. Similarly, the immersive properties of avatars helps to create a different (but credible) world with a variety of ambiances, where epic fantasy predominates, and inhabited by thousands of players in constant interaction (Griffiths, Davies, & Chappell, 2003). Unlike traditional 'stand alone' videogames, MMORPGs are never ending and are based on a system of evolution through goals and achievements that have repercussions for the player's virtual avatar in the virtual world.

Furthermore, because progress in online games is primarily achieved through cooperation, players group together in *guilds*. Like other social groupings, guilds are controlled by rules, formal and informal hierarchies, roles, etc. They also have common goals that promote cooperation and collaboration in order to achieve them, allowing advances to be made in the development of the game. This aspect of the game is known as *Player versus Environment (PvE)*. In turn, the freedom in acting and relating may provoke conflicts between players (an accepted part of the game) and which can lead to minor scuffles, battles, and even wars between clans. These conflicts often lead to the formation of strategic alliances, and is an aspect of the game being known as *Player versus Player (PvP)*. One fundamental characteristic of the vir-

* Dirección para correspondencia [Correspondence address]: Ursula Oberst. Universidad Ramon Llull, Facultad de Psicología, Ciencias de la Educación y del Deporte Blanquerna. C/ Cister, 34. 08022 Barcelona (Spain). E-mail: ursulao@blanquerna.url.edu

tual world in which the avatar inhabits is that the avatar persists even after the player has disconnected from the game (i.e., the avatar continues to exist and evolve even though the player is offline).

Given the magnitude of this online phenomenon, it is clear that all players cannot be classed as being of the same personality type, since each gamer chooses their preferred MMORPG as a function of multiple motivating factors (Yee, 2006a). Consequently, studies to date have dealt only with specific topics of this phenomenon and their relation with a variety of psychological aspects such as socialisation (Hussain & Griffiths, 2008; Cole & Griffiths, 2007; Whang & Chang, 2004), experiential and exploratory value (Shieh & Cheng, 2007), socio-demographic characteristics of MMORPG players (Griffiths, Davies, & Chappell, 2003; Griffiths, Davies, & Chappell, 2004; Meredith, Hussain, & Griffiths, 2009; Yee, 2006a), gender swapping (Hussain & Griffiths, 2008), personality (Mehroof & Griffiths, 2010), and their addictive capacity (Chappell, Eatough, Davies, & Griffiths, 2006; Griffiths, 2000; Griffiths, Davies, & Chappell, 2003; Hussain & Griffiths, 2009; Díaz, Beranuy, & Oberst, 2009; Smahel, Blinka, & Ledabyl, 2008; Talarn & Carbonell, 2009; Wan & Chiou, 2006a, 2006b).

In regard to maladaptive use, most authors report that excessive play session duration is the main factor that may lead to psychological disorder (Griffiths, Davies, & Chappell, 2004; Grüsser, Thalmann, & Griffiths, 2007; Yee, 2006a). In one study, some 40% of the gamers considered themselves to be "addicts" (Yee, 2006a). Similarly, other studies have looked into the negative impact on psychological wellbeing, particularly on emotional instability, obsessive thoughts and violence (Whang & Chang, 2004). In these instances, players with poorer psychological wellbeing and lower levels of self-esteem usually create avatars that are closer to their 'ideal self' and hence, further removed from their true reality (Bessi re, Seay, & Kiesler, 2007). Furthermore, players with a susceptibility to addiction perceive their avatars as superior and often wish to be like them in real life (Smahel, Blinka, & Ledabyl, 2008). Recently, Carbonell, Talarn, Beranuy, Oberst and Graner (2009) suggested that the addictive potential appears when player identities are altered. The fact that players may freely create a new identity allows them to endow this new identity with particular desirable attributes, with the dual aim of satisfying their desires and fantasies while at the same time forgetting their frustrations (i.e., escape negative feelings). Therefore, this psychological operation involves a certain degree of disengagement and/or dissociation from reality. The authors are of the opinion that this disassociation, together with a high level of absorption/immersion in the game, may have an important contributory role in the development of maladaptive behaviours in a gaming context.

Both Yee (2006b), and Westwood and Griffiths (2010), have grouped together the specific motivations that can lead a person to play MMORPGs (i.e., achievement, social and immersion). Furthermore, Griffiths (2000; 2010a), and Wan

and Chiou (2006a; 2006b) claim that the use of MMORPGs can be used to counteract other deficiencies and underlying problems in the gamer's life (e.g., dysfunctional relationships, lack of friends, physical appearance, disability, lack of coping skills, etc.). Therefore, the growing base of scientific literature on the online gaming phenomenon (see Griffiths & Beranuy, 2009) and the interest in its addictive potential mean it deserves the attention of further psychological research. The main aim of the present study was to characterise online gamers and identify the motivating factors involved in the playing of the *World of Warcraft* game, since these motivations may facilitate patterns of maladaptive use. Obviously, the main motivation of gaming, as in any leisure activity, is entertainment. However, the purpose of our study goes beyond diversion; the aim was to examine which other, (possibly dysfunctional) psychological motivations are associated with playing *WoW*. More specifically, the motivations examined were socialisation, achievement, exploration, escapism, and identity/dissociation.

Method

Recruitment and participants

Sampling was carried out during two weeks via the Spanish language forum of *World of Warcraft* fans "WoW-ESP" (<http://www.wow-esp.com>). A message was posted in the general section of the forum and invited gamers to respond to an online questionnaire. There was also a request to forward the post (and questionnaire link) to other players. During the two-week exposure time, 288 Spanish-speaking online gamers replied. However, 11 questionnaires were incomplete and therefore these data were discarded. Following analysis of the participant distribution, we also decided to eliminate all participants younger than 16 years and older than 35 years, because they represented only 3% of the sample. This provided a more homogeneous sample of adolescents and young adults. Additionally, data from 10 female gamers were discarded due to them being totally unrepresentative in relation to the rest of the male sample. This left a final sample of 253 male gamers for analysis.

Instruments

The first version of the questionnaire comprised demographic questions (multiple choice responses) and questions related to *WoW* use (i.e., free text responses). In addition, the questionnaire included a scale assessing motivations for playing *WoW* (7-point Likert scale responses). Items were constructed following a literature search into motivations for online game-playing, and included five types of motivations: *socialisation* (Cole & Griffiths, 2007; Hussain & Griffiths, 2008; Bartle, 2005; Yee, 2006a, 2006b; Whang & Chang, 2004), *achievement (or competence/power)* (Bartle, 2005; Choi, Lee, Choi, & Kim, 2007; Yee, 2006b), *exploration* (Bartle, 2005; Yee, 2006b), *escapism* (Peters & Malesky, 2008; Yee,

2006a, 2006b) and *identity or dissociation* (Bessière, Seay, & Kiesler, 2007; Smahel, Blinka, & Ledabyl, 2008; Talarn & Carbonell, 2008; Yee, Ellis, & Ducheneaut, 2009). This created a bank of 67 items that was subsequently analysed by a panel of experts composed of university researchers and *WoW*-playing university students. Following analysis by the expert group, the first version of the instrument comprised 59 items. This was piloted with 25 online gamers contacted via a snowball sampling technique, initiated by two online gamers who collaborated with the research team. These two players contacted *WoW*-playing friends and acquaintances. They in turn sent the questionnaire to other *WoW* players. Following the pilot study, the instrument was reduced to 32 items including dedicated items on socialisation (n=6), power (n=6), exploration/discovery (n=5), escape and evasion (n=8), and identity (n=6).

Procedure

The questionnaire was adapted to be compatible with the free software *LimeSurvey* (<http://www.limesurvey.org/>), an application that allows questionnaires to be created in PHP format. The data were hosted on servers provided by *LimeSurvey* in *MySQL* format databases. According to Kraut, Olson, Banaji, Bruckman, Cohen and Couper (2004), online questionnaires allow access to persons and behaviours that are difficult to evaluate by other means, and in natural settings. The relative ease of use and low cost of remote applications of this type, as well as their potential to reach large samples, explains why they are becoming an increasingly popular research methodology (Baena, Fuster, Carbonell, & Oberst, 2010; Griffiths, 2010b; Wood, Griffiths, & Eatough, 2004). When the questionnaire was accessed, a webpage appeared giving information about the study and its aims. Informed consent from the participants was obtained through clicking an acceptance button. The questionnaire took 10 to 15 minutes to complete. Participants were prevented from completing the survey more than once via the use of 'cookies'. Responses were stored in a database of *LimeSurvey*. Later, the data were imported into a file compatible with the PASW statistical package. Following recommendations by Kraut et al. (2004), the responses were checked for possible anomalies before being accepted in order to avoid admitting false and/or suspect answers, which may have confounded the study's findings.

Data analysis

Descriptive statistics and inter-correlations were calculated. Following this, exploratory factor analysis of the instrument (Maximum Likelihood with Oblimin rotation) was carried out with the aim of identifying the initial indicators of its factorability. Previously, the Kaiser-Meyer-Olkin (KMO) coefficient was calculated, in order to check the suitability of the factor analysis data matrix. In choosing the number of factors, the following indices were examined: (i) the variance explained by each factor, (ii) the sedimentation

graph, (iii) the eigenvalues greater than 2, and (iv) the total variance explained by the instrument. The process began by extracting five factors, since this corresponded to the structure of the content that had been elaborated (i.e., socialisation, achievement, exploration, escapism, identity/dissociation). The criterion for the preservation of an item was fixed at equal or larger than .40 (Peterson, 2000). Finally, a confirmatory factor analysis using EQS 6.1 was performed (Bentler & Wu, 2002). In order to assess internal consistency of the various subscales, *Cronbach's* alpha values were calculated. Inter-correlations between questionnaire subscales were calculated by means of Pearson correlation coefficients.

Results

Socio-demographics: Survey respondents were all Spanish-speaking online gamers with a mean age of 22.2 years ($SD = 4.4$ years); the median was 21 years, and ages ranged from 16 to 35 years, with lower and upper quartiles being 19 and 25 respectively (see Figure 1). Results for employment status and educational level were as follows: 48.2% (n=122) were in education, 30% (n=76) were working, 15% (n=38) were in education and working, and 6.7% (n=17) were unemployed. Educationally, 120 of the gamers (47.4%) indicated having studied up to tertiary (university) level, 122 of the gamers (48.2%) had studied up to secondary level, and 11 of the gamers (4.3%) had studied up to primary level.

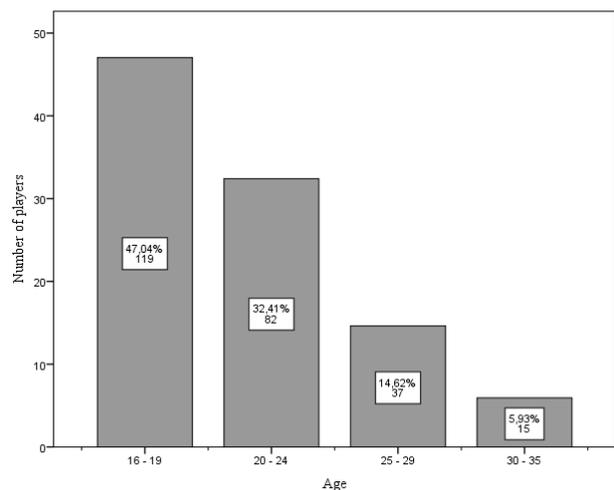


Figure 1. Age distribution of *WoW* players.

Hours spent playing: On mean average, participants spent 22.7 hours per week playing *WoW* ($SD = 13.6$ hours). The median was 21 hours per week, with lower and upper quartile limits being 13 and 30 hours, respectively. The distribution of online *WoW* usage during the week showed that 14.6% (n=37) of the participants spent 40 or more hours a week online to *WoW* (see Figure 2).

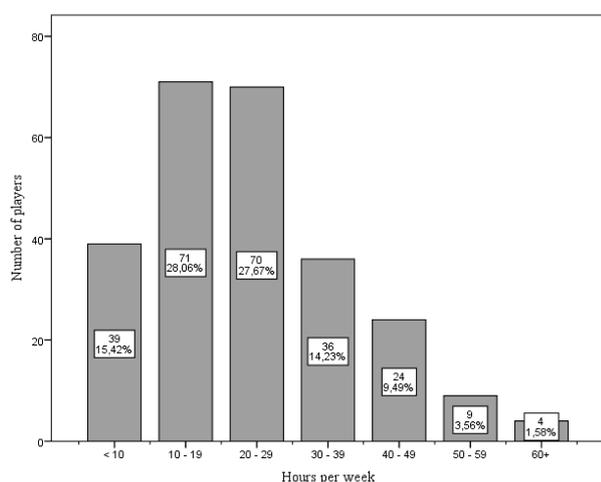


Figure 2. Distribution of time spent playing *WoW* per week.

Playing style and veteran-status: In relation to online player's gaming style, most participants tended to use servers of the *Player versus Player (PvP)* type (83.8%; $n=212$), while the remainder used *Player versus Environment (PvE)* servers (13.4%; $n=34$), or used *Role Playing (RP)* servers (2.8%; $n=7$). Furthermore, almost two-thirds of the sample (58.9%; $n=149$) opted for the *Damage Dealer* playing style that focuses on attacking and damaging the enemy, the rest being distributed among the roles of *Tank* (18.2%; $n=46$) designated to protect companions, and *Healer* (22.9%; $n=58$) dedicated to curing and keeping them alive. The majority of the *WoW* play-

ers (83.4%; $n=211$) were 'veteran' players with four or more years of experience of playing the game.

Factor analysis of motivations: The Kaiser-Meyer-Olkin (KMO) index value obtained was 0.869, indicative of the suitability of the data for factor analysis. Successive analysis yielded a solution with four factors that fitted well to data ($\chi^2=174.86(116)$; $p<0.001$), and explained 58.67% of the variance. The first factor (*socialisation*) included three items, and had an internal consistency of 0.819; the items in the scale referred to the relational component of the game, establishment of friendships with other players, and feeling supported by them. The second factor (*exploration*) included five items, and had an internal consistency of 0.799; the items in the scale involved discovery of the game, its history, and the various phenomena that occur within the game. The third factor (*achievement*) included five items and had an internal consistency of 0.825; the items in this scale referred to dominance, leadership, prestige and achievement of goals. The fourth factor (*dissociation*) included seven items and had an internal consistency of 0.807; the items in this scale included items related to identification with the avatar, and with evasion of, or escaping from, reality. Internal consistency of the questionnaire as a whole was 0.857. Confirmatory factor analysis showed that data fitted well to the model. Fit indexes were acceptable: $\chi^2(164, N=253)=315.97$; $p<0.001$; (CFI) = .921; Bollen fit index (IFI = .922); root mean-square error of approximation (RMSEA = .061).

The 20 items selected for the final version of the questionnaire, and their factor loadings, are presented in Table 1.

Table 1. Factor loadings for the *WoW-i-20*.

	Factor I	Factor II	Factor III	Factor IV
Me atrae de <i>WoW</i> poder hacer buenos amigos en el juego	.695			
Me atrae de <i>WoW</i> hablar con otros jugadores de cosas personales	.791			
Me atrae de <i>WoW</i> sentirme apoyado por otros jugadores	.863			
Me atrae de <i>WoW</i> que el juego no tiene fin		.678		
Me atrae de <i>WoW</i> los aspectos mágicos del juego		.712		
Me atrae de <i>WoW</i> que no paro de descubrir cosas nuevas		.575		
Me atrae de <i>WoW</i> poder probar nuevos roles		.683		
Me atrae de <i>WoW</i> formar parte de una historia		.687		
Me atrae de <i>WoW</i> dominar a otros jugadores			.472	
Me atrae de <i>WoW</i> que me permite sentirme poderoso			.856	
Me atrae de <i>WoW</i> que me permite ser líder			.914	
Me atrae de <i>WoW</i> que me permite tener prestigio			.791	
Me atrae de <i>WoW</i> que me permite alcanzar mis objetivos con la ayuda de otras personas			.548	
Cuando juego a <i>WoW</i> me siento molesto cuando debo volver a la vida cotidiana				.609
Cuando juego a <i>WoW</i> después de jugar se me olvida hacer cosas importantes que tenía en mente				.773
Cuando juego a <i>WoW</i> dejo de lado otras obligaciones				.802
Cuando juego a <i>WoW</i> me comporto de forma diferente a lo habitual				.578
Cuando juego a <i>WoW</i> me irrito si me interrumpen				.514
Dedico más tiempo al <i>WoW</i> que a otras actividades de ocio				.506
Incluso cuando no estoy jugando sigo pensando en mi personaje				.537

Table 2. Descriptive statistics and Cronbach's alphas of WoW-i-20 scales.

	Mean (SD)	Min	Max	α
1.socialisation	10.17 (4.34)	3	21	.819
2.exploration	22.08 (7.09)	5	35	.799
3.achievement	15.80 (7.57)	5	35	.825
4.dissociation	17.66 (8.16)	7	49	.807

Motivations for playing: Table 2 presents the descriptive statistics (means, standard deviations, minimum and maximum values of each subscale) for the various different motivations for playing *WoW*. The results show that players were very interested in relating with others via the game, establishing friendships with other players, and feeling supported by them (*socialisation*). They exhibited medium-high interest in the discovery of the game and development of the adventures involved (*exploration*). Interest levels in leadership, prestige, and achievement of goals (*achievement*) were medium-low. Finally, the participants presented relatively low scores

on *dissociation* (i.e., low levels of identification with their avatar, and low levels of escape from reality).

The correlations are shown in Table 3. Significant correlations were found between (i) age and years spent playing *WoW* (ii), years spent playing *WoW* and use of different characters, and (iii) hours spent playing *WoW* during the week and hours spent playing *WoW* during the weekend. In relation to motivations, significant correlations were found for (i) years playing *WoW* and *exploration*, (ii) for hours playing *WoW* per week (i.e., during the working week) and *exploration*, (iii) for hours playing *WoW* per week and *achievement*, and (iv) for hours playing *WoW* per week and *dissociation*. Furthermore, hours spent playing at weekends produced highly significant, but low correlations with all motivations: (*socialisation*; *exploration*; *achievement*; and *dissociation*). The correlation between *exploration* and number of avatars was also significant

Table 3. Correlations of WoW-i-20 scales and demographic data.

	1	2	3	4	5	6	7	8	9
1.socialisation	1	.279**	.238**	.158*	.014	.074	.096	.176**	.065
2.exploration		1	.438**	.240**	.060	.182*	.153*	.230**	.189**
3.achievement			1	.425**	.020	.132*	.160*	.166**	.056
4.dissociation				1	-.062	-.006	.179**	.308**	.000
5.age					1	.134*	-.040	-.156*	-.095
6.years playing						1	.114	.042	.149*
7.hours during week							1	.513**	.080
8.hours weekend								1	.063
9.number of avatars									1

*= $p < .05$, **= $p < .001$

Discussion

The results presented here provide a first approximation regarding motivations for playing *WoW* among Spanish-speaking users of the game. According to this study's results, the main motivations of Spanish *WoW* players were socialisation, exploration, achievement and disassociation. These players preferred playing with other players, something that appears to avoid serious dissociation and potential addiction.

Although the broad range of ages and occupations suggests a certain diversity among *WoW* players, it is clear that the typical online gamer in the study was a young male student with a medium-high educational level (96%). Players dedicate a considerable amount of time to the game (a mean average of 22.6 hours per week), playing on both weekdays and at weekends. Unexpectedly, the number of hours per week spent playing did not decline with age (playing of 'stand alone' offline videogames has always been considered an adolescent activity (Griffiths, 2008), which suggests that the attractiveness of this game environment is not limited to young people). However, the age range in the sample was somewhat restricted and did not allow the opportunity to detect whether *WoW* usage changes over time with age. The number of avatars was related with the length of time a gamer had been playing the game, and to the *exploration* fac-

tor. This suggests that the increase in the number of avatars that a gamer has is an effect of both experience and curiosity.

In this study the number of hours spent playing the game was not a criterion for defining a person as possibly addicted to *WoW*, although a subgroup of players was identified (14.6%) that were spending the equivalent of a working week (or more) playing *WoW* (i.e., 40 hours per week). However, indicators other than number of hours playing are needed to identify problematic use. According to Griffiths' case study evidence (2010a), a gamer may play excessively, but not all excessive players can (or should) be defined as addicts. The differentiating factor between excess and addiction is the negative consequences of playing (Griffiths, 2010a; Sánchez-Carbonell, Beranuy, Castellana, Chamarro, & Oberst, 2008). In the authors' opinion, harmful and/or addictive effects of game playing may occur more often when identity-altered communications (AIC) are involved (e.g., playing MMORPGS, engaging in online chat rooms, etc.). These AIC are not necessarily pathological, but they may become so due to the fact that a person takes on a false identity and/or other social persona that provides more satisfaction than their true identity (Griffiths, 2000). Healthy day-to-day fantasy and escape from daily life may become pathological if the avatar's life is experienced as more real than the player's own life. Based on this hypothesis, it is ex-

pected that playing *WoW* would become addictive only if identity-altered communications were to be employed. This may be an interesting line of further research in an attempt to explain the development of pathological use of MMORPGs.

In regard to identifying the various motivations for playing *WoW*, the results of this study show that the main motivations of Spanish players were similar to those found by the studies reviewed earlier in this paper. The motivations for playing *WoW* were rooted in socialisation, power, exploration, and even dissociation (comprising evasion or escape from reality and one's true identity). Using MMORPGs to escape from reality and play with new identities can be healthy pursuit (Wood, Griffiths & Parke, 2007; Hussain & Griffiths, 2008), and although time spent playing is taken away from other work or leisure activities, people are free to choose how to spend their time if it does not interfere with other important things in the person's life.

The low scores obtained among gamers on the *dissociation* dimension suggest the importance that this factor may have in the development of possible gaming addictions. The fact that the preferred game style of the sample was *Damage Dealer* and the most commonly chosen server was the *Player versus Player* type shows that gamers prefer mutual interaction and fighting between factions and groups of players (something that is only available online through the *Player versus Player* server), to the challenges offered by those game

modes and styles of play whose objectives are to protect and cure. This style of play interacting in real time with other players and clans appears to prevent the development of any addiction based on communications employing altered identity because it prevents players being solitary, isolated, and/or experiencing their 'true self' as secondary to that of their avatar(s). Alteration of identity is kept within non-problematic limits, even when a considerable amount of time is spent playing *WoW*.

The study reveals a profile of Spanish *WoW* player somewhat removed from the stereotype of the 'gaming addict'. On the contrary, the typical Spanish *WoW* player exhibits a variety of motivations that possibly explain the level of passion and perseverance in playing the game. Although the findings may be considered limited, given that the sample was relatively small and self-selected via specific gaming forums, comprised only of young Spanish male adults, and that use of a self-report online questionnaires has the standard limitations of any self-report method, the present study has developed a (Spanish) measurement instrument of motivations for playing *WoW* that provides a better understanding of the psychological aspects involved in this particular gaming activity. For this reason, the study is considered as a first step towards an analysis of Spanish speaking *WoW* players that contributes to obtaining valid scientific knowledge about this phenomenon in the Hispanic context.

References

- Asociación Española de Distribuidores y Editores de Software de Entretenimiento (2010). Anuario aDeSe 2009. Located at: <http://www.adese.es> (Last accessed February 2, 2011).
- Baena, A, Fuster, H., Carbonell, X., & Oberst, U. (2010). Retos metodológicos de la investigación psicológica a distancia. *Aloma, Revista de Psicología, Ciències de l'Educació i de l'Esport*, 26, 137-156.
- Bartle, R. (2005). Virtual worlds: Why people play. En T. Gackenbach (Ed.), *Massively multiplayer game development: v.2* (pp. 3-18). Hingham, MA: Charles River Media.
- Bentler, P.M. & Wu, E.J.C. (2002). *EQS 6 for windows. User's guide*. Encino, CA: Multivariate software.
- Bessière, K., Seay, A.F., & Kiesler, S. (2007). The ideal elf: Identity exploration in World of Warcraft. *CyberPsychology & Behavior*, 10, 530-535.
- Carbonell, X., Talam, A., Beranuy, M., Oberst, U., & Graner, C. (2009). Cuando jugar se convierte en un problema: el juego patológico y la adicción a los juegos de rol online. *Aloma: Revista de Psicología, Ciències de l'Educació i de l'Esport*, 25, 201-220.
- Chappell, D., Eatough, V.E., Davies, M.N.O., & Griffiths, M.D. (2006). EverQuest - It's just a computer game, right? An interpretative phenomenological analysis of online gaming addiction. *International Journal of Mental Health and Addiction*, 4, 205-216.
- Choi, B., Lee, I., Choi, D., & Kim, J. (2007). Collaborate and share: an experimental study of the effects of task and reward interdependencies in online games. *CyberPsychology & Behavior*, 10, 591-595.
- Cole, H. & Griffiths, M.D. (2007). Social interactions in Massively Multiplayer Online Role-Playing games. *CyberPsychology & Behavior*, 10, 575-583.
- Díaz, R., Beranuy, M., & Oberst, U. (2009). Terapia de la adicción a Internet y video-juegos en niños y adolescentes. *Revista de Psicoterapia*, 73, 69-100.
- Entertainment Software Association. (2009). Essential facts about the computer and videogame industry. Located at: http://www.theesa.com/facts/pdfs/ESA_EF_2009.pdf (Last accessed November 25, 2009)
- Griffiths, M.D. (2000). Does internet and computer "addiction" exist? Some case study evidence. *CyberPsychology & Behavior*, 3, 211-218.
- Griffiths, M.D. (2008). Videogame addiction: Fact or fiction? In Willoughby, T. & Wood, E. (Eds). *Children's Learning in a Digital World*. pp. 85-103. Oxford: Blackwell Publishing.
- Griffiths, M.D. (2010a). The role of context in online gaming excess and addiction: Some case study evidence. *International Journal of Mental Health and Addiction*, 8, 119-125.
- Griffiths, M.D. (2010b). The use of online methodologies in data collection for gambling and gaming addictions. *International Journal of Mental Health and Addiction*, 8, 8-20.
- Griffiths, M. & Beranuy, M. (2009) Adicción a los videojuegos: una breve revisión psicológica. *Revista de Psicoterapia*, 19(73), 33- 50.
- Griffiths, M.D., Davies, M.N.O., & Chapell, D. (2003). Breaking the Stereotype: The Case of Online Gaming. *CyberPsychology & Behavior*, 6, 81-91.
- Griffiths, M.D., Davies, M.N.O., & Chappell, D. (2004). Demographic factors and playing variables in online computer gaming. *CyberPsychology & Behavior*, 7, 479-487.
- Grüsser, S.M., Thalmann, R., & Griffiths, M.D. (2007). Excessive computer game playing: Evidence for addiction and aggression? *CyberPsychology & Behavior*, 10, 290-292.
- Hussain, Z. & Griffiths, M.D. (2008). Gender swapping and socializing in cyberspace: An exploratory study. *CyberPsychology & Behavior*, 11, 47-53.
- Hussain, Z. & Griffiths, M.D. (2009). Excessive use of Massively Multi-Player Online Role-Playing Games: A pilot study. *International Journal of Mental Health and Addiction*, 7, 563-571.
- Kraut, R., Olson, J., Banaji, M., Bruckman, A., Cohen, J., & Couper, M. (2004). Psychological research online: Report of board of scientific affairs' advisory group on the conduct of research on the internet. *American Psychologist*, 59, 105-117.

- Mehroof, M. & Griffiths, M.D. (2010). Online gaming addiction: The role of sensation seeking, self-control, neuroticism, aggression, state anxiety and trait anxiety. *Cyberpsychology, Behavior, and Social Networking*, 13, 313-316.
- Meredith, A., Hussain, Z., & Griffiths, M.D. (2009). Online gaming: a scoping study of massively multi-player online role playing games. *Electronic Commerce Research*, 9, 3-26.
- Peters, C.S. & Malesky, L.A. (2008). Problematic usage among highly-engaged players of massively multiplayer online role playing games. *CyberPsychology & Behavior*, 11, 481-484.
- Peterson, R.A. (2000). A Meta-Analysis of Variance Accounted for and Factor Loadings in Exploratory Factor Analysis. *Marketing Letters*, 11, 261-275.
- Sánchez-Carbonell, X., Beranuy, M., Castellana, M., Chamarro, A., & Oberst, U. (2008). La adicción a Internet y al móvil: ¿moda o trastorno? *Adicciones*, 20, 149-160.
- Shieh, K.F. & Cheng, M.S. (2007). An empirical study of experiential value and lifestyles and their effects on satisfaction in adolescents: An example using online gaming: an example using online gaming. *Adolescence*, 45(165), 199-215.
- Smahel, D., Blinka, L., & Ledabyl, O. (2008). Playing MMORPGs: connections between addiction and identifying with a character. *CyberPsychology & Behavior*, 11, 715-718.
- Talarn, A. & Carbonell, X. (2009). Algunas reflexiones a propósito de los juegos (y los jugadores) de rol online. Identidad y adicción. *Revista de Psicoterapia*, 19(73), 50 - 68.
- Wan, C.S. & Chiou, W.B. (2006a). Psychological motives and online games addiction: A test of flow theory and humanistic needs theory for Taiwanese adolescents. *CyberPsychology & Behavior*, 9, 317-324.
- Wan, C.S. & Chiou, W.B. (2006b). Why are adolescents addicted to online games? An interview study in Taiwan. *CyberPsychology & Behavior*, 9, 762-766.
- Westwood, D. & Griffiths, M.D. (2010). The role of structural characteristics in Video-Game play motivation: a Q-methodology study. *Cyberpsychology, Behavior, and Social Networking*, 13, 581-585.
- Whang, L.S. & Chang, G. (2004). Lifestyles of virtual world residents: living in the on-line game "lineage". *CyberPsychology & Behavior*, 7, 592-600.
- Wood, R.T.A., Griffiths, M.D. & Parke, A. (2007). Experiences of time loss among videogame players: An empirical study. *CyberPsychology & Behavior*, 10, 45-56.
- Wood, R.T.A., Griffiths, M.D., & Eatough, V. (2004). Online data collection from videogame players: Methodological issues. *Cyberpsychology & Behavior*, 7, 511-518.
- Woodcock, B. (2008). *An analysis of MMOG subscriptions growth, version 23.0*. Last retrieved November 20th 2009 from <http://www.mmogchart.com>
- Yee, N. (2006a). The demographics, motivations and derived experiences of users of massively-multiuser online graphical environments. *PRES-ENCE: Teleoperators and Virtual Environments*, 15(3), 309-329.
- Yee, N. (2006b). Motivations of play in online games. *CyberPsychology & Behavior*, 9, 772-775.
- Yee, N., Ellis, J., & Ducheneaut, N. (2009). The tyranny of embodiment. *Artifact*, 2, 1-6.

(Article received: 30-09-2010; reviewed: 30-05-2011; accepted: 06-06-2011)