Spanish Journal of Psychology (2013), **16**, e43, 1–8.

doi:10.1017/sjp.2013.54

Interaction with the Game and Motivation among Players of Massively Multiplayer Online Role-Playing Games

Héctor Fuster[1], Xavier Carbonell[1], Andrés Chamarro[2] and Ursula Oberst[1]

[1] *Universidad Ramon Llull (Spain)*
[2] *Universidad Autónoma de Barcelona (Spain)*

Abstract. Knowledge about users interacting with Massively Multiplayer Online Role-Playing Games (MMORPG) is fundamental in order to prevent their potential negative effects on behavior. For this reason, the present study analyzed the relationship between styles of play and motivations. An online questionnaire asking for socio-demographic details, playing style, characteristics of the game played and motivations for playing, was answered by 430 Spanish-speaking MMORPG players (45.1% males). The identified profile for players, far away from the stereotype of an adolescent, consisted in a person who mainly plays on PvP (Player versus Player) servers, choosing the type of game according to his experience. Regarding motivations, they were interested in relating with other players through the game (Socialization), in discovering the game's possibilities and development of its adventures (Exploration), to a lesser extent in leadership and prestige (Achievement) and, lastly, identification with an avatar and escape from reality (Dissociation). Although part of the reason for playing was escapism and/or stress relief, the main motivation had a social nature. We conclude that MMORPG offer an attractive environment for a broad spectrum of people, and we have not been able to confirm the stereotype of a loner avoiding reality, taking refuge in games.

Received 12 January 2012; Revised 27 March 2012; Accepted 24 May 2012

Keywords: MMORPG, online gaming, motivation, socialization, addiction.

Video games constitute the leisure activity sector which has grown most over the last decade. Much of this growth is accounted for by Massively Multiplayer Online Role-Playing Games (MMORPG), a term referring to those online games which provide a virtual environment through which geographically separated players interact by means of their virtual representations (avatars). Videogames of this type bring together over 22 million players from all over the world (van Geel, 2012). MMORPG are very different from the traditional videogames with which this industry started out. In the traditional videogames, regardless of their type (arcade, shooter, adventure, sports, etc.), a sole participant plays against the machine. In MMORPG in contrast, there is interaction with other players, since the best way to progress in games of this type is by forming clans or guilds of players with the same goals. In turn, within such guilds there are rules, assigned roles and hierarchies. Moreover, the interactions with other guilds can be very varied: alliances, open conflicts, commercial transactions, etc. This complex interactivity constitutes one of the most important characteristics of MMORPG. Also, these games have an open and non-linear nature: players can choose their own itineraries of plot development and there is no specific end-point, rather the games are eternal, and there are always new attractions and activities to undertake. Even so, at the end of a particular mission the player is rewarded with additional skills and information, placing them in a new and advantageous situation from which to continue the game (Carbonell, Talarn, Beranuy, Oberst, & Graner, 2009).

The psychological aspects of MMORPG have been studied from various perspectives. Thus, we find descriptions of the sociodemographic characteristics of the players (Meredith, Hussain, & Griffiths, 2009; Yee, 2006a), of the risks of addiction to the game (Billieux et al., 2011; Díaz, Beranuy, & Oberst, 2009; Hussain & Griffiths, 2009; Smahel, Blinka, & Ledabyl, 2008; Snodgrass, Lacy, Dengah, Fagan, & Most, 2011; Talarn & Carbonell, 2009) and of relationships with consumption of alcohol and drugs (Padilla-Walker, Nelson, & Carroll, 2010). The present study focuses on another of the fields which have received considerable attention in the literature, namely the motivational aspects involved in playing MMORPG.

Bartle (1996) investigated motivations among Multi-User Dungeon (MUD) players, a precursor of MMORPG without graphics. The author characterized players in

Correspondence concerning this article should be addressed to Xavier Carbonell. Universidad Ramon Llull. Facultat de Psicologia, Ciències de l'Educació i de l'Esport Blanquerna. Císter, 34. 08022 Barcelona (Spain).

E-mail: xaviercs@blanquerna.url.edu

four large groups: a) competitive, b) explorers, c) socializers and d) killers. Based on this scheme, Yee (2006b) obtained three principal components: achievement, socialization and immersion. Fuster et al. (2012) obtained a model involving four motivations: *socialization* (interested in making friends and in mutual support), *exploration* (interested in discovery of the virtual environment and participating in the mythology of the game and the adventures it proposes), *achievement* (interested in prestige, leadership and dominance over other players) and *dissociation* (interested in escape from reality and in identifying themselves with their virtual avatar). Regardless of the motivational model employed, all authors coincide in the importance of the social component of the game.

Following this same line, Ducheneaut and Yee (2008), Ducheneaut, Yee, Nickell, and Moore (2006) and Lortie and Guitton (2011) consider MMORPG as spaces for making contact and socialization. One of the main components of the motivation to socialize is to win new friends, whether via ad hoc groups or more formal, hierarchical groups, known as *guilds* (Williams, Ducheneaut, Ciong, Yee, & Nickell, 2006). Socializing in a MMORPG increases opportunities to resolve the challenges or *quests* which the game presents with the help of other people, discover the adventures proposed by the MMORPG jointly and in consequence, share in the achievements accumulated by the guild as a whole (Ducheneaut et al. 2006; Yee, 2006a). Related to this social aspect of the game, Longman, O'Connor, and Obst (2009) showed that a higher degree of social support among *World of Warcraft* players was associated with fewer psychopathological symptoms and greater well-being.

On the other hand, interaction between MMORPG players propitiates the creation of new challenges and goals which give meaning to their virtual activity (Crowe, 2011). Exploration of the virtual environment favors the development of narratives. These narratives can go beyond the game and expand its mythology via the short stories known as *fan-fic* (fan fictions). Moreover, Crowe (2011) defines MMORPG as spaces for exploration and development of one's own identity. This playing with identities facilitated by MMORPG has been discussed as a potential source of addiction (Smahel et al., 2008), especially given its dissociative component (Fuster et al., 2012).

Beyond the motivation for playing the game, an important aspect of MMORPG is the way in which the player interacts with the game, mainly through the creation of one or several avatars, and through the choice of the server in which the player creates his avatars. These two decisions largely define the style of game in which the player will be involved, and hence the relationship established with the game and with the other people inhabiting that virtual world. In most MMORPG we can identify four basic roles which guide the interactions with other players: *tank* (protect companions, ensuring they are not attacked or damaged by the enemy), *damage dealer* (charged with causing damage among the enemy), *healer* (charged with curing companions who have been damaged) and *supporter* (a role which combines the preceding aspects and may take different forms more oriented towards one of the three principal roles mentioned earlier). On the other hand, there are three types of servers, whose function is to regulate the boundaries of the game and in consequence define the mode in which the player relates with other players and the environment: *Player versus Environment* (focused mainly on fighting against enemies controlled by the computer; it also allows fighting between players, but only in specific zones, and with mutual consent); *Player versus Player* (server in which, apart from permitting attacks on enemies controlled by the computer, it is possible to indiscriminately attack other characters controlled by people) and *Role Playing* (servers where the player is obliged to represent an imaginary role within the game which translates into, for example, use of medieval jargon or making references to the mythology of the game; departures from the role are penalized). Given the magnitude of the phenomenon and the constant growth of MMORPG and their possible implications in the lives of a multitude of players, we consider it necessary to determine in greater detail the psychological and other aspects of the game in order to gain a deeper understanding of the gaming experience. On the basis of remarks made earlier, and given the lack of research in this field, the aim of the present study was to investigate the motivations and styles of play of Spanish-speaking users of different MMORPG and to analyze the relationships between these aspects. Specifically, our aims are: a) to elaborate a player profile in terms of age, amount of time playing, playing style, and motivations; and b) determine the relationships between these aspects of the game.

Method

Participants

Between March and April 2010, 470 Spanish-speaking MMORPG players completed a questionnaire. Data from 25 subjects was rejected due to their having responded inappropriately (for example, 'the moon' as place of residence, or age 148 years). Following an analysis of the distribution of ages and with the aim of achieving a more homogeneous sample, responses of a further seven subjects aged under 16 years, and 8 aged over 45 years, were rejected. The final sample

https://doi.org/10.1017/sjp.2013.54 Published online by Cambridge University Press

consisted of 430 players (410 men, 20 women) with a mean age of 26.58 years (*SD* = 6.79) and a median of 25 years.

Instruments

Demographic questionnaire

Players were asked about their sex, age, country of residence, educational level and occupation.

Playing style questionnaire

The first section asked players what MMORPG they played, for how many years they had been playing MMORPG, and for how many they had been playing their current MMORPG. The MMORPG chosen were: *Aion, DC Universe Online, EVE Online, Lord of the Rings Online, Rift, World of Warcraft* and others minor ones. In the second section players were asked about the number of hours they spent playing between Monday and Friday, and over the weekend, where they played (at home or in a public facility) and how many avatars they had in the game. The third section asked about the playing style, divided into four basic roles: *tank*, *damage dealer*, *healer* and *supporter*. Finally, one item referred to the type of server in which they played: *Player versus Environment*, *Player versus Player* or *Role Playing*.

Massively Multiplayer Online Games Motivations Scale (MMO-MS)

We used this instrument to assess the motivations for playing in the different virtual worlds. The MMO-MS scale is based on the World of Warcraft Inventory (Fuster et al., 2012) but adapted to each player's virtual world of reference. The scale consists of 20 items divided into four scales: socialization (3 items), exploration (5 items), achievement (5 items) and dissociation (7 items). Participants were requested to indicate, for their favorite MMORPG, their level of agreement with each item on a 7 point Likert scale ranging from 1 ("completely disagree") to 7 ("completely agree"). Some examples of items are: Socialization scale: "In regard to my favorite MMORPG, I like being able to make good friends through playing the game"; Exploration scale: "In regard to my favorite MMORPG, I like the way I never cease to discover new things"; Achievement scale: "In regard to my favorite MMORPG, I like the way it gives me prestige"; Dissociation: "When playing my favorite MMORPG I put other obligations aside". In the present study, we obtained acceptable levels of internal consistency for all the scales: Socialization (α = .819), Exploration (α = .750), Achievement (α = .816) and Dissociation (α = .833). A confirmatory factor analysis showed acceptable fit of the data to the underlying factor structure: $\chi^2(164) = 464.34$; $p < .01$; CFI = .94; IFI = .94; RMSEA = .06 [.000–.069].

Procedure

Sampling was carried out for two months through Spanish-speaking forums dedicated to the different MMORPG: *Aion-ESP*, *Comunidad Hispana*, *DCUO Hispano*, *EVE-Online.es*, *Guild Wars Latino*, *JuegaEnRed*, *Rift-ESP* and *WoW-ESP*. Players were invited to participate by means of a message posted to the general or off-topic sections of the different forums. The message included a brief explanation of how to answer the questionnaire and an image associated with a link to the questionnaire itself. The message also asked readers to forward the questionnaire to other players. The scales were implemented online using the free software *LimeSurvey* (http://www.limesurvey.org/), which allows the design of dynamic questionnaires in PHP and CSS format. On accessing the questionnaire, the participant was presented with a web page requesting informed consent and buttons to accept or decline. The questionnaire took between 10 and 15 minutes to be completed. Duplication of participants was controlled for by means of "cookies" and by IP filtering. Responses were recorded in MySQL databases hosted on the servers provide by LimeSurvey. Data from the server databases was imported into the statistical package IBM SPSS Statistics 19. Tests of normality were applied to all variables in order to ensure they met assumptions for parametric statistical tests.

Results

Players and Virtual Worlds

Table 1 presents means and standard deviations for age, length of time playing and hours spent playing. The average time elapsed since subjects began playing MMORPG was 6 years (*SD* = 3.04), while the average time playing their current MMORPG was 2.52 years (*SD* = 2.29). The most popular game was World of Warcraft, accounting for 31.6% of the players, followed by Lord of the Rings Online, 21.9 %; Rift, 16.7%; EVE Online, 11.2%; Aion, 5.4 %; DC Universe Online, 4.0%; 9.3% played other MMORPG with fewer followers. The average number of hours spent playing per week was 22.56 (*SD* = 13.88), 18.6% of players spent under 10 hours a week playing their MMORPG, 37.0% spent between 11 and 20 hours, 22.6% spent between 21 and 30 hours, 10.9% between 31 and 40 hours, and 10.9% of subjects spent more than 40 hours per week playing.

A single factor ANOVA analysis found significant differences between the different MMORPG in terms of: age of players, $F(6, 423) = 10.47$; $p < .001$, years playing games of this type, $F(6, 423) = 6.87$; $p < .001$, years

https://doi.org/10.1017/sjp.2013.54 Published online by Cambridge University Press

Table 1. *Age, length of time playing, and hours spent playing at the weekend by MMORPG*

	Age		Length of time playing		Length of time playing current MMORPG		Hours playing at the weekend	
	Mean	*SD*	Mean	*SD*	Mean	*SD*	Mean	*SD*
Aion $n = 23$	25.26	6.87	5.17	3.09	1.22	.60	8.09	4.62
DC Universe Online $n = 17$	24.35	6.87	5.59	3.69	.06	.24	9.29	3.31
EVE Online $n = 48$	27.94	7.34	5.81	3.67	2.44	1.61	7.10	3.77
Lord of the Rings Online $n = 94$	29.26	7.26	5.04	3.56	1.52	1.66	7.33	4.54
Rift $n = 72$	29.32	6.32	7.83	2.70	.12	.11	11.08	6.78
World of Warcraft $n = 136$	24.22	5.63	5.89	2.08	4.74	1.58	8.36	5.17

playing their current MMORPG, F (6, 423) = 6.87; $p < .001$ and the number of hours spent playing the game during weekends, F(6, 423) = 4.9; $p < .001$. Post hoc contrasts using the Bonferroni method showed that: a) World of Warcraft players were younger than players of EVE Online, Lord of the Rings Online and Rift, b) players of Rift were people who had been playing these games for longer than the players of Aion, EVE Online, Lord of the Rings Online and World of Warcraft, c) World of Warcraft players had been playing their MMORPG for longer than players of the other types of MMORPG, and c) players of Rift spent more time playing at the weekend than players of EVE Online, Lord of the Rings Online and World of Warcraft.

Table 2 presents age, length of time playing and hours spent playing by type of server. Regarding style of play, 54.9% of the participants used servers of the Player versus Player (PvP) type, 27.9% preferred Player versus Environment (PvE) and 17.2% used Role Playing (RP) servers. Single factor ANOVA analysis revealed significant differences between the different server types in terms of players' ages, F(2, 427) = 9.68; $p < .001$, length of time playing, F(2, 427) = 11.76; $p < .001$, and hours spent playing per week, F(2, 427) = 7.46; $p < .01$. Post hoc contrasts using the Bonferroni method showed that players using PvP servers were: a) younger, b) had been playing for longer, and c) spent more time playing than those using PvE and RP servers (see descriptive statistics in Table 2). Regarding roles, 48.1% ($n = 207$) played as Damage Dealers, 15.3% ($n = 66$) as Tanks, 22.6% ($n = 97$) as Healers and 14% ($n = 60$) as Supporters. A single factor ANOVA analysis found significant differences between playing style and hours spent playing per week, F(3, 426) = 4.86; $p < .01$. Post hoc contrasts using the Bonferroni method showed that the players assuming a Healer role, $M = 26.26$; $SD = 15.37$ spent more time per week playing than those assuming the roles of Damage Dealer, $M = 22.74$; $SD = 14.42$; Tank, $M = 20.55$; $SD = 10.36$; and Supporter, $M = 18.20$; $SD = 11.25$.

Table 3 presents the frequencies of choosing a particular server type on the basis of the virtual worlds used. We compared the frequencies of choosing a MMORPG in terms of the form of relationship with the environment, as characterized by the type of server (PvP, PvE y RP), for the three MMORPG accounting for most players. The results suggested that the choice of MMORPG was associated with the form of interaction with the environment, as characterized by server type, $\chi^2(4, n = 302) = 145.45$, $p < .001$ (see Table 3).

Motivations

The means and standard deviations of the scores obtained in each of the subscales of motivations for

Table 2. *Age, length of time playing and hours spent playing per week, by type of server*

	Age		Length of time playing		Hours per week	
	Mean	*SD*	Mean	*SD*	Mean	*SD*
PvP $n = 236$	25.33	7.41	6.58	2.94	24.85	14.38
PvE $n = 120$	27.76	5.95	5.66	3.16	20.20	13.67
RP $n = 74$	28.68	7.48	4.76	2.72	19.09	11.13

Table 3. *Contingency table for type of server and MMORPG*

		Virtual world			
		Lord of the Rings	Rift	World of Warcraft	Total
Type of server	PvE	44 (29.3)	19 (22.4)	31 (42.3)	94
	PvP	2 (46.7)	51 (35.8)	97 (67.5)	150
	RP	48 (18.1)	2 (13.8)	8 (26.1)	58
Total		94	72	136	302

Note: Figures in parentheses are expected frequencies.

https://doi.org/10.1017/sjp.2013.54 Published online by Cambridge University Press

playing are presented in Table 4, along with the Cronbach Alpha values for each subscale. Players seemed to be more interested in relating with other players through the game (Socialization), and exhibited considerable interest in discovering the possibilities of the game and its adventures (Exploration), whereas interest in achieving leadership and prestige (Achievement) was medium, and interest in escape from reality and identification with the avatar was low (Dissociation).

Correlations were calculated between the variables age, hours spent playing, styles of playing and type of motivation. Significant correlations were found between : a) age and Socialization, $r = -.100$, $p < .05$; b) length of time playing and Exploration, $r = -.119$, $p < .05$; c) age and Achievement, $r = -.214$, $p < .01$; d) age and Dissociation, $r = -.115$, $p < .05$; e) hours spent playing and Dissociation, $r = .316$, $p < .01$; and lastly f) hours spent playing per week and length of time playing their current MMORPG, $r = -.101$, $p < .05$.

A single factor ANOVA analysis found significant differences between type of occupation with respect to Achievement, $F(3, 426) = 3.6$; $p < .05$; and Dissociation, $F(3, 426) = 4.41$; $p < .01$. Post hoc contrasts using the Scheffé method showed that students scored higher on Achievement, $M = 19.53$, $SD = 7.52$, than participants who worked, $M = 17.08$, $SD = 7.26$; the students also scored higher on Dissociation, $M = 22.84$, $SD = 8.72$ than those who worked, $M = 20.07$, $SD = 8.52$ and those who worked and studied, $M = 18.94$, $SD = 9.68$. Regarding types of play and motivations, a single factor ANOVA analysis found significant differences between MMORPG types and Dissociation, $F(6, 423) = 3.54$; $p < .01$. Post hoc contrasts (Scheffé) showed that *World of Warcraft* players scored higher on Dissociation, $M = 23.48$, $SD = 9.01$ than participants who played *Aion*, $M = 17.96$, $SD = 7.57$ and *EVE Online*, $M = 18.06$, $SD = 8.05$. Significant differences were also found between the different types of server used and the variables Exploration, $F(2, 427) = 4.05$; $p < .05$, and Dissociation, $F(2, 427) = 3.74$; $p < .05$. Post hoc contrasts (Scheffé) showed that those who played on RP servers scored higher on Exploration, $M = 27.24$, $SD = 4.64$ that those who played on PvP servers, $M = 25.08$, $SD = 6.31$; however, those who played on PvP servers scored higher on Dissociation, $M = 21.76$, $SD = 9.18$ than those playing on RP servers, $M = 18.54$, $SD = 8.05$.

Table 4. *Descriptive statistics and Cronbach alpha values for scales of the MMO-MS*

	Mean	*SD*	Min.	Max.	α
Socialization	10.79	4.53	3	21	.819
Exploration	25.71	5.91	5	35	.750
Achievement	17.97	7.37	5	35	.816
Dissociation	20.96	8.90	7	49	.833

Discussion

The aim of this study was to analyze the styles of playing among users of a variety of MMORPG and to relate these with motivations for playing, in an attempt to detect possible player profiles. The results show that the standard profile of Spanish-speaking MMORPG players is a male aged 25 years with or completing tertiary education, who works and/or studies and who spends approximately 23 hours per week playing the game (45.1% of the sample). Apart from this, two other profiles were evident: a) adolescent at secondary school or in tertiary education who spends around 24 hours a week playing MMORPG (20.7% of the sample), and b) adult aged in their thirties, with tertiary education and working, who spends around 20 hours per week playing (16.3% of the sample). Therefore, MMORPG are one of the few types of videogame (and indeed one of the few leisure time activities) capable of bringing together participants of a wide range of ages, from adolescence to maturity who relate, interact and mutually support and collaborate during extended periods of time. The composition of the sample contradicts the popular belief that only adolescents are involved with games of this type.

The average age of the players (26.58 years) and hours spent playing weekly (22.56) are comparable to the figures reported by Yee (2006a) (26.70 years and 22.57 hours) as well as by Griffiths, Davies, and Chappell (2003) (27.9 years and 25 hours) in other countries. However, the difference in the percentages of male and female participants (95% and 5% respectively) is more acute than in the studies by other authors (Yee, 2006a: 85.4% men and 14.6% women; Griffiths et al., 2003: 81% men and 19% women). This could be due to the fact that the use of MMORPG became widespread in Spain and Latin America later than in the rest of Europe and the United States. The expected trend for this difference is to decrease with time, as men and women are very similar in terms of their conceptions, expectations and ways of playing in the various MMORPG (Yee, 2008) and because they go beyond gender stereotypes. One must also consider that new products are designed so as to incorporate women, and as they become more common in an environment which was predominantly male, they smooth the way for the upcoming generation of young female players.

Coinciding with the findings of Fuster et al. (2012), the highest scores obtained were for the motivations of Socialization and Exploration, while scores were medium for Achievement, and low for Dissociation. We found that age was negatively correlated with

https://doi.org/10.1017/sjp.2013.54 Published online by Cambridge University Press

Achievement and that students scored higher on Achievement than people who worked. It may be inferred that academic achievement as such does not motivate young people, or they regard it as something distant from their expectations and thus seek fulfillment through MMORPG, which, being a game, appeals to the adolescent. Moreover, Dissociation was positively correlated with hours spent playing and we found that students scored higher on Dissociation than workers. Once again, students in general feel alienated from the task at hand, and in consequence it would be plausible that they take to MMORPG as a form of escape, and end up spending considerable time playing.

The average lengths of time playing MMORPG in general and their current favorite game (6 and 2.52 years, respectively) suggest that online games are not just some passing fashion. Indeed, the positive correlation between age and length of time playing shows that the players, far from becoming bored with time, remain faithful to the genre of MMORPG and to their companion players. As pointed out by Ducheneaut et al. (2006), relationships established through MMORPG are important and lasting not only in time but also persist despite changes of specific MMORPG played and server used. This can help us to understand the negative correlation between Socialization and length of time playing their current MMORPG, since given that the longer this time, the more extensive is the social network established through the game, and therefore the lower is the interest or need to seek new companions in their adventures.

In contrast, players of Rift (the newest game on the market at the time of conducting our fieldwork) were long established veterans in the genre of MMORPG. This fact may indicate that seniority in MMORPG does not tie the player to their current favorite MMORPG (nor to their guild or group of companions) and that there is still a degree of interest in discovering new challenges and environments by switching from one MMORPG to another. Moreover, Rift was the game to which players dedicated the most time at weekends (the days when they played for the greatest number of hours). This may be an example of what Yee (2006b) defined as the MMORPG player's lifecycle. The cycle begins (or re-starts) with a phase of exaltation or euphoria in which they spent many hours playing, in order to discover the game and raise their level. The last phases of the cycle (prior to re-initiating or abandoning the game) are characterized by burnout and dedicating less time to the game, playing intermittently. This phenomenon is manifested by the negative correlation we found between number of hours spent playing and seniority in the game. For this reason *World of Warcraft* is the MMORPG which unites the greatest number of players but who spend the least amount of time playing.

With regard to the number of hours spent playing, we did not find any significant correlations between age and hours playing, in contrast to the report by Yee (2006a), who concluded that the older the player, the less free time they would have and hence the less time they spent playing. It should be noted however that when that study was performed, the number of different MMORPG in the market was limited, and most of the sample were playing *Everquest*. For this reason it seems reasonable to think that player's age was inevitably associated to seniority in the game, given that there were no other popular alternatives to choose. Bearing this in mind, one might be tempted to think that spending less time playing is associated not to age but rather to burnout resulting from playing the same game for so long (see above example involving World *of Warcraft*).

Regarding the servers, the most widely used is the PvP type. This is no mere coincidence since the decision on type of server conditions the type of relationship the player will have with the environment and its inhabitants. The server determines the form in which links can be established with other players and groups of players, as well as the more complex interactions beyond simple collaboration and which in many cases can be motivated or mediated by a conflict between players. It has been observed that the PvP type servers unite younger but at the same time more experienced players, and those who spend the most amount of time playing. These characteristics create the profile of a young player able to face more unpredictable adversaries than those controlled by the computer, thanks to their greater mastery, achieved through experience and playing hours. Players who prefer interactions of this type tend to be concentrated in those MMORPG which offer greater sophistication in the combat between players, and thus World of Warcraft and Rift are their favorites. The fact that PvP players are the ones who attain the highest scores on Dissociation may be due, as other studies have indicated, to the fact that younger players are still experimenting with their identity and trying to engage in meaningful relations. Moreover, they usually have fewer real world responsibilities and hence greater liberty to let themselves be carried away by the game (Bessière, Seay, & Kiesler, 2007; Fuster et al., 2012; Smahel et al., 2008). This could contribute to explain the correlations found between Dissociation and age (negative), and between Dissociation and time spent playing (positive).

On the other hand, RP servers represent the classic role playing paradigm as players have to play a particular role, and anyone departing from the role is penalized. The profile of an RP player is that of a more mature individual, but less veteran and who spends less time playing. This could be due to the fact that to

https://doi.org/10.1017/sjp.2013.54 Published online by Cambridge University Press

play out a role in all its facets perhaps requires certain abilities of discourse which are more developed with age. Also, to play out this role requires an effort of concentration and this can lead to a reduction in the amount of time spent playing. Players with this profile are clearly concentrated in playing *Lord of the Rings Online*. This may perhaps be due to the fact that the mythology and narrative surrounding the game is rich and conducive to developing more elaborated roles in a virtual world which is carefully constructed in terms of its context and congruency. For all these reasons, it is no surprise that players using RP servers score highest on the Exploration scale which is precisely the one referring to aspects of discovery of the game, its mythology and adventures.

Finally, PvE type servers represent a midway point between PvP and RP servers. They bring together those players not prepared to let themselves go to the frenetic and demanding style required by PvP servers, preferring to have more control over their activity and only participating in combat against other players when it suits them. Nor do they want to role play a fixed role which deprives them of the liberty to act as they wish in the game at any time; even so, they do not deny themselves the exploratory component of the content controlled by the computer which after all is what makes the basic narrative, designed into the game progress. On the other hand, we did not find any specific relationships between the different game roles (tank, damage dealer, and healer) and players' motivations or demographic characteristics. This appears to suggest that the profiles mentioned above are consistent independently of the form in which the player plays out their role (i.e. with its abilities and limitations).

Our results also confirm the findings of Griffiths et al., 2003) and Cole and Griffiths (2007) who state that, although to a certain extent there is always an element of escapism or stress relief in playing, the most important motivation is of a social nature. As mentioned earlier, players make friends through the game, and these can transcend the virtual context to become significant real world friendships. The game is also a space allowing for experimentation and belonging to a group, for social support and having fun together. Our results support these conclusions, although it must not be forgotten that there is a component of escapism in any form of leisure activity, as noted above. People develop hobbies as an alternative to their obligations, as personal forms of self-realization, and consequently the low scores obtained on Dissociation are in line with this idea. In this sense, we have confirmed that MMORPG players are not solitary figures avoiding the real world by seeking refuge in the game. Playing MMORPG provides a means for creating significant relationships and contributes to the development of social capital (Zhong, 2011).

We have found that it was the young people who achieved the highest scores for both Achievement and Dissociation. In this sense there is some concern in the mass media and educational settings about possible addictive effects (Griffiths et al., 2003; Griffiths, 2010). In our opinion, this raises a question about the obsolescence of analogue systems of education, given the advances in information and communications technologies. For this reason MMORPG provide an environment which is highly attractive to adolescents prepared to invest time and energy playing the game. Perhaps it would be appropriate to channel efforts in this direction to try to exploit the benefits of such virtual environments as a means to reduce the mismatch between goals imposed by school curricula and the adolescent's personal objectives. To date, MMORPG are only a tool for leisure but a tool which attracts a broad spectrum of profiles, motivated by different aspects. In this line, some authors have suggested exploitation of MMORPG for learning (Dickey, 2007; Peterson, 2010; Suh, Kim, & Kim, 2010) and for the development of skills such as leadership (Jang & Ryu, 2011). For this reason, we would suggest that future research be oriented towards studying the potential of MMORPG.

The present study proposes a point of view from which to analyze the development of play in MMORPG. Despite the fact that the data were obtained from a single sample, highlighting the need for a longitudinal approach, the study provides evidence on the positive effects of on-line games and underlines their role in the creation of social networks and in collective participation.

References

Bartle R. (1996). Hearts, clubs, diamonds, spades: Players who suit MUDs. *Journal of Virtual Environments*. Retrieved from http://www.mud.co.uk/richard/hcds.htm

Bessière K., Seay F., & Kiesler S. (2007). The ideal elf: Identity exploration in World of Warcraft. *Cyberpsychology & Behavior*, *10*, 530–535. http://dx.doi.org/10.1089/cpb.2007.9994

Billieux J., Chanal J., Khazaal Y., Rochat L., Gay P., Zullino D., & van der Lienden M. (2011). Psychological predictors of problematic involvement in massively multiplayer online role-playing games: Illustration in a simple of male cybercafé players. *Psychopathology*, *44*, 165–171. http://dx.doi.org/10.1159/000322525

Carbonell X., Talarn 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 [When play becomes a problem: Pathological gambling and addiction to online role-playing games]. *Aloma: Revista de Psicologia, Ciències de l'Educació i de l'Esport*, *25*, 201–220.

https://doi.org/10.1017/sjp.2013.54 Published online by Cambridge University Press

Cole H., & Griffiths M. (2007). Social interactions in massively multiplayer online role playing games. *Cyberpsychology & Behavior*, *10*, 575–583. http://dx.doi.org/10.1089/cpb.2007.9988

Crowe N. (2011). 'It's like my life but more, and better!' – Playing with the Cathaby Shark Girls: MMORPGs, young people and fantasy-based social play. *International Journal of Adolescence and Youth*, *16*, 201–223. http://dx.doi.org/10.1080/02673843.2011.9748055

Díaz R., Beranuy M., & Oberst U. (2009). Terapia de la adicción a Internet y video-juegos en niños y adolescentes [Therapy of Internet and video game addiction in children and adolescents]. *Revista de Psicoterapia*, *73*, 69–100.

Dickey M. (2007). Game design and learning: A conjectural analysis of how massively multiple online role-playing games (MMORPGs) foster intrinsic motivation. *Educational Technology Research and Development*, *55*, 253–273. http://dx.doi.org/10.1007/s11423-006-9004-7

Ducheneaut N., & Yee N. (2008). Collective solitude and social networks in World of Warcraft. In C. Romm-Livermore & S. Setzekorn (Eds.), *Social networking communities and e-dating services: Concepts and implications* (pp. 78–100). Nueva York, NY: Information Science Reference.

Ducheneaut N., Yee N., Nickell E., & Moore R. (2006). Alone together? Exploring the social dynamics of massively multiplayer online games. *Proceedings of CHI 2006* (pp. 407–416). Montreal, Canada: CM Press.

Fuster H., Oberst U., Griffiths M., Carbonell X., Chamarro A., & Talarn A. (2012). Psychological motivation in online role-playing games: A study of Spanish World of Warcraft players. *Anales de Psicología*, *28*, 274–280.

Griffiths M. D. (2010). The role of context in online gaming excess and addiction: Some case study evidence. *International Journal of Mental Health and Addiction*, *8*, 119–125. http://dx.doi.org/10.1007/s11469-009-9229-x

Griffiths M. D., Davies M. N. O., & Chappell D. (2003). Breaking the stereotype: The case of online gaming. *CyberPsychology & Behavior*, *6*, 81–91. http://dx.doi.org/10.1089/109493103321167992

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. http://dx.doi.org/10.1007/s11469-009-9202-8

Jang Y., & Ryu S. (2011). Exploring game experiences and game leadership in massively multiplayer online role-playing games. *British Journal of Educational Technology*, *42*, 616–623. http://dx.doi.org/10.1111/j.1467-8535.2010.01064.x

Longman H., O'Connor E., & Obst P. (2009). The effect of social support derived from World of Warcraft on negative psychological symptoms. *Cyberpsychology & Behavior*, *12*, 563–566. http://dx.doi.org/10.1089/cpb.2009.0001

Lortie C., & Guitton M. (2011). Social organization in virtual settings depends on proximity to human visual aspect. *Computers in Human Behavior*, *27*, 1258–1261. http://dx.doi.org/10.1016/j.chb.2011.01.006

Meredith A., Hussain Z., & Griffiths M. (2009). Online gaming: A scoping study of massively multiplayer online role playing games. *Electronic Commerce Research*, *9*, 3–26. http://dx.doi.org/10.1007/s10660-009-9029-1

Padilla-Walker L. M., Nelson N. J., & Carroll J. S. (2010). More than just a game: Video game and internet use during emerging adulthood. *Journal of Youth and Adolescence*, *39*, 103–113. http://dx.doi.org/10.1007/s10964-008-9390-8

Peterson M. (2010). Massively multiplayer online role-playing games as arenas for second language learning. *Computer Assisted Language Learning*, *23*, 429–439. http://dx.doi.org/10.1080/09588221.2010.520673

Smahel D., Blinka L., & Ledabyl O. (2008). Playing MMORPGs: Connections between addiction and identifying with a character. *CyberPsychology & Behavior*, *11*, 715–718. http://dx.doi.org/10.1089/cpb.2007.0210

Snodgrass J., Lacy M., Dengah F., Fagan J., & Most D. (2011). Magical flight and monstrous stress: Technologies of absorption and mental wellness in Azeroth. *Culture, Medicine and Psychiatry*, *35*, 26–62. http://dx.doi.org/10.1007/s11013-010-9197-4

Suh S., Kim S., & Kim N. (2010). Effectiveness of MMORPG-based instruction in elementary English education in Korea. *Journal of Computer Assisted Learning*, *26*, 370–378. http://dx.doi.org/10.1111/j.1365-2729.2010.00353.x

Talarn A., & Carbonell X. (2009). Algunas reflexiones a propósito de los juegos (y los jugadores) de rol online [Some reflections about online role-playing games (and players)]. *Revista de Psicoterapia*, *19*, 50–68.

Williams D., Ducheneaut N., Ciong L., Yee N., & Nickell E. (2006). From tree house to barracks: The social life of guilds in World of Warcraft. *Games and Culture*, *1*, 338–361. http://dx.doi.org/10.1177/1555412006292616

Yee N. (2006a). The demographics, motivations and derived experiences of users of massively-multiuser online graphical environments. *Presence: Teleoperators and Virtual Environments*, *15*, 309–329. http://dx.doi.org/10.1162/pres.15.3.309

Yee N. (2006b). Motivations for play in online games. *Cyberpsychology & Behavior*, *9*, 772–775. http://dx.doi.org/10.1089/cpb.2006.9.772

Yee N. (2008). Maps of digital desires: Exploring the topography of gender and play in online games. In Y. Kafai, C. Heeter, J. Denner, & J. Sun (Eds.), *Beyond Barbie and Mortal Kombat: New perspectives on gender and gaming* (pp. 83–96). Cambridge, MA: MIT Press.

Zhong Z. J. (2011). The effects of collective MMORPG (Massively multiplayer online role playing games) play on gamers' online and offline social capital. *Computers in Human Behavior*, *27*, 2352–2363. http://dx.doi.org/10.1016/j.chb.2011.07.014