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Personality traits and gaming in Argentinean gamers

Rasgos de personalidad y su relación con el uso de videojuegos en *gamers* argentinos

Traços de personalidade e sua relação com o uso de videogames em *gamers* argentinos

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Guadalupe de la Iglesia is a member of the Argentine Video Game Developers Association (ADVA).

Abstract: Introduction: It has been proposed that personality partially influences gaming behaviors. This study examined the relationship between normal personality traits and various gaming behaviors and experiences in a sample of Argentine gamers. Method: The study included a sample of 197 gamers and an additional sample of 91 non-gamers. Data were collected using ad hoc surveys, the Gaming Experiences Scale, and the Big Five Inventory. Results: No differences in personality traits were found between gamers and non-gamers, nor was there a relationship between personality and the number of hours spent playing video games. Individuals with higher openness to experience reported greater self-perceived performance in gaming, while those with higher extraversion engaged more with other players. No differences in personality traits were found based on preference for hardcore or casual games. Higher conscientiousness was associated with fewer both negative and positive experiences in gaming, whereas greater openness to experience was related to more positive experiences. The findings highlight the need to statistically control for variables such as gender and age, given their impact on the results. Conclusions: The study concludes that gamers do not have a distinct personality profile that differentiates them from non-gamers. Moreover, contrary to previous research, neuroticism did not emerge as a key trait associated with gaming behaviors. Instead, conscientiousness played a relevant role in shaping gaming experiences, while openness to experience stood out as the strongest predictor of positive gaming experiences and self-perceived gaming performance.

Keywords: videogames; gamers; personality; traits

Resumen: Introducción: Se ha postulado que la personalidad influye parcialmente en las conductas de uso de videojuegos. Esta investigación examinó la relación entre la personalidad normal y distintas variables de uso de videojuegos en una muestra de *gamers* argentinos. Método: Se trabajó con una muestra de 197 *gamers* y una muestra adicional de 91 no-gamers. Los datos se recolectaron mediante encuestas ad hoc, la Escala de Experiencia Gamer y el Inventario de los Cinco Grandes. Resultados: No se encontraron diferencias en los rasgos de personalidad entre *gamers* y no-jugadores ni relación entre la personalidad y las horas de uso de videojuegos. Quienes presentaron mayor apertura a la experiencia reportaron un mayor rendimiento autopercibido en el juego, y quienes tenían mayor extraversión interactuaron más con otros jugadores. No se hallaron diferencias en los rasgos de personalidad según la preferencia por juegos *hardcore* o casuales. Se observó que mayor responsabilidad se asoció con menos experiencias tanto negativas como positivas en el uso de videojuegos, mientras que una mayor apertura a la experiencia se relacionó con más experiencias positivas. Los hallazgos refuerzan la necesidad de controlar estadísticamente variables como género y edad, dado su impacto en los resultados.

Conclusiones: Se concluye que no existe un perfil de personalidad distintivo que diferencie a los *gamers* de los no-jugadores. Además, en contraste con estudios previos, el neuroticismo no emergió como un rasgo clave en las conductas de uso de videojuegos. En cambio, la responsabilidad mostró un papel relevante en la modulación de las experiencias de juego, y la apertura a la experiencia se destacó como el principal predictor de las experiencias positivas y del rendimiento autopercibido en el juego.
Palabras clave: videojuegos; gamers; personalidad; rasgos

Resumo: Introdução: Tem-se postulado que a personalidade influencia parcialmente os comportamentos relacionados ao uso de videogames. Esta pesquisa examinou a relação entre a personalidade normal e diferentes variáveis de uso de videogames em uma amostra de gamers argentinos. Método: Trabalhou-se com uma amostra de 197 gamers e uma amostra adicional de 91 não-gamers. Os dados foram coletados por meio de questionários ad hoc, da Escala de Experiência Gamer e do Inventário dos Cinco Grandes Fatores de Personalidade. Resultados: Não foram encontradas diferenças nos traços de personalidade entre gamers e não-jogadores, nem relação entre a personalidade e o número de horas de uso de videogames. Aqueles que apresentaram maior abertura à experiência relataram um maior desempenho autopercebido no jogo, e os que tinham maior extroversão interagiram mais com outros jogadores. Não foram observadas diferenças nos traços de personalidade segundo a preferência por jogos hardcore ou casuais. Observou-se que maior responsabilidade se associou a menos experiências tanto negativas quanto positivas no uso de videogames, enquanto maior abertura à experiência esteve relacionada a mais experiências positivas. Os achados reforçam a necessidade de controlar estatisticamente variáveis como gênero e idade, dado o seu impacto nos resultados. Conclusões: Conclui-se que não existe um perfil de personalidade distinto que diferencie os gamers dos não-jogadores. Além disso, em contraste com estudos anteriores, o neuroticismo não emergiu como um traço chave nos comportamentos de uso de videogames. Por sua vez, a responsabilidade mostrou um papel relevante na modulação das experiências de jogo, e a abertura à experiência destacou-se como o principal preditor das experiências positivas e do desempenho autopercebido no jogo.
Palavras-chave: videogames; gamers; personalidade; traços

Introduction

The analysis of personality traits characteristic of gamers has gained considerable relevance in recent decades. It has been proposed that personality partially determines gaming behaviours (Jeng & Teng, 2008). According to classic but still relevant theories such as the Uses and Gratifications Theory (Katz et al., 1973), personality constitutes an individual characteristic that determines different types of consumption of audiovisual communication media (such as video games) in the pursuit of gratification and the fulfilment of personal needs (Chory & Goodboy, 2011).

Personality and Gaming

In general, the preferred model for researching personality in gamers has been the Five Factor Model (FFM; Costa & McCrae, 1985). However, the results regarding FFM traits are highly heterogeneous and, in many cases, contradictory. A systematic review and meta-analysis conducted by Akbari et al. (2021), for instance, revealed a dispersion of results, with no clear pattern linking FFM traits to gaming. The only trait that showed some consistency across studies was conscientiousness, which was negatively associated with gaming. This variability may be due to various factors: measurement instruments are heterogeneous, samples are highly diverse, and gender and age variables are generally not statistically controlled. This last point is particularly important, as the state of the art suggests that both personality and gaming vary according to gender and age (e.g., De la Iglesia, 2024a; Jeng & Teng, 2008; Teng et al., 2012), meaning that these pre-existing differences could affect the observed results. Although some previous studies have focused on age and gender differences in relation to gaming and personality traits, the present work does not aim to analyse those differences. Instead, it seeks to statistically control for gender and age variables in order to explore the strength of the link between personality traits and gaming, beyond any pre-existing differences that may be associated with participants' gender and age.

Based on these considerations, the aim of this study is to examine personality traits in gamers. Initially, the objective is to compare personality traits between gamers and non-gamers to determine whether differences exist between these two groups. In addition, the study seeks to explore the relationship between personality and several variables associated with gaming, such as hours of gameplay, preferred video game, self-perceived performance, interaction with other players, and gaming experiences.

The following section summarises the background related to FFM traits and variables associated with gaming.

Extraversion

Numerous studies have examined the relationship between extraversion and gaming. Some findings suggest that gamers exhibit higher levels of extraversion compared to non-gamers (Estalló Martí, 1994; McClure & Mears, 1986; Teng, 2008). However, Braun et al. (2016) found that extraversion was higher in non-gamers and in moderate gamers compared to excessive gamers. Regarding the relationship between extraversion and hours of use, results are also mixed. Teng et al. (2012) found no association, Potard et al. (2020) observed that less extraverted individuals played less, and Montag et al. (2021) reported a negative association.

Problematic gaming (sometimes referred to as addiction, pathological use, or negative gaming experiences) generally shows a negative relationship with extraversion (Braun et al., 2016; Charlton & Danforth, 2010; Chew, 2022; Dieris-Hirchea et al., 2020; Jeong & Lee, 2015; López-Fernández et al., 2020; Medina-Valdivia & Ponce-Eguren, 2021), although some studies report no association (Collins et al., 2012; Şalvarli & Griffiths, 2019). Conversely, Huh and Bowman (2008) found a positive relationship.

In terms of motivations for play, extraverts are more inclined to seek socialisation, achievement (performance in the video game), teamwork, adventure, and relaxation, and are less likely to seek immersion (Jeng & Teng, 2008; Park et al., 2011; Winther, 2010). Within games, extraverts tend to engage in social behaviours, help others, and display fandom for game content (Worth & Book, 2014). In the context of World of Warcraft (WOW) [1], Yee et al. (2011) observed that more extraverted gamers participated more in group activities (dungeons, guilds, or clans) and less in solitary activities (exploring, cooking, fishing). Regarding preferred genres, Peever et al. (2012) reported that extraverts prefer casual, party, music, and strategy games, while López-Fernández et al. (2020) found associations with hardcore genres such as action, shooters, and sports.

Neuroticism

In some research, no differences have been reported between gamers and non-gamers in neuroticism (Teng, 2008). Braun et al. (2016), on the contrary, found that neuroticism was higher among non-gamers and those who played excessively in contrast to those who played moderately. Regarding gaming hours, positive associations with neuroticism have been found (Braun et al., 2016; Jeong & Lee, 2015; Teng et al., 2012), although Collins et al. (2012) reported no relationship. As for problematic use, there is a marked tendency to report positive associations with neuroticism (Akbari et al., 2021; Charlton & Danforth, 2010; Chew, 2022; Dieris-Hirchea et al., 2020; Gervasi et al., 2017; Huh & Bowman, 2008; Medina-Valdivia & Ponce-Eguren, 2021; Şalvari & Griffiths, 2019) with isolated results reporting no relationship (Gervasi et al., 2017; López-Fernández et al., 2020; Şalvari & Griffiths, 2019).

On the other hand, those who score higher in neuroticism report playing to socialize and experience immersion (Winther, 2010). Within the game, those with higher neuroticism exhibit more helping behaviors towards others and more fanaticism for game content (Worth & Book, 2014). In the research by Yee et al. (2011) on WOW players, it was reported that those with higher neuroticism preferred more player versus player (PvP) activities. Regarding game genres, Potard et al. (2020) found that those who preferred action games showed higher neuroticism.

Conscientiousness

Teng (2008) reported that gamers show more conscientiousness compared to non-gamers, and Braun et al. (2016) reported the opposite. On the other hand, this trait was found to be negatively associated with gaming hours (Montag et al., 2021; Potard et al., 2020; Teng et al., 2012). Several studies found negative associations between conscientiousness scores and problematic use (Akbari et al., 2021; Braun et al., 2016; Chew, 2022; Dieris-Hirchea et al., 2020; López-Fernández et al., 2020; Medina-Valdivia & Ponce-Eguren, 2021; Wang et al., 2014), while others found no relationship (Collins et al., 2012; Jeong & Lee, 2015) or a positive one (Lehenbauer-Baum & Fohringer, 2015).

[1] *World of Warcraft* (WoW) is a massively multiplayer online role-playing game (MMORPG) with an extensive virtual world, complex social dynamics, and a wide range of possible roles and actions. Its longevity, vast global community of players, and wealth of data have made it a relevant case study in research on player psychology.

Yee et al. (2011) found that WOW players with higher conscientiousness tend to collect items, have more pets, cook more, fish more, and achieve more challenges. Those with low conscientiousness, in contrast, are more reckless and have a higher chance of their characters dying from falling from high places. Regarding game genres, those with higher conscientiousness tend to prefer racing, flying, and fighting games (Peever et al., 2012).

Agreeableness

Agreeableness does not show differences between gamers and non-gamers (Teng, 2008), and among gamers, a positive relationship was found with the number of hours played (Teng et al., 2012). Regarding problematic use, some studies found negative associations (Akbari et al., 2021; Charlton & Danforth, 2010; Chew, 2022; Collins et al., 2012; López-Fernández et al., 2020; Medina-Valdivia & Ponce-Eguren, 2021; Sánchez-Llorens et al., 2023), while others found no relationship (Braun et al., 2016; Dieris-Hirchea et al., 2020; Jeong & Lee, 2015).

Motives for play among those with high agreeableness are often socializing and adventure (Park et al., 2011). Regarding performance-related motivation when playing, Park et al. (2011) reported a positive association with this trait, and Winther (2010) a negative one. Within the game, those with higher scores on this trait tended to help other players (Worth & Book, 2014). Furthermore, WOW players who are highly agreeable prefer non-combative activities (exploring, crafting, events, cooking, fishing), and those with low agreeableness are more interested in killing, getting better equipment, and PvP activities (Yee et al., 2011).

Openness to experience

Finally, Teng (2008) found that gamers show more openness to experience than non-gamers. Braun et al. (2016) found no differences between gamers and non-gamers in this trait. Some research found a positive association with the number of hours played (Teng et al., 2012; Witt et al., 2011), and another found a negative one (Montag et al., 2021). Regarding problematic use, no association was found with this trait (Dieris-Hirchea et al., 2020; Jeong & Lee, 2015), or the association found was negative (Akbari et al., 2021; Braun et al., 2016; Wang et al., 2014). López-Fernández et al. (2020) reported a positive association in the case of women.

In relation to motives for play, those with more openness to experience seek to experience immersion, discovery, role-playing, and socializing (Jeng & Teng, 2008; Winther, 2010; Worth & Brook, 2014), and within the game, they tend to help other players (Worth & Book, 2014). WOW players with high openness to experience tend to have more characters, explore more, and participate in non-combative activities (Yee et al., 2011). Regarding video game genres, those with more openness tend to prefer adventure, action, platform, logic, and social simulation games (López-Fernández et al., 2020; Peever et al., 2012).

Argentine Gamers

In Argentina, research on the psychological aspects linked to gaming is in an early stage of development, which includes the validation of scales to assess gaming experiences and video game addiction, as well as the study of gaming variables according to sociodemographic characteristics and the link between gaming and mental health (e.g., De la Iglesia, 2024a, 2024b; González-Caino et al., 2022; Jordan-Muiños & Simkin, 2022). Locally, the international trend is replicated, with reports indicating that 18.5 million Argentines play video games (approximately 40 % of the population) and that the size of the video game industry is valued at USD 72 million (Gilbert, 2021). These statistics describe a scene in which video games appear to constitute an aspect of daily life for almost half of the population. Therefore, their study is relevant both locally, for the generation of regional knowledge, and internationally, to contrast and deepen global understanding. According to the objectives expressed at the beginning of the introduction and the background research presented, the following hypotheses are proposed:

- H_1. The number of weekly gaming hours will be positively associated with neuroticism, agreeableness, and openness to experience, and negatively with conscientiousness.
- H_2. Those who prefer hardcore video game genres will present higher levels of neuroticism and conscientiousness compared to those who prefer casual games.
- H_3. Self-perceived gaming performance will be positively associated with extraversion and negatively with agreeableness.

- H_4. Interaction with other players will be positively related to extraversion, agreeableness, openness to experience, and neuroticism.
- H_5. Negative gaming experiences will be positively associated with neuroticism and negatively with extraversion, conscientiousness, and agreeableness.

Method

Procedure

The research employed a non-experimental, cross-sectional design, and data were collected through a non-probabilistic snowball sampling method via an online survey distributed through social networks, emails, and digital platforms. Participants had to meet the following inclusion criteria: (1) reside in Argentina, (2) be 18 years of age or older, and (3) play video games at least once a month - based on the suggestion by Eklund (2016) and Kaye (2019) regarding the use of sufficiently broad criteria that allow capturing the diversity of gamers and increasing the representativeness of those who play video games in the general population. In the case of the non-gamer sample, the inclusion criteria were the same except for criterion 3, as the aim was to include individuals who did not play video games. The non-gamer sample was only analysed for the first objective of differences between groups. Furthermore, all participants had to provide their informed consent to participate in the study, where information was given about the study's objectives, the possibility of refusing or interrupting their participation at any time, and the confidential treatment of the information. No incentives were provided for participation. All procedures respected the ethical guidelines and standards of the 1964 Declaration of Helsinki and its subsequent amendments, and of the National Council for Scientific and Technical Research (CONICET). The project was evaluated and approved by the Ethics Committee of the University of Palermo.

Participants

Sample consisted of 197 adults from the general population who indicated playing video games. The average age was 30.2 years (*SD* = 9.34; *Min* = 18; *Max* = 70), with 64.97 % identifying as male, 32.99 % as female, 1.52 % as non-binary, and 0.5 % preferring not to report their gender. Regarding gaming hours, the average was 13.3 hours per week (*SD* = 13.5). According to Przybylski's (2014) classification, 47.6 % were typical gamers, 37 % moderate gamers, and the remaining 15.3 % were heavy gamers. In 75.3 % of cases, the preferred video game was categorized as hardcore, with the remaining being casual video games. Regarding gaming performance, 29.1 % perceived it as low, 37.6 % as standard, and 33.3 % as high. As for online interaction with other players, 40.7 % reported not interacting, 21.2 % interacting a little, 17.5 % interacting quite a bit, and 20.6 % reported interacting a lot. For the first two analyses conducted, an additional sample of 91 non-gamers was evaluated (M_{age} = 33.4 years; *SD* = 11.1; *Min* = 19; *Max* = 66; 87.91 % female).

Materials

Sociodemographic Survey (ad hoc). Developed specifically for this study to gather basic sociodemographic information from participants, such as age, gender, and place of residence.

Gaming Survey (ad hoc). A survey was created with questions about the number of weekly gaming hours, preferred video game (categorized as casual or hardcore), self-perceived performance (a single six-option performance scale: 1: *I'm very bad at playing* to 6: *I play spectacularly*), and frequency of interaction with other players (no, a little, quite a bit, and a lot).

Gaming Experiences Scale (De la Iglesia, 2024a). This instrument is a short and locally adapted version for the Argentine population of the Online Gaming Survey (Snodgrass et al., 2017). It consists of 18 items answered on a six-option Likert scale (0: *does not represent me at all* to 5: *completely represents me*). It assesses positive experiences (strengthening bonds and increasing one's own skills, the possibility of achieving personal growth, and gamer identity as a way of life) and negative experiences (feeling of loss of control, social isolation, obsession, negative affectivity, withdrawal, problems in other areas of personal life, and exhaustion). Its psychometric analyses provided evidence of validity (exploratory and confirmatory factor analyses, convergent validity studies) and reliability (internal consistency analyses) that demonstrated the appropriateness of its composite scores. In the sample analysed here, the internal consistency was ω = .88 for positive experiences and ω = .85 for negative experiences.

Big Five Inventory (BFI; John et al., 1991). This 44-item instrument assesses the five major personality traits: extraversion (i.e., "...who is sociable"), agreeableness (i.e., "...who likes to cooperate with others"), conscientiousness (i.e., "...who does things efficiently"), neuroticism (i.e., "...who is depressive/sad"), openness to experience (i.e., "...who is curious about things"). It uses a five-point Likert scale of agreement (0: c*ompletely disagree* to 4: c*ompletely agree*). Studies conducted in Argentina verified the factorial validity for adolescent and adult non-clinical and military populations (Castro Solano & Casullo, 2001). For this sample, adequate internal consistency values were obtained: extraversion ω = .78; agreeableness ω = .69; conscientiousness ω = .81; neuroticism ω = .82; openness to experience ω = .81.

Data Analysis

The analyses were performed with the original group sizes, without prior matching. The groups differed in size and gender composition due to the expected characteristics of the study population (Eklund, 2016; Vermeulen et al., 2011). Given that these differences could influence the analyses, age and gender were included as covariates in all statistical models to control for their impact. In the case of the gender variable, it was dummy-coded representing the probability of being female. According to the number of weekly gaming hours, gamers were classified into typical (less than seven hours per week), moderate (between 8 and 21 hours per week), and heavy (more than 21 hours per week; Przybylski, 2014). Furthermore, the genre and characteristics of the video games preferred by each participant were identified, classifying them as hardcore (e.g., shooters, fighting games, action/adventure, survival, or strategy), that is, games with more content, with deeper and more detailed themes and narratives, requiring a greater amount of playing time both to learn and to play them, or casual (e.g., puzzles, word games), which are generally easier to play, with lighter content, and can be played intermittently without needing to invest a large and uninterrupted amount of playing time. This categorization follows the definitions proposed in previous studies (De Grove et al., 2015; Eklund, 2016; Kaye, 2019). Self-perceived gaming performance was recategorized into three levels: low performance ("I'm very bad at playing," "I play quite badly," "I play ok"), standard performance ("I play well"), and high performance ("I play very well," "I play spectacularly"). Regarding gaming experiences, they were analyzed according to the two categories (positive and negative experiences) of the Gamer Experience Scale (De la Iglesia, 2024a).

The statistical analyses used were Pearson's *r*, Student's *t*-test, one-way ANOVAs, and hierarchical multiple regressions. Multicollinearity was assessed using the Variance Inflation Factor (VIF). The obtained values were below 5, indicating a significant absence of collinearity among the predictors (Hair et al., 2010). In addition, partial Pearson's *r* correlations and ANCOVAs were calculated to statistically control for the age and gender variables, which were introduced as covariates (De la Iglesia, 2024a). The statistical software Jamovi version 2.2.5 (Jamovi, 2022) was used.

Results

First, personality traits were compared between gamers and non-gamers. Those who played video games had lower levels of conscientiousness, $t(286) = -4.17$, $p < .001$, $M_G = 3.33$, $M_{NG} = 3.69$, and less neuroticism, $t(296) = -1.97$, $p = .049$, $M_G = 2.99$, $M_{NG} = 3.20$. When the same analysis was performed with an ANCOVA controlling for age and gender, no statistically significant differences were found ($p > .05$), suggesting that the effect was actually explained by those covariates.

Next, differences in traits were analysed according to Przybylski's (2014) classification. A single difference was found in conscientiousness, $F(3,110) = 10.25$, $p < .001$, and according to the Tukey *post hoc* test, the difference was between non-gamers compared to moderate gamers and heavy gamers, who had less of this trait ($M_{NG} = 3.71$ vs. $M_{MG} = 3.25$ and $M_{HG} = 3.03$). When the same calculation was performed with ANCOVAs controlling for age and gender, the results lost their statistical significance, and no differences were found in any of the traits ($p > .05$).

Subsequently, Pearson's *r* correlations were calculated to study associations between the traits and the number of weekly gaming hours. The only trait that showed a statistically significant association was conscientiousness, which was negatively related to the number of weekly gaming hours ($r = -.17$, $p < .05$). However, when statistically controlling for age and gender, the relationship lost its statistical significance ($p > .05$). In addition, a hierarchical regression model was tested, analysing the role of the traits while controlling for age and gender in Block 1 and the five traits in Block 2. No significant

presence of collinearity was observed (VIF > 5). The models for Blocks 1 and 2 were statistically significant ($p < .01$), but the inclusion of personality traits did not significantly increase the explained variance of the dependent variable ($p > .05$). In both Blocks, the only significant predictor variables were age and gender.

When comparing groups based on the preferred type of video game, it was found that those who played casual video games had a higher score in the conscientiousness trait, $t(168) = 2.85$, $p < .01$, $M_H = 3.25$, $M_C = 3.60$. Again, when controlling for age and gender, the results lost statistical significance ($p > .05$).

Regarding self-perceived performance, differences were found in neuroticism $F(2,120) = 3.28$, $p = .041$, and openness to experience $F(2,122) = 3.27$, $p = .041$. Those who reported high performance had less neuroticism compared to those who reported standard performance, and more openness to experience than those who reported low performance. When controlling for age and gender, only the difference in openness to experience was sustained, $F(2,181) = 4.38$, $p = .014$. Those who perceived themselves as having high gaming performance had higher levels of openness to experience compared to those with low performance ($M_H = 3.88$ vs. $M_L = 3.59$). No differences were found in the rest of the traits ($p > .05$).

Furthermore, the groups were compared according to the frequency of interaction with other users in the context of video games, and no differences were found in any of the traits ($p > .05$). However, when controlling for age and gender, a difference was found in extraversion, $F(3,180) = 3.22$, $p = .024$. Those who interacted with many users were more extraverted than those who did not interact with anyone ($M_M = 3.45$ vs. $M_{NO} = 3.17$). No differences were found in the rest of the traits ($p > .05$).

To explore the relationship between personality traits and gaming experiences, correlations were calculated (Table 1). Agreeableness showed a negative association with negative experiences, conscientiousness a negative association with negative experiences, and openness to experience a positive association with positive experiences. In the partial correlations controlling for age and gender, agreeableness showed a positive association with positive experiences, and openness to experience maintained its statistical significance. The association between agreeableness and negative experiences lost its statistical significance, and the association with conscientiousness remained.

Table 1

Associations between personality and gaming experiences

	Experiences	
	Positives	**Negatives**
Extraversion	-.05/*.03*	-.11/*-.04*
Agreeableness	.06/*.18**	-.17*/*-.11*
Conscientiousness	-.12/*-.02*	-.38***/*-.32****
Neuroticism	-.12/*-.09*	.11/*.12*
Openness to experience	.24***/*.31****	.01/*.01*

Note. Italicized: partial correlations controlled for age and gender.

$^{*}p <. 05$, $^{**}p <. 01$, $^{***}p <. 001$

Finally, two models were tested using hierarchical regressions in which the role of the traits was analysed, controlling for age and gender in Block 1 and the five traits in Block 2 (Table 2). In neither case was a significant presence of collinearity observed (VIF > 5). Regarding positive experiences, both models were statistically significant ($p < .001$), and the inclusion of the traits in Block 2 significantly increased the variance explained ($p < .001$). The model explained 33.3 % of the variability in positive experiences. In Block 2, the predictors were age, gender, conscientiousness, and openness to experience. Regarding negative experiences, both models were statistically significant ($p < .001$), and the inclusion of the traits in Block 2 significantly increased the variance explained ($p < .001$). The model explained 25.5 % of the variability in negative experiences. In Block 2, the predictors were age, gender, and conscientiousness.

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Table 2

Hierarchical regressions predicting gaming experiences.

	β	*F*(*df*)	R^2_a	Δ R^2
Positive experiences		31.0(2,183)***	.245	-
Block 1: Control variables				
Gender (dummy, chance of being female)	-.434***			
Age	-.277***			
Block 2		14.2(7,178)***	.333	.105***
Gender (dummy, chance of being female)	-.410***			
Age	-.287***			
Extraversion	-.075*ns*			
Agreeableness	.115*ns*			
Conscientiousness	-.138*			
Neuroticism	-.079*ns*			
Openness to experience	.300***			
Negative experiences				
Block 1: Control variables		16.73(2,183) ***	.145	-
Gender (dummy, chance of being female)	-.272***			
Age	-.298***			
Block 2		8.79(7,178)***	.255	.102***
Gender (dummy, chance of being female)	-.328**			
Age	-.204**			
Extraversion	-.033*ns*			
Agreeableness	-.066*ns*			
Conscientiousness	-.316***			
Neuroticism	.015*ns*			
Openness to experience	.125*ns*			

Note. ns: not statistically significant.

****p* < .001; ***p* < .01; **p* < .05

Discussion

This research aimed to delve deeper into the study of the role of normal personality traits in gaming. Firstly, the goal was to compare the personality of gamers and non-gamers. In the initial analysis, gamers presented lower levels of neuroticism and conscientiousness compared to those who did not play video games. However, when statistically controlling for gender and age, the results lost their statistical significance. The same occurred when comparing the groups according to Przybylski's (2014) classification. In the first analysis, it was found that non-gamers showed less conscientiousness than moderate and heavy gamers, but then, when controlling for age and gender, the statistical significance was lost. These findings align with those studies that report the absence of personality differences between gamers and non-gamers and differ from those in which differences were found (Braun et al., 2016; Teng, 2008). The occasionally reported differences in neuroticism and conscientiousness between gamers and non-gamers appear to be explained by age and gender and not by the act of playing video games itself. Furthermore, considering that local and global statistics report that almost half of the population plays video games (DFC Intelligence, 2020; Gilbert, 2021), it is expected that the variability of personality within the gamer population would be similar to that present in the non-gamer population, as it reflects the diversity present in almost half of the general population. The results lead to the conclusion that gamers do not have a different personality profile from those who do not play video games.

Hypothesis 1 posited that the number of weekly gaming hours would be positively associated with neuroticism, agreeableness, and openness to experience, and negatively with conscientiousness. As could be observed in both the correlations (regular and partial) and the regression model, no significant relationship was found between personality traits and gaming hours, so the hypothesis must be rejected. The only variables that showed statistical significance were the sociodemographic ones (age and gender). This finding contradicts many previous studies (Braun et al., 2016; Jeong & Lee, 2015;

Montag et al., 2021; Teng et al., 2012; Potard et al., 2020; Witt et al., 2011), and this difference is possibly explained by the absence of statistical control for sociodemographic variables in the preceding research.

Regarding the preferred type of video game, Hypothesis 2 posited that those who prefer hardcore games would present higher levels of neuroticism and conscientiousness compared to those who prefer casual games. In this research, no differences were found between those who prefer a hardcore or casual video games, so the findings reported in other research (López-Fernández et al., 2020; Peever et al., 2012; Potard et al., 2020) were not replicated, and this hypothesis is rejected. This may be due to the fact that these differences do not actually exist or that the classification used (hardcore vs. casual) is too broad and does not capture the tendency of more specific subgroups.

Furthermore, it was hypothesized that self-perceived performance within the game would be positively associated with extraversion and negatively with agreeableness (Hypothesis 3). No associations were found between self-perceived performance and extraversion or agreeableness, as suggested by previous research (Park et al., 2011; Winther, 2010), so Hypothesis 3 was rejected. It is possible that this difference is due to the fact that the hypothesis was based on previous studies that referred to performance as a motivation for playing (achievement) and not to the study of objective or subjective measures of performance. However, it was found that those with higher openness to experience had higher self-perceived performance. It is possible that those characterized by higher scores in this trait have greater versatility and flexibility for the challenges presented in video games. Abstract thinking, unconventional ideas, and curiosity could favor performance in this environment.

Regarding Hypothesis 4, which posited that interaction with other players would be positively related to extraversion, agreeableness, and openness to experience, evidence was found just in the case of extraversion. Gamers who reported interacting more frequently with other players had higher levels of this trait. This result aligns with previous research and contributes to the idea that offline personality traits may be replicated in virtual environments (Winther, 2010; Worth & Book, 2014; Yee et al., 2011).

Finally, a hypothesis was proposed regarding negative experiences, given that a theoretical parallel could be drawn with the components of problematic or dysregulated gaming (e.g., De la Iglesia, 2024a; Snodgrass et al., 2017). Hypothesis 5 stated that there would be a positive relationship between negative experiences and neuroticism, and a negative one with extraversion, conscientiousness, and agreeableness. In the associations, it was found that (controlling for age and gender) those with more agreeableness and openness to experience reported more positive experiences, and those with less conscientiousness reported more negative experiences. In the results of the multiple regressions, these results varied slightly. Regarding positive experiences, agreeableness lost its statistical significance, and conscientiousness emerged as a negative predictor. In sum, when considering the variability of all traits together and controlling for age and gender, it was observed that those with more conscientiousness have fewer negative experiences and also fewer positive experiences, and that those with more openness to experience report having more positive experiences. Thus, Hypothesis 5 is partially corroborated for the conscientiousness trait.

In relation to previous research, and equating negative experiences with problematic use (given their conceptual overlap in some aspects), the results obtained here would not replicate the tendency to find negative associations with neuroticism but do align with those regarding the conscientiousness trait (e.g., Akbari et al., 2021; Chew, 2022; Dieris-Hirchea et al., 2020). At this point, the conscientiousness trait appears to prevent experiences related to problematic use in terms of the feeling of loss of control over gaming, obsession with playing, nervousness about not being able to play, and problems in other areas of personal life due to gaming. This finding coincides with one of the conclusions of the meta-analysis conducted by Akbari et al. (2021), which highlighted that this trait was the only one that presented consistent results across studies, and its role seems to lie in being a protective factor against problematic use or, as termed in this research, negative gaming experiences. Likewise, when playing, it is possible that those characterized by low conscientiousness and, therefore, generally have difficulties in establishing order, priorities, and acting in a planned manner, also experience difficulties when playing, given that despite being a recreational activity, there are guidelines and rules that must be respected to achieve objectives. It can also be noted that the absence of perseverance, which is one of the sub-aspects of conscientiousness and is necessary in many video games to succeed in objectives, is also associated with an increase in negative experiences.

Regarding positive experiences, there is no specific precedent with which to compare these results. In the case of the positive association with agreeableness, it is possible that those who exhibit this trait, characterized by cordial treatment towards others, kindness and sincerity, compassion and altruism, replicate these behaviours within the game and thus experience positive interactions with other players, see their sense of belonging to a group increased, feel satisfied for having helped others, or even for having achieved objectives without resorting to cheating. However, in the analysis that considered the variability of all traits together (hierarchical regression), that association lost its statistical significance. The association between agreeableness and gaming might be mediated by complex interactions with other personality traits, which would explain the loss of significance when considering all factors together. Regarding conscientiousness, statistical significance emerged when considering the variability of all traits together. According to previous research, the presence of positive and negative experiences occurs simultaneously and is related to gaming hours (De la Iglesia, 2024a). That is, it is not exclusive for gamers to present positive or negative experiences; on the contrary, they experience both together. Considering this, it makes sense that this trait is related to both positive and negative experiences. It should be noted that the statistical significance is relatively borderline (close to the .05 threshold), and that if a lower significance threshold were considered, this result should be discarded. If taken into account, it could be thought that those with greater conscientiousness may have difficulty enjoying the activities involved in gaming and experience feeling that they are wasting time or engaging in something unproductive. Finally, regarding the positive association with openness to experience, which turned out to be the strongest of all, it could be hypothesized that those with a higher level of this trait, characterized by high curiosity, interest in art, abstract and novel thinking, and a wide range of interests, find a place within the realm of video games where they feel in tune with their interests and their way of being, given that video games turn out to be a space with a large number of artistic components, exploration, adventure, and in many cases, creativity for the user.

Limitations and Future Lines of Research

This research presents some limitations that should be taken into account when considering the reported results. Firstly, the analysed sample is limited and non-probabilistic, which impacts the generalizability of the findings. Regarding the sample, the disparity in gender distribution between the gamer sample (largely composed of men) and the non-gamer sample (overrepresentation of women) could also be considered. However, it is important to note that the predominance of males in gamer samples and females in non-gamer samples is common when the gamers being studied are characterized by playing hardcore video games, as is the case with the majority of gamers in this sample (Eklund, 2016; Vermeulen et al., 2011). To mitigate the possible impact of this disparity, gender was included as a covariate in all statistical analyses performed. Also, the measures of in-game performance and interaction were self-reports and may not accurately reflect actual achievements and interactions. Likewise, the absence of significant results when comparing gamers who preferred hardcore or casual video games could be due to the fact that this classification is too general. This could be addressed with genre classifications or scales that assess this aspect more specifically. Future lines of research could overcome these limitations with more representative randomized sampling and with measurements obtained directly from gameplay that are more precise. Additionally, more complex analyses could be tested, such as the study of personality profiles and explanatory models that posit mediating or moderating variables to explain the phenomenon, such as the models analysed by López-Fernandez et al. (2021). This research focused on normal personality traits, leaving the study of gaming and its relationship with pathological and positive personality traits pending.

Conclusions

It can be concluded that there is no distinctive personality profile that differentiates gamers from those who do not play, and that personality traits do not appear to have a predominant role in the number of hours played. However, they do seem to partially predetermine the way in which gaming is experienced. Furthermore, the need to consider the heterogeneity of the gamer population and the importance of using research designs that allow controlling for key demographic variables is underscored.

Regarding specific traits, the great weight attributed to neuroticism in previous studies, both in terms of the number of hours played and problematic gaming or negative gaming experiences, was not replicated. On the other hand, it was observed that a lower score on the conscientiousness trait is associated with a lower incidence of negative gaming experiences, suggesting that this trait could act as a protective factor against such experiences. This finding opens new lines of research on prevention strategies for problematic gaming. However, it was also found that gamers with low conscientiousness tend to have fewer positive gaming experiences, which would limit the potential benefits associated with gaming. This effect could be mitigated by adjustments in video game design, adapting the experience based on the player's level of conscientiousness. Likewise, openness to experience emerged as a central trait in the prediction of positive gaming experiences. This indicates that people with greater openness tend to benefit more from video games in terms of creativity, exploration, and enjoyment. In this sense, promoting the use of video games in individuals with high openness to experience, but who are not regular players, could have a positive impact.

This study contributes to a more nuanced understanding of the psychology of gamers. The findings obtained can guide the development of more personalized video games, adapted to different personality profiles, to optimize the player experience. Furthermore, these results could be relevant for gamification and its application in educational, work, and therapeutic contexts, allowing for the design of more effective experiences tailored to the personality profiles of users.

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