



# Autonomy, competence, relatedness and online social capital in the massively multiplayer online role-playing game (MMORPG) 'EVE Online'

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Ardavan Hemmatpour  
*Universiti Malaya, Malaysia*

Iffat Ali Aksar  
*Xiamen University, Malaysia*

Muhammad Zaiamri bin Zainal Abidin  
*Universiti Malaya, Malaysia*

\*Amira Firdaus  
*Universiti Malaya*  
[amira\\_firdaus@um.edu.my](mailto:amira_firdaus@um.edu.my)

Nur Haniz Mohd Nor  
*Taylor's University, Malaysia*

Mahmoud Danaee  
*Universiti Malaya, Malaysia*

Wendy Yee Mei Tien  
*Soka International School, Malaysia*

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## ABSTRACT

MMORPGs (Massively Multiplayer Online Role-Playing Games) such as EVE Online have grown in popularity, with over 1.5 billion active players worldwide by 2015. Such games immerse players in vast virtual worlds, encouraging autonomy, competence, social interactions, and a sense of belonging. Although there is an extensive amount of research on MMORPGs, the majority of studies have primarily concentrated on the negative aspects of online gaming. To date, there is limited research on the positive aspects of MMORPGs. Conversely, this study examines the self-determination theory (SDT) elements of autonomy, competence and relatedness, and their relationship to the social capital and intrinsic motivations of MMORPGs. Based on a survey of members of a dedicated private Facebook group for EVE Online players, findings reveal a significant positive relationship between autonomy and social capital. Competence has a positive but weak relationship with social capital, whereas relatedness has a strong positive relationship. According to the findings, while EVE Online fosters a sense of autonomy and belonging, competence in gameplay does not always translate to larger social networks within the game. This study emphasises the importance of understanding player motivations, providing insights for game designers to improve player engagement and foster robust online communities.

Keywords: **MMORPGs, EVE Online, self-determination theory, social capital, social interaction**

## INTRODUCTION

The genre of Massively Multiplayer Online Role-Playing Games (MMORPGs) has garnered significant attention due to the dynamic virtual environments and the variety of social experiences and in-game activities they offer players (Barnett & Coulson, 2010; Hsu et al., 2009). A key feature of MMORPGs driving their popularity is their capacity to accommodate millions of players from across the globe, enabling them to engage through avatars in a shared digital universe. This genre's appeal is also attributed to how it allows players to have different degrees of social interaction and communication, freedom of action and autonomy, and consequently, develop a sense of competence as they master game mechanics and complete missions within the same environment (Domahidi et al., 2014; Kowert et al., 2014; Yee, 2006). By 2015, the MMORPG genre boasted over 1.5 billion active players, yet the research landscape has predominantly focused on the negative aspects of MMORPG, such as gaming addiction and violence, largely neglecting MMORPGs' potentially positive benefits for players' social and psychological well-being (Abbas, 2022; Demirbas Celik et al., 2022; Webster, 2020). Indeed, previous research has highlighted the importance of communication in various aspects of gameplay, including action coordination, social connections, and effective teamwork among players (Bytheway, 2013; Da Silva, 2014; Wu et al., 2018). MMORPGs like World of Warcraft (WoW), for example, are designed to encourage player interaction, which can influence how players learn new information, including languages, through interactive experiences (Rama et al., 2012).

By definition, MMORPGs are Role-Playing Games (RPGs) and by design, require players to take on virtual roles in the game's virtual environment where they compete against other players to stay in the game or to advance to a higher level. To survive in their game, players must develop skills and amass resources. Players also need to interact and form alliances with other players. The online social capital in MMORPGs very much resembles the autonomy, competence, and relatedness that give rise to the sense of self-determination (Deci & Ryan, 2000) in the real world. Drawing upon the self-determination theory (SDT) (Deci & Ryan, 2000), this paper hypothesises that these aforementioned elements of SDT also exist within MMORPGs and correlate with players' online social capital.

### *EVE Online*

EVE Online is a unique MMORPG set in the vast virtual universe of New Eden, in which players can engage in activities such as mining, trading, and combat (Paul, 2010). EVE Online's single shared server allows all players to be in the same virtual world at the same time (Paul, 2010). The game is also known for its emergent gameplay, which allows players to form their own corporations, alliances, and player-versus-player battles (CCP, 2010). The complex and frequently harsh environment of EVE Online has cemented its reputation as a challenging, but highly rewarding game for dedicated players (Paul, 2010). Despite improvements, the didactic tutorial style of the game frequently leads to confusion, reflecting its high complexity (Eklund & Johansson, 2010; Paul, 2011, 2012). EVE Online's design, which is notably difficult and relies heavily on teamwork (Paul, 2011, 2016), distinguishes it from other mainstream MMORPGs such as World of Warcraft (WoW) which are easier for new players to learn and master. EVE Online's difficult initiation and complex interface often drive new players to seek veteran guidance (Paul, 2010; Paul, 2012). Thus, EVE Online's success is dependent on player interaction, which may foster

a close-knit community (Paul, 2010). Aside from mechanics and player interactions, the game's rhetorical power emphasises the significance of rhetorical elements in creating a positive player experience and a vibrant community (Paul, 2010). Indeed, EVE Online is one game that has received praise for its user-generated content and the way its developers recognise and celebrate player achievements (Messner, 2020).

Hilmar Veigar Pétursson (2020), CEO of CCP Games, emphasised the significant and far-reaching impact of losses in EVE Online. EVE Online's in-game currency, ISK, has gained real-world value, adding to the game's high stakes element. In comparison, most other MMORPGs where players can easily "reset" or "restart" following a loss in the game, the consequences of "death" in EVE Online are far-reaching, given that destroyed ships, which represent tangible monetary and time investments, are irreplaceable (Moore, 2014). Player-driven sandbox experiences are a popular type of experience in MMORPGs because they allow players to create their own in-game experiences (Bogost, 2010).

## RESEARCH OBJECTIVES

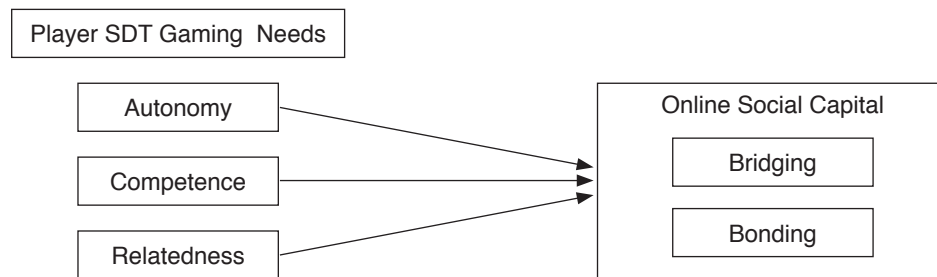
Keeping in mind the positive potentials of MMORPGs, and the unique nature of EVE Online and guided by a conceptual framework integrating the self-determination theory (SDT) and social capital theory, this study investigated EVE Online players' self-determination/gaming needs and its impacts on their online social capital. The objectives of the study are:

1. To examine EVE Online gaming patterns related to player self-determination/gaming needs and online social capital
2. To model the path links between for self-determination/gaming needs (autonomy, competence, relatedness) and social capital
3. To test the hypothesised relationship between autonomy, competence, relatedness, and online social capital

## THEORETICAL FRAMEWORK AND HYPOTHESES DEVELOPMENT

SDT addresses individual fundamental needs, dividing them into autonomy, competence, and relatedness. These needs are crucial for well-being, as evidenced by their association with happiness (Ryan & Deci, 2001). In MMORPGs, autonomy can manifest as player choice, competence as progression through challenges, and relatedness as positive interactions with players or non-player characters (NPCs). Notably, positive in-game social dynamics can boost players' motivation and engagement (Ryan & Deci, 2000) (See Figure 1).

Social capital, as defined by Putnam (1995), encompasses networks, norms, and social trust that facilitate collaboration. It is present in two forms: bonding (strong connections within similar groups) and bridging (connections across diverse groups). In MMORPGs, social capital emerges when players form groups to meet their goals (Huvila et al., 2010). Social capital is a multifaceted concept derived from assets that are entangled in relationships with others and can be used for individual or group gain (Lin, 2008). In EVE Online, the intricate economy, player-driven politics, and collaborative gameplay may contribute to social capital development among players (Jankowich, 2017).



**Figure 1.** MMORPG self-determination gaming needs and social capital

This study posits that autonomy, competence, and relatedness in an MMORPG contributes to the development of players' online social capital. Relatedly, three hypotheses are proposed, as detailed below.

**H1: There is a significant relationship between autonomy gaming needs and online social capital.** Autonomy has been defined as the sense of volition one feels when performing a task (Deci & Ryan, 1980, 2000). Research has found that players who play in an open and flexible game environment have a high level of autonomy (Rogers, 2017). As discussed earlier, EVE Online's sandbox design offers an extensive flexibility to players, and it is hypothesised that this will positively influence high social capital.

**H2: There is a significant relationship between competence gaming needs and online social capital.** Digital games necessitate that players learn the virtual controls, adapt the necessary skills and gain "mastery of controls" or the ability to learn and perform in-game actions without difficulty (Rigby & Przybylski, 2009). Players in online gaming communities frequently maintain and exchange knowledge in both virtual and real-world settings (Rahmawati et al., 2019), underscoring the importance of learning and community in the gaming experience. EVE Online is a notoriously difficult game in every aspect of gameplay, including its own trading system. The game is designed in a way that requires new players to learn from more experienced players (and vice versa). It is thus hypothesised that the need for competence can directly influence social capital.

**H3: There is a significant relationship between relatedness gaming needs and online social capital.** Relatedness is the extent to which people feel connected to others in their social surroundings (Ryan & Deci, 2000). According to Depping et al. (2016), "in-game social capital" and relatedness are positively correlated with game features that encourage player cooperation, reliance, and communication (Depping et al., 2016), where improved social capital is substantially correlated with better player interactions inside the game (Perry et al., 2018). "Gaming social capital" describes the interpersonal relationships that are formed within gaming communities (Molyneux et al., 2015) encouraging pro-community ties (Kahne et al., 2009). Enhanced social capital within the gaming community can even lead to in-person and face-to-face connections (Molyneux et al., 2015). Thus, it can be hypothesised that relatedness in EVE Online is positively related to players' online social capital.

## METHODOLOGY

An online survey was conducted from November 27, 2021 to January 1, 2022 through purposive and convenience sampling of EVE Online players in the game's primary player-

managed Facebook group. The Facebook group, aptly named “EVE Online”, employs a rigorous game-specific vetting process and screens in only genuine and experienced EVE Online players (i.e., purposive sampling). Weekly reminders were posted to the group to encourage players to respond to the survey, regardless of demographic factors like age or location (i.e., convenience sampling). It is noted that this use of non-probability purposive and convenience sampling introduces potential biases, such as the sample’s representativeness and the exclusion of players not on Facebook. The study acknowledges these limitations, as results may not be generalisable to the entire EVE Online community. Additionally, it should be noted that the study was conducted when many countries around the world were still facing lockdowns due to the COVID-19 pandemic and there was a surge in online gaming and esports, as well as streaming sports tournaments to replace physical face-to-face events (Marta et al., 2021).

This sampling approach however, generated a sample size of  $n=221$  responses. This sample size was deemed adequate based on sample size recommendations in PLS-SEM for statistical power of 80% for a model with up to five arrows pointing to a construct, where  $n=221$  meets the minimum sample size of 205 for minimum  $R^2 = 0.10$  at the 1% significance level. Furthermore, Kolmogorov and Shapiro normality test confirmed the sample’s normal distribution (see Table 1), thus allowing for Structural Equation Modelling (SEM) using the Smart PLS software.

**Table 1.** Results of normality test for all research variables

	N	Skewness	Std <sup>a</sup> . Error of Skewness	Kurtosis	Std <sup>a</sup> . Error of Kurtosis
Autonomy	221	-0.772	0.164	1.444	0.326
Competence	221	-0.611	0.164	2.204	0.326
Relatedness	221	-0.379	0.164	0.333	0.327
Social Capital	221	-0.692	0.164	0.804	0.326

The survey questionnaire measured players’ gaming needs/self-determination and players’ online social capital. Two validated instruments were used: (i) Ubisoft Perceived Experience Questionnaire (UPEQ), developed based on the self-determination theory constructs (Azadvar & Canossa, 2018); and (ii) the Internet Social Capital Scale (ISCS) (Williams, 2006).

### *Players’ self-determination/gaming needs*

Players’ online self-determination levels were gauged using 21 items from UPEQ which measured players’ autonomy (level of freedom, and impact of their actions), competence (personal feeling of competence and approach to practice), and relatedness (closeness of the community and other’s influence on the player) (see Table 2).

**Table 2.** UPEQ SDT evaluation tool for video games

Factor	Items
Autonomy	I was free to decide how I wanted to play.
	I could approach and play the game in my own way.
	The game allowed me to play the way I wanted to.
	I had important decisions to make when playing Eve.
	The choices I made while playing Eve Online influenced the events that happened.
	My actions had an impact on the game.

**Table 2.** (con't)

Factor	Items
<b>Competence</b>	My mastery of Eve online improved with practice. With time, I became better at playing Eve Online. My gaming abilities have improved since the beginning. I felt competent at playing. I felt very capable and effective when playing. I am good at playing.
<b>Relatedness</b>	I was paying attention to other players' actions. I really like the people I play with. I cared about what happens to some of the players. What other players did in the game had an impact on my actions. I had to adapt my actions to other players' actions. I was bonding with some of the players. I felt close to some of the players. I consider players I regularly interact with to be my friends. Other players are friendly towards me.

### *Players' online social capital*

Online social capital, the reciprocal resources acquired through engagement in networks (Putnam, 2000; Williams, 2006), was measured using an adapted version of the ISCS. Selected items, rephrased for EVE Online, addressed bonding social capital (e.g., "If I needed a Ship or any in-game asset, I know someone in the game I can turn to.") and bridging social capital (e.g., "Interacting with people in the Corporation makes me feel connected to the bigger picture.") (see Table 3).

**Table 3.** Players' online social capital

Factor	Items
<b>Bonding</b>	If I needed a Ship or any in-game asset, I know someone in the game I can turn to. When I feel lonely, there are several people in the game I can talk to. There is no one in the game that I feel comfortable talking to about personal problems. If I needed an emergency loan of \$500, I know someone in EVE Online I can turn to. I am willing to spend time to support general Corporation activities. Interacting with people in my corporation makes me feel like part of a larger community.
<b>Bridging</b>	Interacting with people in the Corporation makes me feel connected to the bigger picture. Interacting with people in EVE Online makes me want to try and learn new things in the game.

## RESULTS

### *Demographics and gaming patterns*

Respondents comprised predominantly male players, mainly from Europe and North/Central America (see Table 4). Most players reported a weekly playtime of 10–14 hours (21.3%) (see Table 5), which commensurate with the number of weekday non-working awake hours or two weekend daytime active hours. Of the 221 participants, majority felt satisfied with their in-game groups (70.6%) and the larger EVE community (62%) (see Table 6). Players' preference for playing with online friends and the widespread help from in-game strangers indicate a robust and supportive community. Key gameplay aspects players were most satisfied with are social interactions (73.8%), player-driven experiences (59.7%), and action (43%) (see Figure 2), underlining the community's role and player autonomy in the game (see Figure 2).

**Table 4.** Sample characteristics by demographic

Variable	Level	Frequency (N= 221)	Percentage
<b>Gender</b>	Female	11	5.0
	Male	210	95
	Prefer not to say	0	0
<b>Age</b>	18 to 24	12	5.4
	25 to 34	63	28.5
	35 to 44	82	37.1
	45 to 54	45	20.4
	55 to 64	15	6.8
	65 to 74	4	1.8
<b>Race</b>	Asian	15	6.8
	Black or African	2	0.9
	American Hispanic or Latino	5	2.3
	Middle Eastern or North African	3	1.4
	Multiracial or multiethnic	5	2.3
	Native Hawaiian or other Pacific Islander	1	0.5
	White	190	83.6
	Another race or ethnicity	0	0
<b>Location</b>	North America/Central America	76	34.4
	South America	6	2.7
	Europe	107	48.4
	Africa	4	1.8
	Asia	14	6.3
	Australia	11	5
	Pacific Islands	3	1.4

**Table 5.** Players' weekly play hours of EVE Online

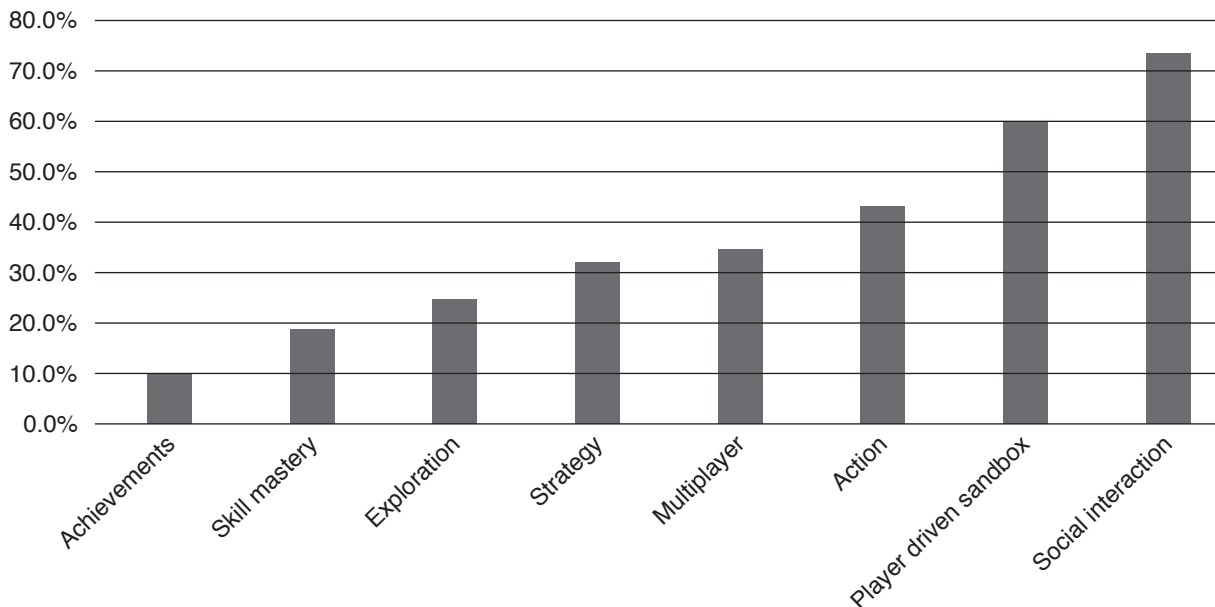
Variable	Level	Frequency (N= 221)	Percentage
<b>Play Hours</b>	Less than 4	32	14.5
	5 to 9	29	13.1
	10 to 14	47	21.3
	15 to 19	33	14.9
	20 to 24	34	15.4
	25 to 29	14	6.3
	30 and above	32	14.5

**Table 6.** EVE Online players' social circle play dynamics

Variable	Level	Frequency (N= 221)	Percentage
<b>Online-only friends</b>	None	31	14
	A little	42	19
	A moderate amount	76	34.4
	A lot	72	32.6
<b>Real-world friends</b>	None	173	78.3
	A little	24	10.9
	A moderate amount	17	7.7
	A lot	7	3.2
<b>Outside the game interaction</b>	None	83	37.6
	A little	59	26.7
	A moderate amount	44	19.9
	A lot	35	15.8

**Table 6.** (con't)

Variable	Level	Frequency (N= 221)	Percentage
Getting help from strangers	None	34	15.4
	A little	55	24.9
	A moderate amount	63	28.5
	A lot	69	31.2



**Figure 2.** Most important gameplay aspects for EVE Online players

### *Convergent validity, discriminant validity and measurement model*

Tests for convergent and discriminant validity were conducted and a bootstrapping model was used to analyse the effect of autonomy, competence and relatedness on social capital. Convergent validity to assess construct validity was calculated using the Average Variance Extracted (AVE) which quantifies how much variance a latent variable captures from its indicators versus measurement error. Scholarly standards set the benchmark reliability at 0.7 and a desired AVE at 0.5, with higher values indicating stronger construct relationships. Constructs with outer loadings below 0.40 were omitted. Refer to Table 8 for initial and adjusted outer loadings. These results suggest that the instrument is reliable.

**Table 7.** Convergent validity

Construct	Item	Initial model	Modified Model	Cronbach's Alpha	Composite Reliability	Average
Autonomy	AUT1	0.679	0.65	0.742	0.828	0.491
	AUT2	0.73	0.709			
	AUT3	0.498	Deleted			
	AUT4	0.701	0.715			
	AUT5	0.701	0.718			
	AUT6	0.682	0.708			

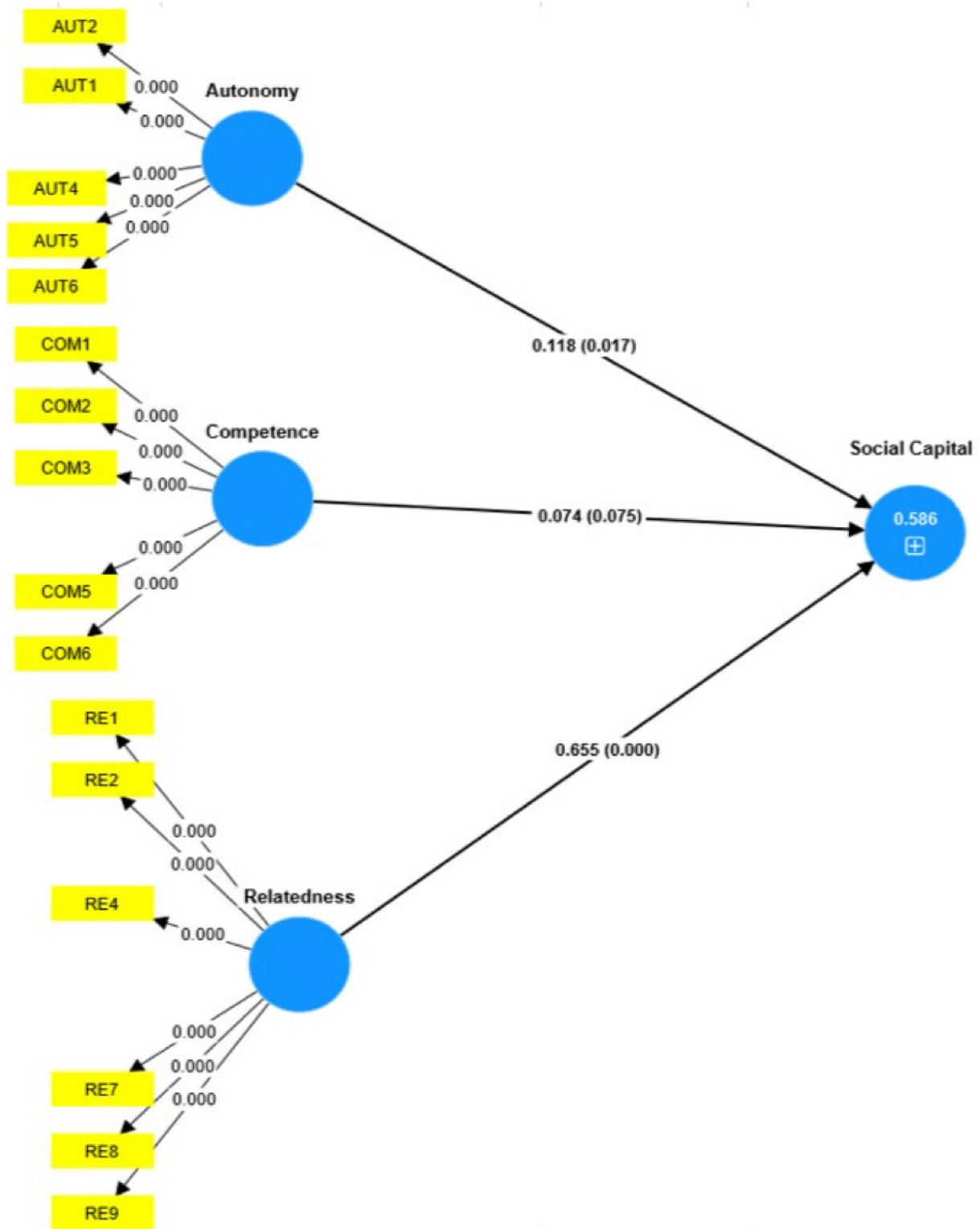
**Table 7.** (con't)

Construct	Item	Initial model	Modified Model	Cronbach's Alpha	Composite Reliability	Average
Relatedness	RE1	0.628	0.626	0.841	0.885	0.574
	RE2	0.823	0.849			
	RE3	0.325	Deleted			
	RE4	0.478	0.423			
	RE5	0.335	Deleted			
	RE6	0.454	Deleted			
	RE7	0.823	0.84			
	RE8	0.86	0.882			
	RE9	0.812	0.818			
Competence	COM1	0.832	0.836	0.83	0.877	0.59
	COM2	0.815	0.821			
	COM3	0.821	0.826			
	COM4	0.445	Deleted			
	COM5	0.68	0.667			
	COM6	0.682	0.673			
Social Capital	BRID4	0.6	0.6	0.633	0.836	0.441
	BON1	0.835	0.734			
	BON2	0.727	-0.628			
	BON3	0.587	0.439			
	BON4	0.821	0.758			
	BRID1	0.879	0.782			
	BRID2	0.877	0.818			
	BRID3	0.635	0.568			
BRID4	0.6	0.474				

Assessing discriminant validity is pivotal for understanding the latent variables' relationships (Henseler et al., 2014). Various criteria, including Fornell-Larcker (1981) and HTMT (Henseler et al., 2014), alongside cross-loading, were employed. The principle is to ensure the square root of AVE surpasses the correlations among latent variables, advocating for the discriminant validity of the model (Chin, 1998; Hair et al., 2011). The results per HTMT criterion are detailed in Table 9. These results suggest that discriminant validity was established, as all values are in acceptable range.

**Table 8.** Correlation of latent constructs and discriminant validity (HTMT method)

	1	2	3	4	5	6
1 <b>Autonomy</b>						
2 <b>Bonding Social Capital</b>	0.52					
3 <b>Bridging Social Capital</b>	0.64	0.704				
4 <b>Competence</b>	0.512	0.529	0.485			
5 <b>Relatedness</b>	0.657	0.75	0.867	0.633		
6 <b>Social Capital</b>	0.637	1.129	1.123	0.556	0.887	



**Figure 3.** Bootstrapping model for effects of autonomy, competence and relatedness on social capital

Figure 3 presents the model examining the effects of SDT needs on social capital using the bootstrapping approach — a method that generates new samples from the original dataset via random resampling. This approach evaluates the dataset's reliability and the statistical significance of the estimated path coefficients along with their error

(Chin, 1998). Results from Table 10 highlight the varying significance of different SDT needs on social capital: competence needs showed a non-significant effect ( $\beta = 0.074$ ,  $p < 0.075$ ), autonomy needs had a significant effect ( $\beta = 0.118$ ,  $p < 0.017$ ), and relatedness needs exhibited the highest significance ( $\beta = 0.655$ ,  $p < 0.0$ ). Additionally, the study revealed that autonomy and relatedness positively influence social capital formation, while competence may not have a significant role.

**Table 9.** Results of the path model using a bootstrapping approach

Paths	$\beta$	Standard deviation (STDEV)	t-Value	p-value
Autonomy $\rightarrow$ Social Capital	0.118	0.056	2.11	0.017
Competence $\rightarrow$ Social Capital	0.074	0.051	1.44	0.075
Relatedness $\rightarrow$ Social Capital	0.655	0.074	8.874	0

The coefficient of determination ( $R^2$ ) in the structural model, as derived from the Smart-PLS algorithm, suggests that the three independent variables can explain 58% of changes in social capital, with an adjusted  $R^2$  value of 0.586 as shown in Table 11.

**Table 10.** Results of the coefficient of determination ( $R^2$ )

	R-square	R-square adjusted
Social Capital	0.586	0.58

### *Testing of hypotheses results*

Statistical analysis was carried out to evaluate the significance of the hypothesised relationship of the variable and significance of the path coefficients and their respective t-values (see Table 12). The relationship between the construct of the model was confirmed by the standardised values of the bootstrap simulation and t-values  $> 1.96$ .

**Table 11.** Results for testing of hypotheses

Hypotheses	beta	p-value	Path	Result
There is a significant relationship between autonomy needs and social capital among online game players.	0.118	$< 0.001$	AUTO $\rightarrow$ SC	Supported
There is a significant relationship between competence needs and social capital among online game players.	0.074	0.075	COM $\rightarrow$ SC	Not Supported
There is a significant relationship between relatedness needs and social capital among online game players.	0.655	$< 0.001$	RE $\rightarrow$ SC	Supported

The strongest of the three relationships is between relatedness and social capital ( $\beta = 0.655$ ,  $p < 0.001$ ), followed by autonomy and social capital with  $\beta = 0.118$ ,  $p < 0.001$ . The lowest on the chart is the relationship between competence needs and social capital, with  $\beta = 0.074$ ,  $p < 0.075$ . The positive beta value of 0.074 indicates that there is a positive relationship between the need for competence and social capital. If the two variables have a positive relationship, as indicated by a positive beta value, social capital is anticipated to rise along with competence needs. It's crucial to keep in mind that the results for social capital and competence needs are not statistically significant because the p-value is higher than 0.05 ( $p = 0.075$ ).

The results of the hypotheses test therefore suggest that high levels of autonomy and relatedness in EVE Online correspond with higher online social capital for EVE Online players. Players' competence, however, have no bearing on their social capital.

## DISCUSSION

The current study on EVE Online, a popular MMORPG, provides a concrete example of how gaming, as a new media culture, affects players' intrinsic motivations and social capital. This study looked into the gaming patterns of EVE Online players, specifically how their needs for autonomy, competence, and relatedness are met through online social interactions. Notably, as a primary medium of interaction, EVE Online provides a unique environment in which these psychological needs are addressed, having a significant impact on players' well-being and social connectivity. These findings reflect transformations in digital media cultures in which even battle-themed gaming and media content may result in positive media effects where interactive platforms such as MMORPGs serve as important spaces for social engagement and community building as well as sources of entertainment. EVE Online exemplifies the changing nature of digital media spaces, emphasising the importance of gaming in meeting complex social and psychological needs in the digital age. In many aspects, online gaming serves as microcosm of digital media cultures shaping contemporary sociocultural dynamics in our contemporary new media landscape (Chess & Consalvo, 2022).

This study sought to examine the gaming patterns of EVE Online players, related to their self-determination/gaming needs and online social capital, and model their path links and test their hypothesised relationships. The results of the study provide interesting insights about the intrinsic needs and social capital that EVE Online players gain through their online social interactions in the game itself as the main form of media and in the larger EVE Online gaming community.

As shown by the results of the study, player interactions are vital not only for players' gaming experience, but also for developing their intrinsic motivations/gaming needs (i.e., autonomy, competence, relatedness). These findings echo the findings of other MMORPG studies which have found that intrinsic needs contribute to the increase of social capital, including self-development and social interaction which reduces player loneliness and increases well-being (Mandryk et al., 2020). The fulfilment of intrinsic needs such as autonomy and relatedness functions enhance EVE Online players' gaming experience as well as facilitate bridging social capital, for example, sharing of resources and offering assistance to master the game. This not only enhances the overall gaming experience, but also solidifies the bonds among players, fostering a sense of community, as noted by previous research which have similarly underscored the importance of interaction and interconnectedness among players of an MMORPG (e.g., Domahidi et al., 2014; Kowert et al., 2014).

This current EVE Online study aligns with research findings noting that "helping others" is very important to players (CCP Iceland, 2019). Our current study also resonates with other research which found that well-being was found to significantly contribute to players' self-development while social interaction reduces player loneliness and increases well-being (Mandryk et al., 2020). The current study however diverges from findings that show the need for autonomy is more characteristic of players who are engaged in solitary play rather than social (Vella et al., 2015).

Additionally, it's important to consider EVE Online within the broader context of new media cultures. As a vibrant example of new media, EVE Online not only

offers entertainment but also serves as a dynamic platform for social interaction and community building, reflecting the evolving nature of digital media spaces. Such spaces offer possibilities for both media cultures and media effects research to explore new online social communities and the implications and effects of virtual social norms and virtual digital content. This underlines the importance of these virtual platforms and media and their implications in the current digital age, where gaming experiences are not just about entertainment, but also about fostering meaningful social connections.

## LIMITATIONS AND FUTURE RECOMMENDATIONS

An important limitation of this study on MMORPG intrinsic/gaming needs and social capital is that it is essentially a case study of EVE Online, a game that known for its sandbox game design and notorious for its steep learning curve. Future research may wish to compare different game genres and designs to gain a better overview of intrinsic motivations and social capital in MMORPGs. Methodologically, this paper is limited in presenting only quantitative findings from a survey of players but is not able to dig deeper to better understand the nuances of intrinsic motivations, social interaction and social capital that shape players' virtual worlds.

## CONCLUSION

MMORPGs like EVE Online in the media landscape of gaming offer valuable insights into the dynamics of intrinsic needs and social capital in the social environment of virtual worlds. These insights contribute to a more comprehensive understanding of the multifaceted influence of new media, particularly in gaming. Game developers should create environments that encourage open communication and collaboration. The findings of this study offer significant new understandings into the effects of different psychological needs on social capital among online game players. In an increasingly digitalised and networked world, online communities and virtual worlds can be as important as the offline, physical worlds. Intrinsic needs like autonomy, competence and relatedness and social capital can be sought and achieved online. Developers can foster a sense of belonging and reduce feelings of isolation by facilitating player interactions and fostering diverse in-game groups. By designing games that encourage meaningful social interactions, developers can facilitate friendship development and maintenance, resulting in a more gratifying and supportive gaming experience for players.

These insights contribute to a more comprehensive understanding of the multifaceted influence of new media, particularly in gaming, on contemporary sociocultural dynamics. This understanding is crucial for game developers and researchers alike, as it underscores the importance of designing interactive environments that not only entertain, but also support the intrinsic psychological needs and social well-being of players. Hence, EVE Online and similar MMORPGs are not just games; they are integral components of the new media ecosystem, playing a significant role in shaping the modern digital culture.

For game designers, this implies the importance of creating mechanics that promote player freedom, socialisation, and inclusiveness. Future research should delve into comparing different MMORPGs and examine the long-term impact of gaming on psychological needs and social capital. This study offers insights for a broad spectrum of stakeholders, including players, game developers, and policymakers, emphasising the potential of online gaming in fostering social well-being. In an increasingly digitalised and

networked world, MMORPGs offer a unique window into understanding the dynamics of intrinsic needs and social capital in digital worlds, underscoring the need for game environments that bolster open communication, collaboration, and social connections.

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### Ardavan Hemmatpour

is a researcher and master's student at the Department of Media Studies, Faculty of Arts and Social Sciences, Universiti Malaya. His research interests are psychological and synergistic relationships that people will have in the future with artificial intelligence (AI), as well as the psychological and synergistic relationships that people have with massively multiplayer online role-playing games. Using his expertise in UX and multimedia, his goal is to create improved user experiences that benefit both the product and the user in terms of usability and psychological well-being by fostering a stronger and smarter connection between people and technology in light of the all-encompassing integration of technology in people's lives. His online UX lectures, which began as an initiative to assist people who were affected by COVID-19 layoffs, are now available to over 5,000 students for free on UDEMY.

### Iffat Ali Aksar (Dr)

is an assistant professor at the School of Communication Studies, Xiamen University, Malaysia. Her research areas include social media, online social capital and psychological well-being. She has almost 12 years of experience including industry and teaching.

### Muhammad Zaiamri Zainal Abidin (Dr)

is a senior lecturer at the Department of Media and Communication Studies, Faculty of Arts and Social Sciences, Universiti Malaya. His expertise is in strategic communication and new media & elderly. He has more than 10 years of research experience in a variety of research projects.

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### **Amira Firdaus (Dr)**

is an associate professor at Universiti Malaya's (UM) Department of Media and Communication Studies, Faculty of Arts and Social Sciences. Amira's core expertise is positive/constructive communication with practical and conceptual applications across three fields: communication, higher education and positive psychology. Within these areas, her interest in positive/constructive communication is implicitly integrated into her work in digital ethnography, e-learning, constructive journalism, positive education, positive organisations and active ageing.

### **Nur Haniz Mohd Nor (Dr)**

is currently the PhD Programme Director at the School of Media and Communication, Taylor's University. Her research interest revolves around journalism, politics and social media. She is the Co-Chair for the 7th International SEARCH Conference 2022. As of 2022, she still is the Managing Editor of the SEARCH journal.

### **Mahmoud Danaee (Dr)**

is a biostatistician and biotechnologist who is an adjunct professor at the Department of Social Preventive Medicine, Faculty of Medicine, Universiti Malaya. As a statistician, during the last 22 years, he has taught courses in statistics, experimental design, advanced statistical methods, and research methodology at undergraduate and postgraduate levels in different disciplines. He has conducted many workshops and courses such as basic and advanced statistical methods using SPSS, Structural Equation Modelling (AMOS & Smart-PLS), Design of Experiments (RSM) in Iran and Malaysia.

### **Wendy Yee Mei Tien (Dr)**

presently serves as the Principal of Soka International School Malaysia, bringing a wealth of experience and expertise to this esteemed institution. Her professional journey has encompassed significant roles, including Director at the Centre for Internship Training and Academic Enrichment (CITrA) within the renowned Universiti Malaya. Dr. Yee's specialisation lies in the domains of youth development, inter-ethnic relations, global citizenship education, and peace education. With nearly two decades of teaching and research experience within higher education institutions, she has consistently excelled in her academic pursuits. In her capacity as an educator, Dr. Yee has crafted a compelling course on "Introduction to Peace and Humanity Studies." Through this innovative curriculum, she has nurtured countless young minds into becoming passionate advocates for peace, fostering their transformation into valuable contributors to society. Her academic contributions are substantial, comprising published works in esteemed journals and books, as well as the presentation of her research findings at both local and international conferences. Dr. Wendy Yee's professional journey is a testament to her dedication and unwavering commitment to the fields of education, peace, youth development and intercultural understanding.

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