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It's Not Just a Game: Virtual Edgework and Subjective Well-Being in E-Sports

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1 **IT'S NOT JUST A GAME: VIRTUAL EDGEWORK AND SUBJECTIVE WELL-**
2 **BEING IN ESPORTS**

3
4 ***ABSTRACT***

5
6 We investigate subjective well-being in the context of eSports (competitive videogames). We
7 adopt the theoretical lenses of virtual edgework theory, a recent adaptation of edgework
8 theory from physical to digital contexts. Sports have long been used as a tool to improve
9 subjective well-being. Our research question is whether eSports lead to well-being, as their
10 physical counterparts do, and through what psychological mechanisms. We answer through a
11 conceptual model of moderated mediation tested on hundreds of eSports players. We also
12 address the role of privacy concerns, as eSports pose several potential threats to players'
13 privacy that could hinder players' achievement of well-being. Findings suggest that virtual
14 edgework provides a useful theoretical perspective for understanding consumers' behavior in
15 digital environments. They also show that eSports can lead to well-being by achieving
16 feelings of self-enhancement under the positive moderation of perceived control over the
17 digital environment and the negative moderation of privacy concerns.

18
19 ***KEYWORDS***

20
21 Well-being; Edgework theory; eSports; Privacy.

INTRODUCTION

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We are witnessing unprecedented development in information and communications technologies (ICTs). The possibility of being constantly connected has dramatically changed the way people live their everyday life, relate to their peers, access information, and even do sports.

In particular, physical activity can contribute to enjoyment and happiness and, more broadly, life satisfaction and well-being. It can increase a sense of purpose and pride, and sports participation can increase self-esteem and confidence. In particular, action or adventure sports are usually investigated from the perspective of edgework theory (Lyng, 1990): it posits that individuals push their physical and psychological limits through action sports to improve themselves and feel better about themselves, ultimately leaving the athletes better off.

However, recent years have witnessed the rise and evolution of different sports, entirely electronic or digital, called eSports. ESports represent “a competitive approach to playing computer games” (Seo, 2016, p. 2) and typically entail organized competitions (Jenny et al., 2017). Following the remarkable rise of the eSports phenomenon (474 million players and \$1.62 billion expected revenues by 2024, Statista, 2021), research has called for the development of models to understand consumers in eSports (Bányai et al., 2019; Funk, Pizzo, & Baker, 2018; Seo, 2016). Despite these calls, marketing research in this context still is in its infancy (Bertschy, Mühlbacher, & Desbordes, 2020) and largely “atheoretical in nature” (Cunningham et al., 2018, p. 4).

As participation in eSports is constantly rising, it appears compelling to develop regulatory frameworks for preserving participants’ physical and mental well-being (Kelly, Derrington, & Star, 2022). In this vein, previous studies have suggested that engagement in

47 technology-based environments could positively affect individuals' well-being (e.g.,
48 Halbrook et al., 2019). However, extant research has often addressed the pathological side of
49 electronic gaming (Granic, Lobel, & Engels, 2014), related to alienation, addiction (Farman,
50 2010), and violence (Griffiths, 1999).

51 Thus, it is largely unknown whether eSports positively reflect on well-being. In
52 particular, whether they leave the gamers better off, allowing them to mature the feeling of
53 having reached a better version of themselves, as physical action sports have been recently
54 found to do (Raggiotto & Scarpi, 2021). Our research questions are 1-whether eSports lead
55 players to subjective well-being, as offline sports usually do, 2-through what psychological
56 mechanism, and 3-which theoretical perspective helps understand eSports players.

57 In this vein, action sports are usually investigated from the perspective of edgework
58 theory (Lyng, 1990). Building on the suggested similarities between offline action sports and
59 eSports (Jenny et al., 2017), we contribute by providing virtual edgework theory (Shay, 2017)
60 as the theoretical framework for addressing eSports players' well-being. Specifically, we
61 posit that eSports players' well-being can be envisioned through the lenses of literature
62 investigating the drivers of individuals' engagement in action sports. These streams of
63 research illuminate that (offline) action sports and eSports share a sense of searching for
64 emotions, sensations, challenges, and competitive situations. This consideration underscores
65 that eSports' increasing complexity and realism (Qian et al., 2022), made possible by
66 technological advancement, can foster real-world psychosocial benefits and allow virtual
67 worlds to meet self-enhancement needs and -ultimately- subjective well-being.

68 We also posit that, in esports settings, privacy issues further complicate the picture:
69 privacy pervasiveness is reminded by recurring incidents such as hacker attacks and data
70 leakages on popular eSports (e.g., Fortnite; FIFA Global Series). Thus, privacy concerns are

71 likely to increase gamers' well-being, affecting participants' fun and serenity when using
72 technology (Pizzi & Scarpi, 2020).

73 The present research makes four contributions: First, few studies have investigated
74 eSports from a marketing perspective, and even less have addressed players' well-being (see
75 literature review Table 1). To fill the gap, this research focuses specifically on well-being. In
76 particular, it does so from the novel theoretical lenses of virtual edgework theory (Shay,
77 2017). Second, the present research explores the role of privacy concerns on well-being in
78 eSports. This focus answers recent calls for research on how privacy perceptions drive
79 consumer behavior in digital environments (e.g., Bandara, Fernando, & Akter, 2020; Scarpi,
80 Pizzi, & Matta, 2022) and provides evidence of how players' privacy concerns shape the
81 playing experience.

82 Third, when addressing the "healthy" side of gaming, literature has done so from the
83 perspective of sponsors, game developers, spectators, or professional gamers (Pizzo et al.,
84 2018; Sjöblom et al., 2017; Ströbel & Germelmann, 2020). However, non-professional
85 players constitute the bulk of this industry. For instance, it is estimated that the Chinese
86 esports player base exceeds 680 million people (ESTNN, 2019); of them, only 2,000 are pro-
87 gamers (Cyber Athletics, 2019). Finally, few studies have investigated eSports empirically.
88 So, we contribute also methodologically, advancing and empirically testing a conceptual
89 model of multiple moderated mediation to test virtual edgework theory and eSports'
90 relationship to well-being.

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THEORETICAL BACKGROUND AND HYPOTHESES

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Esports

Esports began emerging yet in the late 1990s (e.g., Wagner, 2006). However, they gained rapid momentum only recently (Yu et al., 2022), driven by the emergence of new consumption habits and technological evolution (Cranmer et al., 2021).

Following the surge in popularity, scholars have developed a rich, multidisciplinary debate on eSports, spanning from the conceptual roots (see Cranmer et al., 2021 for a review) to the sociological implications of esports, the antecedents of players' gaming performance, and the dynamics of competing teams. However, marketing research on eSports is still in its infancy (Reitman et al., 2020).

Table 1 provides a literature review showing that marketing literature on eSports appears intrinsically limited to a focus on spectatorship (e.g., Lopez et al., 2021; Cuesta et al., 2022) or comparison with traditional sports (e.g., Pizzo et al., 2022). Mostly underexplored is the active participation in eSports and its outcomes in terms of expenditures, loyalty, and psychological benefit. Notably, several marketing scholars studied video gaming settings.

However, prior research has shown that video games are not the same as eSport. Esports, also named electronic/virtual/cyber-sports, or competitive gaming (Jenny et al., 2017), are “an organized and competitive approach to playing computer games” (Witkowski, 2012, p.350). More synthetically, they are “organized video game competitions” (Cranmer et al., 2021, p.1) that involve competitive, technology-based immersive activities. ESports are digital competitions (Funk et al., 2018), characterized by an intense sense of challenge, which brings them akin to action sports in the physical world (Jenny et al., 2017). Accordingly, eSports are commonly considered “a specific subset of online gaming with a focus on the competition between human players [...] in a video/ computer game with predefined rules”

121 (McKinsey, 2020). In this vein, Funk et al. (2018) reported that to be considered esports,
122 videogames must be structured by rules, adhere to them (i.e., be organized), and be
123 competitive.

124 Thus, “while all esports are video games, not all video gaming should be classified as
125 sport” (Funk et al., 2018, p. 9). Similarly, Jenny et al. (2017) noted that “eSports include
126 playing and competition, are organized by rules, require skill” (p. 15). As such, “Esports is
127 the future of all sports” (Miah, 2022) and constitutes a “new area in the gaming culture”
128 (Banyai et al., 2019, p. 352).

129

130 **Table 1.** Literature review table on eSports

Author(s)	Year	Journal	Object / Context	Variables	Main findings
Cranmer et al.	2021	CHB	Conceptual paper	N/A	Scholars should focus on eSports as: 1- representations of physical sports, 2- multi-player experience, 3- modifying sports through digital augmentations, 4-new technology advances
Cunningham et al.	2018	SMR	Conceptual paper	N/A	Conceptual positioning of esports within sport management research
Cuesta-Valiño et al.	2022	JBR	Sponsorship in esports	Sponsor features, sponsor image, consumer reactions to sponsorship	Attitude, sincerity and ubiquity affect sponsorship image in esports; consumer reactions to sponsorship can be improved by leveraging consumer active participation in esports
Funk et al.	2018	SMR	Conceptual paper	N/A	Positioning of esports within sport management
Hallmann & Giel	2018	SMR	Conceptual paper	N/A	Conceptualization of esports within traditional sports
Hamari & Sjöblom	2017	IR	Esports spectatorship	Individual motivations of sport consumption	Spectating frequency is predicted by escapism, novelty, need for developing knowledge about esports and aggressiveness of esports athletes

Hong et al.	2022a	CHB	Players of collaborative esports	Family intimacy, anxiety, flow, perceived value of playing	Family intimacy predicts esports flow experience, that, in turn, predicts perceived value. No significant effect of anxiety
Hong	2022	ESMQ	Need for a support system	Stakeholders' perspectives, well-being and health	Stakeholder should ensure eSports players' health and wellbeing, understating criticisms of eSports; players should balance training for eSports with education
Jang & Byon	2020	CHB	Esports players	Hedonic motivation, flow, habit, price value, effort expectancy, social influence, esports genre	Antecedents of players gaming intentions vary according to different genres
Lopez et al.	2021	JBR	Esports sponsorship management	N/A	Physical and digital domains can be merged in sponsorship strategies for esports leagues
Macey & Hamari	2018	CHB	Gambling	Video gaming habits, esports viewing habits,	Videogaming habits do not related to online/offline gaming habits; esports viewing habits are only

				gambling habits, problematic gambling	moderately related to online gambling and problematic gambling
Macey et al.	2022	BIT	Esports spectatorship	Esports gaming motives, watching intention, gaming intention, purchase intention	Esports watching intention predicts gaming intention for videogames, but not purchasing intentions for them; gaming intention predicts purchasing intention for videogames
Pizzo et al.	2022	JBR	Esports companies	N/A	Company-embedded, tacit sports industry knowledge is key for traditional sports companies entering the esports domain
Qian et al.	2022	JBR	Esports viewers	Gamification, perceived value, viewer engagement	Immersion gamification and functional value of esports events affect more engagement of female spectators than male ones; socialization gamification and social value affect more engagement of male spectators than female ones.
Seo	2013	JMM	Conceptual paper	N/A	Conceptual discussion about the stakeholder structure in the esports industry

Seo	2016	JBR	Professional esports players	N/A	Definition and identification of several characteristics of eSports
Sjöblom et al.	2020	IR	Esports spectators (online/offline)	Consumption motivations, WOM, intention to attend	Online and offline spectators of eSports vary in motivations and antecedents of recommendation and future attendance
Weiss & Schiele	2013	EM	Esports players	Players needs	Esports usage is driven both by competitive and hedonic need gratifications
Yu et al.	2022	CHB	Female esports spectators	Esports spectating motives and point of attachment	Female spectators are motivated more by social opportunities, interest in players, and players physical attractiveness, whereas male spectators by enjoyment of aggression and entertainment value.

131 Note. BIT=Behavior and Information Technology; CHB=Computers in Human Behavior; EM=Electronic Markets; ESMQ = European Sport
132 Management Quarterly; IR=Internet Research; JBR= Journal of Business Research; JMM=Journal of Marketing Management; SMR=Sport
133 Management Review

134

135 *Edgework and Virtual Edgework*

136 Research studying the impact of esports participation leveraged previous studies on physical sports
137 and -more specifically- action sports. Consumer behavior and well-being in those sports are usually
138 addressed from the perspective of edgework theory (Lyng, 2014). Edgework theory explains
139 people's voluntary engagement in sensational activities in terms of a need to explore one's physical
140 and psychological limits, push those limits (Brymer & Houge-Mackenzie, 2016), and ultimately
141 feel better about themselves (Lyng & Matthews, 2007; Raggiotto & Scarpi, 2021). In particular, the
142 main construct in edgework theory, and the driver of all behaviors by edgework individuals, is
143 sensation-seeking (Brymer & Houge Mackenzie, 2016; Cohen et al., 2018; Lyng, 1990).

144 With recent technological advancements in virtual reality and digital technologies, virtual
145 gaming worlds can provide the same sensation intensity as action sports in the physical world
146 (Chen, Wilhelm, & Joeckel, 2019; Zhai et al., 2020). Furthermore, eSports players seek to test the
147 limits of their abilities in the game world just as action sports players do in the physical world (Hart,
148 2017; Shay, 2017). ESports might be even more desirable for sensation-seekers because they offer
149 increasingly intense and immersive challenges (Ortiz de Gortari & Griffiths, 2017), sometimes even
150 more than the physical world (Chicchi-Giglioli et al., 2021). On this point, Jansz & Tanis (2007)
151 found that eSports players scored highest on motives related to sensation-seeking and challenge.

152 Thus, the literature has established a link between edgework theory and competitive
153 videogames (Macey & Hamari, 2018; Seo, 2016): the theory has been translated into digital
154 contexts, where it takes the name of "virtual edgework" (Shay, 2017).

155

156 According to edgework and virtual edgework theories, sensations are not sought per se:
157 sensation-seeking is linked to self-enhancement (Lyng, 2014). Self-enhancement can be defined as
158 'coming closer to an ideal self' (Raggiotto & Scarpi, 2021, p.231). It is a coming closer of the
159 perceived self to the actual self, obtained by 'reaching personal limits (...) and pushing them

160 forward' (ibid.). It reflects a psychologically rewarding process of negotiating and extending one's
161 limits. Typically, it is achieved through successfully confronting increasing challenges. It often
162 makes individuals perceive themselves as legitimate members of a small elite. Coherently, it was
163 related to concepts such as ideal self, self-fulfillment, independence, and self-realization (for a
164 review, see Raggiotto & Scarpi, 2020, 2021; Raggiotto, Scarpi, & Mason, 2019). Specifically,
165 edgework individuals channel sensation-seeking to reduce the gap between the self that one
166 currently is and a better self they would ideally like to be (Sedikides & Gregg, 2008).

167 Lyng (2014) theorized that this process leads edgework individuals to perform incremental
168 efforts that help them reach and extend their limits. Raggiotto & Scarpi (2021) have recently
169 documented this phenomenon for action sports athletes. Recent research has suggested it might
170 apply also to eSports (e.g., Shay, 2017; Keller et al., 2021). In this vein, recent studies have found
171 that self-enhancement is a key driver of participation in competitive videogames (Sepehr & Head,
172 2018), and eSports players might seek sensations to emphasize "their pursuit of self-improvement"
173 (Seo, 2016, p. 5). Accordingly, we posit that:

174 **H1:** eSports players' sensation-seeking has a positive impact on self-enhancement.

175

176 *Edgework, Virtual edgework, and Well-being*

177 The literature usually identifies subjective and psychological well-being, though it is debated
178 whether they represent two different constructs or just two different perspectives of the same
179 construct (Chen et al., 2013). Regardless of the stance taken, scholars agree that subjective and
180 psychological well-being are interrelated (Gallagher et al., 2009). Furthermore, there is agreement
181 that both relate to personal growth, life satisfaction, and life meaningfulness (McGregor & Little
182 1998). However, the majority of recent studies tend to agree that subjective and psychological well-
183 being are separate constructs (Anglim et al., 2020). In particular, the former focuses on more
184 hedonic aspects (Scarpi, 2021), such as pursuing happiness and satisfying life, and involves a global
185 evaluation of well-being (Chen et al., 2013). Instead, psychological well-being focuses on the

186 fulfillment of potential, self-acceptance, and thriving in the face of challenges (Ryff, 1989; Anglim
187 et al., 2020). It seems, therefore, less related to the topic of the present research, that -accordingly-
188 focuses on subjective well-being.

189 Extensive evidence suggests that self-enhancement can produce beneficial effects (e.g.,
190 Marshall & Brown, 2008; Taylor & Brown, 1988). Self-enhancement can help individuals cope
191 with adversities (e.g., Yan & Bonanno, 2015) and promotes a positive mindset which denotes
192 individuals with “action orientation, a sense of mastery, and stress resistance” (Dufner et al., 2019,
193 p. 50). Accordingly, individuals feeling self-enhancement are likely to experience better mental
194 health and higher well-being. Furthermore, key components of self-enhancement are a sense of
195 achievement and empowerment (Schwartz, 1992). Both enhance individual well-being by boosting
196 how close individuals perceive they can connect with and enact the true self (Kaplan & Maehr,
197 1999; Kifer et al., 2013).

198 So far, edgework theory has been mostly, if not solely, applied to physical contexts and rarely
199 addressed well-being specifically. Whether virtual edgework translates into higher well-being is still
200 unknown. Electronic and virtual environments offer a prime avenue for the first investigation in this
201 regard since they provide actual experiences comparable to their physical counterparts (Felnhofer et
202 al., 2015; Pizzi et al., 2019). In this vein, prior research seems to support the link between
203 individual engagement in virtual gaming environments and well-being (e.g., Halbrook et al., 2019);
204 specifically, evidence from neuroscience would support the link between virtual edgework and
205 players’ well-being: intense experiences and emotions, such as in competitive videogames (Kätsyri
206 et al., 2013), activate the neuropsychological reward mechanisms that release dopamine in
207 individuals (A. D. Abraham, Neve, & Lattal, 2013). Based on these considerations, we advance:

208 **H2:** Self-enhancement has a positive impact on eSports players’ well-being.

209

210 *The Role of Perceived Control and Privacy Perception*

211 Perceived control refers to the perception of how able and skillful one is when doing an activity
212 (Marikyan et al., 2022). Works on videogames have adapted this concept to capture users'
213 perception of how skillful a player is at a game (Park et al., 2014). Perceived control is relevant in
214 technology-mediated environments (e.g., Abraham et al., 2019; Marikyan et al., 2022), and in
215 edgework theory (Lyng, 2014) because, by pushing their limits, edgework individuals intrinsically
216 test their ability to stay in control of the challenges (Brymer & Houge-Mackenzie, 2016).
217 Consistently, scholars of edgework have highlighted that sensation-seeking individuals engage in a
218 great deal of physical, mental, and technical training as a way to build skills and control (Lyng,
219 2014; Raggiotto et al., 2019). Control provides individuals with the mindset to succeed at difficult
220 activities (Lyng, 2014), boosting feelings of self-enhancement when ordeals are overcome (Lyng &
221 Matthews, 2007).

222 Scholars have recently suggested that perceived control might also play a crucial role in
223 eSports players' experience (Shay, 2017). For instance, by influencing situational dynamics (e.g.,
224 unlocking new parts of the game world, changing the attitude of AI-controlled characters) according
225 to the player's specific skills. Notably, a key feature of esports gaming platforms is that they offer
226 players many opportunities to exert control over the virtual gaming environment (like, for instance,
227 constantly adding new customization possibilities for players' gaming avatars, e.g., Böffel et al.,
228 2022). In this vein, scholars have found that perceptions of control are a determinant of enjoying
229 (Klimmt, Hartmann, & Frey, 2007) and playing eSports (Klimmt & Hartmann, 2006), just as they
230 are for players of physical sports (Brymer & Schweitzer, 2017). Accordingly, we posit that, just as
231 perceived control seems to enhance self-enhancement in players of offline games, it should do for
232 eSports players. Thus:

233 **H3:** eSports players' perceived control positively moderates the relationship between
234 sensation-seeking and self-enhancement, with higher levels of perceived control leading to higher
235 self-enhancement.

236

237 Finally, almost any kind of digital interaction implies that consumers provide personal
238 information, potentially raising privacy concerns (Pizzi & Scarpi, 2020; Rodríguez-Priego, Porcu,
239 & Kitchen, 2022). Privacy is a key issue wherever digital technologies are involved (Scarpi, Pizzi,
240 Matta, 2022), and eSports are no exception. Data are central for the entire industry, being the
241 primary component to sustain the creation of experiences for passive and active participants (Pizzo
242 et al., 2022). For instance, gaming platforms, backed by automated technologies (e.g., artificial
243 intelligence), can collect real-time data about gamers' and teams' performance. These data are
244 essential to feed statistics and metrics about matches and build up narratives for esports viewers.
245 Further, esports platforms need to manage many other data, like data on payments and transactions
246 of players and viewers (e.g., to purchase subscriptions, add-ins, and customizations). Access to
247 these data poses unique challenges and threats to privacy and cybersecurity (e.g., data usage,
248 storage, and sharing with third parties, like partnering sponsors; Esports Insider, 2021; Lopez et al.,
249 2021). Sometimes these data are acquired with the awareness of the customer, and other times -
250 more worryingly- without it (Scarpi et al., 2022).

251 Recent literature on privacy issues in digital technologies has shown that privacy concerns can
252 reduce consumers' enjoyment, fun, hedonism, and playfulness (see Maseeh et al. 2021 for a
253 meta-analysis and Aboulnasr, Tran, & Park, 2022 for a review). Based on these considerations, we
254 advance for similarity that privacy concerns will have a depressing effect also on players' perceived
255 well-being. Thus:

256 **H4:** eSports players' privacy concerns negatively moderate the relationship between self-
257 enhancement and well-being, with higher privacy concerns leading to lower well-being.

258

259 *Theoretical Model*

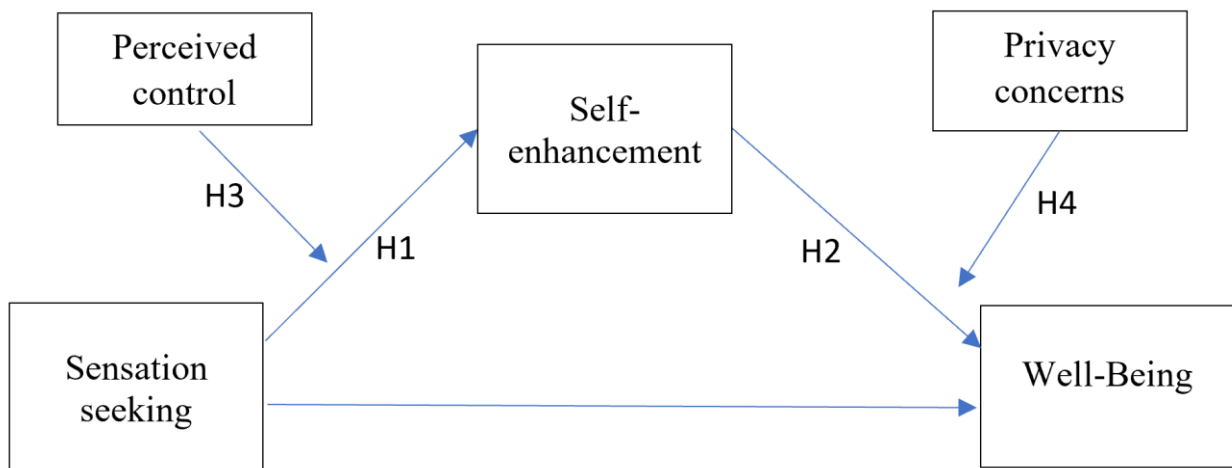
260 The research hypotheses translate the psychological literature on sensation-seeking, perceived
261 control, self-enhancement, and privacy concerns to the domain of eSports to better understand
262 players' well-being. Essentially, we hypothesize that sensation-seeking leads eSports players to

263 develop stronger feelings of self-enhancement, particularly when they perceive that they can control
264 situational risks and challenges. Finally, self-enhancement leads to higher well-being when players
265 perceive that their personal data will be managed safely and respectfully.

266 In summary, we developed the multiple moderated mediation model presented in Figure 1,
267 where (1) self-enhancement mediates the relationship between sensation-seeking and well-being;
268 (2) perceived control moderates the relationship between sensation-seeking and self-enhancement,
269 and (3) privacy concerns moderate the relationship between self-enhancement and well-being.

270

271 **Figure 1.** Theoretical framework



272

273

274

METHOD

275

Participants and Measures

277 The present research addresses non-professional eSports players. In recent times, digital sports have
278 become professionalized, and for some individuals, playing is a career (Griffiths, 2017). However,
279 only a minority of players are professionals. Non-professional gamers constitute the bulk of esports
280 users (Abbas et al., 2019; Rea, 2019). While spectators participate passively, non-professional
281 players actively participate in eSports competitions. However, non-professional players differ from

282 professional players (Ma, Wu, & Wu, 2013) because they do not make a living from eSports
283 activities and sponsorships.

284 Professional e-Sports players can earn lots of money, and they “play for competition, rather
285 than for fun and/or relaxation and define gaming as their job” (Banyai et al., 2019, p.352). Instead,
286 non-professional gamers play for recreation or relaxation, not for a living: in contrast to pro-gamers,
287 eSports players are not paid stars who make a living from eSports activities and sponsorships. Thus,
288 professional esports players are driven by profit rather than the desire for well-being and self-
289 enhancement.

290 We recruited 280 European eSports players from a panel held by a market research company
291 that ensured they reflected the representativeness of the target population. Respondents received an
292 invitation to complete an online questionnaire that asked them to think about their latest eSports
293 experience. The questionnaire asked respondents about their sensation-seeking (Shoham, Rose, &
294 Khale, 2000), their feelings of self-enhancement related to the eSports experience (Shoham et al.,
295 2000), and how much they perceived themselves as in control of the game while playing (Cavazza,
296 Lugin, & Buehner, 2007; Lyons et al., 2014). Then, respondents were asked about their privacy
297 concerns (Pizzi & Scarpi, 2020) and their subjective well-being (Diener et al., 2009). All survey
298 items were measured using 7-point Likert scales. Finally, respondents were asked about their age,
299 gender, and length of time playing eSports. The items are reported in table A.1 in the Appendix.

300 Cronbach’s alphas for the scales ranged between .82 and .95 (see Table A.1). A factor
301 analysis using maximum likelihood and varimax rotation with AMOS 18 showed that items load on
302 to six factors, explaining over 70% of the variance (Hair & Lukas, 2014), with $\chi^2/df = 1.68$,
303 RMSEA = .05, and CFI = .90, ensuring measurement adequacy (Byrne, 2013).

304

305 *Procedure*

306 Using the PROCESS macro for SPSS (Hayes, 2018; Model 21), we ran a multiple moderated
307 mediation analysis to test the theoretical model illustrated in Fig. 1. Based on the CFA results, we

308 used the mean composite scores on the items for each construct in the moderated mediation model
309 (Hayes, 2018).

310 Perceived control was entered as a moderator of the relationship between sensation-seeking
311 and self-enhancement. Self-enhancement was entered as a mediator of the relationship between
312 sensation-seeking and well-being. Privacy concerns were entered as a moderator of the relationship
313 between self-enhancement and well-being. Well-being was the dependent variable (Fig. 1).

314 The analysis assessed (1) the effects of sensation-seeking on well-being (both directly and
315 indirectly, through self-enhancement), (2) the effect of sensation-seeking on self-enhancement (as
316 moderated by perceived control), (3) the effect of self-enhancement on well-being (as moderated by
317 privacy concerns).

318 The statistical significance of the direct and indirect effects was evaluated through 10,000
319 bootstrap samples to create bias-corrected confidence intervals (CIs; 95%) with heteroscedasticity-
320 consistent SEs (Hayes, 2018).

321

322

RESULTS

323

Moderated Mediation Analysis

324
325 The index of moderated mediation was significant (Effect = $-.04$, 95% CI [$-.12$, $-.01$]) as the 95%
326 CI interval did not include zero (Hayes, 2018). The data show that sensation-seeking led to higher
327 feelings of self-enhancement (Effect = $.73$, $p = .01$), providing support for Hypothesis 1.

328 Furthermore, as advanced in Hypothesis 3, perceived control significantly moderated the effect of
329 sensation-seeking on self-enhancement (Effect = $.11$, $p = .04$). This finding suggests that when
330 eSports players develop skills in gaming and perceive that they are in control of the game world,
331 they feel better about themselves. Indeed, there were clear differences in self-enhancement between
332 individuals with higher and lower levels of control (effects at the values of the moderator: Low =
333 $.17$, 95% CI [$.05$, $.28$]; High = $.28$, 95% CI [$.13$, $.42$]).

334 Self-enhancement positively affected well-being (Effect = .27, $p = .01$), as advanced in
 335 Hypothesis 2. Furthermore, as advanced in Hypothesis 4, privacy concerns significantly moderated
 336 the effect of self-enhancement on well-being (Effect = .33, $p = .01$). This finding suggests that
 337 when eSports players feel better about themselves while playing and, at the same time, perceive that
 338 their privacy is protected, there are more likely to achieve subjective well-being. Indeed, there were
 339 clear differences in well-being between individuals with higher and lower levels of privacy
 340 perceptions, the impact nearly doubling for low versus high privacy perceptions (effects at the
 341 values of the moderator: Low = .27, 95% CI [.11, .44]; High = .61, 95% CI [.42, .79]).

342 Additionally, well-being was not directly impacted by sensation-seeking (Effect = .10, $p =$
 343 .10), suggesting that self-enhancement fully mediates the relationship between sensation seeking
 344 and well-being. Consistently with the above patterns, we found that players who reached feelings of
 345 self-enhancement under conditions of high perceived control and privacy expressed the highest
 346 well-being. The results of the model estimation are summarized in Table 2 and shown in Figure 2.

347

348 **Table 2.** Full model: moderated mediation analysis

Hypothesis	Coeff.	se	<i>t</i>	<i>p</i>	LLCI	ULCI
H1 Sensation-seeking on self-enhancement	0.73	0.26	2.76	0.01	0.21	1.24
H2 Self-enhancement on wellbeing	0.27	0.08	3.21	0.01	0.10	0.44
H3 Moderation of perceived control	0.11	0.05	2.10	0.04	0.01	0.22
H4 Moderation of privacy concerns	0.33	0.12	2.68	0.01	0.09	0.58
Direct effect: Sensation-seeking on wellbeing	0.10	0.06	1.62	0.11	-0.02	0.23

349 Note. LLCI = lower limit 95% confidence interval; ULCI = upper limit 95% confidence interval

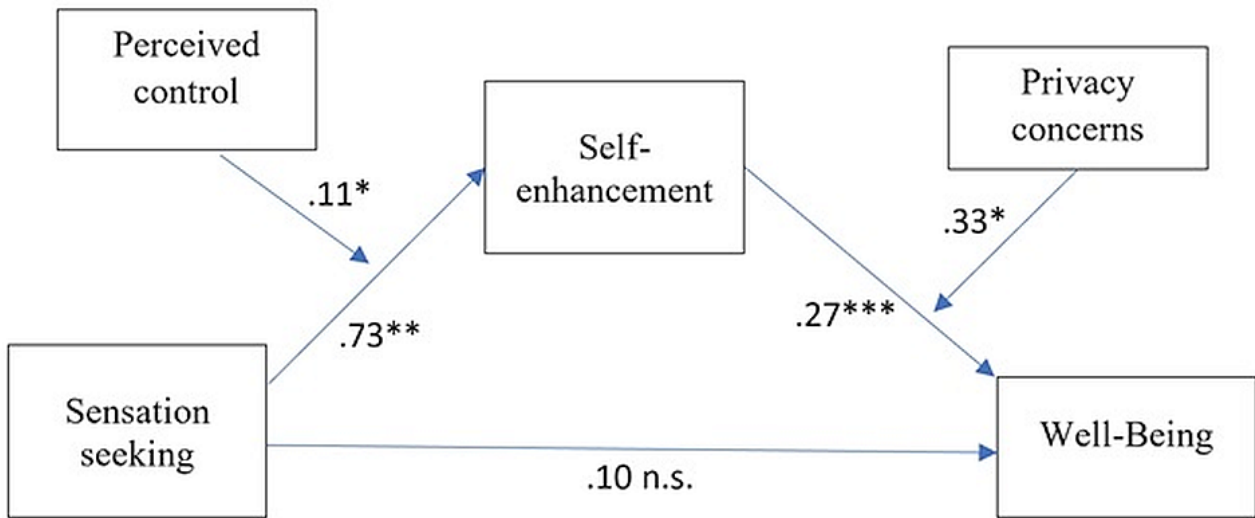
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354 **Fig. 2. The model with estimates**



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356

357 *Summary of the Results*

358 We found support for Hypotheses 1 to 4 and showed that eSports players' need for sensations and
359 self-enhancement, coupled with their perceptions of control and privacy, help drive players'
360 subjective well-being. Nonetheless, sensation-seeking had no direct impact on well-being. Rather, it
361 was affected by self-enhancement: Higher self-enhancement—which stems from quenching the
362 thirst for sensation through playing—is enhanced by higher perceived control over the task
363 undertaken. In turn, feelings of self-enhancement led to well-being under the condition that players'
364 privacy concerns were addressed.

365

366

DISCUSSION

367

368 This research has targeted eSports, addressing the impact of interacting with this type of technology
369 on players' subjective well-being. Our contribution combined the perspective of marketing,
370 psychology, privacy, sports, and the literature on well-being, addressing an underrepresented
371 population group such as eSports players. We based our contribution and hypotheses on the

372 theoretical foundations of virtual edgework theory to insights for scholars and practitioners and focus
373 on the consequences of consumer–technology interactions in terms of consumer well-being.

374 The extant marketing literature features few insights into eSports, especially about active
375 players rather than spectators, let alone about subjective well-being. This research provides the first
376 investigation of eSports players’ subjective well-being to the best of the authors’ knowledge. By
377 adopting the theoretical lenses of virtual edgework theory and leveraging a panel of hundreds of
378 eSports players, this research developed and tested a unique theoretical conceptualization that
379 uncovered some of eSports players’ psychological drivers. Furthermore, this research is the first to
380 address eSports players’ privacy concerns in influencing their well-being.

381 Findings of the present study validate previous research suggesting that esports consumption
382 and sports consumption present similarities (e.g., Funk et al., 2018; Pizzo et al., 2018), which are
383 rooted in the conceptual similarities between traditional sports and esports (e.g., the competitive
384 element and the organizational structure, Hallmann & Giel, 2018). Furthermore, the contributions of
385 the present paper partially align with the results of extant research by suggesting that, under certain
386 conditions, engagement in virtual environments can exert beneficial effects on individual well-
387 being. The study goes one step further by a) extending such insights to a specific gaming domain
388 (eSports) and b) providing insights into the psychological mechanisms through which eSports
389 participation can exert positive psychological effects on participants.

390 Furthermore, the present study is among the first to explain how privacy concerns may
391 impact the subjective well-being of eSports active players. Investigating players’ privacy
392 perceptions appears a particularly valuable addition in the attempt to develop a broader
393 understanding of the behavior of eSports participants: as gaming experiences become more and
394 more immersive, interactive, and customized, they also become more and more demanding in terms
395 of personal data of players, exposing them to several potential risks concerning their privacy (e.g.,
396 due to accidental data leakages). Our findings help marketers effectively design and promote
397 eSport-themed products and events, caring for players’ well-being. For academics, our results may

398 inspire novel research questions about eSports activities and – more generally – about subjective
399 well-being in computer-mediated environments (Marikyan, Papagiannidis, & Alamanos, 2020;
400 Papagiannidis & Marikyan, 2020).

401

402 *Theoretical Implications*

403 From a theoretical perspective, this research addresses a gap in the literature about subjective well-
404 being. On the whole, we know little about the virtual edgework’s relationship with well-being. To
405 fill this gap, we applied edgework theory to the domain of eSports, leveraging the notion of virtual
406 edgework to assess the degree to which computer-mediated competitive activities stimulate feelings
407 of well-being.

408 We shed light on the moderating roles of perceived control in channeling sensation-seeking
409 into feelings of self-enhancement. Then, we showed that self-enhancement plays an important role
410 in driving well-being. Specifically, we show that sensation-seeking can exist and reach high levels
411 in virtual gaming worlds, just as it can in physical contexts. Then, we demonstrate that sensation-
412 seeking translates into feelings of self-enhancement, and even more so if individuals feel in control.
413 In turn, self-enhancement from playing eSports develops into well-being, so that eSports
414 experiences may be a source of positive psychological sensations for participants, leaving players
415 better off, especially when their privacy concerns are low.

416 Finally, we highlighted the importance of privacy concerns in the transformation process of
417 self-enhancement into well-being. A significant moderation represents an advancement to the
418 current debate on eSports. It shows that the strength with which positive outcomes, such as
419 improving the view of the self and feeling better, depends upon the extent to which players perceive
420 their privacy is safely managed while playing. This way, we supplement previous studies that
421 focused on eSports and gaming behavior but did not account for players’ perceptions of the privacy-
422 related risks connected to gaming platforms and services.

423 All in all, marketing studies of edgework are recent in the physical context and represent a
424 frontier in virtual contexts. Thus, we are among the first to use and test the theoretical assumption
425 of virtual edgework theory. Furthermore, we develop a complex set of mediation and moderation
426 relationships, pushing forward current knowledge. In addition, we are the first to address well-being
427 in connection with virtual edgework and empirically test it on eSports players. Previous studies
428 suggested that video games can foster real-world psychosocial benefits (Granic et al., 2014). We
429 add and demonstrate that eSports concretely offer players the opportunity to seek sensations and
430 feel better about themselves, ultimately leading them to construe a (more) positive view of the self
431 and feel well.

432

433 *Managerial Implications*

434 Results inform practitioners about the drivers that can channel eSports' participation into positive
435 outcomes such as well-being. Our evidence shows that gamers' well-being stems from the interplay
436 of sensation-seeking, self-enhancement, and perceived control, which can be -at least partly-
437 affected by practitioners' actions.

438 Thus, our findings suggest that eSports events should emphasize participants' control
439 perceptions to help players' well-being. For instance, events could provide key information about
440 the best-performing gamers, best practices, technical information about average training hours,
441 electronic equipment, etc. Also, game developers can enhance perceptions of control by providing a
442 clear and responsive interface, information about the game dynamics, and a relatively glitch-free
443 experience. Our findings may also raise policymakers' awareness of esports' potential in supporting
444 public programs to reinforce subjective well-being (e.g., for disabled people; British Esports
445 Association, 2021). Similarly, eSports have proven to be a key platform supporting the
446 development of soft skills (like relational skills) and valuable professional skills (e.g., relevant for
447 STEM careers, Microsoft, 2022). Accordingly, esports managers should be aware that emphasizing

448 the association between control and skill in players' minds may further reinforce esports
449 psychosocial benefits.

450 Finally, eSports' massive participation (and more in general, online gaming) makes privacy
451 issues compelling for the entire industry (e.g., Esports Insider, 2021) and sponsorship dynamics Our
452 findings suggest managers should not underestimate players' concerns about privacy. On the one
453 hand, concern has been expressed about players' actual perception of privacy-related issues in
454 esports (e.g., due to the presence of many underage players). On the other hand, recent reports
455 suggest that esports players are often denoted by relevant skills related to mastering technologies,
456 including privacy-related issues. Our results align with this latter view: accordingly, eSports
457 practitioners and policymakers should first consider enhancements to the gaming experience by
458 looking at the toll required on gamers in terms of personal data sharing. Caring for privacy and
459 communicating about privacy to gamers might be crucial for ensuring their well-being. For
460 instance, the PlayStation website addresses gamers clarifying what Sony exactly does to preserve
461 gamers' privacy (PlayStation, 2020).

462

463 *CONCLUSIONS*

464

465 Esports are nowadays a global mainstream phenomenon. Active participation in esports has seen
466 impressive growth in the last years, sustained by the constant technological evolution and,
467 ultimately, boosted by the recent pandemic (Hong et al., 2022), and is expected to grow even
468 further, pushed by younger future generations (Newzoo, 2022). Thus, marketing and consumer
469 studies on esports have seen remarkable growth in recent years. However, the specific nature of
470 esports is such that both practitioners and academics agree in considering them a different domain
471 from video and online gaming. From an academic perspective, this encourages scholars to develop
472 specific theoretical lenses to understand the drivers, motivations, and psychological dynamics of
473 individuals that engage in competitive gaming, overcoming the fragmentation that characterizes

474 current esports literature (Cranmer et al., 2021). The present research contributes to the debate on
475 esports active participation by elaborating on the conceptual similarities between esports and
476 traditional sports and the specificities of the esports gaming experience. We identify potential
477 pathways through which eSports can promote players' well-being, proposing that eSports
478 participation can produce beneficial psychological effects on players. Furthermore, we show the
479 effects on well-being are driven by context-specific factors logically comparable to those of
480 extreme sports (Raggiotto & Scarpi, 2020, 2021), so that virtual edgework theory is a valid
481 interpretative key for understanding Esports players' behavior and perceptions.

482

483 ***LIMITATIONS AND FUTURE RESEARCH***

484

485 The present research on eSports and well-being is not meant to be conclusive. First, it did not
486 address the origin of sensation-seeking in gamers: Does it stem from psychological motivations, or
487 is it a psychological trait (Yasin et al., 2020; Porcu & Francisco, 2020)? We welcome future
488 research in this direction.

489 Second, future research could explore boundary conditions associated with well-being in
490 digital environments. Our operationalization incorporated one mediator (self-enhancement) and two
491 moderators (perceived control and privacy concerns). Additional research could explore other
492 interacting variables, perhaps by drawing from theoretical perspectives other than edgework theory.

493 Third, research on privacy suggested that social and identity motives might lead consumers
494 that are concerned by privacy issues to behave paradoxically (e.g., to disclose personal information
495 to online services easily), leading to the "privacy paradox" problem (Bandara et al., 2020). In this
496 sense, future research could explore how such trade-offs affect well-being, understanding how
497 gamers are willing to give up their personal information in exchange for psychologically rewarding
498 sensations.

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Table A.1. Questionnaire Items

Construct	α	Construct	α
Sensation seeking (Shoham et al., 2000) I like challenges when playing eSports. I like very thrilling experiences when playing eSports. I like feeling the adrenaline flowing when playing eSports. I prefer things who are excitingly unpredictable when playing eSports Every time I play it is an adventure.	.84	Perceived control (Cavazza et al., 2007; Lyons et al., 2014) My training and skills make me feel in control. The game environment is responsive to actions that I initiated/performed I am able to anticipate what would happen next in response to the actions that I performed I can concentrate on the assigned tasks or required activities rather than on the mechanisms used to perform such tasks or activities I feel able to control events	.83
Self-enhancement (Shoham et al., 2000) eSports have changed my perspective eSports hscelp me become better After playing eSports, I am a better person than I was before After playing eSports, I think more highly of me because of that	.82	Subjective Well-being (Diener et al., 2009) I lead a purposeful and meaningful life I am engaged and interested in my daily activities I am competent and capable in the activities that are important to me I am a good person and live a good life I am optimistic about my future	.95
Privacy concerns (Pizzi & Scarpi, 2020)	.88		
I think my benefits gained from the playing this game can offset the risk of my information disclosure. The value I gain from using this game is worth the information I give away The risks of information disclosure will be greater than the benefits gained from the use of this game. (R) I believe that the game has adequate security features to protect my privacy I feel like my privacy would be protected at this gameplay I would feel safe in my playing experiences with this game I would feel comfortable sharing my information with this game			