



Making sense of the pandemic: Multiple functions of commercial video games during one year and a half of COVID-19 crisis

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ABSTRACT

The outbreak of the COVID-19 has made apparent the importance of gaming technologies during crises and difficult life moments. However, studies exploring the role of commercial off-the-shelf video games during the pandemic are still limited. Moreover, research often focuses on a specific moment of the crisis. In this article, we investigate how playing commercial video games impacts on how players manage and understand the COVID-19 pandemic considered in its temporal evolution. We conducted a one-year-and-a-half longitudinal qualitative study by interviewing 16 participants who were living in Italy during the first pandemic lockdown, then involving a subgroup of them ($N = 10$) in a follow-up interview. Study findings show that playing not only supported escapism from a difficult reality, but also helped individuals counteract the sense of detachment from the “pandemic world”, encouraging reflection and supporting sense-making. These functions of video games varied as the pandemic unfolded. Based on these findings, we present a preliminary model of the role of video game technologies during moments of crisis and suggest design considerations on how video games could support people experiencing extremely difficult life moments.

1. Introduction

From 2020 onwards, the world has been going through an unprecedented public health crisis for the contemporary era, caused by the worldwide spread of COVID-19 (Chun et al., 2020), a pathogen causing a disease that may be fatal under certain circumstances (Rodríguez-Morales et al., 2020). The virus crossed rapidly the geographical borders and reached Italy at the end of January 2020, making it the epicenter of the European outbreak (Schnirring, 2020). On 31 January 2020, the Italian government declared the national state of emergency and then imposed restrictive measures hoping to contain its diffusion. Containment strategies escalated into the enforcement of a strict lockdown on the national territory from March 8, 2020, to May 3, 2020 (Government, 2020). As a result, the everyday life of Italian citizens was radically transformed (Amerio et al., 2021) with the suspension of all the industrial and commercial activities that were not considered essential (Horowitz, 2020) and major limitations to individual movements. The whole population had to remain at home, whereas both infected people and people who were suspected of being infected were forced to quarantine themselves (Iorio et al., 2020).

Many countries endorsed mandatory sanitary measures and social

distancing, also limiting the personal freedom of individuals (Kraaijeveld, 2020), but the Italian lockdown was one of the most stringent in the world and for this it can be considered an interesting case for research. In Italy, many domains of ordinary life were affected by the government strategy, with dramatic changes in areas like work (Thakkar et al., 2020), learning (Sabie et al., 2020) and technology usage (Chun et al., 2020). This situation brought several consequences on the wellbeing of individuals and their mental health (e.g., Gualano et al., 2020). We can then affirm that people were exposed to a complex emergency that concerned not only the medical facets of the pandemic (e.g., health-related issues caused by the disease), but also its human aspects (e.g., social isolation, unemployment).

In this scenario, digital technologies could enable people to deal with some of the negative impacts entailed by the crisis (e.g., Qu et al., 2009; Kannan et al., 2019). As a matter of fact, people living in Italy relied on digital communication tools both to maintain social connections and to fight off undesirable feelings yielded by the situation (Gabbadini et al., 2020). Among the used technologies, commercial video games appear to be a valuable resource: they have been shown to positively affect people who face difficult life circumstances (Iacovides and Mekler, 2019) also offering support for mental health (Boldi and Rapp, 2022). Moreover,

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commercial video games are popular among the general population (Williams, 2006; Juul, 2009), are already available on the market without requiring any development effort, and thus have an excellent cost-benefit ratio (Boldi and Rapp, 2022). For this reason, several Human-Computer Interaction (HCI) researchers investigated the role of commercial video games during the first phase of the pandemic, when people underwent rigid lockdowns, finding that video games could positively affect the individuals' wellbeing (Barr and Copeland-Stewart, 2022; Formosa et al., 2022), provide an escape from reality (Boldi et al., 2022; Kleinman et al., 2021), and counteract loneliness (Nebel and Ninaus, 2022).

From a crisis management perspective, however, the pandemic is not a punctual phenomenon: in Italy, the crisis has unfolded in different "phases", with the spreading of the virus reaching peaks not only at the beginning of the crisis during the winter/spring of 2020, but also during the fall/winter seasons of 2020/2021. During these latter periods, the Italian government adopted a system based on zones that were classified according to the level of risk and labeled with corresponding colors - from white, lowest risk, to red, highest risk. Depending on the evaluation made by the authorities at different time points, each region enacted different local restrictions that could mirror those of the first-wave lockdown or be more loosened (for a detailed description of the Italian situation, see Camporesi et al., 2022). In the last two years, therefore, Italian citizens have experienced continuous oscillations in the containment measures, more or less restrictive depending on the degree of the spread of the virus. The rest of the world witnessed similar oscillations, with periods of lockdown alternating with periods of relative freedom (Ritchie et al., 2022).

In fact, the emergency certainly did not come to an end in summer 2020. However, most of the studies exploring the role of gaming technology in the COVID-19 crisis focused on the "first wave" of the pandemic. Actually, research paid little attention to the evolving conditions of the crisis and to the fact that it went through several transformations.

As gaming technology is deeply intertwined with the players' everyday practices (Muriel and Crawford, 2018), its actual use may change as collective phenomena like crises unfold (Ahmad et al., 2014). Therefore, with respect to previous literature, our aim is to explore how commercial video games have been used as the pandemic evolved, during the first one year and a half of people's coexistence with the virus, and what role they had in shaping people's perception of and reaction to the crisis. To this aim, we interviewed 16 video game players on their experience of play during the first phase of the pandemic in Italy and then re-interviewed a subsample of them ($N = 10$) in a follow-up phase one year and a half later. The experience of the crisis was thus explored both during the first national lockdown (early spring 2020), and later, when most of the measures were lifted and a "new normality" appeared (i.e., in late summer, early fall of 2021), but still people were aware that novel restrictions could be enforced again in the future. In this second phase, people could account for one-year-and-a-half experience in dealing with the crisis, recalling memories, attributing meanings to events happened at different stages of the pandemic, and making interpretations and connections among them - a process that could not be accounted for by investigating only the beginning of the pandemic.

In sum, we intended to answer the following research question: *What role did gaming technology have in helping people manage and understand the COVID-19 crisis considered in its evolution over time?*

Our contribution to the HCI community is twofold. First, we provide a thick description of the subjective experience of the pandemic considered in its evolution over time and point out how video games were used by the participants during one year and a half of coexistence with COVID-19, particularly highlighting how they supported participants' sense-making processes. Second, we present a preliminary model that describes the different "functions" that video games had during the unfolding of the crisis. The importance of this research consists in revealing how commercial video games can be used not only as a tool to

cope with the negative emotional or practical consequences of a crisis, but as a metaphorical object, something that video gamers can use to better understand the evolving reality of the crisis and possibly take better decisions.

The article is structured as follows. Section 2 provides an overview of previous research related to technology, video games and crises. Section 3 describes the method that we used, and Section 4 presents the findings of our study. Study findings are discussed in Section 5, while several design suggestions are presented in Section 6. Limitations are acknowledged in Section 7, while Section 8 concludes the article.

2. Background

2.1. Fundamental aspects of crises

The subject of this paper is the pandemic "crisis" - referring to both the public health emergency and the government measures (i.e., the lockdown) that were implemented to contain the spread of the Coronavirus. Broadly speaking, that of COVID-19 is, as other crises, an undesirable, unexpected, and unprecedented situation causing widespread uncertainty (Rosenthal et al., 2001; Hewitt, 1983). While the intuitive understanding of what a crisis is might be apparent, literature in the areas of crisis/disaster management, sociology, psychology and, lately, computer science has highlighted its complexity. It is needed, therefore, to clarify our conceptualization of "crisis" with respect to the existing literature.

On the one side, our study is clearly situated in a certain timeframe and geographical location - the Italian country, from 2020 to 2021. Crises, or simply "collective stress situations" (Barton, 2005), such as those provoked by the pandemic, may be seen as disruptions of normality. Even when there is not a single clear breaking point, symbolic events (e.g., the declaration of a state of emergency) can help to define the temporal boundaries of the crisis. For the purpose of this research, we chose the decisions made by the authorities - i.e., enforcing or loosening the lockdown measures, as events marking the "time of the crisis". In this sense, we considered the "objective" characteristics of the pandemic, conceptualizing it as an event having certain "temporal landmarks" (Jigyasu, 2005). Individuals who go through a major stressful event may perceive the rupture between before and after the occurring of a landmark and may attempt to reappropriate their routinely life (Clissold et al., 2021). In this light, we assumed that also Italian citizens affected by the pandemic could perceive its objective temporal landmarks as significant disruptions of their daily life.

On the other side, we endorse a subjective and constructivist perspective which focuses on people's perception of a given situation (Boin, 2005). This leads to a possible discrepancy between the subjective experience on current events and the idea that the authorities convey (Boin, 2005) or the "reality outside". For instance, individuals may understand differently what a crisis is (t Hart and Boin, 2001), producing different behavioral responses that may not match what the authorities communicate as the objective situation, or what the majority of people perceive. If the term "crisis" no longer exclusively points to an external objective reality, we may pay more attention to the different subjective experiences that each individual lives during a crisis. Building upon this subjective account of the crisis phenomenon, we aim to describe how people lived through the pandemic, what meanings they ascribed to it, and how this process evolved with the unfolding of the "objective" events. For reasons that will be clear in the next subsection, we will try to understand whether the gaming technology had any role in their experience of and reaction to the crisis.

2.2. Commercial video games, crises, and difficult life moments

In the last twenty years, a growing body of work collected under the name of "crisis informatics" (Hagar, 2006) explored how Information Communication Technologies (ICTs) can be employed for a variety of

purposes in disasters and crises especially by formal responders. Lately, part of the academic community – also including Human-Computer Interaction (HCI) researchers, turned its attention to the involvement of the general public in situations of crisis (e.g., Gui et al., 2018; Palen et al., 2010). Technologies can then be a resource not only for authorities and organizations dealing with the management of a disastrous event (Stephenson and Anderson, 1997), but also for people that may make use of them to face an emergency. It has been acknowledged that during a crisis ICTs are widely employed by citizens to gather and share information (Qu et al., 2011; Vieweg et al., 2008; Pine et al., 2021), reconnect with others (Mark et al., 2009), or even find emotional support (Semaan and Mark, 2012). Nevertheless, with reference to citizens and crises, academics mostly investigated the role of social media (De Choudhury et al., 2014), since they are an ideal medium to distribute and find information (Starbird and Palen, 2011).

Although less explored, video games may be of interest for HCI researchers as well. However, only a few studies have examined how real and video game worlds may be interconnected during a crisis event (e.g., Balicer, 2007; Lofgren and Fefferman, 2007): for instance, Kneer and Ward (2020) observed that a community of players reacted to a mass shooting event provoked by a gamer by increasing the time spent playing as a protective reaction, due to the fact that they perceived the real-world event as a threat to the social identity of the gaming community itself. Nonetheless, more potential insights regarding the use of commercial video games in a crisis can be found in literature addressing their positive impact during difficult life moments.

It is no mystery that playing sustains the emotional and cognitive development of children (Erikson, 1977; Piaget, 1951) and enhances their social and creative abilities (Granic et al., 2014). To date, a collection of research is carrying forward the idea that also digital games can positively influence people's wellbeing (Granic et al., 2014; Tyack et al., 2020) and improve their mental and physical health (Bonnehère et al., 2016; Boldi and Rapp, 2022). As suggested by HCI academics, video games may support sense-making processes (Mekler and Hornbæk, 2019; Bopp et al., 2016; De Schutter and Vanden Abeele, 2010; Rapp, 2018; Zhang et al., 2020) if players have the opportunity to reflect on gameplay and how it relates to their personal life. Moreover, the ability to reflect "through" playing can be stimulated and mediated by mental health professionals, through a long and complex process carried out in the clinical practice (Boldi and Rapp, 2022).

In fact, video games are also considered a valuable resource for people who are going through tough life experiences (Iacovides and Mekler, 2019) for a twofold reason. Firstly, video games can repair negative mood and help people better cope with unwanted emotions, enabling players to find a relief from frustration and distress (Reinecke et al., 2012; Bowman and Tamborini, 2015), as well as providing escapism, a term that normally points to an avoidance of the "real" (Calleja, 2010; Evans, 2001), but may also offer enjoyment and facilitate stress relief (Kardefelt-Winther, 2014; Hussain et al., 2021). Secondly, video games entail complex social worlds that bring people together to reach collective goals, also strengthening family bonds (Durkin and Barber, 2002), producing a sense of belonging (Vella et al., 2019) and complementing offline relationships (Vella et al., 2016).

In this line, exemplar studies were conducted by Iacovides & Mekler (2019) and Semaan et al. (2016). The former surveyed 95 participants who dealt with a range of difficult and highly stressful experiences, like mental health issues, relationship problems, and bereavement, asking them to report on the role that video games had during these difficult life moments. They found that video games offer respite from the stress and trauma that players may experience in their daily lives, providing distraction and escape; they allow players to work through their feelings about their current situation; they provide opportunities to connect with others, through social forms of play or through engaging with people who share similar interests; they act as catalyst for personal change and growth, giving opportunities to develop competence, which can transfer to other areas of the player's life; and they provide players with a sense

of purpose at a time in their lives when they are struggling (Iacovides and Mekler, 2019).

The latter interviewed 13 veterans who were reintegrating into civil society about their ICT use and found that veterans may play multi-player military mission-style games online, like the "Call of Duty" series, with the precise intent to reconnect with former soldiers and maintain familiar aspects of their past life. "Playing army" allows veterans to develop a sense of structure and reliability in their everydayness and to draw on the old structures that comprised their military identity, sharing experience lived in the military to ground themselves in something familiar while the rest of their daily lives is changing (Semaan et al., 2016).

In sum, these studies point out how video games may be able to affect people's wellbeing by influencing their emotions and supporting their social interactions. However, only a limited number of studies have investigated how players spontaneously use video games during collective crises that may yield extremely tough consequences on the life of an individual. Moreover, as far as we know, there is no research that can explain how this use may evolve over time as the crisis unfolds.

In this article, we explore the opportunities offered by commercial video games to help people manage and make sense of a global health crisis as it evolves. In so doing, we focus on the players' recounting of the video games' characteristics that are most beneficial for managing and making sense of the crisis. Before recounting the details of our study, we provide a brief description of the COVID-19 crisis and illustrate the most recent academic contributions on the topic.

2.2.1. Technology, commercial video games, and COVID-19

The pandemic crisis unfolded in exceptional conditions (Niu et al., 2021), as COVID-19 spread in a world where people are constantly interconnected (Wallace, 2020), also thanks to the availability of information technologies (Durodié, 2020; López-Cabarcos et al., 2020). The same holds true for gaming technologies, whose utilization is now common among the general population and actually increased during the enforced lockdowns around the world (Broughton, 2020; Zhu, 2020). To encourage people to "stay-at-home", a campaign to engage in online gaming was endorsed even by the World Health Organization (WHO) (King et al., 2020), by spreading the message #Play-ApartTogether over social media.

In fact, video game sales and player population have increased during the pandemic (Wannigamage et al., 2020), with a particular rise in demand for relaxing video games (Croissant and Frister, 2021). However, only a few studies investigated how commercial video games were used by individuals and with what effects. Some researchers explored the broader role that they had, discovering that the time spent playing games could impact the wellbeing of individuals in several ways (e.g., Formosa et al., 2022; Barr and Copeland-Stewart, 2022). Others, instead, focused on the social dimension of playing, showing how gaming could offer space for socializing (Yuan et al., 2021) and alleviate the sense of loneliness (Nebel and Ninaus, 2022).

More precisely, several HCI studies revealed unique patterns in the usage of video games during the initial phase of the pandemic, sparked by the enforcement of restrictive measures: by playing, people could replenish some of their needs and consequently enhance their overall wellbeing. Kleinman et al. (2021) surveyed 130 participants and discovered that people used video games during COVID-19 quarantine to escape from reality and its troubles, as well as from negative emotions, maintaining a sense of hope and positivity. Moreover, they used games to replace a routine that was lost, as in-game activities could become a daily routine, and even to substitute reality, recreating in the game world locations and experiences that could not occur due to quarantine. Finally, individuals played to connect with distanced loved ones and friends, as well as to meet new people.

In the same vein, Barr and Copeland-Stewart (2022) surveyed 781 participants and identified different ways through which games affected players' wellbeing. Video games provided benefits related to mental

health, including reduced anxiety and stress relief, as they functioned as a distraction or escape inducing a sense of calm. Moreover, video games offered ways to stimulate cognition, counteracting the participant's boredom and giving players a sense of purpose and agency. Finally, continuing to play video games provided them with a sense of normality and opportunities for being connected.

Likewise, Ballou et al. (2022) surveyed 285 participants and found that gaming was an actively sought out and successful means for replenishing particular needs. Grounding on Self-Determination Theory (Deci and Ryan, 2000), the authors show that some players sought autonomy satisfaction in games as a compensatory strategy for restricted movement, fragmented time/space, and limited activities experienced during the lockdown. Moreover, participants selected gameplay to compensate for lacking or frustrated competence experiences in daily life, like feeling stagnant and powerless, as games offered a source of challenge and a sense of progress. Finally, games helped players alleviate lack of opportunities to connect, since games could be used as an excuse for interaction, a social lubricant, and a source of connection.

Instead, Formosa et al. (2022) utilized Self-Determination Theory (Deci and Ryan, 2000) and the Dualistic Model of Passion (Vallerand et al., 2003) not only to argue that people used video games as a way to escape from stressors associated with the health crisis, but also to highlight misuses of gaming technologies. In fact, in-game need satisfaction could lead to either harmonious or obsessive passion for video games: while harmonious passion could lead several participants to experience greater vitality and reduced levels of psychological distress, obsessive passion could lead other participants to experience problematic video game behaviors. The fact that video gaming was not beneficial for all the individuals may be explained in the light of the peculiarity of individuals' context (Meriläinen, 2022), as well as personal motives to play: for instance, having social motives for gaming may lead to decrease social loneliness (Nebel and Ninaus, 2022).

Similarly to this research, in a previous study (Boldi et al., 2022), we surveyed 330 Italian participants during the first and strictest part of the Italian lockdown, asking them to recount the role that video games had in their pandemic life. We found that video games provided players with multiple ways to escape from the stressing reality of the pandemic, i.e., temporally, socially, emotionally, and spatially: through video games, participants projected into life periods when their normality was not touched by the pandemic, maintained their desired social life, coped with negative emotions finding refuge into an alternative emotional environment, and "travelled to distant places" within the game worlds. The survey was useful for us to capture the accounts of a high number of respondents and explore the range of ways in which video games were used to escape from the crisis. This method, however, did not enable us to conduct a more dynamic and in-depth investigation of certain aspects that we found interesting when we analyzed the data, like the role that video game play had in supporting the understanding of the crisis itself: such preliminary findings, therefore, were not published and have been waiting for more in-depth exploration. Moreover, similarly to all the other studies exploring the impact of commercial video games on the players' life during the pandemic, our research was limited to the initial stage of the crisis, thus not accounting for its evolving nature.

In other words, despite the interesting conclusions of all these studies, they all share a common limitation. They focused on the first stage of the pandemic, without exploring how changes in the experience of play interacted with the perceived changes that were induced by the evolution of the crisis. Moreover, since most of the studies relied on survey data, researchers could not explore in-depth themes that imply the extensive subjective recounting of the participants' personal histories, such as sense-making processes, which are better addressed through techniques like semi-structured interviews.

In this article, we thus explore how Italian players have used commercial video games from April 2020 to October 2021, by administering semi-structured interviews to 16 participants during the first Italian lockdown, and subsequently re-interviewing 10 of them one and a half

years later. We thus temporally circumscribed our research to two key moments: firstly, one month after the beginning of the strictest and longest lockdown experienced by Italian citizens; secondly, when the measures were already loosened, and people had already gone through alternate periods of enforcement and relaxation of restrictions and could reflect on and recount the evolution of the crisis. In doing so, we attempted to unravel the complex relationships between video game technology and the transformations that people experienced in their everydayness as the crisis unfolded.

3. Method

To better understand how video games were used during the pandemic and what impact they had on people's daily life, we conducted longitudinal qualitative research (Saldaña, 2003; Holland, 2007) by administering semi-structured interviews to 16 video game players and performing follow-up interviews with a subsample of 10 participants.

3.1. Sample

Participants of the current research were drawn from a sample of individuals who had been involved in a previous survey study, which aimed to investigate the wide role of video games during the Italian lockdown in April 2020. At the end of the survey, participants were asked if they wanted to participate to the second phase of the study. From the initial list of volunteers, we selected 10 participants who differed from one another for the number of hours played, the preferred game genre and age. By and large, to be eligible for recruitment, participants had to: i) live in Italy from the beginning of the pandemic, because we aimed to explore how people were affected by the measures of the Italian Government; ii) be of age (18 years and older); iii) play video games during the pandemic, no matter how much and how consistently.

Most of the selected participants were male passionate gamers, with extensive game experience. To further balance and differentiate the sample, we then adopted a supplementary recruiting strategy, using snowball sampling and sharing a recruiting message via email and through different social networks (e.g., LinkedIn, Facebook). In so doing, we attempted to capture a wider range of experiences and to investigate people who had a different approach to video games, involving, in particular, more casual gamers and female participants (e.g., P12, P15, P16).

The final sample consists of 16 respondents (mean age=37.9; females=6). The age of the participants ranges from 21 to 67. All the participants were Italian, apart from P3 who is originally from Lebanon. The majority of the respondents had a remunerated employment ($N = 10$) and almost all of them worked remotely during the first lockdown ($N = 9$). Table 1 summarizes the sample composition. The sample size is in line with studies adopting a similar approach (e.g., Elsdén et al., 2016) and followed a data saturation criterion (Bowen, 2008). Participants who refused to participate to the follow-up interviews reported lack of time or relocation abroad, making them ineligible for the study given the inclusion criteria.

3.2. Procedure

Each interview started in a very open-ended way, by asking participants to describe their relationship with video games, starting from their first gaming experiences way long before the pandemic outbreak. We left participants free to talk about what they considered relevant and recount it in the manner they considered appropriate. The following questions were asked: *Why do you usually play with video games? What do you like about playing? Are there any genres that you like the most? Do you have any preferred video games? What do you like about them?* In the second part of the interview, we asked participants to focus on the current use of video games. We asked them: *With respect to your history as*

Table 1
Sample.

ID	Gender	Age	Profession	Education level	Most-played genre	Sociality during first lockdown	Follow-up
P1	M	43	Consultant	Master's degree	Action adventure, Puzzle, Racing, Role-Play Games (RPG)	With the wife	Yes
P2	M	32	Teacher/Free-lance	Master's degree	RPG, Multiplayer Online Battle Arena (MOBA)	Alone	–
P3	M	35	Unemployed	Bachelor's degree	Management/Strategic game	Alone	Yes
P4	M	25	Student	High School Diploma	RPG, Simulation	With the birth family	–
P5	M	33	Cook (currently unemployed due to Covid-19)	High School Diploma	Action adventure, Puzzle, Racing, RPG, First Person Shooters (FPS)	With the partner	Yes
P6	F	67	Cook (currently unemployed due to Covid-19)	Middle School	Puzzle	With the children/nephew	Yes
P7	M	35	Employee	High School Diploma	Action adventure, Management/Strategic game, RPG, Platform, FPS	With the partner	Yes
P8	M	33	Employee	Master's degree	Action adventure, RPG, Sport	Alone	Yes
P9	F	34	Company owner	Master's degree	Action adventure, Puzzle, Management/Strategic game, RPG, Exergame, Platform, FPS	With the husband	–
P10	F	21	Student	High School Diploma	Action adventure, Management/Strategic game, RPG, Simulation	With the birth family	Yes
P11	F	54	Housekeeper	High School Diploma	Puzzle, RPG, Simulation	With the husband and the daughter	–
P12	F	33	Psychotherapist	Master's degree	Management/Strategic game, Simulation	With the partner	Yes
P13	M	58	University Professor	Postgraduate education	Management/Strategic game, Simulation, Boardgames	With the wife and the child	–
P14	M	32	Educator	High School Diploma	Management/Strategic game, RPG, Boardgames	With the birth family	–
P15	F	27	Consultant	Master's degree	Management/Strategic game, Sports, Stealth	Alone	Yes
P16	M	45	Teacher	Postgraduate education	RPG, Action Games, Sports	Alone	Yes

a gamer, do you notice any differences in the way you are playing in this period? Why do you play video games, now? Can you recount a gaming session that particularly impressed you, either in a positive or negative sense? Finally, we delved into the way the participants experienced the crisis, their emotions and beliefs around the pandemic and the measures they used to counteract it. Final questions were, then: *How is your typical day? What do you think about the crisis we are facing? Do you have any particular worries (e.g., health-related worries)? In your opinion, is there any relationship between the ongoing crisis and the way you use video games?*

These interviews allowed us to explore in-depth themes that were only hinted at in the survey, like the role that specific game sessions or games had in supporting participants' management and understanding of the crisis (which informed the question: *Can you recount a gaming session that particularly impressed you, either in a positive or negative sense?*) and the individual differences in the understanding of the crisis, as well as the role of video games (which informed the questions: *What do you think about the crisis we are facing? In your opinion, is there any relationship between the ongoing crisis and the way you use video games?*).

In the follow-up, we partly mirrored the structure and the content of the first interview, by focusing on the changing and non-changing elements that characterized the way participants experienced and made sense of the evolution of the crisis, how they lived the ongoing events, and how they made use of video games during the one year and a half of pandemic. The participants were free to touch on themes that were not covered by the initial list of questions (i.e., if they brought up aspects of the crisis or video game playing that were not anticipated in the interview trace, we allowed them to continue without interruption). Moreover, they were often asked to clarify their recounts with practical examples, like recounting a gaming session, the characteristics of their avatar in a mentioned game, the relationships with other players – both Non-Player Characters (NPCs) or real fellow gamers.

We obtained written informed consent from the participants before starting the interview. Each interview was audio recorded and then transcribed verbatim for subsequent analysis. The interviews lasted between 50 and 120 min, for a total of 37.6 h of recording. Participants were not compensated for their participation. The study has been approved by the ethical board of our university.

3.3. Data analysis

We analyzed the data following an Interpretive Phenomenological Analysis (IPA) approach, which is particularly suitable for examining how individuals make sense of major life experiences, namely, events that take particular significance to people (Smith and Shinebourne, 2012) such as, but not limited to, crises or situations that are out of the ordinary. Unlike other data analysis methods like Grounded Theory (Glaser and Strauss, 2017) and thematic analysis (Braun and Clarke, 2006), IPA places greater value on individual idiosyncrasies, subjective meanings, and personal histories, making it more suitable for understanding people's sense-making and exploring each participant's perceptions of what is important in relation to the phenomenon under study. IPA researchers strive to understand what it is like to stand in the shoes of the participants (although recognizing this is never completely possible) (Pietkiewicz and Smith, 2014). As crises may be lived by individuals in different ways (Rodríguez et al., 2007), we aimed to capture their idiosyncratic experience using IPA. Examples of HCI studies where IPA have been employed include Mason et al. (2022) and Elsdén et al. (2016).

Grounding on the principles of IPA, we gave space to personal reflections and gathered information about how participants made sense of the crisis, the role of the technology, and their reciprocal connections. First, we went through the interviews focusing on single cases to identify evolution patterns in time. Then, we conducted a transversal reading of the interviews, looking for common points and differences across the meanings participants elaborated upon. The analysis was conducted inductively, i.e., giving importance to the participants' subjective appraisal of the phenomenon under investigation.

More precisely, in a first phase, along with multiple readings of the transcripts, the two authors performed an initial annotation of the data, leaving comments and notes on relevant data points that could help them transition from mere description to interpretation of the data. This initial phase focused on the individual participants' experience in line with the IPA approach. At this stage, we looked for those data points that relate to the subjective experience of the crisis, its connection with the gaming activities, and their temporal evolution, i.e., how the rapport

with video games transformed as the course of the crisis changed. Of course, all those elements that revealed invariability and constancy, despite the progression of time, were not ignored. This phase resulted in a series of exploratory comments (*descriptive comments*, describing the content of the data from the participants' point of view, in terms of what mattered to them; *linguistic comments*, which highlighted participants' language use; and *conceptual comments*, which were more interpretative). Table 2 provides an example of the generated comments on an interview extract.

The comments were then summarized into labels/brief sentences ("codes") by the two authors separately to better identify the key ideas behind them. To ensure consistency in the development of the codes the two authors reviewed them together (MacQueen et al., 2008; McDonald et al., 2019). The differences found were often related to idiosyncrasies in labeling the same idea, while in other cases we had to develop new codes or merge two or more codes into one. As common in qualitative research that adopts an interpretative approach (e.g., Yardley, 2000; Harry et al., 2005; Braun and Clark, 2013), numerical reliability rating is not reported, since the aim of the two researchers was to reach an inter-subjective consensus. This process entailed discussing and clarifying any point of difference until both the authors reached an agreement over the set of codes (Harry et al., 2005). Then, the two researchers grouped the codes into emergent themes that could account for the different ways video games were used during the evolution of the crisis.

Once all the cases were analyzed, we looked at patterns across cases which led to a reconfiguration and relabeling of the codes and themes. In the end, we identified 60 codes and produced 17 emergent themes that were further summarized while preserving the complexity of their interrelations. As a result, we developed two super-ordinate themes, which correspond to the two main themes that we recount in the Findings Section. Table 3 depicts the final 60 codes, 17 emergent themes, and 2 super-ordinate themes, also offering correspondence with the subsections of the Findings Section.

In IPA, the researchers' background is a relevant element to understand and interpret the study. The first author is a female person in her 30s who lives in Italy. She is a Ph.D. student in the Psychology Department at the University of Torino and has a background in cognitive science and clinical psychology. She does research mainly on video games and is a longtime gamer, who played consistently during the pandemic, especially with multiplayer video games. The second author is a male person in his 40s, who lives in Italy, and has lived for several months in the United Kingdom. He is an associate professor in the Computer Science Department at the University of Torino and has a background in HCI, philosophy, sociology, and anthropology. He has multiple years of research experience working on gameful technology, self-tracking devices, and intelligent agents. He is a gamer, who played moderately during the pandemic as a solo player.

All the interviews were carried out in Italian. The data analysis was conducted on the original Italian transcripts. We translated only the quotations reported in the Findings Section. The translation was conducted by both the authors who are Italian native speakers. To ensure that the original sense of the quotes was maintained we asked to an English Native speaker, who has been teaching Italian students English and living in Italy for decades, to check the translations. All doubts and disagreements were discussed to consider cultural differences and choose the best term in case the original term did not have a direct counterpart in English.

4. Findings

We recount two super-ordinate themes emerging from the data analysis, namely i) "normality" and video games and ii) making sense of the crisis through playing, each of which is divided into several subthemes: experiencing different "normalities" and living the "new normality", for the first macro-theme; playing with others: informal talks and information exchange, reflecting on one's own identity, being connected with the pandemic,

Table 2

Example of the analysis process of an interview extract (descriptive comments are written in normal text, linguistic comments are in italic, while conceptual comments are underlined).

Transcript of the interviewee P01 (follow-up)	Exploratory comments (descriptive, linguistic, conceptual)
[27:52] We came back to living a life that we missed, so we got drunk of it... As soon as they opened, there was, let's say, a principle of drunkenness of freedom, and so I went out to see people again, to the point of maybe seeing too many people in the same day ... even fifteen friends in one weekend ... when I got home I was exhausted and on Monday I was tired and I realized I had gone too far. I went out only because I could do it. I have been out of home from Saturday morning to Sunday evening and when I came back home [laughing], wrecked, and then I realized that it was... that being drunk of a regained freedom that was an exaggeration, because you say, now you have the opportunity to do it, "yes, yes, ok, we'll meet", then for me is not that hard to organize. So, yes, I could do it, but then I realized that maybe you should remember that you have to rest on the weekend and so, as I was telling you, talking about video games, they were affected by the fact that there was a different priority... there is a greater priority to regather again with lost friends and so the game took a backseat... why? because the free time was occupied with something more important. On the other side, the video game, in that period, because it was less frequently played, it was also more difficult to keep up with all the narratives of a particularly complex game [laughing], because when you have tons of things to do you start to forget. I understand that when you are at the University, those games, especially, role-playing games, really messy, with all the stories, side stories, all interconnected, you could manage them and also during the pandemic. Now with all the work, the friends to meet, you cannot do it anymore with the same frequency but, most of all, it really gets difficult to keep the thread. [30:48]	He describes what happened once the measures were lifted. " <i>Getting drunk of freedom</i> ", <i>repeated three times and quite stressed</i> . Also, coupled with the sensations of being tired on Monday, <i>like almost "in hangover"</i> . <i>He laughs when talking about his coming back home (it seems a nervous laughter)</i> . Apparently the new " <i>regained freedom</i> " is <u>not necessarily positive or at least not well balanced for him</u> . " <i>A life that we missed</i> ". <u>Is it a come back to normal? He also switches from first single person to pluralis maiestatis ("we missed")</u> . He is expressing the idea that <u>this feeling was not only his, but also others' (e.g., his friends)? How does this connect with HIS needs of sociality?</u> It is finally possible to meet people in person again and he meets his friends during the weekend. " <i>even fifteen friends</i> ". He uses " <i>even</i> ": <u>does he want to stress how big the number is?</u> " <i>Yes, yes, ok, we'll meet</i> ", he is probably reporting a dialog with a friend. <u>Is it a sort of reassurance towards friends asking to go out? Is it possible that as the strictest measures were lifted, he felt that others were pushy towards him?</u> The term " <i>opportunity</i> ", with reference to meeting other friends is interesting. It conveys the idea that it is something to take when it happens, to not miss as it won't necessarily happen again. <u>Does he think that this is just a phase or that we are definitely back to normal?</u> He " <i>realizes</i> ", because when his behavior was " <i>exaggerated</i> ", and he went " <i>too far</i> ". " <i>You have to rest on the weekend</i> ", he switches from first person to second person. It sounds like a sort of a recommendation, like a phrase that someone that cares for you would say. <u>He seems to oscillate between the need to regain sociality (but is this really a need for him?) and the need to respect his rhythms. All things considered, this way of living the weekend is probably not respectful of his rhythms from his point of view.</u> The laugh when talking about the complexity of the game he used to play <u>seems to convey the idea that those video games are complex and require a lot of effort and time to be played (that he doesn't have anymore, like before the pandemic?)</u> The University and the pandemic are the moments where he could play complex games (" <i>really messy</i> "). <u>Is this because he didn't have the responsibilities to work and meet friends? (again, it seems more like a chore than a pleasure for him).</u> Now it is not possible to play those games anymore. <u>Do different genres of games suit different moments of his life?</u>

and experimenting on alternate "identities", for the second macro-theme. As in all qualitative research, the findings are specific to the group of participants that we interviewed, but we believe that they may be of wider interest and applicability.

Table 3

The final codes (normal text) and emergent themes (in bold) developed during the analysis.

Super-ordinate theme: [1] Normality and video games	
<i>Corresponding subsection of the Findings: Experiencing different normalities</i>	
Codes and emergent themes	<p>[1.1.1] The pandemic disrupts routines and everydayness.</p> <ul style="list-style-type: none"> • The pandemic disrupts social life. • The pandemic disrupts hobbies and sports routines. • The pandemic entails sedentary and flat life. • The pandemic brings emotional troubles. • The pandemic disrupts work-related routines. <p>[1.1.2] Playing draws a line of continuity before and after the pandemic.</p> <ul style="list-style-type: none"> • Playing is the new “buffer” time after work. • Playing helps to stay connected with friends. • Playing helps to recover freedom. <p>[1.1.3] The pandemic is a threat to one’s existence.</p> <ul style="list-style-type: none"> • The pandemic creates health-related worries. • The pandemic is scary for people with health issues. • Being afraid of going out. • Being afraid for the safety of others. <p>[1.1.4] Playing helps recover a sense of safety.</p> <ul style="list-style-type: none"> • Playing helps to escape from health-related worries. • Playing is a stress-relieving activity. <p>[1.1.5] The life before the pandemic was already “not a normal one”.</p> <ul style="list-style-type: none"> • Having a mental health condition/neurodiversity. • Having a poor work-life balance. <p>[1.1.6] Playing is part of the normal life conducted before the pandemic.</p> <ul style="list-style-type: none"> • Playing is a fun activity. • Playing is a well-known method to meet one’s needs. • Playing may have the same importance it had before the pandemic.
<i>Corresponding subsection of the Findings: Living the “new normality”</i>	
Codes and emergent themes	<p>[1.2.1] The perception of the pandemic changes over time.</p> <ul style="list-style-type: none"> • The new habits are maintained when lockdown measures are eased. • Health-related fears are lightened as the pandemic progresses. • The return to normality is not complete. • Life rhythms follow the waves of the pandemic. • Individuals feel that their habits are regulated from the outside. <p>[1.2.2] Certain functions of playing are lost in the “new normal”.</p> <ul style="list-style-type: none"> • Certain video game genres are abandoned. • Playing is confined after working times. • Playing becomes again an entertaining activity. • The use of video games follows the changing needs. <p>[1.2.3] New uses of video games emerge while others remain.</p> <ul style="list-style-type: none"> • The same games are played in different ways. • Lost game genres are recovered. • Playing keeps compensating social life. • Playing keeps compensating outdoor activities. • Playing keeps being a way to escape.
Super-ordinate theme: [2] Making sense of the crisis through playing	
<i>Corresponding subsection of the Findings: Playing with others: informal talks and information exchange</i>	
Codes and emergent themes	<p>[2.1.1] Feeling detached and alienated from the pandemic.</p> <ul style="list-style-type: none"> • Players are overflowed by information. • Players escape from information. • Exposure to pandemic-news increases alienation.

Table 3 (continued)

Super-ordinate theme: [1] Normality and video games	
<i>Corresponding subsection of the Findings: Experiencing different normalities</i>	
Codes and emergent themes	<p>[2.1.2] Playing is used as a “window” on the pandemic world.</p> <ul style="list-style-type: none"> • Playing facilitates informal discussion on the pandemic. • Playing recreates social situations that are lost. • Playing allows for collective sense-making.
<i>Corresponding subsection of the Findings: Reflecting on one’s own identity</i>	
Codes and emergent themes	<p>[2.2.1] Playing helps players reconnect with the core aspects of their identity.</p> <ul style="list-style-type: none"> • Playing helps to reconnect with one’s memories. • Playing stimulates thinking about the future. • Playing counteracts despair and uncertainty. <p>[2.2.2] Playing helps players reflect on their own way of dealing with the pandemic.</p> <ul style="list-style-type: none"> • Playing helps players reflect on their internal life. • Playing helps players reflect on their behavior.
<i>Corresponding subsection of the Findings: Being connected with the pandemic</i>	
Codes and emergent themes	<p>[2.3.1] Playing counteracts the sense of unreality brought by the pandemic.</p> <ul style="list-style-type: none"> • Detaching from the pandemic may be a coping strategy. • Detaching from the pandemic may result from losing sense of agency. • The pandemic is difficult to be accepted. • Playing allows players to understand the situation. • Playing connects players to reality. <p>[2.3.2] Playing helps build a narrative of the pandemic.</p> <ul style="list-style-type: none"> • Video game experiences are significant and valuable. • Playing makes the pandemic lighter. • The real and the virtual worlds may be similar. • Similarities between video games and the pandemic world may be detrimental. • Certain video games connect with the pandemic without harming the player. • Playing supports players in building different perspectives on the pandemic events.
<i>Corresponding subsection of the Findings: Experimenting on alternate “identities”</i>	
Codes and emergent themes	<p>[2.4.1] Playing helps players adopt different moral perspectives on themselves.</p> <ul style="list-style-type: none"> • Playing allows for the experimentation on different parts of the player’s self. • Playing helps to express negative emotions. • Playing supports the exploration of alternate moralities. <p>[2.4.2] Playing helps perform transgression in a protected way.</p> <ul style="list-style-type: none"> • Players may feel to be judged for their real-life behaviors. • Playing allows players to break the rules.

4.1. “Normality” and video games

In an emergency, people often experience a break from “normality” and try to remedy this feeling in various ways. We found that this phenomenon also occurred during the COVID-19 health emergency but with some particularities, which will be described in the next subsections. As a matter of fact, participants recounted different ways in which their lives were affected by the pandemic and the restrictive measures imposed by the government. From the analysis of the interviews, we discovered that the participants had different notions of “normality”, an aspect that did not emerge in our previous study (Boldi et al., 2022), and that these changed as the crisis unfolded. In all these cases, video games played a significant role.

4.1.1. Experiencing different “normalities”

While reporting on the first lockdown, the participants pointed out different notions of normality, namely, what they considered normal and was wiped out by the pandemic.

A *first sense of normality*, emphasized by several participants, refers to the practical and material aspects of their everydayness, like the possibility to maintain certain routines, to continue a lifestyle consisting of going out with friends or going shopping, and to carry out recreational and sports activities, which were disrupted by the lockdown. For these participants, playing was mainly a way to establish a sense of continuity between the life before the pandemic and the shape it later took when the virus spread worldwide. Such phenomenon is particularly visible with regards to the work dimension. Playing was utilized to replace buffer times between work and rest, which was previously represented by daily commuting, or to limit overworking. Playing was then interpreted as non-working time, an activity with clear boundaries that could help them find a new balance in these unprecedented times. *“At the beginning, work used to overwhelm me because I was at home and it was easy to overdo it, even during the weekend... now at 6 o’clock I quit and switch on the console and I’m not taking calls... it’s a bit like taking my time back, now I know I’m the master of my time and I use it as I want”* (P7). A few participants also suggested that the compensating role of video games helped them cope better with the new “social rules” (i.e., isolation), making them to adapt to a way of life that would have been otherwise impossible to adhere to: for instance, it allowed them to reconnect with their old friends who could not be met again due to the lockdown. Video games also had a particularly stimulating value for individuals suffering from limitations to their freedom, who looked for exciting and engaging stories and “worlds” that could involve and inspire them: for example, P15 said that *“certainly the choice of the game depends a lot on the fact that I’m locked in the house and I want to explore the world, which I can’t do, so through The Sims 3 I can do it”*.

By contrast, a *second sense of normality* was emphasized by other participants having fragile health conditions and respiratory problems, who declared to have specific fears about their own health: for them, “normality” was connected to the idea of safety, and the pandemic, in their eyes, was putting at risk their existence itself. For these participants, who often suffered from distress caused by health-related worries, video games represented a means to evade in the “light-hearted” activity of playing. For example, P16, who played games that required concentration and manual skills (e.g., Crash Team Racing, a Sports/Platform genre game) to avoid thinking about the pandemic says: *“I bought Crash Bandicoot CTR, Crash Team Racing... which I used to play a lot when I was a kid and they made the new edition ... so I also bought it because it’s not very demanding for the mind, very mechanical, it requires you a lot of concentration and skill, however mostly of manual type... it doesn’t engage, let’s say, your head”*.

All the reported experiences referring to these two senses of normality substantially confirm the “escapist” value of playing video games, which we highlighted in our previous study (Boldi et al., 2022). Video games allowed these participants to escape the crisis temporally, by reconnecting to the “old temporality” of the normal life, socially, by reconnecting to old friends, spatially, by entering into other worlds, and emotionally, by performing a stress-relieving activity. In other words, these participants used video game playing to run away from the unwanted reality of the crisis by trying to recover a normality (either practical or health-related) that was jeopardized by the pandemic.

However, several participants reported a *third sense of normality*, which related to the lockdown itself. For these participants only a few dimensions of the so-called “normal life” were affected or, in a few cases, none at all, so that the lockdown was, in a sense, perfectly normal. This is the case of P13, who was diagnosed with autism: he described that the digital organization of his work life and leisure activities had begun several years earlier, so he was already used to limiting daily movements and face-to-face interactions. A similar case is represented by P11, who suffers from agoraphobia and had long been used to living exclusively within the domestic environment. By the same token, other participants viewed the lockdown positively experiencing increased levels of well-being, since normality, or what normality should be, was what they were living during the lockdown and not their previous life. In their old

normal lives, these participants were constrained to overwork or were not able to spend all the time they wanted with their significant others. For example, P9 explains: *“My days are usually just a nightmare! Long live the quarantine! I can’t be franker than that! [...] now it’s a second honeymoon for me... I’m here in my office, next door there is my husband’s office... wonderful, during the weekend we grill at my parents’, who live next door, we’re together, we prune plants, we’ve even made a vegetable garden”*.

For these participants, playing was simply one of the recreational activities that they did for entertainment, as they did before the pandemic. At most, they felt that they could take advantage of this period of enforced laziness to recover some fundamental aspects of their lives: staying close to loved ones, recovering old lost interests, and even playing a bit more to take more time for themselves, as P4 said: *“I’m living the quarantine pretty well and I really don’t want to go back to before [...] by the way we also recently got a game, a computer Quiz to play all together, or we play cards... in short, I’m not alone... I have a lot of free time that I can use to do whatever I want, read, play a video game, watch something”*. Interestingly, for some of these participants playing continued to be a way to connect with people as it was before the crisis, recreating a virtual society since the “real world” (the new one as the old one) did not meet their needs. For instance, P11 kept playing games involving multiple players around the world, which allowed her to communicate with others despite her phobia: *“There is this game that I like, even if it might be a little childish... but I like it because it’s a social game, everyone goes to see each other’s houses, I maybe can shine for my originality... then there is the Facebook group, and there you can talk, upload pictures, give and ask for tips... I like it for this community thing which characterizes the game... in the game you can share objects, go to the community places, and talk even about things that are not strictly related to the game, but about how people live the emergency situations, what they think about that”*. For all these participants, therefore, playing continued to have more or less the same role it had before the crisis.

In a nutshell, participants faced the lockdown using games in different ways, depending on how they perceived their normality and its disruption caused by the crisis.

4.1.2. Living the “new normality”

As time progressed, the participants’ perceptions about the pandemic changed along with the use of video games. Most of those participants feeling at ease during the lockdown somehow welcomed and maintained (or tried to maintain) the new habits imposed by the virus (e.g., working from home). By contrast, those participants who felt to be impacted by the pandemic either practically or with reference to their own health claimed to have recovered a sort of “new normality”. The participants who had health-related anxiety stated that they were less fearful of contracting the disease, counting on the development and distribution of vaccines. For the others, normalization was about having reintroduced some activities that had always been a part of their lives, like enjoying a break in a café.

However, most of these participants made it clear that they did not experience a “full” return to normality, suggesting an evolution in their perception of the crisis. In most participants’ eyes, day-to-day life now appears one-dimensional, boring, dragging, unsatisfying, apathetic, and more repetitive, compared to the non-pandemic world: *“of course the time is much less [now than in the first lockdown] and it’s all spent over the usual routine home-work-work-home... and even at home I’m never relaxed... now we’re back to the normal week, so I go to the office from Monday to Friday...”* (P12). As they came back to work and sometimes to the workplace, most participants felt they did not have adequate time and resources to counterbalance the stress from work and the emergency situation. Moreover, the participants were subjected to alternate phases of relative freedom and other lockdown-like restrictions. As a result, some of them complained about not being in control of their own actions according to their needs or emotions, but appeared to be somehow regulated from the outside, as recounted by P10: *“in the period when we could go out I had to make a lot of effort not to stay at home, because the idea*

of going out really made me nervous... and so I had to make a special effort... and so I took advantage of it to go a little bit to the mountains, a little bit to the sea, I did some sport... I wanted to do more, but then again they closed everything... and so back home".

In this new condition, certain aspects of playing were gradually lost. For example, as participants returned to work and the restrictions of the lockdown were lifted, they stopped using playing as a temporal regulator of the daily life or as a means for recovering moments for themselves: gaming was confined within precise time limits, such as during work breaks or after dinner. Moreover, it returned to having more of a leisure function, which had been partially set aside during the first phase of the crisis in favor of other functions, as P03 points out: *"in the first lockdown I was even more impulsive with playing, while in the second one I wasn't, it was more of a choice, more of a pastime... for the enjoyment of the game itself"*. However, participants did not exclusively play "for fun" but still actively adapted video game use, to attempt to satisfy their thwarted needs.

In particular, the participants who showed consistent signs of fatigue for the new normality opened up to video game uses that had not been contemplated before. This is the case of those who rediscovered titles and genres that were once ignored, and those who, on the contrary, put aside favorite genres, because these required efforts that they did not feel like or have the energy to make, as P10: *"Before I was more imaginative, more creative and so I used to play RPGs, also because I had time, I could create my character, I could give him the personality I wanted, I could build him, I could make him become a wizard, an archer or other things... I could give vent to this thing... and instead now slowly my creativity is going to drown, I'm much sadder than before, so I need more to follow a story, I need characters that have already been created and that don't require commitment from me, that's it."* For those who stuck within the same game, some showed the need to reduce its complexity, in order to adapt playing to the new conditions of material life and the limited free time available. This resulted in, for example, playing with fewer characters – is the case of *The Sims*, which allows the player to control the lives of "Sims" who are part of an entire family unity; or in playing quieter games to meet the need to relax and escape from the stress of a new normality made up of work activities "and" the pandemic events.

However, certain habits developed during the toughest period of the pandemic persisted even beyond the end of the first lockdown. Playing kept compensating for the lack of sociality, encouraged by the continuous alerts made by the government about the dangerousness of social contacts and by the continuously changing restrictive measures. Playing also kept virtually substituting those activities that were usually carried out outdoors, in public or natural spaces, when new lockdowns were enforced, like in winter 2021, when most participants wanted to run away again from "the four walls" of their home: *"for example, playing Assassin's Creed Valhalla is also a way to move without moving, in the sense of visiting places without leaving the house, because you cannot do it"* (P10). The need to escape from the "new world" thus persisted far beyond the end of the first toughest phase of the pandemic, remaining important, for several participants, even when many normal everyday activities became allowed again.

In sum, despite the first lockdown creating major adverse conditions for many participants, negative effects also emerged in a later phase of the crisis, when they actually regained freedom. However, many of them were capable of using video games to escape from this new normality. In the next subsections we will show further uses of the gaming technologies with reference to making sense of the crisis.

4.2. Making sense of the crisis through playing

In this section, we explore how participants dealt with the crisis and produced meanings around the new situation engendered by the pandemic, as well as how the utilization of video games contributed to this process, by favoring the information exchange, supporting the understanding of the pandemic events, and encouraging the exploration of

their consequences on the participants' life and identity.

4.2.1. Playing with others: informal talks and information exchange

During the first lockdown, the participants expressed a certain feeling of detachment and alienation when experiencing the pandemic events. These sensations were exacerbated both by the fact of living secluded and far away from the places where the most dramatic aspects of the crisis were taking place (e.g., in hospitals, in empty factories) and by the overwhelming amount of Coronavirus-related news. Many participants reported being unmoved by the flow of information about the progress of the pandemic and by the data counting COVID-19 deaths: *"It seems to me as if it was a movie told by somebody... it is as if it was, I don't know... it just happens in that little box there called television so it's not true... Yet there are also people close to me who have lost somebody... but it's as if they are giving you a number which is transmitted, as if it was the shopping receipt"* (P7). Rather, they withdrew from being exposed to the news, wanted to reduce their level of awareness of what was happening, or reinterpreted the meaning of the information that they were receiving: the latter is the case of those who believed that the news was inflated, exaggerated, or even fabricated. Since most media were not reliable in their eyes, some of them sought information from other sources, like relatives and friends who were considered domain experts.

In certain cases, participants used games as a "window on the world", in the attempt to understand more about the crisis during the peak of its unfolding. This is well explained by P11: *"in this game there's a sort of village, I usually go to the bar and there are other people and there I can talk or start a discussion... as there are many people from foreign countries, they often ask me how we are doing with the Coronavirus [...] I like to communicate with people from different countries, to understand their reality, to discuss ideas"*. This kind of conversation mostly occurred with fellow gamers, but they also happened with random players, who used the "dead times" (e.g., loading times) of the game to discuss COVID-related themes. In this sense, the game was more than a simple medium, a way to connect with other players and exchange information. Rather, video games partly recreated a familiar situation, namely that of "chatting at the bar": the COVID-19 theme was not the central reason why people came together, but it seeped into the various conversations that were taking place during the game sessions, making it possible to talk about the crisis in an informal way, as explained by P14: *"let's say that it is a much more informal occasion, so there is not so much need to give fixed appointments, but... if we had to make a Skype call it would be more difficult to organize, also because there are other things, maybe I do not want to, because after 10 min we are bored... it's much more informal to 'hide', let's say, the element of sociality behind the excuse of the video game... we meet to play, but while we play we talk about our things, about COVID, about everything"* However, this function gradually disappeared as the pandemic evolved, until it almost completely vanished in the summer of 2021, when the participants showed to be more tired of talking about the pandemic during the everyday conversations.

Nonetheless, despite the importance of video games in connecting people for discussing and producing collective sense about the pandemic was greater in the first phase of the crisis, video game playing supported participants' sense-making throughout more than one year of pandemic in other ways, for instance, by allowing them to reflect on their own identity.

4.2.2. Reflecting on one's own identity

In the initial phase of the pandemic, most participants adopted a reflective stance in respect of the gaming activity. Dedicating time to video games was a sort of re-appropriation of their own identity, as retrieved in several conversations with them. Many participants could stay more in contact with their emotions by reconnecting with the past and evoking their "good old memories", as described by P04: *"It happened to me when I play Red Dead Redemption, I stopped on a hill during the storm, I stopped just to look at nature and I thought, 'I'm at home now and I cannot go out'... I am originally from a mountainous area, so I love the*

mountains, my father too... then, seeing these scenes makes me think that I miss going back to the mountains... and so sometimes I stop maybe 20 min in the game to admire the rain, the snow, the mountains... let's say that when you play an open world [name of the genre] where you have these contexts so realistic, and you are closed in a house where you have nothing to do, this gives you a lot to think about". These participants struggled in imagining the future and the possible unfolding of the crisis, especially at the beginning of the pandemic: by recovering lost aspects of their own identity through playing, they were stimulated to think about the future and their evolution as individuals, "for me the return to vintage games is about discovering who you are (...) vintage is the return to childhood, to what you were and what it gave you... playing certainly helps you in this period not only to pass the time but also to discover who you were, who you are and what you would like to be... (...) you relive your childhood and think about what you would like to be when you grow up" (P5).

This process did not cease with the end of the lockdown: in the follow-up interviews, many participants confirmed that the game supported the rediscovery of their own identity, namely, their needs, their priorities, and even how they were deeply affected by the crisis throughout its unfolding. Most of the examples were provided by female participants, like P15 who recounted the events occurring in a simulation game (i.e., The Sims 3). A significant episode made her realize that she had forced her Sim to live indoors, without taking advantage of the world outside, until her avatar expressed the need for fresh air. In doing so, the participant realized the unhealthiness of her own habits and how COVID-19 had negatively changed her perception of the world. Later on, she recounted how a loss in the game (i.e., a divorce between her avatar and its husband) made her aware of how the emotional strategies that she adopted to cope with the pandemic were not healthy for her: "To tolerate the fact of being lonely I had to close myself up a lot and I avoid the world... but in reality it's not something I want or that's good for me". P4, instead, described how his gaming behaviors mirrored those performed in the real world, encouraging him to reflect on his own identity and the values that truly mattered to him during those difficult times: "in this game [Days Gone] my goal is to collect as many resources as I can, to keep them alive as much as I can, going to retrieve these resources alone, not taking anyone with me... and I see that this game brings out a lot of what is in me, it makes me think how I would react in front of a possible risk (...) I reflected on this experience, and in fact now when I have to go shopping I decided to do the same thing... I go alone and leave my partner at home, so she's safer [...] in the same way, in the game, I try to accept all those who want to be part of my group, even if this means having more needs... and this represents my desire to take care of people, to meet people, to protect them, even now in the pandemic". By immersing themselves in the digital reality, these participants could use games as a means to reflect on their own identity, choices, and behaviors, as well as the best decisions to make.

4.2.3. Being connected with the pandemic

We reported that participants felt a sense of detachment from the ongoing situation during the lockdown. In a few cases, this feeling appeared to be an intentional strategy to deal with the frightful nature of the pandemic, as declared by P9: "It seems that we are living in a bubble, in a dream, and that what happens doesn't touch me much... but this is the point, I don't want to be touched much to avoid falling into a form of depression... I prefer to think of something else...". In other cases, this sense of estrangement could even evolve into a feeling of worthlessness when the participants felt that they could not do anything to improve the situation: "When you know that you can't do anything to modify the state of the things... you feel frustrated... So you vent this frustration on the video game, to forget what you're going through" (P5). In other cases, the pandemic appeared as something difficult to accept, precisely because of its tragic and complex nature.

However, video games could sometimes counteract this feeling and make the participants more in touch with the new dramatic reality: this happened throughout the whole evolution of the crisis. An interesting example comes from P14, who described how the game facilitated him

fighting against the "sense of unreality" generated by the crisis: "In video games you often live these stories where the world is about to change... and you know, when you play, that you are in the middle of this change... and I feel that in this historical moment something is changing as well, maybe we don't realize it yet but probably next year we will see that an era has ended... And I feel this transformation occurring in the world... because I notice that what I see happening in the game, so political upheavals, twists and turns, and so on, also happen in the real world... so I feel this discrepancy between what was before and what will come... it's as if playing increases the contextual perception, because you know that what you have just experienced in the game is also occurring outside... the adventure in the game it's also an experience, in its own way. ... so, it is true that the game can alienate you from the world... at the same time it can give you a key to read the world...". In fact, these participants suggest that not only video game experiences are just as valid and significant as real ones, but that they can help the individual understand a situation from which she appears to be disconnected, by making her better see what is happening thanks to the experience in the simulated world of the game.

At times, participants could also identify overlaps and similarities between the narrative aspects of the game and the reality outside. This mutual resemblance had various effects. On the one side, it could push participants to change the video game played, when it triggered too powerful and unwanted emotions: this is, for example, the case of plague-themed games such as Plague Inc.¹ On the other side, the game could provide the players with the possibility of dealing with the pandemic narration in a lighter and more approachable way, as in the case of P16: "In the game there is a disease that is spreading in the city and the heroes have to go and find out what this disease is... and we commented, 'oh, my God, the Coronavirus is also here!'... but we lived this episode in a very funny way, it made everyone laugh without thinking too much about it... we lived it as a sort of exorcism... so much so that this disease is called the Gul Fever and we instead called it the Coronavirus Fever".

In other cases, playing helped participants better appraise what happened during the most dramatic moments of the pandemic, by making them put themselves into the crisis situation, as well explained by P1 in the follow-up interview: "I now play a lot a Real-Time Strategy game, which requires a lot of managerial skills... you have to grow a population and make it become civilized... and I have been thinking from the point of view of someone who has such responsibilities... since in the game I play the role of the villain, I must think like a villain... when I attack a village I, of course, sacrifice the little goblin (...) just as our politicians do not care about the small coffee that has just opened, they shut it down with the lockdown (...) and at the same time I realize I'm living a situation that is hard to manage...like when I play and I have a whole empire to build... and now, after one year, I can make a more serene evaluation of what is the reality... I understand that our politicians have made mistakes, they have taken decisions from the gut, but I understand why this has happened... because at the end of the day no one was prepared for this, these people have never studied how to manage a pandemic... but in the end you cannot save everyone, someone is bound to die". In this case, one and a half years after the beginning of the pandemic, playing video games helped the participant rework his feeling of distrust towards the government, by experiencing "in person" what it means to take on the responsibility of managing a critical situation in the complex social landscape of gaming. The main narrative of the events that had took place during the previous year and a half was then reworked through the reflections made in relation to the game events. By changing and enriching the story - that was initially interpreted as "managerial incapacity of the politicians", the participant could recognize the complexity of the situation and grasp its dramatic nature, instead of merely focusing on the mistakes made by the decision makers.

¹ Plague Inc. is a real-time strategy simulation video game. The objective is to create and evolve a pathogen, developing a deadly pandemic, so to annihilate the human population.

4.2.4. Experimenting on alternate “identities”

By playing characters having different characteristics from their own, some of the participants had also the opportunity of adopting a different perspective on themselves. As P14 highlighted, “*by playing another character, my avatar becomes something else and makes choices that I wouldn't or couldn't make*”. In other words, these participants had the opportunity to experiment on an alternative identity, also exploring the connected moral aspects. Especially at a later stage of the crisis, participants' recounts of their gaming experiences include more “dark decisions” than the usual, as they made choices and performed actions in the game that could be described as “immoral”: for instance, playing the role of the villain, as in the case of P1 in a Real Strategy Game, being a killer or a “home wrecker” in a Simulation game (P12 and P15), raging against enemies in an oddly aggressive game within an Adventure/Open World video game (P05), or killing an antagonist character despite his moral path to redemption (P08). P16, for example, explicitly recounted that “*during these latter times I play very violent video games more than before, I need to vent, to free myself from all these absurd rules that keep me imprisoned. It's as if I want to destroy an order, this new order given by the myriad of these new rules that regulate my life*”.

As reported before, throughout the crisis participants produced meaningful connections between the virtual world of video games and the pandemic world, which often made them reflect on key aspects of their own real identity. At the later stages of the pandemic, however, participants were more and more open to questioning or overturning certain aspects of their own personality and experiment on different “selves,” also to vent the feelings of anger and frustration, of impatience and dissatisfaction with the new normality, which was not “good” as they expected. In this vein, the experimentation of alternate “moral decisions” can be further understood in the light of the emergency context. Italian government endorsed the rhetoric of individual responsibility in the evolution of the crisis. During the whole evolution of the pandemic, citizens' behaviors were continuously “judged” by the public authorities and media, which encompassed the idea that there were “good” (e.g., protective, hygienic) and “bad” (harmful, dangerous) behaviors for which individuals were responsible (Andreouli and Brice, 2022). In a climate where citizens were continually urged to assess the rightness of their everyday choices (e.g., meeting an old parent, going out with friends), playing video games might have acted as a way to release the tension and perform “transgressive behavior”, which, nonetheless, could cause no harm to others and apparently produce no effect in the real world.

To conclude, we observed that video games were not only used as a tool to escape from the difficult situation participants went through. Rather, they supported reflection processes that led participants to talk about the pandemic events in a way that made more sense than the “cold numbers” broadcast by the media, to confront their own way of being in the crisis, and to be more in touch with the pandemic world, as well as to explore alternate identities and moral perspectives.

5. Discussion

This study investigated the subjective experience of the pandemic of 16 Italian participants over one year and a half of coexistence with COVID-19, highlighting the multiple functions that video games had in the people's management and understanding of the crisis. While previous studies limited their investigation to the early phases of the pandemic (Barr and Copeland-Stewart, 2022; Formosa et al., 2022; Ballou et al., 2022; Nebel and Ninaus, 2022), we extended the exploration to its later stages, namely from April 2020 to fall 2021, providing a longitudinal account of the role of video games during the health crisis.

The first major contribution of this study is to provide an in-depth account of the multiple ways through which the pandemic was lived by the participants and how they used video games to manage and understand it in its temporal evolution: as the very same ideas of “crisis” and “normality” varied depending on the participants' idiosyncratic

interpretations of the events and their unfolding over time, video games were used in different ways by different individuals and at different stages of the pandemic.

In the following, we discuss the main findings of the study, highlighting similarities and novelty with respect to previous research.

Firstly, our study confirms previous work on the “emotional” and “escapist” roles of video games during difficult life moments, as well as during the COVID-19 pandemic. Similarly to the findings pointed out by Iacovides and Mekler (2019), we discovered that video games not only allowed players to work through their emotions and cope with how they felt about the crisis, but also offered respite from the stress and trauma that participants were experiencing, providing distraction and escape. This “escapist” function of video games has been also pointed out by previous research on the pandemic: Kleinman et al. (2021), for instance, noticed that players used video games to escape from reality, its troubles and the negative emotions it engendered; Barr and Copeland-Stewart (2022) and Formosa et al. (2022) stressed that they functioned as a distraction or escape, inducing a sense of calm; and our previous study (Boldi et al., 2022) emphasized that video games offered players multiple ways to run away from the stressing reality created by the virus.

Secondly, our study confirms Semaan et al. (2016) and Barr and Copeland-Stewart (2022) findings about the video games' capability of providing a sense of normality, by reconnecting players to their past world or by offering structure and routine. Not only, it confirms Ballou et al. (2022), Iacovides and Mekler (2019), and Barr and Copeland-Stewart's (2022) findings, which point out that video games may offer opportunities for being connected with distanced significant others. However, differently from these studies, we also found that video games may enable players to talk about a crisis in an informal way.

Thirdly, as a novel finding with respect to previous research, we discovered that video games were used as a means to make sense of the new “pandemic world”. This is in line with literature highlighting that playing is a meaningful activity (Mekler and Hornbæk, 2019): players may reflect on gameplay and how it relates to their personal life, which may support sense-making processes (Bopp et al., 2016; Rapp, 2018; De Schutter and Vanden Abeele, 2010; Zhang et al., 2020). As the pandemic experience was so heavily meaning-laden, so the act of playing was a meaningful activity: playing provided people with multiple opportunities to make sense of the events and repair the unpleasant sense of unreality emerging from the disconnection between the private experience of the crisis and its collective narration provided by the media.

Fourthly, differently from previous studies, we found that for certain participants the crisis did not represent a rupture from the previous normality. This is particularly evident when we consider those participants who already felt marginalized in the old world, such as people with neurodiversity or mental health conditions, or people who barely sustain aspects of modern life that are considered normal, like overworking, having little or no contact with family and affections, and so on. For these participants, playing remained a tool to entertain themselves or to simply stay in touch with loved ones, as it was before the pandemic.

Lastly, as an additional novel finding, we noticed that the participants attributed diverse “functions” to video gaming depending on the temporal evolution of the crisis. Certain functions emerged more strongly at the outbreak of the pandemic, and then faded away as time went by. Others have persisted throughout the crisis, while others appeared more prominently at a later stage of the pandemic. To better highlight the diversity of these functions, we will now propose a preliminary model of the role that video game technology had in the pandemic considered in its temporal evolution, which represents the second main contribution of this study.

6. A model of the role of gaming technologies in COVID-19-like crises

In this section we explain the main elements composing the model,

which is visually presented in Fig. 1. The figure illustrates the four primary functions that video games had, playing a different role at different times of the crisis. These functions are also symbolically put on a dotted line, indicating the extent to which a specific function brings the player closer to the reality of the crisis, which we refer to as “psychological proximity”: from the most detaching function (that is escapism on the left) to the most connecting one (being in contact on the right). By and large, playing video games mediated the relationship with the crisis in four distinct ways: i) by allowing the participants to *escape* from the difficult reality of the crisis; ii) by allowing for the *exploration* of alternate identities and moral values; iii) by enabling players to *discuss* the crisis events and collectively build new sense around it; iv) by making them understand more effectively their own identity and the pandemic events, encouraging them to *be more in contact* with the “real”. The last three functions represent three different facets of the sense-making processes elicited by video game playing.

Two functions, namely, escapism and “being in contact”, were observed throughout the whole unfolding of the crisis, albeit with slight variations. Instead, the utilization of video games to discuss crisis-related topics primarily occurred during the first phase of the pandemic, whereas playing to explore different identities mainly took place at the later stages.

Let us now go into the details of each function. First, we said that video games were used to promote *escapism*, encouraging a temporary detachment from an unwanted reality. The study findings highlighted that the escapist function can be fulfilled by video games not only at the beginning, but also in a more advanced phase of the crisis. During the first lockdown most participants wanted to escape into an alternative reality where to avoid the negative emotions engendered by the crisis, maintain a sense of continuity with the “old” world, and compensate for the lack of social and outdoor activities (Section 4.1.1). Likewise, during the “new normality” video games maintained their capability of relieving participants from stress and of providing them with an alternative “place” where to meet people and spend leisure time, even though other aspects of video game “escapism,” like the ability to reconnect players to the “old temporality” by regulating their daily routines, were gradually lost (Section 4.1.2).

This said, the most interesting utilization of video games emerging

from our study is that of a sense-making tool that helped people experiment with different identities, collectively discuss the crisis, and reflect on the reality of the pandemic and their own “real self”.

As for the first sense-making function, the video game provided rich metaphorical resources, thus mediating the relationship that participants had with the world, allowing them to experiment with different identities and values (Section 4.2.4). The adaptive functions of play have been historically emphasized by psychologists, who explored how play contexts may allow children to simulate alternative realities, engage in social experiences, repair negative emotions, and re-create real-life conflicts (Granic et al., 2014). This potentiality has also been recognized in the context of video games but had been mostly harnessed in clinical settings with the mediating role of a therapist (e.g., Gerhardt and Smith, 2020; Rosegrant, 2012). In this study, we discovered that participants found their own way to use video games as an alternate reality tool to explore and experiment on alternative moral values performing actions that subverted the normally accepted social rules. This function emerged at a later stage of the crisis and freed them from the external judgment they felt with respect to their behavior. RPGs, in particular, were suitable for this purpose, as they may enable people re-author their experiences (Franco, 2016).

As for the second sense-making function, video games represented a sort of “plaza” where to discuss information related to the pandemic and collectively build new sense about the crisis (Section 4.2.1). It has been noticed that video games may offer different possibilities for interpersonal communication among players (Klimmt and Hartmann, 2008). The study findings show that video games provided a “context” for interaction (e.g., the “bar context”), by recreating a familiar situation within which participants could informally share COVID-related information and experiences. As a matter of fact, discussions about the coronavirus were not the main reason why people gathered around the game, and this made a significant difference. In fact, in line with previous works (Garfin et al., 2020; Thompson et al., 2017), we found that some of the participants suffered from an excess of media exposure, which often conveyed an apocalyptic atmosphere. In the first months of the lockdown, people looked for a retreat from the pandemic events as they were narrated by official channels but did not stop talking about the situation: rather, they wanted to do it in an informal context, where they

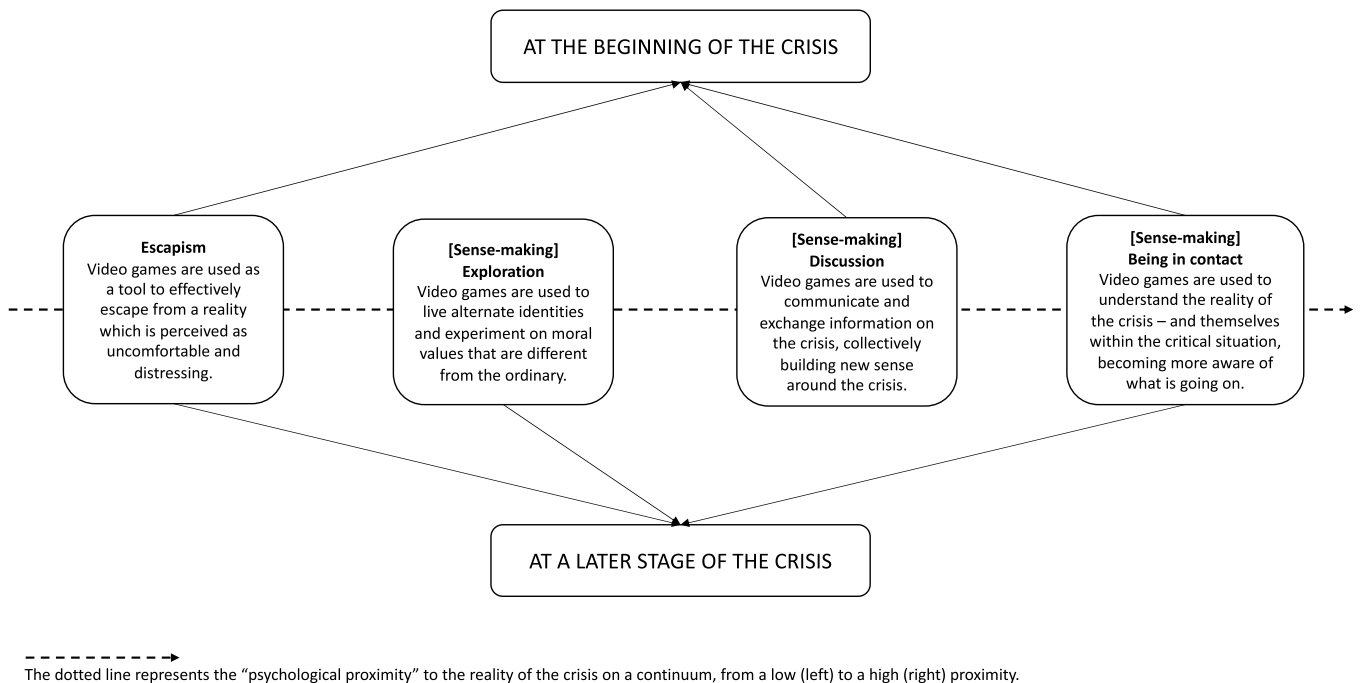


Fig. 1. Use of video games with respect to the “reality of the crisis”, at different stages of the pandemic.

felt at ease, like in video game worlds.

As for the last sense-making function, most participants initially experienced the pandemic with a certain sense of alienation and detachment (Section 4.2.3). Video games could then allow participants to “come back to reality” and be more aware of the ongoing situation. In fact, video games often represent difficult situations like dystopian futures, making people confront with serious and powerful themes in a virtual environment, questioning the status quo (Schulzke, 2014). Participants who played similar games had the opportunity to be in touch with something - the pandemic emergency, that was experienced as ineffable, unreal or surreal. Sometimes, negative reactions arose in response to games that depicted particularly dark aspects of the crisis, pushing the player to perform potentially harmful actions (e.g., spreading a virus in *Plague Inc.*). However, when participants could make meaningful and positive choices and felt a sense of agency, like in video games with managerial components, they could counterbalance the sense of powerlessness and worthlessness induced by the crisis. In fact, taking action during a crisis can help to overcome negative feelings and restore a sense of control, fostering empowerment (Benight and Bandura, 2004).

Moreover, playing video games could make several participants more aware of their own “real” identity and its characteristics in relation to the new reality (Section 4.2.2). Certain games were used as a reflexive tool, increasing awareness of personal experience of the crisis. This mostly happened with simulation games replicating real-life situations or real-life environments. In this sense, video games can be interpreted as “transitional spaces” (Winnicott, 1953) within which important mental and regulatory process can be activated. In line with Rosegrant (2012), we found that video games helped people integrate their thoughts and feelings with the external reality of the crisis, providing an alternative way to access their internal world.

In conclusion, video games have traditionally been seen as tools that allow players to separate themselves from reality and put a caesura between the real and the game worlds. For sure, when reality is negative, a certain degree of escapism can be beneficial and video game play can provide a “place” where to flee. Nonetheless, balance can be difficult to achieve, and this separation is seen with concern by researchers who have investigated the negative consequences of such a detachment from reality (Blasi et al., 2019; Deleuze et al., 2019). This study shows that there are complex connections between the playful digital world and the real world, and that video games may support players in different ways, when they are used to deal with a crisis. In an initial phase, gaming can be a way for escaping from the negative aspects of the crisis, as well as for providing a space for discussing and collectively making sense of the critical situation. Then, playing, while maintaining its escapist function, can start being used as a metaphoric experience, which allows individuals to build sense around the critical events and the aspects of identity that are affected by the crisis, and, possibly, help people take better decisions for themselves.

7. Implications for design

In the following, some design implications to be applied to commercial video games are presented. If compared to serious games developed to help people manage emergency situations and traumatic events (e.g., Chittaro and Buttussi, 2015; Seddighi et al., 2020; Ji and Nishino, 2020; Volpe et al., 2022; Saltzman et al., 2017; Sudarmilah et al., 2019), commercial video games may have a potentially wider range of applications in the crisis context.

In fact, serious games are typically designed for a specific aim and endowed with simple tasks, and thus may not be easily adaptable to different situations and individuals (Klemke et al., 2015); instead, as our study findings show, commercial video games can be used by different individuals for different objectives and in different ways: their flexibility may come from their greater complexity in terms of opportunities for action within the game, which is often due to the big investments that

video game companies are able to make (Altay, 2015). Moreover, commercial video games are designed to be enjoyable and are voluntarily played by the player, while serious game design tends to place less emphasis on the “fun factor”, which may hinder the development of long-term engagement, and consequently their effectiveness during a crisis (Buday et al., 2012). Finally, commercial video games are ready-to-use technology already integrated into the everyday practices of many individuals, while serious games need to be introduced as a new tool, and the person may perceive them as extraneous to her routines (Boldi and Rapp, 2022). However, researchers cannot exert control over the design of commercial video games. As a result, these games might produce undesired side effects, because they are not specifically designed to improve a specific condition or aspect of the player’s life (Boldi and Rapp, 2022; Formosa et al., 2022).

For these reasons, we focus on design implications that can be applied to the usage of commercial video games for crisis management, with the aim to give the player “more control” over their effects, allowing her i) to choose the most suitable games for her needs and ii) to be proactively supported in her sense-making activities.

7.1. Gaming recommender systems for crises

We showed that video games may fulfill different functions during a crisis, also depending on the temporal evolution of the crisis itself. We found that the participants were generally able to find the game that best suited their needs, even though they often remained loyal to their favorite game series or reverted to old titles instead of trying new ones (Section 4.1.2). This strategy proved to have some flaws, as participants realized that some of the games that they had always enjoyed did not necessarily provide them with the same benefits in a new situation (e.g., some games were too demanding), so that they had to adapt their playing style. This may be problematic particularly for people having scarce experience in video game playing.

A possible solution might be to guide players in the search of games that can best satisfy their needs. Gaming recommendation systems, which offer users a list of game suggestions based on their profile (Calderon-Vilca et al., 2020), may help people look for new games on the basis of needs that are not merely recreational and may differently appear at different stages of a crisis. A first possibility is to give suggestions based on the previous choices or preferences of the users, such as the genre (Catalá et al., 2014). As a matter of fact, people may develop a preference for certain games, which may have deep roots in their personality (Braun et al., 2016; Peever et al., 2012), and certain genres might satisfy players’ idiosyncratic needs better than others. However, even games belonging to the same genre may differ in design features that may be relevant for the player during a crisis, like the degree of realism, the setting, and the main theme. For instance, games with a dark and gloomy atmosphere might be undesirable during a certain moment of a crisis and this should be considered (Section 4.2.3). A second option is to suggest games with characteristics that differ from the difficult reality that the player is experiencing, for instance, games set in fantasy rather than in urban environments, or games taking place in a different historical period, in order to provide an alternate world and explicitly support the positive escapist function of games (Section 4.1.1). Moreover, in order to enhance the transparency of the recommendation process, the system could provide explanations about its suggestions, also helping the user reflect on herself. For instance, when proposing a multiplayer game, a message could be displayed emphasizing the importance of socializing with others during difficult times.

Another possible and more economical solution could be that of exploiting existing web-based platforms of video games. An example is VideoGameGeek (VideoGG), an online database containing thousands of video games, each of which is described according to different criteria as the main theme, the number of players and so on. In both case - whether a new recommender system or an existing platform is provided, new and more detailed game classifications should be developed in order to

enhance the recommendation process. This process should consider the specific design features of video games and their potential effects on players, drawing, for example, from studies that have investigated the role of video games in mental health (e.g., Boldi and Rapp, 2022). By doing so, players could be offered new games based on their psychological and emotional needs at any given moment.

In fact, adapting to mutated conditions is also a matter of keeping good habits (e.g., going to sleep early, eating regularly). When a crisis disrupts people's routines, choosing the right video games may help them regain a healthy lifestyle: for instance, when people are forced to be sedentary, active video games could be suggested to encourage them to do more exercise; furthermore, video games promoting relaxation could be suggested before bedtime, while others eliciting more energetic feelings could be promoted during different moments of the day when cortisol levels usually drop. This is in line with research on playing during difficult life moments, which pointed out that games may act as a catalyst for personal change, transferring confidence and motivation developed in game to other areas of a person's life (Iacovides and Mekler, 2019).

7.2. Making sense of the crisis

We showed that video games may help players make sense of the crisis, allowing them to reflect and explore alternative realities and identities, which may help them reconnect with and rethink of the most problematic aspects of an extremely difficult life moment (Sections 4.2.4 and 4.2.2). The participants reported that this reflective activity was often triggered by certain situations or events happening in the game. However, possible valuable insights may be lost, if they occur in the midst of gameplay. As a possible design solution to this shortcoming, the game could provide the player with the possibility to save a video clip or take a picture of the gaming scene that evoked a particular meaningful reflection. These video clips would be saved for subsequent access and could be replayed at the end of the gaming session. Clips could then be coupled with annotations, like comments and thoughts that were experienced while playing that particular event of the game. A separate area on the gaming platform could then collect all the clips or photos recorded, placing them on a "timeline", which may support the player in reflecting on the temporal evolution of her experience during the crisis.

Moreover, gaming platforms could automatically pair "real world" events to the in-game events saved by the player, creating stronger connections between her gaming experiences and what is happening both in her "real life" and the "real world". This information could be mined from various sources, such as the player's devices (e.g., wearables, if the player gives consent to transmit the data to the system), an integrated "diary" that prompts the player to provide updates after each gaming session, and even news coming from online media. To reduce the burden of self-reporting, the "diary" could leverage colors and shapes (e.g., to indicate the daily mood of the player), instead of relying of textual insertion, exploiting design techniques that were experimented in self-tracking research (Rapp and Tirassa, 2017). The system could then prompt correlations between in-game events or habits and real-world events through open questions (e.g., "Why do you play more in multi-player mode when news about critical events is released by media? Did you notice that when you marked this in-game event as important, you had a very low mood for several days?"). This could stimulate further sense-making and reflection processes in the player, allowing her to connect with reality rather than merely escape into the video game worlds.

8. Limitations

We acknowledge some limitations of our study. First, the study findings are based on a group of 16 participants, which dropped to 10 individuals in the follow-up phase. Probably, the effort required by participating to the interviews and the mutated conditions after one year and a half from the first interview might have discouraged some

individuals from taking part in the second phase of the study. Given the smaller sample size, in the later phase of the crisis there might be other ways of using video games that were not captured by our research. However, we remark that the goal of this study was to provide an in-depth understanding of the video game usage during the first year and a half of coexistence with the pandemic by going in depth into several players' personal histories, and not to give a representative overview of the gaming situation in Italy. The methodological perspective that we adopted (i.e., IPA) is also usually targeted to a small number of participants (Smith and Shinebourne, 2012), diving into their personal experience rather than seeking broad generalizations.

Secondly, we conducted the interviews in two distinct phases of the pandemic, while monitoring additional moments could have provided a more fine-grained exploration of the changes induced by the evolution of the crisis. However, we were able to rely on people's ability to reconstruct events and make sense of them at a later stage, thus collecting meaningful personal reflections on the whole period of the pandemic.

Finally, we believe that research on this topic would benefit from further critical perspectives on the role of video games in society. As we observed, video games have been utilized as a tool to restore a sense of normalcy or to escape from reality, thus potentially making participants more willing to accept the restrictive measures enforced by the government, which have strongly influenced their routines and gradually deprived them of a number of basic freedoms and needs, like that of sociality. In this sense, video gaming can be an instrument for enacting a Foucauldian disciplinary power, preventing people from criticizing the system and passively accepting and conforming to the rules. More reflections on this point should be made in future work.

Conclusion

In a difficult situation such as a pandemic, does gaming technology have any role in shaping how people think about and experience the crisis, considered in its evolution over time? We tried to answer this question by involving 16 Italian players in two rounds of interviews, during the first Italian lockdown and then after one year and a half, asking them to recount how they lived the crisis and their video game usage.

The study findings show that participants differently understood and experienced the crisis and used video games not only to escape from an unwanted reality, but also to make sense of the pandemic. Based on these findings, we proposed a tentative model that depicts the role that gaming technology may have during a crisis that evolves over time. In fact, video games were beneficial not only in the first stage of the emergency: their usage was adapted by players to the evolution of the crisis. Even though certain functions of video games faded away after one year and a half, video game playing kept providing a metaphorical experience that helped participants reflect on and be in contact with the new reality that they were living.

These findings shed new light on the role of video games in critical evolving situations, showing that their benefits extend beyond escapism and can encompass the adaptation to and the understanding of a "new world".

CRedit authorship contribution statement

Arianna Boldi: Investigation, Conceptualization, Writing – original draft, Writing – review & editing, Data curation, Formal analysis, Methodology. **Amon Rapp:** Conceptualization, Formal analysis, Writing – original draft, Writing – review & editing, Project administration, Supervision.

Declaration of Competing Interest

The authors declare that they have no known competing financial

interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

The data that has been used is confidential.

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