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Article:

Playing Through Tough Times: Exploring the Relationship between Game Aspects and Coping Strategies during Difficult Life Challenges

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The potential benefits of playing video games during times of difficulty have been increasingly recognised by researchers yet little is known about how particular aspects of games may relate to different forms of coping. An exploratory survey of 130 participants and content analysis identified 31 game aspects, across 6 categories, that were beneficial or detrimental to players. Our findings illustrate that games can support a range of coping strategies, including emotion-focused, avoidance, and meaning-focused coping. We also identify how specific aspects of games relate to different coping strategies during times of personal difficulty. For instance, emotion-focused coping was most commonly linked to challenge game aspects, where overcoming difficulties allowed players to experience positive emotions such as competence. The findings of this study provide valuable insights into *how* games may be able to facilitate a range of coping strategies during tough times.

CCS Concepts: • **Human-centered computing → Empirical studies in HCI**.

Additional Key Words and Phrases: Video games, Game Aspects, Wellbeing, Coping, Difficult Life Experiences

1 INTRODUCTION

Games have long shown a variety of cognitive, social or learning benefits [42] and can offer an outlet to make players feel better about themselves [2, 89]. The popularity of digital gaming has led to growing interest in examining how playing games positively affects player wellbeing, including promoting post-work recovery [22, 23, 71], facilitating social connection by playing games with friends online [6, 50] and enabling emotional or thought-provoking gameplay experiences [70]. Additionally, gaming has been explored in relation to its impact on mental health [73]emotion regulation [99] and stress relief [86]. The focus on gaming and wellbeing research was further magnified during the COVID-19 pandemic [4, 6] as research highlighted that playing games helped people cope by offering a routine during a destabilising time [55], opportunities for socialisation [21] and providing an escape during a period of difficulty [15].

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The potential benefits of gaming have also been examined across various domains. For instance, games have been shown to support adaptive strategies such as facilitating meaning-making and reflection during a period of bereavement [32, 68], and have also contributed to the rehabilitation of US veterans through community building [48]. In addition, gaming has been shown to offer health benefits by providing an accessible resource for therapeutic interventions that mitigate depression and anxiety [46, 59], and through offering a sense of accomplishment for players dealing with serious illnesses [24]. Whilst there are positives, gaming can be used as a maladaptive coping strategy for individuals experiencing adverse experiences [9], thus contributing to detrimental effects on wellbeing [9, 63, 66]. Similarly, Kardefelt-Winther [54] proposed that individuals may use online environments to alleviate negative feelings, potentially leading to problematic use.

Whilst gaming has been shown to lead to positive and negative effects [89], it is unclear *how* games contribute to different coping strategies [50]. Therefore, identifying particular aspects of games that are helpful or detrimental to players during challenging times is essential to understanding how and why players gravitate towards different games as a coping mechanism. By delving into the relationship between games and coping strategies, we can gain insight into how players engage with games, as well as the specific game aspects that may facilitate different coping strategies.

To explore these gaps, we conducted an exploratory study with 130 participants before carrying out a content analysis that focused on identifying what game aspects are beneficial or detrimental to players, and how they relate to different forms of coping. The contributions of this research are threefold. Firstly, our findings contribute to the understanding of research on gaming during times of personal difficulty and how the games themselves are impacting players. Secondly, games can support a range of coping strategies including emotion-focused, avoidance and meaning-focused coping with varying degrees of effectiveness. Finally, to our knowledge, this research is one of the first studies to identify how specific aspects of games relate to different coping strategies during times of difficulty.

2 RELATED WORK

To explore related areas of research before introducing our research aim and study, the following sections will examine the literature relating to gaming during times of difficulty, research on coping strategies and games, and discuss prior work that has considered specific aspects of games in relation to player experience and wellbeing.

2.1 Gaming During Times of Difficulty

The field of gaming during periods of personal difficulty has garnered significant interest in recent years, where there has been a focus on mental health conditions such as depression and anxiety e.g., [59], and grief e.g., [25, 68]. The definition of a difficult life experience can vary but generally focuses on periods of stress, confusion, trouble, or discouragement [50, 75]. Researchers have explored various life experiences and domains in this context. For example, Colder-Carras et al. [21] investigated the use of video games by veterans, revealing that gaming can aid in adaptive coping, eudaimonic wellbeing, and fostering camaraderie during reintegration into civilian society. Similarly, Comello et al. [24] found that recreational video games enabled cancer survivors to experience scenarios that reinforce their sense of competence and purpose.

While there are opportunities to consider how games can be designed as mental health interventions [8], researchers have also examined commercial video games use as a form of mental health support [10, 59]. For instance, Philips and colleagues [80] analysed Steam reviews to assess their therapeutic potential and found players discussed their experience of different games in relation to a variety of mental health effects relating to coping and recovery, as well as emotional regulation, social connection and obsessive passion. Other research has emphasised the role video games can

play in the grieving process, offering escapism and emotional processing [31], serving as a platform
for memorialisation [25], and providing narratives that resonate with personal experiences of loss
[32, 68, 90].

Research has also looked at how and why people turn to games during difficult life experiences.
Iacovides and Mekler [50] surveyed 95 participants and their qualitative analysis revealed that
gaming can provide players with a much-needed break, opportunities for personal growth, and a
way to feel connected to others. For many, gaming also offered feelings of competence and control
that may have been lacking in their day-to-day lives. In addition, gaming provided players with a
sense of purpose and helped them process their emotions. Building on this work, Caro and Popovac
[17] developed a quantitative measure of gaming during tough situations, where their findings
suggested that players use gaming both as a means of escapism and as a way to actively confront
challenges in a virtual environment.

Recent studies have examined the use of video games during the COVID-19 pandemic e.g.,
[51, 55, 63, 78]. Research suggests that games can support coping by fostering social connection,
providing distraction [6], and helping players escape the unsatisfying reality of lockdown in search
of new normalcy [3]. For instance, games like Animal Crossing: New Horizons [52, 94] have been
linked to increases in wellbeing during the pandemic. In addition, Boldi and Rapp [11] present a
dynamic perspective on how games can assist individuals in navigating difficult times, considering
how players engage in games not only at a specific point in time but also as the difficult time
evolves in conjunction with the needs of the individuals involved. The literature on gaming during
the COVID-19 pandemic has highlighted the role of gaming as a coping mechanism, but further
research is needed to ascertain whether these findings are consistent across various life experiences
and to explore how specific aspects of games relate to different coping strategies.

Whilst research in this area is growing, it is important to note that these studies have primarily
focused on the overall player experience in terms of how players engage with games to support
coping during times of difficulty. However, as noted by Iacovides and Mekler [50], the mechanisms
by which games support players and relate to coping strategies remain unclear. Therefore, we
argue that there is a need for further exploration of gaming during times of difficulty, particularly
in relation to identifying how specific elements of games impact players and how these elements
may relate to different forms of coping.

2.2 Coping Strategies and Games

When individuals experience stressful situations, there are a variety of coping strategies that they
may engage in. Coping strategies can be defined as: *"constantly changing cognitive and behavioural
efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding
the resources of the person"* [62]. The transactional model of coping has classified coping strategies
into (1) problem-focused, which seeks to address a stressor by defining the problem and addressing
it through thinking through potential solutions or approaches, (2) emotion-focused, which involves
regulating the emotional response and reducing emotional distress caused by a particular stressor
[62, 84] and (3) avoidance-focused coping, which refers to distancing or avoiding the stressor
through denial or diversionary tactics [19, 62]. Lazarus and Folkman [62] found that how individuals
assessed stressful situations had a significant impact on the coping strategies they adopted. Those
who believed they could change the situation used problem-focused coping, while those who
accepted the situation focused on regulating their emotions. However, growing research has
brought forward different forms of coping, such as (4) meaning-focused coping, which involves
using strategies to reappraise meaning when experiencing difficult challenges [34, 76] and social
coping [34], which refers to seeking support from one's community to alleviate stress [35] either
through seeking information directly or seeking moral support from others [19].

Coping strategies can also be categorised as adaptive and maladaptive strategies. Adaptive strategies include active coping, positive reframing, acceptance and seeking support whilst maladaptive coping involves behaviours such as self-distraction, behavioural disengagement, denial and self-blame [18, 19]. While the classification of coping strategies as adaptive or maladaptive has been adopted as a quantifiable measure, their effectiveness is context-dependent, where the efficacy of a particular coping strategy may vary depending on the situation at hand [5, 51]. Therefore, a more nuanced approach that takes into account a range of factors may be necessary to fully understand the effectiveness of coping strategies and their relationship to games.

Within games studies, coping strategies have garnered significant attention, particularly concerning problematic gaming behaviours. Blasi et al. [9] found that problematic gamers use online games as an escape and engage in avoidance coping strategies when dealing with adverse events. Similarly, Bonfiglio and colleagues [88] in their survey study of 130 teenagers and young adults, found a negative relationship between avoidance strategies such as disengagement and video game addiction. Conversely, they found a positive relationship between emotion-focused strategies such as positive reappraisal and personal resilience. Further research by Bowditch [15] involving World of Warcraft players revealed that coping styles can influence the relationship between gaming motivation and negative gaming consequences. The findings indicated that avoidance coping strategies, like disengagement, were linked to escapist motivations and negative outcomes in gaming, whereas problem-focused coping strategies, such as problem-solving, were associated with reduced negative gaming outcomes. Additionally, Reinecke [84] demonstrated that various coping styles can facilitate recovery from day-to-day stress, with emotion-focused coping particularly enhancing the recovery experience. Furthermore, Wolfers and Schneider [102] conducted a comprehensive review of media use for coping and found that digital games are often employed to manage stress and provide emotional relief, potentially reinforcing the role of gaming as a tool for emotion-focused coping. With respect to meaning-focused coping and games, studies such as Spokes and colleagues [90] have highlighted the role of meaning-making within the context of coping with grief, in this case as part of playing games during the Covid-19 pandemic. However, these studies rarely refer directly to meaning-focused coping.

Though there is clear evidence to suggest that games can support a range of coping strategies, what is missing from the literature is a more explicit investigation of how exactly the games themselves are influencing different types of coping strategies. Our aim is to fill this gap by examining the influence of various game aspects on players' coping strategies during challenging life situations.

2.3 Game Aspects, Player Experience And Wellbeing

We are using the term game aspects to encompass a broad spectrum of elements within a game, including its components, mechanics, and dynamics [49]. Extensive research has been dedicated to exploring the effects of game aspects on player experience. For instance, engagement rewards such as daily quests and seasonal incentives can have both positive and negative effects on players [38]. These rewards can motivate players but may also create a sense of obligation. Multiplayer features, including voice chat, facilitate player interaction, cooperation, and competition, serving as a temporary substitute for face-to-face social contact [2, 20]. Social interactions within games enhance the gaming experience by fostering a sense of community and shared achievement [96, 98]. Audiovisual elements have also been shown to positively contribute to the game's atmosphere, affecting player satisfaction and immersion while the integration of visual elements with the narrative can enhance the storytelling and emotional impact of the game for players [85]. Player attachment to game characters whilst playing has also been influenced by factors such as personality, appearance, and role within the game [13, 16]. Research has also shown that various types of

challenges, including cognitive, emotional, performative, and decision-making, enhance player engagement and satisfaction [27]. Game difficulty influences how players perceive and interact with these challenges. Video games synthesise multiple elements that interact in complex ways to shape the player experience. Understanding these aspects enables players and developers to create more engaging and beneficial gaming experiences, offering insights into gaming's potential as a powerful tool for wellbeing.

Despite the wealth of information on game aspects and player experience, the link between game aspects and wellbeing is a growing area of research. Studies suggest that playing games alone or with others can have psychological benefits [98]. However, the type of game being played can also have an impact on well-being. For example, Hazel et al. identified a positive correlation between engagement with music games, role-playing games, and survival horror games and psychological benefits. In contrast, multiplayer online battle arena (MOBA) games were associated with reduced psychological and emotional well-being [46]. Thus, it seems that the type of game being played may have an impact on wellbeing. However, while these findings do indicate that the type of game being played may impact wellbeing, there is a lack of research that has focused explicitly on investigating what components of games may be responsible for these effects, particularly in the context of coping [50].

2.4 Research Aim

To our knowledge, no study has specifically examined how particular game aspects affect players and their coping strategies within the context of difficult life situations. Thus, to address the previously identified gaps in the literature, this study seeks to explore the impact of game aspects on players' wellbeing during challenging life circumstances, with a specific focus on identifying the game components that may be associated with coping strategies. Through an analysis of various game aspects and their effects on players, this study provides a deeper understanding of how games can aid players and their coping strategies. This knowledge could have implications for the development of games and interventions aimed at assisting players through personal difficulties. Our research seeks to answer the following research questions:

(1) Which game aspects do participants find helpful or harmful during challenging life experiences?
(2) How are different game aspects related to coping strategies?

3 METHODS

To answer these research questions, we conducted an online survey of 130 individuals who had played games during challenging life experiences. The sensitivity of the topic prompted the choice of a survey as the preferred method of data collection. Participants were free to share what they felt comfortable disclosing, and we assured them that they could withdraw their participation at any time. We included information on mental health resources in the consent form to alleviate any discomfort or stress. This approach also allowed us to monitor the research progress closely and provide support to the researchers throughout the study.

For the survey, we followed the Iacovides and Mekler [50] conceptualisation of 'difficult life experiences' as *"a stressful, confusing, troubled, or discouraging time in your life"*, which encompassed situations such as loss, relationship breakdown, health issues, identity transition, or job loss. Game Aspects was adopted to encompass various game components, features, and mechanics that could potentially influence the player's experience. The survey data was analysed through content analysis [19] to examine different life experiences, games played, game aspects, their impact, and

coping strategies. The study was approved by the university ethics committee, and the codebook is available in the supplementary materials.

3.1 Participants

We recruited participants from various social media platforms, such as the researchers' Facebook, Twitter and LinkedIn pages. Additionally, participants were recruited from a range of Discord servers that the researchers were members of including those that promoted representation in gaming and advocated for mental health awareness in the gaming community, where details about the study were posted by permission of the server moderators. A total of 255 individuals clicked on the survey link, and out of those, 130 completed the survey. The group included 46 females, 64 males, 9 non-binary individuals, 5 who preferred not to disclose, and 6 who preferred to self-describe. The age range was 18-56 years, with a mean age of 29.82 (SD=7.03). On average, participants had been playing games for 21.69 years, with a range of 4 months to 40 years. The average weekly gameplay was 15.12 hours, ranging from 1 to 75 hours per week (SD=11.70). The survey revealed varied gaming preferences across participants, with players citing a range of game types including role-playing games (n=99), strategy games (n=83), action-adventure games (n=73), narrative games (n=65), and shooters (n=53). The participants also referred to playing a range of game titles, with 198 unique game titles reported. The most popular game titles included League of Legends (n=16), Pokémon (n=15), Skyrim (n=15), The Legend of Zelda (n=12), Final Fantasy (n=12), Animal Crossing: New Horizons (n=11), and World of Warcraft (n=10). 89 participants disclosed that they played multiple games during a period of personal difficulty, while 41 reported playing only one game during that time. The full breakdown of the games and counts are available in the supplementary materials.

Many participants shared their personal experiences with mental health challenges, grief, relationship breakdown and career changes. Participant life experiences were categorised through an adaptation of the Major Life Events Taxonomy [44]. If multiple experiences or times were stated, multiple codes could be assigned. One participant chose not to disclose their life experience. In total, 38 different life experiences across 9 categories were identified. The breakdown of life experience categories is available in the supplementary materials.

3.2 Procedure

After clicking the survey link, participants were presented with an introduction to the study and asked for their consent. They were then asked to answer questions about their demographics and gaming behaviour before being prompted to describe a challenging life experience. The instructions given were modelled after the instructions from Iacovides and Mekler [50]:

All of us have times of – perhaps ongoing – personal difficulty. Please think of a stressful, confusing, troubled, or discouraging time in your life, during which you play(ed) video games. Please describe this difficult time in your life. What did you experience as stressful, confusing, troubling, or discouraging?

Participants were asked to describe their experiences during that time, which game(s) they played, and why they chose them. They were also asked to identify which aspects of the game(s) they felt were beneficial or detrimental during that difficult period. Finally, participants were directed to a debrief that expressed gratitude for their participation and provided links to several international and national support organisations such as the NHS Mental Health Services and Samaritans. This debrief also included contact information for the researchers should participants wish to withdraw from the study. The survey typically took approximately 15 minutes to complete.

3.3 Analysis

The present study conducted a combination of inductive and deductive content analysis [30, 60, 61]. The primary author conducted the content analysis with iterative feedback and discussions with the other authors. Inter-rater reliability was also examined (see Subsection 3.4). All coded segments presented retained their original spelling and grammar. Coding was conducted using the MAXQDA qualitative data analysis software, with a coding sheet compiled in Excel.

To answer the first research question *What aspects of the games did participants find beneficial or detrimental during their difficult life experiences?* we utilised inductive content analysis [30, 60]. The process consists of open coding, creating categories and abstraction. Generating the game aspects involved interpreting specific experiences or interactions from the data, assigning them a respective game aspect and then in parallel categorising them as either beneficial or detrimental. We then analysed the coded segments to ensure that the game aspects were distinct in their mechanics or characteristics and refined them through an iterative process. We also calculated the number of participants who mentioned each game aspect to identify frequencies. Finally, we synthesised the game aspects and their impact on players during times of personal difficulty. A total of 269 coded segments were curated from the dataset, resulting in 31 game aspects which were assigned to six higher-level categories: **Challenge, Social Interaction, Character Interaction, Environment, Narrative, and Simulation of Real-World Activities**.

To address the second research question *How do these game aspects relate to coping strategies?* we first defined five coping strategies (avoidance, emotion-focused, meaning-focused, problem-focused, and social coping) based on existing coping literature [19, 34, 35, 62]. We adapted these strategies to the context of playing games during times of difficulty (see Table 1). We used a deductive coding process [30, 61] to analyse the 269 coded segments generated from the analysis relating to the first research question. We then identified coping strategies within these segments and created a cross-tabulation in SPSS26 to identify potential relationships between the game aspects and coping strategies. In cases where coded segments referred to multiple coping strategies, these were reviewed in consultation with the research team and were recoded to represent a particular coping strategy.

3.4 Inter-rater Reliability

The study followed the iterative process outlined by Petrovskaya et al. [79] to calculate inter-rater reliability as a way of increasing confidence in the analysis. The second/third author coded a subset of the game aspects data and participants' life experiences, approximately 10%. These were coded using the codebook of seven life experience categories, the six categories of game aspects, two impact identifiers (beneficial or detrimental), and five coping strategies. A Kappa statistic of greater than or equal to 0.81 is classed as being 'almost perfect agreement' [69]. In the first pass, the kappa score for Life Experiences (0.90) and Game Aspects (0.86) met our proposed benchmark of 0.81 though Coping (0.41) and Impact (0.63) did not meet this benchmark. After a second iteration following a discussion on the application of the coping strategies, the process was repeated with the revised Kappa scores for coping strategies (0.82), and impact (1.0) now meeting our proposed benchmark.

4 RESULTS

4.1 RQ1: Which game aspects did participants find helpful or harmful during difficult life experiences?

We identified 269 coded segments that indicated a specific game aspect which participants found beneficial or detrimental. Through an iterative process, 31 different game aspects were identified and

Coping Strategy	Applied Definition
Problem-focused	Gaming helps players deal with the life experience that is causing distress, e.g., by helping them define the problem and think through potential solutions or approaches to it.
Emotion-focused	Using games as ways to experience more positive forms of emotion that players may have fewer opportunities to experience in daily life e.g., through providing a sense of competence, providing satisfaction.
Avoidance	When gaming is used as a distraction or to avoid dealing with a difficult life experience e.g., through providing an escape, or a way not to think about it, whether through playing alone or with others.
Meaning-focused	Gameplay helps players engage in meaning-making in relation to the challenges they are facing, e.g., processing their experiences and reassessing their situation.
Social coping	When gaming provides not just opportunities for social interaction but forms of practical or emotional support e.g., players receiving moral support, or reporting a general feeling of being connected to others.

Table 1. Definitions of coping strategies used to explore the relationships between coping and game aspects.

then coded into six categories as shown in Table 2. Many game aspects were perceived as positive although every category also includes some instances of a detrimental impact. The following sections break down each game aspect category along with illustrative quotes of the most frequent game aspects plus any aspects that were particularly detrimental for players.

Game Aspect Categories	Frequency	Beneficial Impact		Detrimental Impact	
	(n)	(n)	%	(n)	%
Challenge	86	54	62.8	32	37.2
Social Interaction	64	43	67.2	21	32.8
Character Interaction	42	36	85.7	6	14.3
Environment	29	26	89.7	3	10.3
Narrative	28	20	71.4	8	29.6
Simulation Of Real-world Activities	20	18	90	2	10
Total	**269**	**209**	**77.7**	**60**	**22.3**

Table 2. Game Aspect Categories with Beneficial and Detrimental Impacts with Frequencies and Percentages

4.1.1 Challenge. The Challenge category covered a range of aspects that related to the different ways in which the games challenged players, from providing them with specific goals to presenting them with boss fights. Full frequencies of game aspects linked to the Challenge category are outlined in Table 2. While players have reported a positive impact (62.8%), it is worth noting that this represents the lowest impact of all the game aspect categories (see Table 3).

Participants reported that the most frequently mentioned game aspect was linked to progression and goals, be it advancing within a game, achieving objectives, or establishing personal goals for gameplay as common practices. Game aspects categorised as Challenge were typically viewed as beneficial with players reporting that these game aspects provide a sense of control during times of

Game Aspects	Frequency	Beneficial	Detrimental
Progression and Goals	27	22	5
Grinding and Rewards	20	12	8
Game Difficulty	14	6	8
Barriers to entry	7	0	7
Time to complete the activity	7	4	3
Solving Puzzles	6	6	0
Boss Fights	5	4	1
Total	**86**	**54**	**32**

Table 3. Analysis of Challenge Game Aspect Category with Frequency, Beneficial and Detrimental Effects

change, as exemplified by this report from P27: *"My esports games also gave me a sense of control and mastery at a time when both felt in short supply. In a single-player game such as Gwent, Artifact, or Dota Underlords, winning or losing is on you. If you win, it's because you made the right (or right enough) moves"*. Furthermore, participants stated that having clear goals and measurable progress made them feel focused on tasks they could do: *"Stardew and Animal Crossing were easy to start up and get distracted into with very little effort. Even simple but concrete tasks in those games helped keep me grounded and focused instead of feeling lost"* (P88).

Grinding and Rewards were also discussed by players, particularly around doing daily tasks or collecting limited edition items and a common feature in rogue-likes or role-playing games. Players stated the beneficial impacts when the activity provided a sense of accomplishment, as in this example from Vampire Survivors explaining their process for obtaining rewards from grinding: *"There is always some power up to collect or enemies to dodge. You can also grind for gold to improve character attributes and unlock new characters, so it felt like there was always something to do"* (P99). However, players stated that Grinding sometimes leads to detrimental impacts due to manipulative game design tactics: *"Designers tend to employ psychological tactics to engage you to play more and more…I need to completely abstain from any developers that create game loops that take an inordinate amount of time, or have internal metrics dependent on player hour engagement"* (P52).

The only game aspects that were purely detrimental to participants were barriers to entry: *"Barriers to access I suppose like money, difficulty spikes, lack of triggering content warning and lack of accessibility options"* (P8). These barriers meant that participants were unable to experience the challenges provided by the game. Technical issues around online games also stifled playtime, as noted by players: *"Ark's coding is sloppy and can be a nightmare at times. Issues ensuing because of this did not help. Especially when you needed to play and that stupid piece of programming decided to uninstall itself or didn't want to find the server or whatever"*(P29).

4.1.2 Social Interaction. The category of Social Interaction pertains to game features that facilitate social engagement in multiplayer games, such as in-game chat or the formation of online communities where players can connect over shared interests. Table 4 provides a breakdown of the various game aspects associated with Social Interaction. While players have reported a positive impact (67.2%), it is worth noting that this represents the second lowest impact of all the game aspect categories (see Table 2).

A significant number of individuals who participated in our study reported that engaging in cooperative multiplayer games facilitated their interactions with friends through various means such as chatting, sharing fandoms, and joining guilds. Massive Multiplayer Online Role-Playing Games (MMORPGs) and Multiplayer Online Battle Arenas (MOBAs) were the types of games that

Game Aspects	Frequency	Beneficial	Detrimental
Multiplayer	31	29	3
In-Game Chat	18	3	15
Gaming Communities	15	12	3
Total	**64**	**43**	**21**

Table 4. Analysis of Social Interaction Game Aspect Category with Frequency, Beneficial and Detrimental Effects

had the most significant impact on enhancing social interactions among our participants. The multiplayer mode allowed players to stay connected with their friends when they could not meet in person: *"I didn't go out a whole lot during this period so it was one of the few social interactions I had/could have at the time"* (P43). Additionally, players mentioned how engaging in team-based activities was beneficial for developing interpersonal relationships and working collaboratively. For some, this created a sense of connection: *"The game has a series of 'Raids', that would require 6 players working together, communicating to complete puzzles and boss fights to earn end-game equipment"* (P45). Additionally, games that had virtual social interaction without any real-world cues or physical contact were reported to have a beneficial impact during periods of difficulty: *"Playing World of Warcraft gave me social interaction with a barrier, I wasn't ready to be social in real life just yet. Allowing interaction without having to be in the same physical space helped"* (P44).

Players reported, however, that certain multiplayer games involved toxic interactions through in-game chat. League of Legends, Call of Duty, and Overwatch were cited as game titles with a particularly toxic game culture that had negative effects on the players' wellbeing. For instance, P31 explains: *"Call of Duty and League of Legends are games designed to trigger heightened emotional responses, particularly frustration. That leads to their communities becoming notably toxic. Being steeped in the violent, hateful cultures of those games was often bad for my mental health"*. However, a small number of players reported experiencing beneficial effects from using the in-game chat: *"I would be on voice chat with people almost every day and that gave me a community when I didn't feel like I had one"* (P102).

4.1.3 Character Interaction. The Character Interaction category focuses on the interactions between players and characters within the game, as well as how these interactions facilitate the exploration of the protagonist's story. Table 5 provides a breakdown of all the game elements that fall under this category, whereas Table 2 indicates players reported a very high beneficial impact (85.7%).

Game Aspects	Frequency	Beneficial	Detrimental
Kinning with the character	13	12	1
NPC Interaction and Relationships	12	11	1
Developing a character	11	7	4
Protagonist stories	6	6	0
Total	**42**	**36**	**6**

Table 5. Analysis of Character Interaction Game Aspect Category with Frequency, Beneficial and Detrimental Effects

Many players found a deep connection with the journey of the characters in the game, which mirrored their own life experiences. These characters inspired hope and provided a new perspective

on the world. This identification with a character was apparent in the relationship players had with
protagonists like Kratos, Zagreus or Celeste. The character's journey helped players deal with their
own experiences. It led to self-reflection: *"Struggling all of my life with anger management issues,
seeing a character like Kratos address his rage as a father and attempting to "end the cycle" floored me.
I cannot say whether it changed a certain situation in my life, but it has stuck with me as a sort of
personal mantra?"* (P32).

Additionally, players expressed their pleasure in engaging with NPCs and building relationships
by completing quests or simply taking care of them. This provided them with a feeling of empow-
erment within the game, which was exemplified by P19's discussion of their character in Dragon
Age: Inquisition: *"You are also the one that people come to solve their problems, which makes me feel
useful. The control I have over various aspects of my life in the game feels good also."*

Finally, players observed how creating and developing a character allowed for self-expression
and showcasing different aspects of their identity: *"Upon starting the game you get to choose your
pronouns. This was the first game I had ever encountered at that point that had that as an option"*
(P98) and enabled players to explore a different version of themselves.

4.1.4 Environment. The Environment category focuses on the visual and auditory appeal of the
game, encompassing the presentation of the game world and music. According to players, they
relished the experience of being transported to fantastical game worlds replete with stunning
vistas and a vast open world, accompanied by mesmerising music. Table 6 summarises all the game
elements that fall under this category. As indicated in Table 2, while less common than previous
game aspects, players overwhelmingly reported beneficial effects (89.7%) when discussing this
category.

Game Aspects	Frequency	Beneficial	Detrimental
Immersion in another world	11	9	2
Exploration	9	9	0
Music and Sound Design	9	8	1
Total	**29**	**26**	**3**

Table 6. Analysis of Environment Game Aspect Category with Frequency, Beneficial and Detrimental Effects

When discussing immersion into another world, players explained how this helped them pos-
itively escape reality: *"Immersing myself in another world in which I could explore and interact
became my preferred way to relax... during the Covid lockdowns, it was my primary source of comfort
and escape from reality"* (P25). However this was counteracted by players who recognised that
video games were not 'real' and could lead to further isolation: *"The risk is getting more isolated
in real life, missing school or the job because you are more comfortable IG [in game]"* (P85). Finally,
games afforded a world that players could explore and change the environment, which for some
participants was not possible in the real world: *"Witcher and Skyrim gave me a whole new world to
explore; the open-world concept of them allowed me to escape reality and get lost in a story that was
dependent on my choices, with infinite possibilities"* (P65).

4.1.5 Narrative. This particular category centres on the narrative content offered by the game. It
encompasses game elements that delve into challenging topics or issues, how the plot is utilised
to convey a story, and familiarity with franchise titles. A detailed breakdown of the game aspects
associated with Narrative can be found in Table 7. As shown in Table 2, players reported a large
beneficial impact (71.4%), with a particular emphasis on popular franchises like Pokemon and Zelda.

Game Aspects	Frequency	Beneficial	Detrimental
Exploring a challenging topic	17	9	8
Storytelling Device	7	7	0
Familiarity	4	4	0
Total	**28**	**20**	**8**

Table 7. Analysis of Narrative Game Aspect Category with Frequency, Beneficial and Detrimental Effects

Certain games have been recognised for tackling sensitive subjects like coping with grief, mental health, and relationship troubles. Similarly, our participants reported both positive and negative impacts of relating these themes to their personal experiences. On the upside, many users have found solace in having a virtual platform to work through their emotions and behaviours, as exemplified by P97: *"Final Fantasy XIV in particular became a mirror to my anxiety... Being able to face my fears in a fictional environment allowed me to understand them before having to address them at work. Being able to identify stressors and calm myself ahead of time made diffusing work situations a lot easier"*. While some players may find it engaging to immerse themselves in the game narrative and mirror their real-life experiences, this approach did have a detrimental impact on others. Some players felt that games confronted issues that they were not yet prepared to deal with *"It was rough to be confronted with the topics in Celeste's narrative at a point in my life where I hadn't understood most of it and how it relates to me yet."* (P121).

4.1.6 Simulation of Real-World Activities. This particular category was introduced to categorise game aspects that imitate the simulation of real-life activities. Most players (90%; Table 2) have reported that these activities are relatively less stressful when experienced virtually compared to the real world. The frequencies associated with these activities have been outlined in Table 8.

Game Aspects	Frequency	Beneficial	Detrimental
Resource Collection	3	3	0
Gardening	3	3	0
Driving	3	3	0
Fishing	2	2	0
Decoration	2	1	1
Crafting	2	2	0
Trading	1	0	1
Chores	1	1	0
Sleeping	1	1	0
Football	1	1	0
Shooting	1	1	0
Total Simulation of Activities	**20**	**18**	**2**

Table 8. Analysis of Simulation Game Aspect Category with Frequency, Beneficial and Detrimental Effects

These activities were observed in simulation games, such as Animal Crossing and Stardew Valley, or action RPG games, such as Skyrim. Players found that engaging in these activities made them feel in control and accomplish tasks, for instance: *"Driving a car around made me feel like I was in control of something. Being able to complete challenges made it feel like I could accomplish tasks. It also took my mind off the problem"* (P35). In addition, players reported a benefit where their in-game

characters would be engaged in activities such as resource collection, gardening or crafting as another means of learning tasks virtually that they would be afforded to do in the real world such as this example from Skyrim by P2: *"your character can be a trader whereby you just roam around the countryside collecting animal skins or learn to smith and make and sell jewellery. No other game before has offered such a wide variety of skills and tasks and you can just get lost in it"*.

4.2 RQ2: How are these game aspects related to coping strategies?

	Challenge	Social Interaction	Character Interaction	Environment	Narrative	Simulation	Total
Emotion	42	9	10	9	6	11	87
Avoidance	14	8	8	10	2	3	45
Meaning	8	2	9	1	11	1	32
Social	0	21	2	1	0	0	24
Problem	0	0	1	0	5	0	6
Total	**64**	**40**	**30**	**21**	**24**	**15**	**194**

Table 9. Cross Tabulation of Game Aspect in columns and Coping Strategies in rows with frequency

To answer the second research question, we compared the six game categories and five coping strategies from the 269 coded segments, encompassing both beneficial and detrimental effects. To identify possible relationships between these constructs, we generated a cross-tabulation (Table 9). For example, the following quote highlights a Social game aspect, but without any clear insight into whether this helped assist them in coping with their circumstances: *"multiplayer components of a lot of the games, particularly GTA, Call of Duty and Battlefield also allowed me to spend a lot of time with friends, to socialise"* (P129). The following sections will cover the most common relationships between each coping strategy.

4.2.1 Emotion-Focused Coping. Emotion-focused coping refers to using games as a means to experience more positive forms of emotion that players may have fewer opportunities to experience in daily life. Emotion-focused coping was the most frequent form of coping (87/194) with the cross tab indicating it was most commonly linked to Challenge game aspects (42/87). Games were viewed as a restorative activity, offering mastery and competence. One player's experience of playing Borderlands 2 and obtaining rewards from doing the same activity is a testament to this: *"The repetition aspects were comfortable, but there was a random outcome. I could spend hours doing the same thing I was good at but get different 'loot' every time. It gave me a sense of accomplishment for beating the level while also a sense of accomplishment for getting the desired outcome"* (P60).

When analysing the relationship between the other game aspects and emotion-focused coping, there is a relatively even spread ranging from 6 to 11 instances, indicating that other game factors could also help players regulate their emotions and reduce emotional distress. For example, as this participant describes when playing Madden NFL, they played football virtually as a simulation of a real-world activity: *"I always made time to play football at the end of every day. It was engrossing trying to figure out the plays to pick on offense and defense while trying to beat the computer opponent... it was OK if I made a mistake and lost a game or two unlike in my real life where everything had gotten so incredibly serious"* (P117). Additionally, players felt that their characters provided them with a means to strengthen their psychological resources as seen from this example from Dragon Age: Inquisition: *"you are also the one that people come to solve their problems, which makes me feel useful. The control I have over various aspects of my life in the game felt good also"* (P19).

4.2.2 Avoidance Coping. Avoidance coping happens when individuals use games as a means of distraction or to avoid dealing with difficult life experiences. Avoidance coping can take the form

of engaging in immersive game environments that provide an escape or a way not to think about life experiences, whether by playing alone or with others. It was the second most common form of coping (45/194) with the cross tab indicating it was most commonly linked to Challenge game aspects (14/45).

The analysis indicated instances where players were using games as a way to avoid their problems. The most common aspect here is related to Challenge, with 14 instances. Games provide short-term goals and progression through grinding and rewards which allow players to disengage from their life experiences: *"In a practical sense, levels/unlockables/challenges provide short-term goals for constant engagement. At this time, though I may not have been aware of it, I was looking to disengage from my environment"* (P71).

Environment game aspects were the next most common game aspect (10/45). Players noted how games take place in a world that was not theirs, providing a different environment to escape into. For example, one player noted that when thinking about the game world, it provided a respite from their real-world challenges: *"The fact that it took place in a world so obviously not my own made these games a form of escape as well. When thinking about their worlds, I was not thinking about what distressed me"* (P34).

Social interaction and character interaction were reported in 8 instances where gaming was used to connect with others, be it through in-game voice chat or developing relationships with NPCs. Simulation and narrative game aspects were rarely mentioned concerning avoidance coping.

4.2.3 Meaning-Focused. Meaning-focused coping in gaming refers to how players can derive purpose from the challenges they encounter within the game and allow players to engage in meaning-making concerning the challenges they are facing, e.g. processing their experiences and reassessing their situation. Meaning-focused coping was the third most common form of coping (32/194) with the cross tab indicating it was most commonly linked to Narrative game aspects (11/32). This phenomenon was particularly common in games with a strong narrative centred around themes of determination, care, and resilience, such as Hollow Knight and Undertale. For example, one player discussed how: *"Hollow Knight gave me comfort when I was isolated during the COVID-19 Pandemic. The protagonist is a tiny bug in a world full of much larger and hostile creatures, and one of the themes of the game is perseverance through difficult and uncertain times. I chose to play this game specifically for this reason, as I knew it would help me meet"* (P81).

Character game aspects were also related to meaning-focused coping (9/32), where a connection to a character helped people to process aspects of their experience e.g., *"Incarnating a strong, beautiful, feminine and sexy woman helped me through the period I had to hide my womanhood to survive... I get to incarnate them safely for a bit"* (P85). Challenge game aspects were also highlighted (8/32), where Boss Fights helped players to reframe their frustrations: *"Boss animations and sound cues are everywhere and they do a lot to let you know when to attack and when to block, what enemy weak points are... Instead of seeing the game as a bully like I had before, I saw it as a helpful tool to work through a challenge"* (P30). Social Interaction, Environment, and Simulation games aspects were rarely mentioned concerning meaning-focused coping.

4.2.4 Social Coping. Social coping encompasses when gaming provides not just opportunities for social interaction but also forms of practical or emotional support, such as players receiving moral support, or reporting a general feeling of being connected to others. Social coping was the fourth most common form of coping (24/194) with the cross tab indicating it was most commonly linked to Social Interaction game aspects (21/24). The relationship between social coping and social interaction was most prevalent in multiplayer cooperative games, where players reported connecting with like-minded individuals and experiencing a sense of belonging. While some players may use gaming as a time with friends, others find a unique sense of community within

certain games. For example, one player noted that Fire Emblem provided an unexpected sense of
interpersonal growth and connection with other players who shared their love for the game: *"I had
a few friends who played and liked the series as much as I did. But, within the game itself, there is
a feeling of connection and interpersonal growth that I latched onto"* (P32). Social Interaction and
Environment were rarely noted concerning social coping and Challenge, Narrative and Simulation
game aspects were not identified.

4.2.5 Problem-Focused Coping. Problem-focused coping refers to how games can assist players in
dealing with life experiences that cause distress. Games can achieve this by helping players define
the problem and think through potential solutions or approaches to it. Problem-focused coping
was the least common form of coping (6/194) with the cross tab indicating it was most commonly
linked to Narrative game aspects (5/6). For example, one player noted that playing Final Fantasy
XIV allowed them to deal better with their workplace anxiety: *"Being able to face my fears in a
fictional environment allowed me to understand them before having to address them at work. Being
able to identify stressors and calm myself ahead of time made diffusing work situations a lot easier"*
(P97). Character Interaction was also mentioned once for this form of coping, but none of the other
game aspects.

5 DISCUSSION
Research exploring the role of gaming during times of difficulty has shown that gaming can provide
players with a means of coping [50]. While we acknowledge the role of gaming in supporting
player wellbeing through escapism, social connections, and mastery [31, 63, 77], prior studies
have overlooked the relationship between different game aspects and coping strategies. Our study
addresses this gap by identifying 31 game aspects across six categories: Challenge, Social Interaction,
Character Interaction, Environment Narrative, and Simulation of Real-World Activities that players
deemed to have either beneficial or detrimental impacts during personal difficulty. Moreover, we
delved into the potential associations between these identified game aspects and various coping
strategies, specifically in relation to Emotion-focused coping, Avoidance, Meaning-focused coping,
Social coping, and Problem-focused coping. By exploring the dynamics between game aspects and
coping strategies, our study contributes to and builds on the existing literature on gaming and
coping. These findings enrich our understanding of the multifaceted role of gaming in supporting
players during challenging times. The subsequent sections will discuss the findings in relation
to each research question and related work, reflect on the limitations of the study, and identify
avenues for future exploration.

5.1 The Impact of Game Aspects for Players in Times of Difficulty
The first research question aimed to identify the game elements that players found helpful or
harmful during challenging life circumstances. By identifying six distinct categories of game aspects:
Challenge, Social Interaction, Character Interaction, Environment Narrative, and Simulation of Real-
World Activities we build upon existing research on gaming during personal difficulty [21, 31, 50, 63]
but also offer deeper insights into their impacts. Notably, while most game aspects were deemed
beneficial by players, exceptions were identified, shedding light on the nuanced nature of gaming
experiences where certain game aspects may have mixed or negative effects on player wellbeing.
The remainder of the section will provide an overview of each category of game aspect, highlighting
their impact and contextualising our findings in previous research.

Players frequently mentioned Challenge aspects, with Progression and Goals being reported as
particularly beneficial. The findings support the idea that players seek out difficult challenges to
satisfy their need for competence, as suggested by self-determination theory [29, 82]. Moreover, our

data indicates that players are attracted to games that offer opportunities for mastery [1]. However, the findings highlight the complex nature of challenge-related game aspects, particularly regarding *Grinding and Rewards*. While these elements can be engaging and motivating, they also have the potential to lead to problematic gaming behaviours by encouraging players to keep playing for longer than they want to. This dual impact mirrors the findings by Frommel and Mandryk [38], who noted that engagement rewards in games could be perceived by some as beneficial while others view them as an obligation or even a negative influence. Furthermore, it may be that players require enough energy and motivation to engage with the challenges provided by the game for these types of game aspects to result in a beneficial impact [47].

Social Interaction game aspects were frequently mentioned by players in our study, highlighting both their positive and negative impacts. Consistent with existing literature, our findings demonstrate that Multiplayer game elements are particularly beneficial, providing opportunities for virtual social interaction. These interactions help players stay connected with others and engage in team-based activities, thus enhancing the gaming experience by fostering a sense of community and shared achievement [96, 98]. Additionally, our findings emphasise that multiplayer games can serve as a temporary substitute for face-to-face social contact, allowing players to connect with friends and team members globally [20, 66]. However, our study also indicates the detrimental aspects of Social Interaction within the context of coping, particularly In-game Chat. Players reported that in-game chat often facilitated negative and toxic behaviour, which aligns with concerns in the gaming community regarding harassment and toxicity [7, 39]. Social features like in-game chat have been shown to facilitate toxic behaviour, leading players to mute or ignore general chat in online team-based games [39, 58]. Despite efforts to combat toxic behaviour and harassment [7, 40, 101]), there remain challenges in identifying and intervening in such situations.

Players consistently reported experiencing significant benefits in the Character Interaction category. Here, they described feeling a strong connection with the character's journey, finding fulfilment in engaging with NPCs, and developing meaningful relationships within the game. Players also resonated with protagonists such as Link, Kratos and Zagreus, feeling a sense of empowerment from the character, supporting previous literature on emotional attachment to game characters [13]. Additionally, character development offers a unique opportunity to explore different facets of one's identity. Research has shown that during times of difficulty, interacting with characters can cultivate a sense of meaning and resonance with their journeys [21, 32, 55], and a sense of connection with others [50].

When considering other game aspects, players highly valued the Environment provided by the game, as this allowed them to become immersed in a virtual world they could enjoy exploring at their own pace. Although some studies suggest that immersing oneself in virtual worlds may have negative effects on mental health [67, 87], our results demonstrate that escaping reality and venturing into an alternative setting was almost always experienced as being beneficial. Though the least frequently mentioned of all the game aspects, Engaging in Simulation of Real-World Activities was also reported to be primarily beneficial, where players enjoyed having a specific task to focus on that they could master, or that would distract them from their difficulties. While players seemed to value playing games with challenging Narrative themes, the impact on player wellbeing was sometimes mixed. Previous studies have explored the role of Narrative in times of hardship or in encouraging healthy behaviours [31, 45, 104], with some suggestions that games could help players process difficult emotions [50], it seems that challenging narratives could also be problematic for at least some players.

The findings of the study contribute to the existing literature by illuminating the diverse effects of various game aspects on players amidst challenging circumstances, encompassing both beneficial and detrimental outcomes. Through a categorisation of game aspects into distinct categories such

as Challenge, Social Interaction, and Character Interaction, we offer a deeper understanding of
their impact on players. Furthermore, the identification of both beneficial and detrimental aspects
within each category provides valuable insights into the complex nature of gaming experiences
when players are facing adversity.

5.2 Understanding games and coping during times of difficulty

Building upon this foundation, the second research question focused on the potential relationships
between specific game aspects and distinct coping strategies. While prior research has explored
coping in the context of gaming, [15, 63, 84, 102], it has often lacked a comprehensive investigation
into how specific game aspects may contribute to different coping strategies. By categorising five
distinct coping strategies (Emotion-focused, Avoidance, Meaning-focused, Social, and Problem-
focused coping) and exploring their relationship with various game aspects, we provide a deeper
understanding of how games can facilitate different coping strategies. Our analysis also provided
evidence of players engaging in all the coping strategies we examined, though to different extents.

We interpreted emotion-focused coping as occurring when gaming was used to replenish re-
sources and help players feel better, often by providing them with a sense of competence or
satisfaction. Emotion-focused coping was the most common strategy our players engaged in, which
is perhaps to be expected given the focus this strategy has had in the literature, e.g., [15, 63, 84, 102].
Our participants frequently associated this strategy with the Challenge game aspect category,
which encompasses various game elements such as progression, rewards, grinding, and difficulty.
In general, our study found that emotion-focused coping positively impacted players, as it allowed
them to challenge themselves, achieve game objectives, defeat end bosses, and experience a sense of
progress in a virtual environment. Reinecke offers a possible explanation for this [84], who suggests
that emotion-focused coping could facilitate problem-solving, an experience often associated with
positive gaming experiences like uncertainty [81] and challenge [27, 28]. However, it is worth
noting that some players may only use emotion-focused coping to deal with in-game problems,
rather than real-life issues, which may lead to negative outcomes [54]. Our research indicated that
emotion-focused coping was primarily seen as being beneficial to players, supporting similar work
that suggests engaging in challenges can help players build psychological resources and alleviate
emotional distress [1, 43, 77].

In contrast to emotion-focused coping as a way to provide more positive emotional experiences,
avoidance coping focused on players using games as a way to distance or distract themselves
from their difficult life experiences. While we observed some instances where gaming negatively
impacted relationships or led to problematic habits, the majority of participants recognised the
benefits of using gaming as a means of escape from difficult experiences, often through focusing
on game aspects that provided some form of Challenge or engaging in a virtual environment.
Players appreciated the chance to become someone else for a while and disconnect from reality
through completing objectives or exploring a virtual game world. Although some studies suggest
that avoidance coping can lead to problematic gaming behaviours [72, 88], recent research has
shown that gaming can serve as a positive form of escapism, providing necessary respite during
tough times [41, 50, 92]. According to Kosa and Uysal [57], gaming can be motivated by positive
reasons that do not result in problematic behaviour, providing a form of healthy escapism. While
we acknowledge the potential risks associated with using gaming as an avoidance strategy, we
believe it is important also to explore how and when this strategy might be beneficial.

In addition, our findings indicate gaming can be a tool for making sense of our experiences.
Through meaning-focused coping, individuals were found to reflect on their beliefs and values to
gain benefits from stressful situations or remind themselves of the positive aspects of their lives.
Gaming offers players a way to interpret various aspects of their lives, especially through specific

Character Interactions and Narratives. Relatable characters in games appear to allow players to derive benefits from their gaming experience and engage in meaning-making as a way of coping [13]. Previous studies demonstrate how games can facilitate reflection and meaning-making [12, 14], which can assist players in reframing their lives. For example, [32] observed that games such as Bear's Restaurant and Spiritfarer helped individuals explore meaning in the context of losing a loved one.

However, our findings also identified how players engaged in meaning-focused coping with games that have broader themes that are not necessarily focused on a specific issue (e.g., bereavement). Examples include reframing frustrations in light of repeatedly failing a boss fight or complicated puzzle, and exploring narrative themes related to topics such as mental health and identity in titles such as Celeste and Undertale. There is growing evidence that gaming can promote personal growth by providing players with opportunities to explore themes of self-care [91], resilience, and personal development [12, 43, 93]. These results further support the potential for games to offer self-reflection, meaning-making, and resonance for players during challenging times [3, 50, 70, 74, 90]. Whilst prior research has considered different forms of meaning-making within gaming [33, 45, 90, 91], to the best of our knowledge, our study is one of the first to explicitly identify meaning-focused coping as a strategy that games can facilitate.

Furthermore, players highlighted the importance of Social Coping and Social Interaction game aspects, especially in providing a community for players during challenging times, which has been demonstrated to promote player wellbeing e.g., [37, 46, 96]. Cooperative gameplay, particularly in massively multiplayer online games, has supported the development of online relationships [53, 98, 103], providing players with a platform to connect with others when they may be unable to do so otherwise. Feeling part of a community was also important for players engaging in Social coping, offering virtual social interactions and helping people feel less alone through a providing a sense of belonging [21, 64]. However, Social coping was not as prevalent as other strategies in our study, as players did not always explicitly express how social gaming helped them cope, whether through providing distraction or some form of emotional or direct support. Additionally, some game aspects were seen as being detrimental, such as In-game chat, and therefore, there seemed to be fewer examples that players offered in relation to coping. Whilst prior research has highlighted the negative impact of social interaction on problematic or toxic usage of games e.g., [7, 66, 95], more research is required to examine how games can offer more positive forms of social interaction in relation to coping.

While there were very few instances of Problem-focused coping, the fact that it was mentioned at all by players warrants attention. Problem-focused coping requires that the individual involved attempts to deal with the situation that is causing distress directly. Within media research, this coping strategy is most commonly identified with searching for information or seeking online support (e.g., on a health forum) [97, 102], both of which are activities that entertainment games do not offer. In the few examples within our findings, problem-focused coping was primarily related to Narrative game aspects, allowing players to directly address their issues and find solutions through the game's narrative content. There is perhaps some overlap here with meaning-focused coping, but the latter appeared to be more about reflecting on or understanding their current experience, rather than being focused on considering potential solutions. Though rare, it would be useful to consider further ways in which games might be able to facilitate this form of coping.

By shedding light on how players engage in various coping strategies through gaming, our study is one of the first to pinpoint specific game aspects that could facilitate coping strategies during challenging times. The research has potential implications for designers looking to create games that support different types of coping during times of difficulty, e.g., through exploring the Narrative could be used to facilitate problem-focused coping within a serious game. By identifying

game aspects that could be related to different coping strategies, future research can delve deeper into understanding what makes a particular game more effective in supporting players in a range of coping strategies. This knowledge can be applied to develop games for behavioural change [20, 83] or integrated into the design of games or interventions aimed at supporting mental health and wellbeing [36, 59, 65].

5.3 Limitations and Future Work

While this work makes important contributions in exploring the interplay between gaming and coping during times of difficulty, this study was exploratory and further work is needed to build on the insights provided. In particular, quantitative studies would help further examine the relationship between the game aspects and coping strategies across a wider population. For instance, some geographical locations were not covered in our survey, so incorporating experiences from diverse cultural contexts could further elucidate if our findings may apply to a wider population. In addition, while we asked players about their gameplaying habits and preferences, we did not look into wider factors that might affect their relationship with games such as engagement with esports or live streaming. Further studies could investigate how coping during difficult times may relate to these different gaming activities.

Moreover, the study revealed that certain game aspects may not necessarily be associated with coping strategies, prompting inquiries into other factors related to gaming and coping. In particular, some participants noted that playing with friends provided them with social interaction, but it did not seem to aid them in seeking guidance on their issues. It is plausible that these games are connected to other factors related to wellbeing, such as motivations for play, escapism, or recovery. Analysing these aspects within the context of personal difficulty could provide more evidence for the application of game elements across various wellbeing factors, as demonstrated by Saini and Hodgins [87] who identified two broad classes of gaming structural features associated with problematic gaming. However, further research is necessary to delve deeper into this topic.

Additionally, the study's use of the term 'Game Aspects' may have been overly broad for the current scope. Nevertheless, it was utilised to paint a comprehensive picture of various gameplay factors and game features. Our findings reveal that games possess unique attributes that can assist players in managing difficult circumstances. However, there is also potential for games to offer detrimental impacts under certain gameplay circumstances. Although we did observe some potential patterns across different game aspects, they do not exist in isolation. Future research could conduct a more rigorous analysis to explore how different combinations of game aspects support various coping strategies and if certain aspects only support a certain coping strategy, as noted with game aspects around social interaction and the facilitation of social coping.

It is worth noting that although many players reported playing a large number of games, the majority preferred mainstream titles like League of Legends, Pokemon, and Skyrim for their gameplay experiences. The data did not indicate a strong trend of players seeking out specific games to reflect or deal with their life experiences. However, recent research has begun to explore how games that resemble life experiences can impact players, particularly in areas such as grief [25, 32, 68] and personal exploration of life story narratives using the game as an extension of oneself [56]. Therefore, further research could focus on how and why players engage with games that resemble their lived experiences, how these games support players in coping, and whether there are differences between life experiences or a generalised impact on players experiencing adversity. By examining the intentionality behind players seeking out games that reflect or resonate with their lived experiences, we can better understand how these gameplay experiences influence coping in different ways.

There is also a growing interest among game designers to delve into emotional experiences and mental health issues [26, 36]. By gaining a better understanding of these phenomena, future studies can explore how different game elements and narratives can be incorporated to aid in coping strategies. One particular aspect that extends the scope of this research involves a deeper exploration of how players interact with playable characters and narratives in games, and how this can effectively support meaning-focused, or even problem-focused, coping. By examining how players perceive these characters and narratives and how they reframe to their own experiences, we can gain insights into how games can provide a space for reflection and resonance, and support meaning-making during challenging times. That said, with respect to how these forms of coping could be better supported in future, there are additional ethical issues to consider. Both these coping strategies rely on a player being able to recognise something in what they are going through within a game, and then being able to use that experience to either make sense of or reframe their current struggles (meaning-focused), or to think through potential ways to improve their situation in some way (problem-focused). Our findings indicated that Narrative was a relatively common way for games to try and support this, but also that detrimental impacts can occur if players are not ready to face what they are going through. While created for a different purpose, the development of resources such as the Take This White Paper for designing games to challenge stigma around mental health may be useful for helping designers to think through the design of games for coping [100].

6 CONCLUSION

Ultimately, our investigation illuminates how gaming can support coping in a range of different ways for players experiencing periods of personal difficulty. Through our analysis, we identified 31 game aspects across six categories: Challenge, Social Interaction, Character Interaction, Environment, Narrative, and Simulation of Real-World Activities. While most game aspects were perceived as beneficial, such as Multiplayer, players also cited detrimental aspects, such as In-Game Chat. Our findings provide a deeper understanding of gaming during times of personal difficulty and how the games themselves are impacting players. Furthermore, we were able to identify how these different game aspects support a range of coping strategies, including Emotion-focused, Avoidance, Meaning-focused, Social, and Problem-focused coping. Emotion-focused coping and the Challenge game aspect category were the most commonly identified relationships, with players seeking to replenish resources by engaging in in-game or user-defined goals and objectives. Avoidance coping was observed as a benefit of using games as a means of escape from difficult experiences, usually through focusing on a Challenge or exploring the game Environment. We also saw examples of Meaning-focused coping, which were particularly supported via Character Interaction and Narrative game aspects. Social coping was not as common, but strongly related to Social Interaction game aspects that helped to provide a community for players during challenging times. While rare, we also found a small number of instances of Problem-focused coping that were generally supported through the game Narrative. Overall, the study provided further evidence that gaming can be used as a tool for coping during times of difficulty. Our findings illustrate the variety of coping strategies that players engaged in, highlighting the role that video games play within the broader literature on coping strategies. By pinpointing specific game aspects that can assist players through facilitating various coping strategies, we illustrate how games can help us through the tough times we all face in life.

ACKNOWLEDGMENTS

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