



# Massively Multiplayer Online Role-Playing Games on Promoting Social Well-Being in the COVID-19 Pandemic

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## ABSTRACT

Social isolation during the COVID-19 pandemic increased the popularity of online gaming; people used gaming as a coping mechanism to help relieve psychological distress while self-isolating. Massively Multiplayer Online Role-Playing Games (MMORPGs) in particular saw an increase in users through 2020. We present a study of the impact of established communities on social well-being within one MMORPG. We conducted an online survey (402 participants) in World of Warcraft-specific Discord and Reddit communities in March 2021. Our survey consisted of multiple choice and short answer questions to gauge how players' perceived well-being was impacted by in-game relationships and interactions during the COVID-19 pandemic. Our qualitative thematic analysis indicated that World of Warcraft helped participants form valued, meaningful relationships with other players, gave them a sense of purpose, and alleviated negative feelings brought on by the COVID-19 pandemic. Based on these results, we describe the unique affordances of MMORPG platforms that support social connection, and provide design recommendations to MMORPG developers for facilitating positive social interactions.

## KEYWORDS

MMORPG, World of Warcraft, social well-being, online interactions, online community, COVID-19

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## 1 INTRODUCTION

After a year of social distancing measures, the ongoing COVID-19 pandemic has increased instances of mental health issues worldwide [12]. There has been a simultaneous increase in the number of users migrating to virtual worlds such as World of Warcraft (WoW) [3, 4]. We speculate that the pandemic has directly fueled this increased popularity; as Castronova suggests, “people go to the synthetic world because it offers emotional joy that the Game of Life does not” [8].

We present a study motivated by the hypothesis that this increased popularity is due to improved social well-being offered by online games. We focus our study on the impact of social relationships within Massively Multiplayer Online Role-Playing Games (MMORPGs) on the construction of social well-being. Our goal is to determine how MMORPG communities have impacted social well-being within the context of the COVID-19 pandemic and what aspects of these community interactions influence social well-being the most. We also aim to determine which of the unique affordances of MMORPG platforms best facilitated social connection during a time of long-term isolation. This is an important topic to address as the findings may result in a better understanding of how MMORPGs can positively contribute to players' overall wellness. Although the effects of MMORPGs on socio-emotional well-being have been examined extensively in the past [6, 23, 31, 36–38], we revisit previous contributions within the exceptional context of a global pandemic. Insights from this research have post-pandemic implications for game design, online social systems, and mental well-being. We focus our work on World of Warcraft (WoW), a prominent MMORPG with a strong community base [3].

Our research is influenced by Zhang and Kaufman's previous work that investigates how social interactions in MMORPGs are associated with socio-emotional well-being through the four socio-emotional factors: loneliness, depression, social support, and belongingness [37]. Because Zhang and Kaufman's work focuses on older adults, we see a valuable contribution to the literature by further exploring how MMORPG interactions affect social well-being in a broader demographic.

Our research is guided by the following research question: **How have social interactions in World of Warcraft affected players' social well-being during the COVID-19 pandemic?**

Our study is the first to explore how MMORPG social interactions change during a pandemic when offline social environments are

severely limited. Our results reveal that there are specific aspects of these in-game communities that make them especially effective in generating meaningful social interaction between players. Due to the social supports such as guild membership and player groupings, the interactions that take place between players in MMORPGs are effective in maintaining social well-being, as elements of belongingness are present in the platform [37]. Participants reported the positive effects of these in-game communities on well-being to be crucial for many during this time of isolation. Based on our findings, we provide design recommendations for MMORPG developers for promoting positive social interactions and well-being.

## 2 RELATED WORK

### 2.1 COVID-19 and Popularity of MMORPGs

On January 30, 2020, the World Health Organization (WHO) declared COVID-19 a global public health emergency, and then identified it as a pandemic on March 11, 2020 [5]. With stay-at-home mandates and quarantines being enforced globally, researchers noticed a corresponding increase in digital entertainment consumption [20]. In particular, online gaming surged in popularity in 2020. Verizon reported the initial stay-at-home mandates caused a 75% increase in online gaming activity and a nearly 20% increase of overall network traffic [27].

MMORPGs in particular benefited from this change in popularity. As defined by Deterding and Zagal, the term MMORPG refers to online role-playing games that allow vast quantities of players to interact simultaneously in a virtual world [35]. For this work, we chose the popular and widely researched MMORPG World of Warcraft, created by Activision-Blizzard in 2004. In their February 24, 2021 financial report released to investors, Activision-Blizzard reported a 40% growth in World of Warcraft Monthly Active Users (MAU) in the fourth quarter of 2020 from the previous year, tallying a total of 29 million MAUs [1].

Taking place in the high-fantasy world of Azeroth, the game allows players to choose a side in an ongoing war between two factions: the Alliance and the Horde [3, 4]. Players can also form in-game communities called guilds. A guild within the MMORPG context is a formal social structure that allows like-minded players to pool resources to tackle the more difficult aspects of a game, conduct player versus player combat, role-play their characters, or simply socialize with one another. Guilds can vary in size and structure depending on the goals they are trying to accomplish [31].

### 2.2 Escapism and Online Gaming

Escapism is seen as an evasion of the real world; it is a uniquely human ability to ignore facts and reality through a variety of means including but not limited to daydreams, literature, and media [29]. Throughout the pandemic, individuals have turned to playing games in excess as a form of escapism. While playing games has been generally shown to improve a person's well-being during the pandemic, escapism being the main motivation for play can be an indicator of poor well-being in certain individuals [19].

Using a variation of Young's Diagnostic Questionnaire [34] for Internet addiction, Yee [32] created an empirical model of online player motivations. Yee found that escapism emerged as the best

predictor of addictive usage of online gaming. Past research has linked excessive online gaming to addiction [17, 21, 24]; however, a study by Kardefelt-Winther [19] supports escapist online gaming as a coping strategy for life problems rather than as an addiction or mental disorder. They examined players who showed high levels of motivation for escapism and found players with high levels of stress or low self-esteem were more likely to experience negative outcomes of play. Meanwhile, escapist players with low levels of stress and high self-esteem were linked to fewer negative outcomes. These findings suggest the well-being of players who play online games to escape their reality should not be negatively impacted as long as prior psychosocial conditions do not exist.

A study by Kaczmarek and Drażkowski [18] examined an integrative model of MMORPG escapism and found that players with escapist motivation spent more hours playing MMORPGs and in turn had increased online social support but decreased offline support. They found that MMORPG escapist players who fixated on online relationships at the expense of offline relationships experienced a decline in well-being and had fewer overall social connections to help upkeep their well-being. Despite these findings, the positive effects of online social support were significant enough to promote coping with everyday problems independently from the effects of offline support. Considering offline support was diminished or eliminated by the COVID-19 pandemic, this leads us to question whether fully online support can be an adequate substitute under such extraordinary circumstances.

### 2.3 Online Communities and Social Capital

The relationship between offline and online communities and how social capital is gained within them has been thoroughly studied in the past [14, 15, 28, 30]. The theoretical model developed by Putnam [26] defines two types of social capital – bridging and bonding – and past work refers to these concepts when examining how social capital is formed in online communities. Ellison et al. have conducted multiple studies investigating the relationship between social network site (SNS) usage and gaining social capital [14, 15, 28]. They found SNS usage is primarily linked with bridging social capital: gaining wide-spread, loose connections that provide new perspectives but lack emotional support. SNSs provide affordances for gaining large and diverse networks and can support the maintenance of offline relationships by keeping people in contact when life circumstances have physically forced them apart. Williams [30] found while social interactions occur differently online than offline, these two social networks are complimentary. Building social capital online differs from offline processes, as people can maintain widespread, shallow relationships that transcend demographic boundaries. However, Williams [30] speculates online communities have the potential for bonding social capital, which refers to forming strong relationships with emotional or substantial support. The lockdown measures imposed to slow the pandemic are a fitting context to test this hypothesis, as it necessitated strong, formerly offline relationships to move online.

### 2.4 Social Interactions in World of Warcraft

Previous work has looked at the social dynamics within World of Warcraft and found that players engage in different kinds of collaborative behaviour. Nardi and Harris [22] define three categories of

collaborations including long-term groups with shared interests, short-term groups with a common goal, and one-on-one friendships. They identified two types of interactions in WoW: short informal encounters with strangers and structured play in organized groups. The variance in collaboration was found to afford a versatile, robust environment that supports player enjoyment. Nardi and Harris [22] further discussed how players used WoW as an avenue for increasing social connections. WoW provided a shared activity that promoted offline connections and helped maintain long-distance relationships between friends and family. They found it was typical for players to be on voice calls while collaboratively playing with their offline connections to emulate being in the same room. Similarly, Williams et al. [31] found that players used WoW for social support by making new connections of varying strength and maintaining offline relationships with family, friends, coworkers, and ones that are geographically distant. These findings exemplify how the diverse social structures of WoW can foster offline and online relationships. In contrast, Ducheneaut et al. [13] found that players spent a lot of their game time playing on their own and only joining other groups when necessary to surmount more difficult in-game challenges.

Notably, the aforementioned research was published shortly after the game’s initial release in 2004. Around a decade later, other researchers have pointed to the way in which more recent expansions of the game have trended “from multiplayer to multiple players” and eroded collaborative gameplay to focus more on individual achievement [7, 10, 11, 23]. As the game evolves and game features are changed, this also affects player social dynamics [9]. While more recent work shows a trend towards individual gameplay, these findings predate the pandemic, which as described earlier, has impacted how people use online media to support interpersonal relationships. We thus argue for revisiting the social dynamics of WoW and how players use WoW to create and maintain social connections during a time when offline relationships have been forced online.

Our study is influenced by the previous work of Zhang and Kaufman [36, 37]. Zhang and Kaufman proposed the following four components of social interaction in MMORPGs and related them to social capital: intensity of interaction, network level, enjoyment of relationships, and quality of guild play [36]. They found that enjoyment of relationships had the biggest impact in building social capital. Later, they explored how the same four components are associated with the four socio-emotional factors: loneliness, depression, social support, and belongingness [37]. They found quality of guild play had the biggest impact on the four socio-emotional factors. Our work extends these past studies to better understand how MMORPGs affect social well-being. Both of Zhang and Kaufman’s studies employed older adults as participants and involved quantitative data collection and analyses. To our knowledge, there has been no similar work using broader populations or employing qualitative thematic analysis. We expect that these methodological changes will shed new light on the impact of MMORPG communities on social well-being and their unique affordances for supporting social connections.

**Table 1: Demographic data of participants.**

Age Range	Men	Women	Non-binary	Other	Prefer not to say	Total
18-24	79	26	9	1	3	118
25-34	147	38	4	1	2	191
35-44	35	30	0	0	0	65
45-54	4	11	0	0	0	15
55+	3	4	0	0	0	7
Prefer not to say	3	1	1	0	0	5
<b>Total</b>	<b>271</b>	<b>110</b>	<b>14</b>	<b>2</b>	<b>5</b>	<b>402</b>

### 3 METHODOLOGY

To evaluate the impact of MMORPGs on social well-being during the COVID-19 pandemic, we gathered the subjective opinions of avid WoW players via an online survey. The survey consisted of questions to help gauge the quality of interactions between players and how perceived well-being was impacted by in-game relationships and interactions during the COVID-19 pandemic compared to beforehand. We also evaluated participants’ motivation to play in terms of the social, immersion, and achievement aspects of the game using the Online Gaming Motivations Scale [33].

#### 3.1 Participants

We recruited 402 participants through WoW-related online communities via Reddit and Discord. These included 271 men, 110 women, 14 non-binary individuals, two “other”, and five who preferred not to say. The most prominent age group was 25-34, of which there were 191 participants (47.51%), followed by 18-24 (29.35%). The full breakdown of demographic data can be found in Table 1. We recruited participants by messaging WoW role-play guilds through their Discord channels and contacting a Wowhead<sup>1</sup> community liaison who then posted and pinned our survey on their Discord channel and Facebook page. We found greatest success reaching the WoW community through Reddit communities r/WoW, r/classicwowtbc, and r/classicwow. The vast majority of survey responses were submitted within 48 hours after posting to these Reddit communities. It is worth noting the possible self-selection bias imposed by our recruiting technique. Considering our recruiting took place in WoW-specific internet spaces and participants chose to answer a questionnaire on WoW, our sample size likely consists of more committed than casual players. Likewise, all surveyed players were engaging in WoW-related social forums prior to the study, indicating their need for socialization and increasing the likelihood that participants play WoW for its social benefits.

<sup>1</sup><https://www.wowhead.com/>

### 3.2 Procedure

Our survey consisted of 17 questions including the Online Gaming Motivations Scale [33], two multiple choice questions about average hours spent per week playing World of Warcraft, and five short-answer questions to provide participants the opportunity to share their experiences playing WoW during the COVID-19 pandemic. Excluding the Online Gaming Motivations Scale, the questions we presented to participants were as follows:

- Q1. How many hours per week did you spend playing World of Warcraft prior to the COVID-19 pandemic?
- Q2. How many hours did you spend per week playing World of Warcraft since the beginning of the COVID-19 Pandemic?
- Q3. How has the COVID-19 pandemic affected your social life?
- Q4. Has playing World of Warcraft affected your social life during the COVID-19 pandemic? If so, how?
- Q5. How has the COVID-19 pandemic affected your well-being (happiness, mental state, etc)?
- Q6. Has playing World of Warcraft had a positive, negative, or neutral effect on your well-being during the COVID-19 pandemic? If positive or negative, why?
- Q7. If there is anything else you would like to share with regards to the topics of this questionnaire, please do so below.

We collected participant responses from March 17, 2021 to March 23, 2021 using Qualtrics XM software. Upon completing the data collection phase, we conducted a thematic analysis on the responses received for the five short-answer questions focused on COVID-19 and World of Warcraft's impact on perceived well-being. Our code book consisted of 12 overarching codes, with several sub-codes within each one. A designated main coder extracted the main 12 codes using grounded theory [16], guided by our initial research question. Two others coded then analysed the data independently using the 12 codes and expanded on each category by adding sub-codes in parallel with the main coder.

We extracted the main 12 codes to be as general as possible to provide a set of boundaries for the secondary analysis to be conducted. This was done by extracting the broader meaning out of participants' responses. For example, if a participant mentioned that lockdowns made them feel sad or alone, the response was grouped under the "feeling" category. Analysis was completed once code saturation was reached. Once the three independent analyses were completed, all three code books were compiled into one master code book, comprised of the 12 main codes with the addition of the sub-codes that were exact matches or deemed similar in meaning across all three independent analyses.

## 4 RESULTS

Our thematic analysis revealed themes of the COVID-19 pandemic's impact on mental health and the effect of social interactions within WoW on perceived well-being. Table 2 shows all the main codes derived from our analysis, with sample sub-codes for the sake of simplicity. The participant responses coded during our analysis largely fell into the social, health, and online main codes with 238, 74, and 67 aggregated items coded respectively.

### 4.1 Motivations

Results of the Online Gaming Motivations Scale can be seen in Figure 1. When asked to indicate the relative importance of a variety of gameplay elements, participants indicated that the most important aspect of online gaming is "Feeling immersed in the world", with 36.16% of participants rating it as extremely important and 33.67% rating it as very important. This is followed closely by "Keeping in touch with friends", "Being part of a guild", and "Grouping with other players". However, it is worth noting that the difference in average importance between these items was marginal. The least important gameplay element according to participants was "Creating a background story and history for your character". This indicates that the social aspect of online gaming is very important to players, perhaps even more so than the role-playing aspect of MMORPGs.

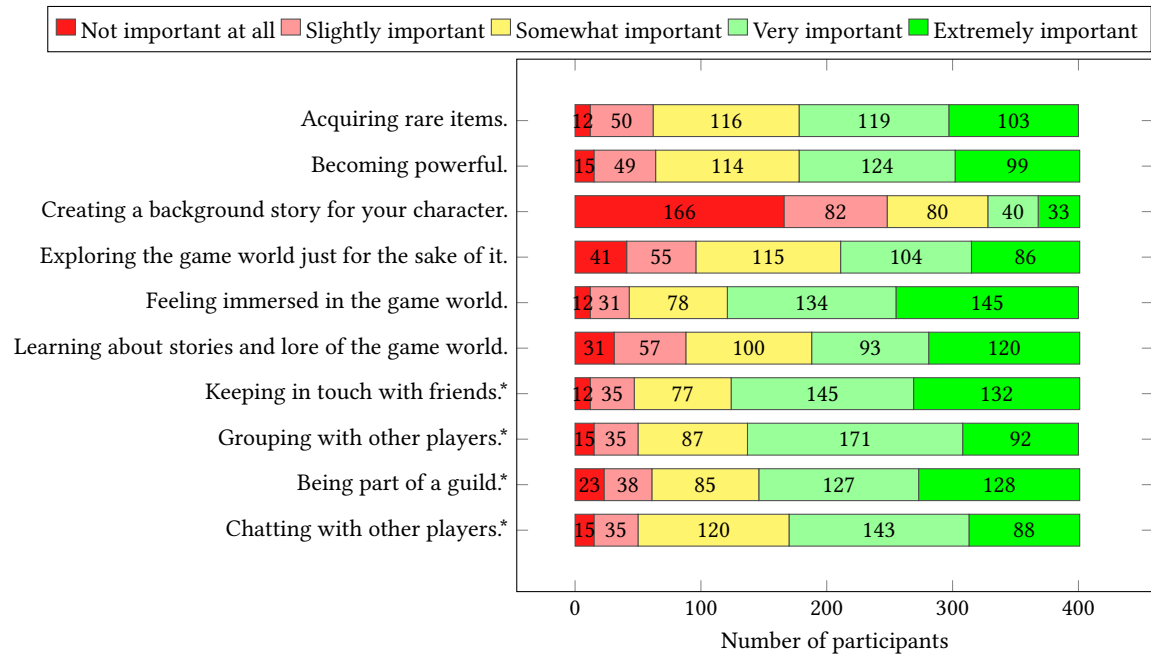
### 4.2 The Impact of the COVID-19 Pandemic

**4.2.1 Time Commitment.** To understand the impact of the COVID-19 pandemic on time commitment to World of Warcraft, we asked participants, using categorical options, how many hours per week they spent logged in prior to and during the pandemic. We performed six Pearson's Chi-Square tests with Yate's correction of continuity (one for each hour range category) to determine if there were significant changes in the number of participants who chose each hour range when describing their playing hours during and prior to the pandemic (results in Table 3). The results show significantly less participants played WoW during the pandemic under 5, 5-10, and 10-20 hours per week, while significantly more participants played 30-40 and 40+ hours per week during the pandemic. Prior to the pandemic, only 9.73% of participants reported spending 40+ hours in-game, compared to 20.90% since the beginning of the pandemic. Prior to the pandemic, the most common number of hours to play per week was 10-20, with 29.18% of all participants falling into that category. During the pandemic, however, 71.15% of participants reported playing at least 20 hours per week, with the most common amount per week being 20-30 hours (26.62%). See Figure 2 for further details on the breakdown of time spent prior to and during the ongoing pandemic. This increase in playing time is further supported by the changes in individual participants' reported playing times during the pandemic compared to prior; during the pandemic, 29 participants played less hours, while 131 played the same amount of hours and 241 played more hours weekly.

**4.2.2 Perceived Well-being.** We found that responses indicated an overwhelming majority of participants felt that the pandemic negatively impacted their lives and their perceived well-being. 24 of 26 responses coded with "feeling" are in response to Q5. Out of those responses, 21 described an increase in negative feelings (i.e., depression, anxiety, stress) or reduced feelings of happiness. Participant responses coded with "work" described the increased sense of risk and anxiety felt as an essential worker during the pandemic. In response to Q5, participant 24 commented how isolation has exacerbated ongoing mental health issues saying, "While I've always suffered from depression and anxiety and felt isolated, those feelings are intensified by strict isolation". While there was significantly less positive sentiments related to the COVID-19 pandemic, the responses seemed to share a feeling of forced acceptance over

**Table 2: List of codes derived from our thematic analysis.**

Main codes	Frequency	In reference to	Sub-codes
Social	238	Social interactions.	Social life, relationships, friendships.
Health	74	Participant’s mental or physical health.	Mental health, mental state, physical health.
Online	67	Anything which exists online.	Social media, social life online, online contacts.
Interaction	57	An online or offline exchange.	Engaging, personal interactions.
Positive Effect	54	Perceived positive effects of WoW on well-being.	N/A
Life	45	Life events or situations.	Social life, real life friends, pandemic.
Time	35	Time spent engaged in an activity.	Free time, time investment, spending time, full time, time alone.
Feeling	26	Participants’ feelings as a result of WoW or the pandemic.	Negative feelings, stress, anxiety, depressed feeling, fatigue, happy, sense of purpose, sense of risk, fear, surviving.
Guild	25	Guild or guild members.	Guildies, active guild.
Negative Effect	18	Perceived negative effects of WoW on well-being.	Bad side effects, negative backlash, negative interactions, negative players, toxic negativity.
Game	17	WoW and its game mechanics.	World of Warcraft, raid team.
Work	10	Work-related comments.	Essential worker, work day, in-person work.



**Figure 1: Online Gaming Motivations Scale scores (\* indicates social gameplay elements.)**

the lack of control over their lives. Answering Q5, participant 108 stated, “Besides the general fear of losing family, I was still able to work and enjoy my usual hobbies”, while participant 105 mentioned, “I have a lot more anxiety but other than that I’d say I am pretty on par for my usual state”. Additionally, a frequent sentiment expressed by 48 participants was that of depression brought on by

COVID-19-related isolation. Participant 57 said “Doing this survey has made me realize I need to talk to my doctor about COVID-induced depression”, while participant 124 mentioned, “I feel more depressed and alone and I feel way more apathetic. Also being tired during the day.” Overall, our analysis shows that most participants

**Table 3: Results of Pearson's Chi-Square tests with Yate's correction adjusted values on reported time spent in game.**

Hours/ week	< 5	5-10	10-20	20-30	30-40	40+
$\chi^2(1)$	25.352	16.181	6.187	0.716	23.579	15.740
<i>p</i>	0.00*	.0001*	.013*	.397	0.00*	.0001*

have been negatively affected by the COVID-19 pandemic, manifesting or exacerbating symptoms of anxiety and depression due to social isolation.

**4.2.3 Social Life.** Another prominent aspect of the study was the impact of the COVID-19 pandemic on the social lives of World of Warcraft players. The players we surveyed expressed the self-isolating restrictions brought on by the pandemic either negatively affected their social lives or did not significantly affect them because their social life was predominantly online prior to the pandemic. Out of the 92 participants who referenced social life in their responses, only two claimed their social life improved during the pandemic. Although the pandemic precluded face-to-face interactions with friends and family, it also shone a light on the importance of online communities. Participants expressed the rise in time spent at home increased their hours playing WoW; this is supported by Figure 2. This increase can partially be explained by 48 participants who claim WoW, or their guild communities specifically, gained a more significant role in their social lives, sometimes becoming their main social outlet. Eight of the responses coded with "positive effect" attributed the positive effects of WoW on well-being to the social interactions it facilitates. Four participants identified the increased playing time as a somewhat negative outcome, as they recognized that spending too much time in WoW had an overall negative effect on their well-being. Although, this was often compounded with the argument that it is used necessarily as a coping mechanism during a stressful time.

### 4.3 The Impact of World of Warcraft

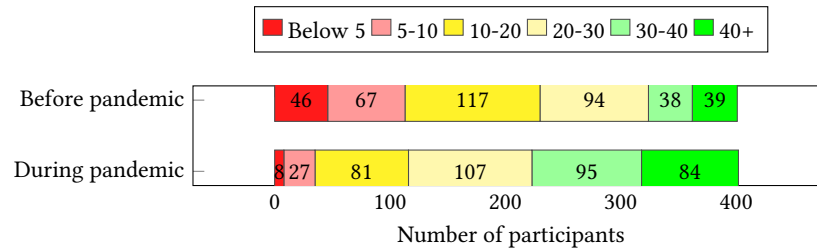
**4.3.1 Time In-game.** The most notable theme that we uncovered was that it seems time spent playing World of Warcraft has had an overall positive effect on participants' perceived well-being. 54 responses of Q6 were coded with "positive effect", while 14 and four were coded with "negative effect" and "neutral effect" respectively. A key factor of this beneficial impact was participants' online and real-life friendships in game. 62 participants reported that WoW allowed them to develop new, meaningful relationships and maintain current friendships in a time when face-to-face interaction has been cut off. When answering Q4, participant 19 stated, "[Playing WoW] during the pandemic gave me a great resource to exercise my excess free time and keep myself social online in the absence of personal interactions". For many participants, WoW became their main source of social interaction and had a pivotal role in combating feelings of loneliness during self-isolation. Responding to Q6, participant 24 stated: "WoW has given me a reliable avenue to alleviate personal isolation feelings and to socialize and share goings-on and life events". Similarly, participant 84 expressed that WoW has

allowed them to "have meaningful and consistent relationships in a time when that is impractical in real life".

**4.3.2 Quality of Interactions.** Another theme found across survey answers was that the quality of interaction often dictated its effect on participants' perceived well-being. Specifically, positive social interactions enhanced participants' playing experience while negative, toxic interactions were reported to be harmful to participants' mental well-being. Although we did not require participants to actively participate in a guild to take part in the study, participants referenced guilds as a prominent venue for social connection in their responses; 12 participants identified guilds as a main social outlet during the pandemic. The interactions between established friends and guild mates were reported as overwhelmingly positive; 27 participants who reported that WoW had a positive effect on their well-being stated that sharing memories and moments with guild mates was a key contributor. The quality of guild interaction had a large effect on participants' enjoyment. 11 participants who reported negative effects of WoW on their well-being stated a bad guild experience was the reason for it. In a similar sense, the positive impact of guilds does not extend to all members, as two participants who manage guilds indicated that they experienced an increase in stress due to increased demand of guild-related content with more players online during the pandemic. Aside from guild relationships, 13 participants stated strangers in public chat rooms tended to be toxic and decreased their perceived well-being.

**4.3.3 Escapism.** Our analysis also uncovered escapism as a key motivation for playing WoW during the pandemic. 43 participants affirmed WoW helped them escape their reality during the pandemic and was an effective distraction from their everyday lives. Answering Q6, participant 389 stated WoW allowed them "to escape [their] harsh reality and spend time with [their] friends". Respectively, participants 211 and 329 recounted how WoW was an "easy getaway" to benefit their mental well-being by taking their "mind off any worry [they had] regarding the pandemic, even though it was temporary". Conversely, five participants indicated that this motivation of escapism was damaging to their well-being; they stated excessively playing to escape their everyday life took a toll on their physical health and their real-life problems did not go away and in some cases worsened from being ignored.

**4.3.4 Sense of Purpose.** The last prevalent theme we discovered across the responses was that WoW provided participants with a sense of accomplishment. While they were self-isolated at home and their lives seemed stagnant, 25 participants stated that WoW supplied challenges and goals for them to complete, giving them a sense of achievement and the feeling of moving forward. Responding to Q6, participant 96 stated how "overcoming in-game challenges with [their] guild mates [gave them] a sense of accomplishment", while participant 42 explained how "leveling characters [gave them] little goals to look forward to until end game". Respectively, participants 321 and 190 mentioned how WoW "stimulates and challenges" them and "gave a sense of purpose and something to do" in their free time. This statement ties into the final pattern we identified, which was that participants expressed their belief that playing WoW during the stay-at-home mandates was an effective pastime (relayed by 27 participants). Participant 202 stated, "[WoW] has helped keep my



**Figure 2: Participant self-reported data regarding hours spent playing World of Warcraft per week before and during the COVID-19 pandemic.**

mind busy during my off-work times". In general, the responses highlighted how WoW provided them with a purpose, sense of fulfillment, and a pleasant distraction during the pandemic.

## 5 DISCUSSION

This study explored the experiences of MMORPG players during the COVID-19 pandemic by investigating how social interactions in MMORPG communities influenced social well-being during a time of isolation. Our research was guided by the exploratory research question: How have social interactions in World of Warcraft affected players' social well-being during the COVID-19 pandemic? In relation to our question, one of our primary findings is that World of Warcraft is seemingly utilized as an avenue for social interaction during the pandemic, as it has been noted by multiple participants that the game world is a place where they can maintain relationships with friends and feel a sense of community and connection with others. This is consistent with results from the Online Gaming Motivations Scale [33], which found socially-motivated game mechanics such as chatting with other players and being part of a guild to be most important to participants. These social interactions may be contributing factors to the increase in time spent in-game since the onset of the pandemic.

Additionally, we found that time spent playing World of Warcraft is generally perceived to be alleviating the negative feelings of loneliness, depression, and anxiety, rather than adding to them. As one participant stated, "during the pandemic, WoW has become a lifeline for me". In particular, interactions with guild members and other friends were perceived as very positive and therefore contributed to the well-being of the player, possibly decreasing feelings of loneliness and increasing the sense of social connection. From these results, it is our opinion that the social aspect of World of Warcraft, particularly guild membership, has had a positive impact on participants who may be feeling the negative impacts of social isolation as a result of the COVID-19 pandemic. This is consistent with the research conducted by Zhang and Kaufman [37], which found that quality of guild play was related to the factors of socio-emotional well-being in older adults. Our research may indicate that the "MMO" aspect of MMORPGs, encompassing features such as guild membership and grouping with other players, is important in relation to social well-being for players of all ages, particularly in the context of the ongoing pandemic.

The findings related to this topic are not entirely positive, however, as it seems that time spent playing World of Warcraft has

not had the same benefits for all players as a smaller number of participants reported toxic interactions with other players outside their guild causing harm to their well-being. Additionally, some state that excessive time spent playing WoW during the pandemic has caused deterioration in physical health while providing no benefit to their emotional well-being beyond temporary escapism. Moreover, an increase in hours played per week during the past year may be due to a need for escapism that cannot adequately provide the necessary requirements to stimulate positive well-being. This is an important implication of our work, as it indicates that although the majority of the participant group seems to utilize the social aspect of MMORPGs as a form of escapism and a way to connect with others, the increase in time spent in-game may not provide adequate support, particularly during a time when many people are struggling with feelings of loneliness and decreased social connection.

The results of this study provide a high-level overview of the impact of social interactions within the game world on perceived well-being. Through this research, we were able to identify major aspects of the gameplay experience that motivate players to engage with World of Warcraft, particularly those related to social interaction. Additionally, we were able to gain valuable insight into how the pandemic impacted these players and their ability to socialize both online and offline. Through this, we identified smaller venues such as guilds as a mostly positive contributor to players' social well-being. Because of this, we can recommend that developers of multiplayer games implement aspects of guild membership mechanics that allows for players to group with one another in smaller, more contained instances than that of a large, server-wide chatting feature, particularly if they are hoping to foster deeper social connection between players. This can allow for players to develop closer relationships with one another, while also maintaining offline relationships during the pandemic. By implementing mechanics in games that allow for social connection to occur on a smaller scale between individual players, large online game communities can continue to provide an avenue for individuals struggling with the effects of the COVID-19 pandemic, while minimizing the effects of toxic social interactions experienced outside the player's immediate social group.

## 6 LIMITATIONS AND FUTURE WORK

In this section, we acknowledge the limitations of our study and provide ways to address those limitations in future projects. We

recognize that our survey assumes the participants to be part of a guild, although a few participants stated that they did not actively participate in a guild at the time of completing the survey. In future research, we recommend asking participants if they belong to a guild as part of the data collection phase. This explicit participant bias also extends to our decision to sample the WoW community and not the MMORPG community as a whole, which leaves out the perspective of other MMORPG communities on the advantages of guild membership during times of isolation and could even provide insight into other structures and mechanics that promote social connection. Additionally, due to our use of convenience sampling, our sample may over-emphasize more experienced and hardcore players who have an explicit need for socialization, as these players had to be on social forums such as Reddit and WoWhead in order to find the survey. For this reason, players who play solo or only socialize in their own guilds may be underrepresented.

Another aspect we considered but decided to exclude from this project is that WoW is currently running two versions of the game and therefore, there are two communities of players: The Classic WoW sub-community of players, engaging with the older 1.12 version of the game [3], and the "Retail" WoW sub-community of players, which engage with the modern 9.02 version of the game: World of Warcraft Shadowlands [4]. While we opted to sample the WoW community as a whole, we recognize that there are differences in mechanics and social practices between the two versions of the game and future projects should consider such differences as part of the data gathering methodology.

Lastly, our study does not consider if the players interviewed are long-time, new, or returning players to the game. We also do not consider the length of time that players have been engaging with the game. This is an important aspect to consider in future projects because long-time experienced players might encounter fewer barriers for social connection than new and returning players due to their knowledge of the game and longer exposure to the community.

As this current and past work has established, WoW and other MMORPGs can effectively promote social well-being. However, to our knowledge, there has been no formal comparison between MMORPGs to investigate what game mechanics facilitate positive online interactions and social well-being. Our work identified "guild membership" as a valuable mechanic towards promoting social well-being, but a comparison between games (each with their own unique mechanics) could provide further insights into the efficacy of our claim and what game features most effectively promote positive social interactions. Therefore, future work with a wider scope that compares multiple MMORPGs would improve the collective knowledge of how MMORPGs affect social well-being and could better inform future game design.

## 7 CONCLUSION

Over the course of the COVID-19 pandemic, stay-at-home mandates and social distancing measures have taken effect, drastically cutting face-to-face social interactions. In conjunction, an increase in mental health issues was seen over 2020. To help relieve this newfound psychological distress, people gravitated towards online gaming as their mode of socializing and mental escape [25].

As a result, the online gaming industry flourished over 2020 and MMORPGs saw an influx in monthly active users [2, 39].

Given the increase of both mental health issues and online gaming, we examined the impact of MMORPG communities on social well-being in hopes to define unique affordances of these platforms for social connection during the COVID-19 pandemic. To evaluate the impact of MMORPGs on social well-being, we published an online survey to WoW online forums and communities to gather the subjective opinions of avid WoW players. Our results showed WoW had an overall positive effect on participants' perceived well-being and was used as a main channel for social interaction during a time of isolation. Participants expressed connecting with real-life and online friends through private and guild communication channels helped them maintain and create meaningful relationships. The guild membership element of the game in particular was shown to lessen the negative impacts of social isolation during the pandemic. However, the interactions had with strangers through public chat rooms were reported to have a negative impact on well-being.

Overall, the "MMO" aspect of MMORPG, such as guild memberships and player groupings, was shown to be the foremost contributor to positive social well-being for players. Due to this, we recommend that MMORPG developers give players more options to play within smaller, chosen groupings such as guilds to avoid negative interactions with the larger community and in turn provide a more positive social gameplay experience. These results are encouraging and motivate us to further explore the impact of different genres of MMO games, including in non-RPG contexts with the absence of guilds and consistent player groupings to further explore the implications of these online communities on social well-being.

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