Toxic Behaviour in Online Multiplayer Games: To Play or to Flame?
A literature review on the negative effect of toxic behaviour on the mental wellbeing of players

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Technology Usage Acknowledgement

       I acknowledge I have not used any form of AI-technology to write my thesis. Moreover, I am not planning nor intending to use any form of AI, such as ChatGPT for the remainder of my thesis project. Every step of the research will be performed manually. The steps taken to perform the research will be elaborated in the Method section.

Abstract

Massively multiplayer online roleplaying games (MMORPGs) allow multiple players to play simultaneously, which includes interaction and communication within games. However, the issue of toxicity continues to emerge following the growth of the online gaming community. Players use harsh words and inappropriate behaviours to create undesirable experiences for others across gaming communities. This paper examines the negative effects of toxic behaviours on the mental well-being of players. The research question of this study is, to what extent do toxic social interactions and toxic behaviour in MMORPGs have negative impacts on individual players' mental well-being, and how does this transfer into their real lives? The study consists of a literature review using 15 studies obtained from Google Scholar to explore the social and psychological effects of online games and how they transfer into players' real lives. The literature review finds that toxicity indeed produces adverse social and psychological consequences for victims, leading them to lose interest in gaming. This study also finds that the impacts of toxicity in online games are often influenced by the type of behaviour involved. Extreme behaviours such as hate speech and trolling have more severe impacts on victims compared to disruptive behaviours such as griefing. In addition, this study shows that the personality traits of high openness and low extraversion produce higher risks of becoming victims of toxicity in MMORPGs. The findings create room for more focused research studies to explore how toxic behaviours in online games can be minimised through game design adaptation or by moderators to improve player experiences and create inclusive gaming settings. Player guidance can also improve awareness and resilience to help players overcome incidences of toxicity among victims.

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1. Introduction

As technology has advanced at a tremendous pace, online gaming has progressively become one of the main sources of online entertainment in society. Online multiplayer games are a category of games that allow players to socialise, interact, and play together or against each other while reaching a common or shared goal (Chen, 2014). Examples include games such as World of Warcraft, Final Fantasy XIV, EverQuest, Old School Runescape, Star Trek Online, and Aion, among others. These games attract players mostly due to the sense of achievement, social benefits, and sense of immersion players get from playing them (Yee, 2006). Large-scale online multiplayer games – massively multiplayer online roleplaying games (MMORPG) in particular – prioritise promoting and stimulating socialising, networking, and community building. This provides further opportunities for players to engage and improve their socialisation and collaboration skills while broadening their social circles and relationships with various individuals across the globe (Ducheneaut & Moore, 2005). Average players spend between 15 and 24 hours a week playing MMORPGs (Beres et al., 2021). Professional e-sports athletes may spend up to 10 hours a day on online gaming. At such an intensity, players are predisposed to conflict and use harsh language or actions to gain the upper hand or demotivate opponents.

However, despite online games', specifically MMORPGs' benefits regarding improved social skills, studies have found that they carry negative social consequences as well. A study found that MMORPGs could result in players experiencing forms of social aggression, such as toxicity, or falling victim to peer victimisation akin to cyberbullying (Cole et al., 2020). Toxicity consists of unpleasant and offensive behaviours, including harassment, verbal assault, and cyberbullying (Märtens et al., 2015). Cyberbullying is a genre within the umbrella term of toxicity and implies the act of repeated and intentional expressions of different forms of toxic actions, most notably online harassment by individuals (Menesini & Nocentini, 2009). Exposure to toxic behaviours such as cyberbullying could be harmful to players, much like the negative effects of real-life bullying on the mental psyches of individuals, and result in increased feelings of depression and anxiety.

1.2 Purpose of the Study

Despite existing literature surrounding the presence of toxicity in online gaming environments, there is a need for more research to establish factors that influence the mental well-being of players. Studies also need to explore the extent to which toxicity can damage the players' mental well-being in the context of MMORPGs, especially in terms of whether

certain characteristics determine the outcomes and consequences of toxic behaviour, as well as how these outcomes transfer into players' real lives. Certain individuals might be more or less resistant to toxicity and thus might be impacted differently (Schodt et al., 2021). Therefore, a literature review was conducted to gather further and in-depth insights into toxic behaviour in MMORPGs and its effects on players' mental health. The following research question was established to aid this process and is answered through this research:

RQ: To what extent do toxic social interactions and behaviour in MMORPGs negatively impact individual players' mental well-being, and how does this transfer into their real lives?

1.3 Relevance of the Study

It is essential to understand the negative influences and consequences of toxic behaviours in large-scale player environments and, in particular, how they affect players' psychological states. Toxicity in MMORPGs is a large-scale, common issue, as communities often remain uncontrolled or unmonitored due to their tremendously large and active online player bases. Furthermore, toxicity is a widely normalised and accepted phenomenon within online game culture (Beres et al., 2021). However, it being normalised and accepted does not imply that the consequences are not prevalent. This normalisation and high frequency of toxic behaviour in games not only causes harm to the players and their communities but to the developers and their games' reputations as well; both developers and games might be associated with toxicity by society (Lapolla, 2020; Reid et al., 2022).

Therefore, the insights from this literature review could be used by developers and moderators to gain a deeper understanding of how toxicity manifests and what potential dangers derive from it. This could then be used to find effective ways to identify and limit toxicity, mainly to protect vulnerable players with the potential to be victimised from getting harmed by being involved in toxic environments. It can also be used to prevent existing victims from further experiencing toxicity. Furthermore, data derived from this study could be used for educational purposes, aiding future researchers in narrowing their studies to focus on ways to prevent the adverse effects of toxicity on players' mental health. It can also help mental healthcare practitioners understand the negative impacts these experiences in online games could have on the mental psyche of a person to facilitate more tailored and accurate treatment plans.

2. Theoretical Framework

2.1 Massively Multiplayer Online Roleplaying Games (MMORPGs) and their Social Environments

MMORPGs are a genre of online games that allow tens to thousands of people to play on a shared server. These servers run continuously, allowing the games to operate infinitely and allowing players to freely log in and out while preserving their data. These games often require players to pay for a monthly subscription to play the game (Achterbosch et al., 2008). In MMORPGs, players can either engage in collaboration to reach a shared goal in the game environment, which is called 'player versus environment' (PvE), or compete against each other, a playstyle known as 'player versus player' (PvP; Lin & Sun, 2015). Currently, the three best-known MMORPGs are World of Warcraft, Final Fantasy XIV, and Old School Runescape (MMO Populations, 2024).

MMORPGs are defined by a combination of characteristics unique to the genre. Some notable characteristics include persistence, avatar-mediated play, and social interaction. Persistence means that the game contains a virtual world with an ongoing process of existence, development, and growth for players and their community, even when players log out of the game. Avatar-mediated play allows the players to create, customise, and personalise a character and use this persona to interact with the online environment. Lastly, social interaction consists of communication and networking with other players within the MMORPGs (Barnett & Coulson, 2010; Chan & Vorderer, 2006).

Although social interaction is not mandatory, MMORPGs often steer their players towards collaborative play and civic engagement, allowing for social experiences to persist. It has also been found that players can build social capital within MMORPGs. Social capital entails all the positive consequences one might obtain from social interactions and networking (Zhong, 2011). Moreover, the virtual world in MMORPGs allows players to overcome social barriers as they might experience less social anxiety online (Martončik & Lokša, 2016). Online social interactions have been found to help players experience less loneliness. Lastly, due to the ability to have social interactions in a dense virtual world with various people from across the globe, studies have found that MMORPGs can help players learn new languages by giving them a space to practise their language skills through the game environment or with other players (Kongmee et al., 2011).

2.2 Toxicity in Online Games

While interactions and collaborations in MMORPGs may have positive effects on the quality of players' experiences, they also create a space for socially destructive behaviours in the form of toxic actions and verbal aggression. As described above, toxicity is a form of online antisocial behaviour and is a widespread phenomenon rooted in online multiplayer games. It is a negative way of expressing and projecting one's emotions of anger and frustration towards other players online, and it results in a diminished player experience for others. Exhibitions of toxicity are a harmful way of expressing one's feelings in response to competition and collaboration within online multiplayer games (Kordyaka et al., 2022; Kwak et al., 2015). This behaviour is harmful to individuals, the community, and the game's reputation.

However, despite the disruptive and harmful nature of toxicity, it has been a normalised concept within online multiplayer games, especially in competitive games. According to a study by Beres et al. (2021), it has been found that players rationalise toxic behaviours by deeming them an unavoidable and typical feature of online gaming. Players tend to neither report nor take action to combat toxicity towards themselves or their peers, which results in the persistence of toxicity in the online game environment.

This normalisation of toxicity perpetuates more toxicity. Due to repeated exposure to toxicity, players may learn to express themselves using toxic behaviours across online gaming platforms as well. This phenomenon is called social cognitive theory and has been found to be a possible explanation for toxicity in online games, alongside two other theories: the theory of planned behaviour and the online disinhibition effect (Bandura, 2002; Kordyaka et al., 2020). The theory of planned behaviour implies that players might express toxicity based on contextual and situational factors in a social context, such as peer pressure and in-game socially accepted group norms (Ajzen, 1991; Kordyaka et al., 2020). Lastly, the online disinhibition effect explains that players feel a sense of anonymity and invisibility online compared to in real life. This allows individuals to have more freedom in their behaviour and actions and to express themselves in unfiltered ways that are not acceptable in real-life society. Anonymity and invisibility, which are two specific factors of the online disinhibition effect, are speculated to be the main drivers of toxicity (Kordyaka et al., 2020; Suler, 2004).

2.2.1 Types of Toxicity

In this thesis, toxicity refers to harmful ways of expressing one's frustrations towards other players online. Therefore, toxicity is an umbrella term, as there are various harmful

ways to express one's game-related anger. However, studies have used different categories and criteria for toxicity, and some have interchangeably used the terms 'toxicity,' 'griefing,' and 'trolling,' all of which are umbrella terms. To provide a clear overview of the variety of toxic expressions, Kowert (2020) established a list of types of toxic behaviour, divided into negative verbal expressions and negative behavioural actions. A selection of the most common forms of toxicity within these two categories was used as a basis for distinctions of toxic behaviour throughout the research within this thesis.

According to Kowert (2020), verbal toxic expressions consist of trash-talking, flaming, and spamming. Trash talk involves verbal expressions of taunting, demeaning, and derogatory speech towards other players to create turmoil, intimidate, or elicit negative reactions from the targeted players (Pujante, 2021). Flaming is similar to trash-talking but consists of more emotionally fuelled verbal hostility and often offensive, upsetting, and insulting language (Foo & Koivisto, 2004). Lastly, spamming entails the repeated action of sending the same or multiple messages to players or into a chat, often leading to social disturbances (Kowert, 2020).

Behavioural actions consist of in-game physical interactions through in-game characters or any actions that involve physical, real-life consequences. These include griefing, cyberstalking, and doxing. First, griefing consists of an individual intentionally playing a game in a way that disrupts the player experience for other players (Achterbosch et al., 2013; Foo & Koivisto, 2004). Cyberstalking is comparable to real-life stalking. It consists of the invasion of personal and private space, safety, and privacy by individuals repeatedly making unwelcome appearances in-game, such as following a person to a place within the game (Grimes & Bartolacci, 2010). Lastly, doxing is a toxic action in which a player's real life is affected through the malicious and deliberate exposure and leakage of their private information (Beres et al., 2021).

Based on insights from the literature review, this study placed griefing in the category of behavioural actions instead of verbal expressions. Furthermore, cyberstalking was added to the list due to it being a common toxic behavioural action, according to other studies mentioned prior. Toxicity and its various expressions could potentially have different degrees of impact on the individual experiences of players in MMORPGs. Certain actions could be more harmful, disruptive, or transferable to real life, whereas others might be perceived as less destructive.

This research on different types of toxicity will be focused on online games and how toxicity is predicted to affect players in MMORPGs. The findings can be used as a basis for

establishing and conducting empirical studies regarding different types of toxicity within MMORPGs. Therefore, the following hypothesis, which delves into the mentioned subgenres under the umbrella term 'toxicity,' was established.

H1: Toxicity in MMORPGs has negative social and psychological consequences on the mental well-being of players.

2.3. Effects of Toxicity on the Mental Well-Being of Players

The experience of toxicity, in some cases, can feature long-term exposure to one or more types of adverse expressions in computer-based communication. Toxicity is often created for the purpose of harming individuals, both in real life and within games (Menesini & Nocentini, 2009). Furthermore, toxicity could be present within games due to the normalisation of toxic behaviour in games (Zsila et al., 2022).

Repeated exposure to aggressive and harmful behaviour online could have social and psychological impacts which could impact victims' real lives and mental health. Studies have found that victims of cyberbullying are more likely to suffer from symptoms related to depression, social anxiety, low self-esteem, and stress, as well as social difficulties such as feeling socially inferior, socially isolated, and having interpersonal and performance issues (Campbell et al., 2012; Fahy et al., 2016; Ybarra et al., 2006). Another study found that cyberbullying could escalate to extreme levels of mental distress, leading to self-harm and suicidality (Yang et al., 2021).

Therefore, the negative social and psychological impacts of toxicity online can have significant impacts on the lives and mental health of victims. Cyberbullying and toxicity are present in online games; however, it is unclear to what degree these negative consequences occur in socially rich game environments such as MMORPGs, which mimic real-life society, compared to more traditional forms of computer mediated communication (CMC). Based on the known impacts of cyberbullying online in general, the paper used the following sub-question to explore the effects of online toxicity depending on the type of behaviour involved.

SQ1: To what degree do the effects and impact of toxicity differ based on the type of behaviour to which the victim is subjected?

2.4 Player Types

Large-scale online multiplayer games such as MMORPGs contain large and diverse player bases, mimicking real-life society. Therefore, players interact with both different and similar individuals (Barnett & Coulson, 2010). This is, in most cases, a key element of how individuals socialise and respond to toxic behaviour within online multiplayer games. Furthermore, individual differences likely contribute to players experiencing and reacting to toxic environments and exposure to toxicity differently. Individuals could, therefore, be impacted differently due to potentially being more or less resistant or sensitive to toxicity.

2.4.1 Player Personality Traits

Several studies have categorised players' personalities based on the Big Five personality traits, which include extraversion, agreeableness, conscientiousness, openness, and neuroticism (Jeng & Teng, 2008). First, extraversion and its counterpart, introversion, describe the sociability of an individual and determine how likely or unlikely a player is to engage in socialising within a game. 'Extraverted' describes sociable players who are vocal during games and interact frequently with other players. 'Introverted', however, describes individuals with minimal interest in socialising during online games. Second, agreeableness and its opposite, antagonism, describe the degree of (un)cooperativity of an individual. Agreeableness in games would be determined based on how well a player engages in teamwork and teamplay. Agreeable people are more likely to overcome toxic behaviour by adapting to changing gaming environments and having fewer conflicts with other players. Antagonistic people, however, are at a high risk of becoming victims of toxicity, as they are difficult to get along with and may be extremely competitive.

Conscientiousness describes an individual's sense of awareness, organisation, and self-control, which can be portrayed through showing signs of leadership and learning strategies in games. This character trait is associated with a lower risk of becoming a victim of toxic behaviour in online gaming. With high awareness and self-control, it becomes easy for such individuals to recognise that the game does not require them to invest emotionally, and thus, they avoid attracting toxic behaviour (Widiger & Crego, 2019). Openness describes an individual's degree of curiosity and unconventionality and is expressed in whether a player is more likely to ask questions or try out new options within the game. This trait can increase a player's susceptibility to toxic behaviour as they can easily provoke others or use inappropriate language, which can attract toxic behaviour in retaliation. Lastly, neuroticism describes an individual's emotional stability and how susceptible they are to negative

emotions. Neuroticism could be expressed regarding sportsmanship as well as in social settings within a game (McCrae & John, 1992; Widiger & Crego, 2019). It is associated with a lower risk of being subjected to toxic behaviour as players high in this trait are decisive and rarely engage in unnecessary exchanges within a game that may create room for abusive or hostile language from other players.

2.4.2 Playstyle

An individual's personality consists of a combination of the five personality traits at different positions on the personality trait spectrum. These could be further grouped and categorised based on the playstyle of individuals. Bateman et al. (2011) categorised players based on their general playstyles: hardcore players, who play seriously and meticulously, versus casual players, who often play at their own pace for fun. Between the two types, hardcore players are more likely to become victims of toxicity as they are more attached to the game. Playstyles are further narrowed down by Bateman et al. (2011) into four archetypes: logical, tactical, strategic, and diplomatic.

These archetypes can be compared to the descriptions of the Big Five personality traits based on the study of McCrae and John (1992) and aligned accordingly. First, logical players have high conscientiousness, low agreeableness, and low openness, whereas tactical players have high openness and low conscientiousness. Strategic players appear to have high conscientiousness as well as high openness. Lastly, diplomatic players are characterised as having high agreeableness and high openness. Extraversion and neuroticism are characteristics related to personality traits but can interact with playstyles to influence responses to toxicity. They could potentially play roles in how players socialise with others. Agreeableness seems to be a situational or flexible trait for several archetypes and cannot be assigned to any one playstyle. A player's personality traits, therefore, indicate the way that they might behave.

Prior studies have found connections between cyberbullying and personality traits. It has been found that individuals with high neuroticism are less susceptible to becoming victims of cyberbullying, whereas individuals with high openness or low extraversion are more susceptible to becoming victims (Peluchette et al., 2015; Van De Weijer & Leukfeldt, 2017). A player's personality and respective traits, in combination with their playstyle, could potentially play a role in determining their susceptibility and affectedness regarding displaying, facing, and experiencing toxic behaviour in games, especially in MMORPGs. Therefore, the following hypothesis has been established.

SQ2: To what degree do the likeliness and impact of toxicity in MMORPGs differ based on an individual's personality traits and playstyle?

3. Method

3.1 Databases

The literature used in this study was mainly gathered through Google Scholar. Due to Google Scholar's vast size and the ability to access a large amount of literature, several filters and search terms were applied to narrow down the search results and find relevant literature for this study.

3.2 Search Terms

To gather relevant literature within the three databases to answer both sub-questions and investigate the hypothesis, three different search terms were established. These were incorporated into a database search on March 22, 2024. These different search terms aided in narrowing down the literature. The use of asterisks allowed for multiple variants of words to be considered. However, the three established search terms still yielded many papers. Therefore, manual filtering and scanning for relevancy was conducted afterwards. A snowball search was conducted on relevant papers to find further relevant papers on the same topics.

The first search terms were established and used to find literature for the first sub-question, 'To what degree do the effects and impacts of toxicity differ based on the type of behaviour to which a victim is subjected?': *("MMORPG*" OR "Massively Multiplayer Online Role-playing Game*" OR "World of Warcraft" OR "Final Fantasy 14" OR "Final Fantasy XIV" OR "Old School Runescape") AND (toxic* OR harrass* OR flam* OR antisocial* OR grief* OR troll* OR stalk* OR cyberstalk* OR doxx* OR cyberbully* OR "trash talk*") AND (effect* OR impact* OR influenc*).* This yielded a total of 1,510 results on Google Scholar.

The top three largest MMORPGs and different variants of their names were included in this search term to find relevant studies conducted on these player bases. Furthermore, as toxicity is an umbrella term, the various subgenres of toxic expression within toxic behaviour were added alongside the search term to gather the data needed to respond to the first sub-question. This allowed for papers that did not contain the word 'toxicity' but mentioned the presence of harassment to be included as relevant literature about toxicity in MMORPGs.

To investigate the research hypothesis 'toxicity in MMORPGs has negative social and psychological consequences on the mental well-being of players'), a second search term was established, which was used alongside the first search term to narrow down the search results further: ...*AND ("Social consequence*" OR "social impact*" OR "psychological consequence*" OR "psychological impact*" OR psychosocial* OR sociopsycho* OR "Mental health" OR "Mental well*" OR "social anxi*" OR anxi* OR stress OR distress* OR suicid* OR insecu* OR self-esteem OR effect*).* This yielded a total of 885 results on Google Scholar. As potential consequences to players' social lives and mental health are vast, several symptoms and consequences that were identified to be caused by cyberbullying were implemented into the search results to determine whether toxicity in MMORPGs could lead to either of these detrimental mental and social health issues.

Lastly, the following search term was narrowed down to find specific literature to answer the second sub-question, 'To what degree do the likeliness and impact of toxicity in MMORPGs differ based on the individual's personality traits and play style?': *("MMORPG*" OR "Massively Multiplayer Online Role-playing Game" OR "World of Warcraft" OR "Final Fantasy 14" OR "Final Fantasy XIV" OR "Old School Runescape") AND (toxic* OR harrass* OR flam* OR antisocial* OR grief* OR troll* OR stalk* OR cyberstalk* OR doxx* OR cyberbully* OR "trash talk*") AND ("The Big Five" OR extraversion* OR agreeableness* OR conscientiousness* OR openness* OR neuroticism*) AND ("Competitive" OR "Bitter" OR "Anger" OR "Losing" OR "Retaliate").* This yielded a total of 643 results on Google Scholar. This search term contained all five personality traits within the Big Five personality traits. Several papers merely mentioned one or several of these traits, rather than all five. Furthermore, different formats and adjusted variations of the Big Five personality traits existed throughout various research papers. These were taken into consideration if the original five traits were also used and mentioned in the paper.

3.3 Selection Criteria

Several selection criteria were established. First, the search terms were required to be present in either the abstract or in the title of the found literature. In cases of uncertainty or doubt, the entire paper was scanned for the presence of the search terms. Furthermore, the literature's focus and the main topic for the hypothesis and second sub-question were required to consist of the mention of negative consequences, effects, and impact or influences of toxicity on individuals, specifically in online multiplayer games and MMOs and with a deeper focus on MMORPGs.

3.4 Data Analysis

The selected articles were analysed to generate information to test the research hypothesis and answer the research questions. The aspects of each article were noted, including the year of publication, the research question, the effects of toxicity studied, the method used, and the number, mean age, and gender of participants. The articles were analysed based on the focus of each study and the potential effects of toxicity identified. Articles that explored different types of toxicity and their effects were linked to the first sub-question, and those that studied the social and psychological effects of toxicity were linked to first hypothesis. Studies that showed the possibility of personality traits influencing victimhood for toxic behaviour in online gaming were placed under the second sub-question.

4. Results

The following papers were found using the search terms and a snowball search. These were categorised under the research hypothesis and sub-questions to confirm that the findings were applicable to toxicity and its effects on players' mental well-being. The 16 studies used for the literature review are listed in Table 1 below.

Table 1

Overview of Studies

Author(s)	Year	Effects Studied	Method	N	Mean Age	Gender
Achterbosch	2017	Presence of griefing	Observation	1 participant	/	1 man
Baltezarević et al.	2023	Forms of cyberbullying	Literature review	-	-	-
Birk et al.	2016	Feelings due to social exclusion	Survey & Experiment	99 survey & 202 experiment participants	32 years old	170 men, 131 women
Cook et al.	2023	Forms of cyberbullying	Interviews	22 participants	24 years old	17 men, 3 women, 2 others

Depping et al.	2018	Social capital of players	Survey	250 respondents	32 years old	159 men, 91 women
Fong	2023	Social interactions on mental health	Survey	197 participants	-	197 women
Fox et al.	2018	Feelings and perceptions towards toxic social interactions	Diary	38 participants	22 years old	28 men, 10 women
Fox & Tang	2016	Feelings and experiences towards online harassment	Survey	293 respondents	26 years old	293 women
Komaç & Çağıltay	2021	Influence and perception of toxic behaviour	Pre-test & Post-test Survey	111 participants	29 years old	76 men, 35 women
Lemercier-Dugarin et al.	2021	Influence of predictors on toxicity	Survey	816 respondents	23 years old	707 men, 109 women
McInroy & Mishna	2017	Impact of cyberbullying	Survey & Interviews	670 survey respondents & 57 int 1erview participants	12 years old	/
Nguyen et al.	2022	Influence of social discrimination and the effect of personality traits and the likelihood of facing social discrimination	Game data & Survey	890 survey respondents	45 years old	873 men, 17 women
Valanne	2020	Effect of cyberbullying	Interviews	4 participants	32 years old	2 men, 2 women

Woodford	2023	Frequency of toxicity	Survey	150 respondents	/	129 men, 121 women
Zsila et al.	2022	Victimisation	Survey	2097 respondents	26 years old	1856 men, 241 women

The studies used for the literature review were mainly quantitative, with only one study being qualitative. They explored toxic behaviours in online multiplayer games as well as the negative impact of such behaviours on player experiences. Notably, all studies adopted largely empirical approaches, utilising surveys, experiments, interviews, and literature reviews to understand the prevalence, forms, and effects of online harassment. Some of the concepts explored in the articles included griefing, social exclusion, camping, ganking, which are forms of toxicity, as well as ostracism, among others. The sources also examined cyberbullying and its severe emotional impacts on younger players, which notably included increased stress and social withdrawal. The articles selected for the study mainly focused on recent studies while occurring within a short time, thus studying short-term effects. However, they did not explore the long-term effects of toxicity on participants in online gaming communities or how toxicity could affect future trends in online gaming.

4.1 Types and Effects of Toxicity

4.1.1 Types of Toxic Behaviours

Regarding the first sub-question, 'To what degree do the effects and impact of toxicity differ based on the type of behaviour to which the victim is subjected?' existing research shows that the impacts of toxicity in online games are influenced by the type of behaviour involved. Twelve studies showed that the type of toxicity used could be influenced by what the perpetrators seek to achieve. Studies point towards the possibility that the type of toxic behaviour displayed by players in online games influences the nature of the responses from other players. Toxicity in online games, especially in MMORPGs, ranges from teasing to serious harassment and abuse. In five studies (Woodford, 2023; Zsila, 2022; Achterbosch, 2017; Birk et al., 2016; Cook et al., 2023), griefing was named among the most common toxic behaviours in online gaming. Classifications are important for enhancing the understanding of diverse toxic behaviours and their origins within gaming communities.

Deslauriers et al. (2020) argued that toxicity is evident through player behaviours and communication patterns that degrade the gameplay experience for others, with griefing and trolling being the most predominant. Griefing, despite being toxic, can be used by some players as a challenge to see who disrupts the game most or successfully annoys others, causing them to leave the game. Trolling, on the other hand, is used to put other players down, which easily demotivates them or affects their concentration. Flaming also plays the same role, as it involves players insulting or using offensive language towards others (Deslauriers et al., 2020). This often prompts other players to respond in equally offensive or demeaning language, creating a cycle of undesirable gaming experiences for those involved.

Hate speech, threatening, and game rage are other types of toxic behaviour that can negatively affect social dynamics and create power imbalances among players. For instance, it is possible for players on one team to use disrespectful, aggressive, and threatening language towards another team. Ekiciler et al. (2022) also argued that it is possible for male players to gang up against female players, especially if the female players display better gaming skills. These behaviours can significantly affect female players to the point where they begin to either hide their identity or lose interest in gaming activities.

Achterbosch (2017) and Birk et al. (2016) also examined the concepts of griefing and social exclusion within World of Warcraft. Other toxic behaviours identified during the study include camping, ganking, and ostracism, all of which have significant adverse impacts on player experiences. As a parallel to griefing, the prevalence of cyberbullying in gaming is explored in depth in Baltezarević et al. (2023) and McInroy and Mishna (2017). Cyberbullying manifests in various forms, such as verbal abuse and harassment, with repercussions that extend beyond the game environment and affect the psychological well-being of players, particularly children. Additionally, the role of social dynamics and personality traits in fostering toxic environments was examined by Lemercier-Dugarin et al. (2021) and Nguyen et al. (2022). These studies highlight how factors like empathy, impulsivity, and competitiveness influence a player's likelihood to become a target of toxic behaviour.

4.1.2 Impact of Toxic Behaviours

The potential effects of toxic behaviours may vary greatly in relation to the type and extent of their impact on players. For example, moderate toxic behaviour such as griefing – when a player intentionally irritates and harasses other players in the game – could lead to

other players getting upset and having reduced interest in the game (Achterbosch et al., 2017). However, griefing may not affect a player's real life, as its effects are retained within the game. While a player may have a negative attitude towards another player or the game in general, the effects of griefing do not influence decisions in their personal life. However, other toxic behaviours, such as trolling, which is usually characterised by teasing and personal attacks, can affect a player's personal life. Done under the guise of humour or social experimentation, trolling can cause victims to feel hurt and affect their emotional and psychological states (Komaç & Çağıltay, 2021). Studies like that of Birk et al. (2016) found evidence that such behaviours increase hostile cognitions and lower enjoyment in the general play experience. Victims can respond with equally toxic behaviours, creating a cycle of undesirable experiences. Fox et al. (2018) showed that toxic behaviours in online gaming can produce low motivation and poor socialisation outcomes.

4.1.3 Overview of Different Types of Toxicity and Their Specific Impacts

Different types of toxic behaviour can be linked to distinct impacts on victims and other players. Eight studies explored the effects of toxicity in online games on victims. Depping et al. (2018), Fong (2023), Fox et al. (2018), Fox and Tang (2016), and Nguyen et al. (2022) revealed that most experiences of toxicity discourage victims from participating in more games. In addition, Valanne (2020) and McInroy and Mishna (2017) showed that some of the social and psychological effects can be reflected in a victim's real-life settings.

The research hypothesis that toxicity in MMORPGs has negative social and psychological consequences on the mental well-being of players points towards the adverse effects that toxicity across online gaming platforms produces on victims' daily lives. Online gaming environments, particularly MMORPGs, are often marred by toxic behaviours that can severely impact social dynamics and psychological well-being. Toxicity in gaming takes various forms, each with distinct consequences for player experience and mental health (Depping, 2018). Based on comprehensive studies, key types of toxicity include griefing, verbal abuse, cyberbullying, trolling, and social exclusion. While some behaviours impact game progress and motivation to participate in the future, others produce effects that extend to individual's personal lives, such as impacts on social and psychological well-being. For instance, toxic behaviours such as verbal abuse and cyberbullying involve insults and sustained harassment that can cause severe anxiety and emotional distress among victims. Players experiencing this form of toxicity report decreased enjoyment and increased feelings

of loneliness that often carry over into their offline lives (Baltezarević et al., 2023). Emotional consequences of this sort of toxicity include feeling upset and reducing one's communication within the game, which detract from the communal and interactive nature of MMORPGs.

Trolling, defined as intentional antagonism without direct personal gain, also produces psychological and social affects among victims. In most cases, trolling causes victims to feel infuriated and annoyed (Cook et al., 2023). Trolls disrupt the gaming experience not only for their personal amusement but also as a display of power, affecting the overall community atmosphere and reducing the desire for cooperative gameplay. Trolling can cause negative self-perception among the targeted players, creating adverse social and psychological outcomes. Social exclusion or ostracism within MMORPGs leads to a sense of diminished personal significance and can precipitate a loss of self-esteem (Birk et al., 2016). Excluded players often become hostile themselves, perpetuating a cycle of toxicity that undermines social cohesion and personal attachment to the gaming community.

4.2 Effects on Social and Psychological Well-Being

Impact of Toxicity on Mental Health and Player Experience

On most online gaming platforms, players expect to have fun and fulfilling experiences. According to Valanne (2020), players can gain fulfilment from a successful session of social interaction on virtual gaming platforms. The study showed that winning in competitive games was not a primary determinant of player experience. Instead, social experiences like making friends with other players and receiving positive treatment from others made significant contributions to the player experience. Toxicity, however, creates a negative game environment, characterised by efforts to make others less confident not only in their gaming skills but also in themselves. In such cases, toxic behaviour undermines the game experience for victims, causing them to reconsider further participation on these platforms. Achterbosch (2017) agreed that toxicity adversely affects gaming experiences among victims, as it decreases the value of the activity. Players who were previously willing to spend time on gaming may decide to only engage at lower levels where the competition is low and where most players are not emotionally invested in the game. Thus, people who may be interested in certain games may become discouraged from participating for fear of encountering toxicity from other players.

The direct psychological impact of these toxic behaviours is profound. According to Birk et al. (2016), recurrent exposure to hostile acts in games correlates with increased depression, anxiety, and emotional distress. The stress of facing constant harassment or bullying diminishes overall life satisfaction and can have lasting effects on mental health. In response to these negative experiences, players often develop coping strategies, although not all are effective. In such cases, players who experience toxic behaviour from other players may develop persistent symptoms of stress, social isolation, and anxiety. In extreme cases, players may develop symptoms of depression following their inability to participate in an activity for fear of being harassed by other players. Fong (2023) explored the effects of negative social interactions, while Depping et al. (2018) examined the effects of in-game social capital development and how it impacts psychological well-being among players. The findings in both studies showed that there are certain levels of social investment required by gaming platforms. Players may display positive behaviour, hoping to receive the same from other players. However, it is possible that a player's adverse experiences, when shaped by toxicity, can prompt them to respond negatively to minor provocations during gaming sessions. In such cases, toxicity is revealed to trigger negative responses, which can be interpreted as a sign of deteriorating social capacity and psychological well-being.

4.3 Influences of Personality on Toxic Behaviour

4.3.1 Personality Traits and Susceptibility to Toxicity

The second sub-question, 'To what degree do the likeliness and impacts of toxicity in MMORPGs differ based on an individual's personality traits and playstyle?' sought to determine whether a player's personality correlates to their risk of becoming a victim of toxicity in online gaming. Six studies among those selected showed that personality traits are linked to susceptibility to toxicity in online games. Lemercier-Dugarin et al. (2021), Woodford (2023), Nguyen et al. (2022), and McInroy and Mishna (2017) revealed that players who are likely to become victims of toxicity in online games are often less assertive and do not respond aggressively to attempts by other players to expose them to toxic behaviours. Toxic behaviours are likely to escalate in incidences in which victims do not take a strong stance against perpetrators.

This sub-question elicits discussion on how a player's individual characteristics can determine susceptibility to toxicity in MMORPGs and whether less sociable players face a higher risk of becoming victims. Surviving a gaming environment clouded by toxic

behaviours requires players to develop resilience and coping mechanisms. However, personality traits influence a person's ability to adapt to socially or psychologically challenging environments. According to Ibrahim (2022), a player's personality determines their ability to move past encounters with toxic behaviours in MMORPGs. If a player is extroverted, they are likely to have a positive view of other players. In such a context, they are less likely to conclude that another player is deliberately harassing them. Similarly, high openness translates into the ability to welcome new ideas or language, leaving the player at a high risk of being affected by toxic behaviour.

It has been established that personality traits are significantly related to how players feel and react to toxicity in online gaming environments. Personality characteristics such as low empathy and high impulsivity, among others, can increase the possibility of experiencing toxic behaviour (Zsila et al., 2022). Impulsive and non-empathetic players are predisposed to being irrational and pessimistic when interpreting other players' comments or behaviour. In addition, they are likely to respond aggressively to most situations, reducing the possibility that other players may target them again. Their responses, when provoked, also create a cycle of toxicity across MMORPG platforms. However, these players face a lower risk of becoming victims of toxic behaviour as they are often explosive, which discourages other players from confronting them.

Various characteristics can be involved in determining the possibility that players could become victims of toxic behaviour in MMORPGs. A study by Nguyen et al. (2022) shows that new players are often at a high risk of being targeted, and thus become common victims in online gaming. When a new player joins a gaming platform, they tend to be hesitant to establish social dominance over existing players. With this social disadvantage, it becomes easy for a new player to respond or be negatively affected by toxic behaviour as they are still getting accustomed to the gaming culture (Nguyen et al., 2022). In addition, younger players are likely to become victims of toxic behaviour as they are predisposed to feel inferior to other players. A young age represents a significant social disadvantage, prompting younger players to avoid confrontations and be unwilling to retaliate when exposed to toxic behaviour. Furthermore, younger players may not comprehend the extent of abuse or disrespect attached to different types of toxic behaviours, making it easy for them to ignore such occurrences. As a result, they become easy targets for other players continued use of toxic language or behavioural patterns.

4.3.2 Playstyle in Predicting Victimhood for Toxicity in MMORPGs

Playstyle also interacts with the existing traits of players to determine how they experience toxicity in MMORPGs. Playstyles has been found to be an important factor in which a game determines a winner and whether there are ranks to show one's achievements as a player. It also features the presence of upgrades awarded to well-performing players in a game. In most MMORPGs, the playstyle is extremely competitive, which heightens the focus on winning or attaining a higher player status. Such styles are likely to increase the likelihood of players experiencing toxicity as their opponents try to lower their motivation and the quality of their experience. Deslauriers et al. (2020) argued that toxicity has a negative impact on a victim's morale, which allows other players to defeat them in a game. Hence, competitive playstyles create a higher possibility of players experiencing toxicity compared to less competitive games. Woodford (2023) argued that personality and playstyle interact to drive the toxic dynamics that players experience. Furthermore, insight into how playstyles influence the possibility of players becoming victims of toxic behaviour can help developers and community managers explore effective countermeasures to reduce toxic behaviour among online gamers (Woodford, 2023). These insights can also contribute to promoting healthier and more inclusive gaming cultures across MMORPGs. A holistic approach is required to consider the psychological makeup of the player base and the incentives that are created through playstyles or game mechanics.

5. Discussion and Conclusion

The purpose of this paper was to explore the extent to which toxic behaviours in MMORPGs negatively impact on players' mental well-being as well as how they potentially transfer into players' real lives. The study explored the social and psychological effects of toxicity on MMORPG participants. The study was motivated by the necessity of establishing how toxicity on online gaming platforms affects victims. The results can be used by moderators and game developers to design policies and gaming systems that minimise incidences of toxicity among players.

The research hypothesis that toxicity in MMORPGs has negative social and psychological consequences on the mental well-being of players sought to establish whether the toxicity encountered on online gaming platforms has any effects on the victims' mental well-being. The collected studies revealed that toxic behaviours in online gaming not only disrupt the enjoyment of players but also create tension among them, leading to negative

social experiences. In some cases, toxicity produces effects that reach beyond the game and affect the social and psychological aspects of an individual's life. Extreme cases of toxicity in online gaming can be linked to anxiety, stress, and depression among victims, which shows that the effects can spill into players' personal lives. The research hypothesis generated findings that suggest that there should be serious concern over the ability of toxic behaviours to compromise the social dynamics within online gaming communities. Toxic behaviours result in reduced game enjoyment, social isolation, and, in some cases, a complete withdrawal from gaming. This persistent issue highlights the need for more robust online gaming community management policies and systems to mitigate the adverse effects of such behaviours and promote a more inclusive and respectful gaming culture. Introducing clear abuse reporting channels and procedures can help moderators minimise toxic behavioural patterns among gamers.

The first sub-question, 'To what degree do the effects and impacts of toxicity differ based on the different types of toxicity?', sought to identify the most common forms of toxicity and whether their effects on victims differ. The studies used for the paper showed that toxicity in online gaming can take forms such as harassment, hate speech, social isolation, griefing, and trolling, among others. Each form often originates from a different motivation and is directed towards achieving different goals. Also, the studies showed that the impact of toxicity can depend on the behaviour and extent of its attack on a person. Behaviours such as griefing may have limited effects within the game as they are designed to disrupt and annoy other players. However, hate speech, social isolation, and trolling may have effects on a player's real life as these tactics attack the individual beyond the game. Hence, some toxic behaviours produce more pronounced social and psychological effects compared to others.

The second sub-question, 'To what degree do the likeliness and impacts of toxicity in MMORPGs differ based on an individual's personality traits and playstyle?' focused on determining whether a player's personality can affect their susceptibility to toxic behaviour. Studies have presented a complex overview of the connection between toxic behaviours and personality traits. The selected research papers answered the sub-question and showed that certain characteristics influence the risk of victimhood among players. Often, players with a lower social standing face a greater risk of being subjected to hostile behaviour. For instance, women, younger players, and new players become easy targets for toxic behaviours. More experienced players can more easily handle conflict within a game, and male players are not easy targets as they make up the majority of players and thus do not stand out enough to

attract negative attention. People with high openness and low extraversion are also likely to become victims of toxicity.

Playstyle is another aspect that influences the incidence and possibility of becoming a victim of toxicity in MMORPGs. The competitive nature of MMORPGs and other online games creates a highly emotional setting where players become invested in winning and gaining higher game ranks. Studies have shown that competitive or aggressive players are not only more likely to engage in but also more likely to be targeted by toxic behaviours simply because they interact more with the competitive elements of the game. The nature of a game, therefore, affects the frequency of toxic behaviours, as these behaviours are used as weapons to weaken other players' motivation and gain a performance advantage.

Going back to the main research question, 'To what extent do toxic social interactions and toxic behaviour in MMORPGs have negative impacts on individual players' mental well-being, and how does this transfer into their real lives?' it is evident that toxicity in MMORPGs can have significant negative effects on mental well-being. Loss of morale is common among victims of toxicity in online games. Toxicity also creates high-conflict gaming environments and can force participants to withdraw. The findings also show that some effects of online toxicity can be felt in real life. Victims experience toxicity differently, which translates to different types of effects on their actual lives. With moderate toxicity, the effects can be contained within the games. However, extreme and personal attacks can affect the self-image of victims and cause them to lose interest in not only gaming but also other activities in life.

5.1 Implications for Future Research

The current body of research creates a strong foundation on which a better understanding of online gaming toxicity can be explored. However, several aspects need more probing to foster a deep understanding of the phenomena and develop elaborate strategies for mitigating such behaviours and enhancing the overall gaming experience. Future studies can be designed to take a longitudinal approach to establish the long-term effects of exposure to toxic behaviours on online gaming platforms. Information on the long-term effects of toxicity can help establish whether some psychological impacts remain with players long enough to change their behaviour or character traits. Another insight related to game design and its relation to toxicity among players is that there is evidence that game developers need to incorporate elements that minimise toxic behaviours. For instance, developers may want to create reward systems that depend on individual performance rather

than a player's rank to reduce emotional investment in winning, hence reducing toxicity across MMORPGs.

Future studies also need to make a concerted effort to survey different demographic groups in terms of age, gender, and cultural background to understand how different groups experience and respond to toxicity. For example, research by Fong (2023) into the experiences of female gamers can be expanded to include other underrepresented groups. Furthermore, research can be directed towards developing technical solutions for toxicity on online gaming platforms. For instance, automatic moderation tools or advanced mechanisms for reporting toxic language within games can be implemented. Research on such programs can be used to establish their effectiveness in facilitating the real-time identification and mitigation of toxic behaviours.

Further research can also focus on how players can develop social and psychological resilience in the face of toxicity in online games. Such studies can help uncover approaches that people interested in joining online gaming communities can use to protect themselves from possible adverse effects on their mental health and can help players prevent the effects of online toxicity from transferring to their real lives. Providing psychological training to players and offering gaming community support can empower players to cope and counter toxic behaviours effectively. Efforts to educate players on proper social behaviour can also reduce the incidence of toxic behaviour.

5.2 Study Limitations

Although it generated a lot of insight into the research topic, this study had various limitations that should be addressed to improve the reliability and applicability of the study results. First, future studies can narrow down their focus to either the psychological or social effects of toxicity on players' mental health and well-being. Exploring both social and psychological effects can reduce a study's capacity to understand each separate category. Studies can enrich the quality of the data obtained by highlighting a specific aspect of toxicity in MMORPGs and its effects on the mental health of players. In addition, future studies could take a more systematic approach to identify how each type of toxic behaviour relates to the psychological and social effects produced. There is minimal literature on how different forms of toxic behaviour influence the extent of their consequences for victims, and a direct comparison between different types of toxicity could be useful. Adequate research on how players can improve their resilience and self-control to avoid being subjected to toxicity can

help improve the social climate in MMORPGs and shed more light on how to maintain a desirable player experiences among participants.

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