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GAMING IN THE CROSSFIRE:

**HOW TOXICITY AFFECTS PLAYER
EXPERIENCE IN PUBG**

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Abstract

Negative online behaviours, such as toxicity, continue to be issues in several popular multiplayer online games (PUBG), affecting players' experiences. Related research suggests that there are individual differences in how players understand the concept and that various interconnected variables are relevant in understanding the emergence of toxicity. Although previous studies have illustrated common types and features of in-game toxic behaviour, it remains unclear what psychological mechanisms can explain why toxic behaviour emerges and evolves in gaming environments. To fill this research gap, this study explores the forms, causes, and effects of toxicity in the mobile game, drawing insights from 30 PUBG players (23 males and 7 females; Age 16 to 30 years: Mean = 21.73 years, Standard Deviation = 4.45) through interviews and community forum analyses. The findings reveal that toxicity manifests as trolling, harassment, skill-based insults, and gender-based discrimination, disrupting communication and creating hostile environments. The results were used to create a series of recommendations for online video game developers in their attempts to address toxicity. Recommendations included emphasising transparency with a game's player base, overhauling the in-game report function, and introducing a system for reinforcing positive behaviours.

Keywords: Multiplayer Online Gaming, Toxicity, Toxic behaviour, Player's Experience, Harassment, Psychological Mechanism.

Introduction

Toxic behaviour in online games often refers to rude, unpleasant player conduct such as flaming, harassing, or purposefully playing poorly. The prevalence of toxic behaviour in online gaming settings is generally recognised, despite differences in the kinds and levels of toxicity among various game genres (Seo et al., 2021; Sun et al., 2024). The prevalence of toxic behaviour in online gaming environments is widely acknowledged, despite differences in the kinds and levels of toxicity among various game genres.

According to the Anti-Defamation League (ADL, 2019), 74% of players (n = 1,045; ages 18 to 45) have encountered some form of toxicity during their gaming experience, such as verbal abuse, harassment, hate speech, and discrimination. Due to the widespread and harmful nature of in-game toxicity, researchers have attempted to comprehend it from a variety of angles. The mobile game *PlayerUnknown's Battlegrounds* (PUBG), a multiplayer "battle royale" game developed by Blue Moon, launched in 2017 and quickly rose to global popularity (Pawar & Geddugol, 2021). While the mobile game played a pivotal role in mainstreaming the battle royale genre, it was heavily inspired by earlier user-generated modifications (mods) of other games, most notably *Arma 2: DayZ Battle Royale*. These early mods, developed by Brendan Greene (also known as "PlayerUnknown"), laid the foundation for what would become the mobile game's signature mechanic: a shrinking safe zone, last-player-standing survival, and large-scale multiplayer competition.

After launching in 2017, the mobile quickly went viral and swept the globe. About 100 players parachute onto a deserted island in this multiplayer game, where they must engage in a struggle for survival by looking for weapons without getting killed. As time passes and the safe area shrinks, the remaining players are compelled to face off against one another. Eventually, the final player or team to survive wins, earning them experience and bonus points.

The accessibility of the mobile game on smartphones has rendered it available in every corner of the globe. Agnihotri (2020) identifies quality graphics, novel challenges, accessibility, user-friendly control systems, and real-time social interaction among players as key marketing strategies contributing to a game's success. The real-time communication encompasses live text chat, in-game team voice chat, and proximity voice chat. The proximity voice chat feature enables any of the hundred players to communicate in real-time, provided they are within close range of one another in the mobile game environment. The mobile game players utilise in-game voice chat to communicate thoughts and ideas, devise strategies and tactics essential for combating opponents, address various challenges, and disrupt the enemy's concentration during gameplay.

The real-time interaction among players has enhanced the gaming experience. During this state of excitement, players are reported to exhibit verbal aggression through threats, foul language, and profanity. This behaviour can manifest in various forms, such as derogatory comments, trolling, and cyberbullying, which not only affect the targeted individuals but also create a hostile environment for all players involved

(Hu et al., 2024; Chou, 2023). The normalisation of such toxic behaviour has been documented in various studies, highlighting its prevalence and the detrimental effects it has on player experiences and community dynamics (Beres et al., 2021; Sun et al., 2024).

Understanding these behaviours is crucial for addressing their impact on the gaming community and beyond. This study aims to address this gap by investigating how toxicity affects players' experiences while playing the mobile game. Through interviews with active players and an analysis of community forums, the research identifies common toxic behaviours, their impact on gameplay, and strategies players use to cope or respond. Therefore, this study aims to provide an in-depth understanding of the forms, causes, and social impacts of toxicity in PUBG, with a view to informing practical solutions for healthier gaming environments.

Objectives of the Study

The general objective of this study is to examine how toxicity and its social impact in PUBG, while the specific objectives are:

1. To analyse the behavioural changes in players after playing PUBG
2. To identify the forms of toxicity prevalent in PUBG and how it affects players' experience
3. To explore potential strategies for mitigating toxicity within gaming environments.

Problem Statement and Research Questions

Toxicity in online gaming environments, particularly in PUBG, presents a persistent challenge to player enjoyment, team dynamics, and community cohesion. Players often report experiences of verbal abuse, harassment, trolling, and discriminatory behaviour that disrupt communication and create hostile gaming atmospheres (Beres et al., 2021; Chou, 2023). The mobile game, due to its highly competitive nature, combined with real-time voice and text communication tools, can exacerbate these toxic behaviours, leading to increased player stress, reduced cooperation, and long-term disengagement from the mobile game (Hu et al., 2024; Kordyaka & Kruse, 2021).

Although previous research has documented general patterns of toxic behaviour in online multiplayer games (Ruvalcaba et al., 2018; Gandolfi & Ferdig, 2021), few studies have specifically examined how toxicity affects player experiences the especially considering its mobile accessibility and team-based interactions. Moreover, limited attention has been given to how these experiences shape player behaviour both online and offline, or how communities cope with and respond to toxicity. Given the normalisation of toxic behaviour and its broader social consequences, there is a pressing need to explore the specific forms, causes, and impacts of toxicity within the mobile game community. Understanding these dynamics is essential for developing effective mitigation strategies and fostering healthier gaming environments.

Based on this background, the study is guided by the following research questions:

1. What are the effects of PUBG on the behaviour of players?

2. What are the primary forms of toxicity observed in PUBG, and how do they affect player experience?
3. What strategies can be implemented to reduce toxic behaviours in online gaming spaces?

Literature Review

Research on Toxicity in Online Multiplayer Games.

Toxicity, which is used interchangeably with Toxic Behaviour (TB) in this study, encompasses verbal or non-verbal harassment or the intentional triggering of teammates, and thereby constitutes a variety of different negative behaviours, such as flaming and griefing (Kordyaka et al., 2019; Turkay et al., 2020). In contrast to cyberbullying, which is an intentional and aggressive form of personal harassment in the online environment, Toxicity is characterised by being temporal and primarily an attempt to cope with frustration as a specific form of external attribution. However, the measurement of TB is still in the early stages of development and especially in cases of non-verbal TB, there is a great chance of false positives and false negatives in identifying TB. Sometimes players may unintentionally behave in ways that trigger fellow players. This phenomenon is exacerbated by the fact that players from different cultures, age groups and educational backgrounds. Because of the difficulty in accurately identifying TB by observing players' actions alone, the majority of validated instruments developed to measure TB rely on asking players about their own perceptions in case of a situation in which they get mad (Kordyaka et al., 2019), e.g. if they insult other players (verbal harassment, flaming), take away resources belonging to other players (non-verbal harassment,

griefing) or intentionally interrupt other players while they are writing (intentional triggering of teammates).

Nonetheless, a recent study triangulated behavioural and self-reported TB and showed substantial reliability between both sources of data. Previous research on TB in Multiplayer Online Games has shown several harmful effects associated with TB in the virtual environment. The presence of a single toxic player can critically affect team cohesion and overall team performance (Monge & O'Brien, 2021) by causing stress and conflict among team members. Although TB is mostly a temporary phenomenon, it is contagious among gamers. Research suggests that continuous exposure to TB in certain online environments can cause psychological and emotional problems such as anxiety and low self-esteem (Adinolf & Turkey, 2021; Neto et al., 2017; Turkay et al., 2020). Consequently, game developers attempt to curb TB (Kou, 2020; Shen et al., 2020); however, this is not straightforward

The phenomenon of toxicity within gaming communities has garnered significant attention in recent years, as researchers seek to understand the various forms of negative behaviour that permeate these environments. Toxicity is often characterised by abusive communication, harassment, and disruptive gameplay that violate social norms and rules within games (Beres et al., 2021). Studies have shown that toxic behaviours can manifest in various ways, including verbal abuse, trolling, and cyberbullying, which not only affect the targeted individuals but also create a hostile atmosphere for all players involved (Ruvalcaba et al., 2018; Kordyaka et al., 2023). The normalisation of such behaviours has been documented across multiple gaming platforms, indicating

a pervasive issue that requires comprehensive examination (Beres et al., 2021; Gandolfi & Ferdig, 2021).

The emergence of multiplayer online gaming has constituted a significant technological disruption in the 21st century, with multiplayer online battle arena (MOBA) games being among the most popular and rapidly expanding genres (Argenio, 2018). Manifestations related to this socio-technological disruption are the occurrences of (mostly multiplayer) MOBAs such as Player Unknown Battle Ground (PUBG). Currently, two distinctive attributes of successful MOBA titles are prominent: (a) real-time interaction and (b) multiplayer competition, which facilitate novel player experiences (Adinolf & Turkay, 2018; Liu & Agur, 2022). However, outcomes of this technological innovation can be classified into two main categories. Firstly, positive outcomes such as players' enjoyment

and increased player motivation represent the bright side of this playful disruption. Secondly, in contrast, new manifestations of adverse phenomena emerged, revealing the negative aspects of MOBA dissemination. One such instance related to the dark side is toxic behaviour, describing various negative actions during gameplay, including criticising, harassment, flaming, trolling, and cheating others (Adinolf & Turkay, 2018). Interestingly, the majority of toxic behaviour is targeted toward members of the own team. Despite numerous industry efforts to mitigate the incidence of toxic behaviour (TB) through various reporting mechanisms, it remains a significant issue and is regarded as a primary factor contributing to player attrition in multiple MOBAs (Kordyaka & Kruse, 2021). Research indicates that the prevalence of toxicity is influenced by several factors, including the competitive nature of games, the anonymity afforded by online interactions, and

Table 1 Typology of Toxic Behaviours in Online Multiplayer Games

| Type of Toxicity | Description | Examples | Key Sources |
|-------------------------|---|---|---|
| Verbal Harassment | Offensive or abusive language targeting others | Name-calling, insults, threats, hate speech | Beres et al., 2021; Chou, 2023; Makarova et al., 2020 |
| Trolling | Provoking others for amusement or disruption | Purposefully annoying teammates, fake help | Zhang et al., 2024; Mao et al., 2023 |
| Griefing | Intentionally sabotaging teammates or gameplay | Team kills, body blocking, and misdirection | Adinolf & Turkay, 2018; Liu & Agur, 2022 |
| Skill-Based Flaming | Mocking or demeaning others based on perceived incompetence | "Noob," "Useless player," "You ruined the match" | Kordyaka & Kruse, 2021; Tang & Fox, 2016 |
| Gender-Based Harassment | Discriminatory remarks based on gender | "Girls don't belong here," exclusion, objectification | Fox & Tang, 2017; Vergel et al., 2024 |
| Cheating/Exploiting | Gaining an unfair advantage by breaking the rules | Use of aimbots, wallhacks, or bugs | Freeman et al., 2022; Shen et al., 2020 |
| Exclusion & Ostracism | Isolating or ganging up on individuals without cause | Vote-kicking, not reviving teammates | Ruvalcaba et al., 2018; Gandolfi & Ferdig, 2021 |

the social dynamics within gaming communities (Kordyaka et al., 2023; Seo et al., 2021). For instance, Kowert and Cook (2022) highlight how cognitive distortions, such as justifications and rationalisations, contribute to the perception of certain behaviours as acceptable, even when they are deemed toxic by others. Moreover, the impact of toxicity extends beyond individual players, affecting the overall health of gaming communities. High rates of harassment and abuse can deter new players from engaging with games, leading to a decline in community growth and player retention (Kowert & Crevoshay, 2022; Stuart & Scott, 2021). As such, understanding the dynamics of toxicity is crucial for fostering healthier gaming environments and promoting positive social interactions among players. Table 1 below presents a typology of toxic behaviours in online multiplayer games, summarising key forms, descriptions, examples, and their corresponding sources from prior research.

What Motivates Toxicity in PUBG?

Several prior studies investigating the motivations behind players' in-game toxicity examine toxic behaviour within a general gaming framework rather than focusing on specific game genres. Zhang et al. (2024) identified three primary motivations for in-game trolling, a form of in-game toxicity. Behaviour, encompassing amusement, boredom, and revenge; likewise, Mao et al. (2023) identified three primary motivations for trolling: personal enjoyment, revenge, and thrill-seeking. Liu & Agur (2022) identified eight categories of toxic players in MMORPGs based on their motivations: disruptor, advancer, competitor, retaliator, vigilante, elitist, deceiver, and dominator. Nevertheless, due to the significant variation in gameplay

across diverse game genres, it remains uncertain whether these findings related to general gaming and MMORPGs can be generalised to other game categories. There is a notable deficiency in research regarding the motivations behind toxic behaviour in team-based games, particularly in MOBA games like PUBG.

In contrast to individual-based games, where players' toxic behaviour primarily harms others while benefiting themselves, team-based games necessitate greater collaboration. Consequently, toxic behaviour in team-based games is more likely to yield adverse consequences for the perpetrators, such as diminished team performance or match loss. Consequently, investigating the motivations behind toxic behaviour in MOBA games can enhance current research by elucidating the reasons individuals partake in such conduct within team-based gaming contexts, despite the potential adverse effects on both the team and themselves, thereby affecting their experience during gameplay.

Factors Contributing to Toxicity in PUBG

Research demonstrates that the incidence of toxicity is affected by various factors, such as the competitive characteristics of games, the anonymity provided by online interactions, and the social dynamics present within gaming communities (Kordyaka et al., 2023; Seo et al., 2021). This phenomenon highlights the intricate relationship between personal attitudes and societal norms, which can sustain a cycle of detrimental behaviour. Furthermore, the ramifications of toxicity transcend individual players, influencing the collective well-being of gaming communities. Consequently,

comprehending the dynamics of toxicity is essential for cultivating healthier gaming environments and encouraging positive social interactions among players in order to prevent toxicity from affecting player experience.

Experience of Becoming a Victim of Toxicity

To conceptually encapsulate the experience of a victim of toxicity, we reference prior research on the perpetration of toxic behaviour. A widely accepted definition of toxic behaviour, as articulated by Zhang et al. (2024), conceptualises toxicity as an overarching term encompassing various detrimental behaviours, including harassment, flaming, trolling, and criticism. These behaviours manifest when a player encounters adverse events during gameplay, undermining team cohesion, damaging the gaming atmosphere, inciting anger and frustration, and fostering a proliferation of toxic communication. Toxic behaviour is frequently directed at team members and can be perceived as an effort to externally assign blame for negative occurrences during a game (Kordyaka & Kruse, 2021). The predominant manifestations of toxicity are flaming (e.g., frequently insulting others, often utilising profanity or offensive language in chat) and trolling (e.g., inciting discord among players), which are prevalent in nearly every ranked game, thereby significantly constraining the mobile gameplay experience (Adinolf & Turkay, 2018). Prior research has identified significant antecedent variables of toxic perpetration, including toxic disinhibition, attitudes, and behavioural control, as well as repercussions such as diminished team performance and cohesion (Kordyaka et al., 2020; Kowert, 2020; Monge & O'Brien, 2022). Kordyaka et al (2023) define victimhood of toxicity as a detrimental

circumstance in a game where a player suffers from the toxic behaviours of others, including criticism, harassment, diffusion of responsibility, flaming, trolling, or cheating.

Social Consequences of Gaming Behaviour and In-Game Harassment

The social consequences of toxic behaviour in gaming communities is profound, influencing not only the immediate gaming experience but also players' real-life interactions and attitudes. In-game harassment can lead to feelings of frustration, anxiety, and alienation among victims, which may result in withdrawal from the gaming community altogether (Kordyaka et al., 2023; Cook, 2023). This withdrawal can have significant implications for players' social lives, as gaming often serves as a means of connection and interaction with others (Cook, 2023; Seo et al., 2021). Furthermore, the effects of in-game harassment can extend to offline behaviours and attitudes. Research has shown that individuals who experience or witness toxic behaviour in gaming environments may be more likely to replicate such behaviours in their real-life interactions (Kordyaka et al., 2023; Monge & O'Brien, 2021).

This socialisation process can contribute to the normalisation of harassment and aggression, reinforcing negative attitudes towards marginalised groups, particularly women and minorities (Tabares, 2023). For instance, Monge & O'Brien (2021) found that increased game involvement and time spent gaming predicted higher rates of harassment, suggesting that exposure to toxic environments can shape players' behaviours and attitudes over time. The implications of these findings

are particularly concerning given the increasing prevalence of online gaming and its integration into social interactions. As gaming communities continue to evolve, addressing the social consequences of toxicity becomes essential for promoting inclusivity and fostering positive relationships among players (Ferguson & Glasgow, 2021; Butt, 2019).

How Online Interactions Translate to Offline Behaviours and Attitudes

The translation of online interactions to offline behaviours and attitudes is a critical area of research in understanding the broader social impact of gaming toxicity. Studies have indicated that the behaviours exhibited in online gaming environments can significantly influence players' real-world interactions, particularly in terms of aggression and harassment (Monge & O'Brien, 2021; Butt, 2019). For example, players who engage in or are exposed to toxic behaviour in games may develop desensitisation to aggression, leading to increased acceptance of such behaviours in their everyday lives (Seo et al., 2021; Kordyaka et al., 2023). Moreover, the social dynamics of gaming communities can reinforce negative attitudes towards marginalised groups. Research has shown that male gamers' sexist attitudes are often influenced by their in-game peers, suggesting that the gaming environment plays a crucial role in shaping players' beliefs and behaviours (Seo et al., 2021; Ferguson & Glasgow, 2021).

This peer influence can perpetuate a culture of harassment, making it difficult for individuals to challenge or resist toxic behaviours within their communities (Liu & Agur, 2022). The implications of these findings are significant, as they

highlight the need for interventions that address not only the behaviours themselves but also the underlying social dynamics that contribute to toxicity. By fostering a culture of accountability and promoting positive interactions, gaming communities can work towards mitigating the harmful effects of toxicity and creating a more inclusive environment for all players (Kordyaka et al., 2020; Chou, 2023).

Theoretical Framework

A comprehensive theoretical framework is essential for understanding the dynamics of toxicity in gaming communities and its impact on player experiences (Daolio, 2024). This study draws on the Online Disinhibition Effect (Suler, 2004), which explains how online environments reduce behavioural restraints, enabling individuals to engage in behaviour they might avoid in face-to-face interactions. The theory distinguishes between two types of disinhibition:

1. **Benign Disinhibition**, which involves sharing emotions, personal stories, or acts of kindness online.
2. **Toxic Disinhibition**, which includes behaviours such as flaming, trolling, hate speech, and other hostile or antisocial acts (Karaaslan & Senses, 2023; Gumelar et al., 2024).

In competitive online games like PUBG, several elements of the Online Disinhibition Effect are activated. For example:

- **Anonymity** lowers accountability, enabling users to express aggression without fear of real-world consequences (Stuart & Scott, 2021).

- **Asynchronicity** allows toxic players to escape immediate social cues or reactions from others.
- **Minimised authority and social cues** weaken social norms and expectations, especially in informal, fast-paced gaming environments (Gan et al., 2024).

The framework is supported by recent findings showing that disinhibited behaviour in gaming is significantly associated with increased verbal aggression, social dominance tendencies, and moral disengagement (Gan et al., 2024). Furthermore, toxic disinhibition has been shown to increase over time with continuous exposure to hostile digital environments, normalising antisocial behaviour in online communities (Meriläinen & Ruotsalainen, 2024). In the case of PUBG, where players are often strangers and interact through voice/text chat under time pressure and competitive stress, these

disinhibiting factors are amplified. This creates fertile ground for toxic behaviour such as harassment, trolling, and exclusion, all of which diminish team cohesion and harm player experience. Figure 1 below illustrates how the online disinhibition effect contributes to various forms of toxicity in the mobile game, highlighting the psychological pathways from anonymity to negative player outcomes.

Methodology

Case Study Approach Using the PUBG Community

This study employs a case study approach to explore toxicity within the mobile game's community. A case study design is particularly suitable for this research as it allows for an in-depth examination of a specific phenomenon within its real-life context, facilitating a comprehensive understanding of the complexities surrounding toxicity in gaming environments.

Informants and Selection Criteria

The informants for this study consisted of active PUBG players who had either experienced or engaged in toxic behaviours. A total of 30 participants were selected based on the following criteria:

- **Active engagement in the mobile game:** Participants were regular players who had played at least three times a week for the past six months.
- **Experience with toxicity:** Participants were required to have encountered toxicity in the mobile game, either as victims, bystanders, or perpetrators.

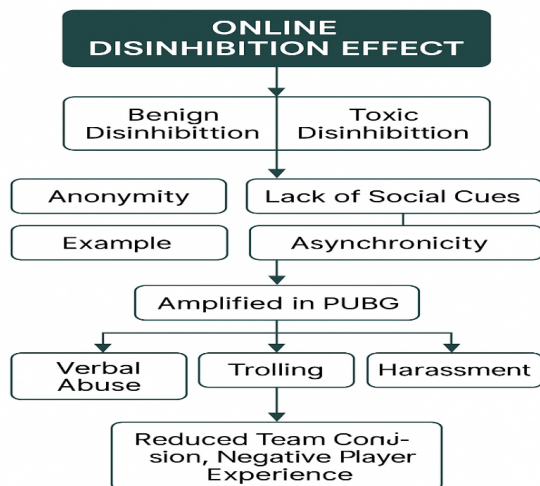


Figure 1 Online Disinhibition Effect and Toxicity in PUBG
Author's own work, 2025

- Diversity in demographics: Efforts were made to include a diverse range of participants in terms of age, gender, and gaming experience. Players were selected to ensure a balance between casual and competitive players.

Recruitment Process

Participants were recruited using purposive and snowball sampling techniques. Initially, invitations were posted in online gaming communities, including PUBG-related WhatsApp, Telegram and Facebook gaming groups. Interested players who met the selection criteria were invited to participate. Additionally, some participants referred other players who had relevant experiences, leading to further recruitment through snowball sampling.

Each participant provided informed consent before participation, ensuring they were aware of the study's purpose, their right to withdraw at any time, and the confidentiality of their responses. Ethical considerations were strictly followed, including the anonymisation of participant identities. Interviewees were coded as P1, P2, etc., to protect their privacy and maintain data integrity.

Data Collection Methods

Data were collected through two primary methods:

1. Semi-structured Interviews:
 - Individual interviews were conducted with 30 players, lasting between 30 to 45 minutes each.

- Interviews were conducted via voice or video calls using Zoom or Discord, depending on participant preference.
- Open-ended questions explored participants' experiences with toxicity, perceptions of its impact, and suggestions for mitigation.

2. Community Forum Analysis:

- Discussions from platforms, such as WhatsApp and Telegram, were analysed to understand community perceptions of toxicity.
- Posts and comments were selected based on their relevance to toxic behaviour themes, such as harassment, trolling, and skill-based insults.

Data Analysis

The collected data underwent qualitative content analysis. The steps involved included:

1. Transcription: All interview recordings were transcribed verbatim.
2. Coding: Thematic coding was applied to categorise different forms of toxicity, its effects, and mitigation strategies.
3. Thematic Analysis: Broader patterns were identified, linking individual experiences to collective trends within the mobile game community.

Defining Case Boundaries

To maintain focus, the case boundaries were clearly defined. This study will concentrate on:

- Players actively participating in PUBG from 1st February 2023 to 12th August 2024.
- Instances of reported toxicity within the mobile game and related forums.
- Participant's Age Range was between 16 to 30 (23 males and 7 females); Mean (M) = 21.73 years, Standard Deviation (SD) = 4.45
- Exclusion of players who have not engaged with the community or have minimal gameplay experience.

Access and Feasibility

Accessing participants through online platforms is feasible due to the widespread popularity of PUBG. Recruitment efforts targeted established gaming communities where players are likely to share their experiences openly.

Pilot Testing

Before full-scale data collection, a pilot test of the interview questions was conducted with a small group of players to refine questions based on their feedback. This step ensures clarity and relevance in addressing the research objectives.

Findings

Analysis of participant responses from interviews regarding toxicity in the PUBG community. This analysis also explored discussions from various community forums, particularly focusing on Reddit and Discord, to identify common patterns and themes related to toxic behaviour. The selected posts and comments reflect sentiments around harassment, negative player interactions, and overall community dynamics. A total of 30 participants (23 males and 7 females) were selected. Each participant was allotted 30 to 45 minutes for the interview, and the resulting conversations were transcribed into a 37-page transcript. The transcribed data were then coded based on the research questions that were developed to guide the study. All participants have played the mobile game for at least two years. Thematic analysis of the interviews and community forum discussions revealed four key themes: Forms of Toxicity, Impact on Player Interactions, Coping Mechanisms and Community Response, and Mitigation Strategies. Each theme consists of several categories and subcategories, as outlined in Table 2.

Types/Forms of Toxicity

Toxic behaviour is prevalent in online gaming environments, as indicated by prior research (Cook et al., 2018), including in Player Unknown's Battlegrounds (PUBG). All participants recognised that they had experienced toxic behaviour in the mobile game, and approximately half confessed to having exhibited some form of toxic behaviour while playing the mobile game. In the mobile game, there are many game modes; **P7** noted, "*during duo and squad game mode, you know, when a*

member of your squad gets killed by the opposite team, in many cases he would blame the other team member for not helping him". When this occurs again, he may utter something more offensive, such as, "Hey dude, are u blind?" "Are you deaf?", "Can't you hear me calling for help?", "Who is this Idiot?", he would utter profanities to disparage the other players' mothers. It resembles a chain; once one initiates flaming, the subsequent reactions ensue inevitably. Additionally, **P21** mentioned, «I've seen a lot of trash talk in the chat, especially when someone makes a mistake. People can be harsh".

Gender Discrimination

Many previous studies have shown that gender stereotypes and discrimination are commonplace in online gaming environments (Fox & Tang, 2017). During interviews, most of the male participants indicated that female players are frequently perceived as less experienced and less skilled. Participants identified two primary reasons for the existence of such perceptions: **gender** norms and social reasons. Initially, owing to gender norms, females exhibit a lesser inclination towards aggressive games compared to males, resulting in a

Table 2 Themes, Categories, Subcategories, and Codes

| Theme | Category | Subcategory | Codes |
|--|----------------------------|----------------------------------|----------------------------------|
| Forms of Toxicity | Verbal Harassment | Insults, Trash Talk, Hate Speech | "Skill-based insults," "Flaming" |
| | Trolling & Disruptive Play | Intentional Poor Play, Sabotage | "Griefing," "Purposeful Loss" |
| | | Sexist Remarks, Exclusion | "Sexist Comments" |
| | Gender-Based Harassment | Hacking, Exploiting Glitches | "Wall hacks," "Aimbot usage" |
| Cheating & Unfair Play | | | |
| | | | |
| Impact on Player Interactions | Team Dynamics Disruption | Lack of Cooperation, Mistrust | "Reduced teamwork" |
| | Psychological Effects | Stress, Frustration, Alienation | "Hesitation to play" |
| Coping Mechanisms and Community Response | Avoidance Strategies | Ignoring, Muting Players | "Muted toxic players" |
| | Positive Reinforcement | Encouraging Friendly Behaviour | "Complimenting good plays" |
| Mitigation Strategies | Reporting & Moderation | In-Game Reports, Ban System | "Stronger reporting system" |
| | Community Initiatives | Guidelines, Education Efforts | "Stricter rules" |

diminished investment of time in acquiring gaming skills and engaging in gameplay. Moreover, certain interviewees contended that females are only inclined to play the mobile game for social motivations (e.g., being invited to play by friends, particularly boyfriends) rather than for challenge or achievement purposes.

Participant 28 asserted: Those males believe that females are incapable of playing well in this game. However, if you perform or play very well, they do not perceive you as female; rather, you are assumed as a “bro” by them. Although these stereotypes exist, unexpressed perceptions are not inherently toxic; it is the articulation of such gender stereotypes and discrimination that is deemed toxic. Such expressions occur when a player is identified as female, typically through a feminine username or using a female character during gameplay. Having recognised one or more female player(s) in the team, other players might express stereotypic or discriminatory words such as “*why are there so many females? I believe I’ll lose this match*” (participant 5), “*girls cannot excel at this game*” (participant 16), “*why do girls select this Character? Her skill is useless*” (participant 11). These expressions may occur either before the start of a match or subsequently, typically when a player anticipates a probable loss. According to the seven female interviewees, such expressions are frequently irritating and can negatively affect their mood and team morale.

Effects of Toxicity on Player Experience

The effects of toxicity on player experience in the mobile game are both profound and multifaceted. The findings suggest that toxicity not only shapes individual emotions and

gameplay behaviour but also affects the broader community dynamics and long-term engagement with the mobile game. A significant number of interviewees reported that their encounters with toxicity in the mobile game led to a range of negative emotions, including frustration, anxiety, and anger. These feelings often emerged in response to verbal harassment and other disruptive behaviours, which are common in the mobile game’s competitive environment. **P1** described how consistent exposure to toxic behaviour “*makes it hard to enjoy the game,*” leading them to avoid certain game modes, like team mode or take extended breaks from playing.

Behavioural Changes in Response to Toxicity

The interviews also revealed that frequent exposure to toxicity influences how players interact with the mobile game and its community. Many respondents admitted to adjusting their behaviour in response to negative encounters. Defensive play styles, a reluctance to engage with teammates, and a tendency to mute voice and text chat were common coping mechanisms reported by participants. **P6** stated, “*I used to play with random teams, but now I avoid it because you never know what kind of toxic players you’ll end up with.*” He emphasised he is only interested in playing solo mode rather than duo or squad due to previous unpleasant experiences. This emotional toll can diminish overall enjoyment, pushing players away from the mobile game entirely.

Community Dynamics and Player Retention

Beyond individual behaviour, toxicity has a notable impact on the broader game community and its dynamics. Interviewees

frequently emphasised that toxic behaviour not only creates a hostile environment for those directly targeted but also influences the experiences of bystanders and newcomers. **P2** remarked, *“If new players face harassment right away, they’re less likely to stick around”*, underscoring the deterrent effect that a toxic atmosphere can have on player retention.

Impact on the Competitive Experience

The competitive nature of the mobile game was also cited as a contributing factor to the prevalence of toxicity. Many interviewees emphasised that the mobile game’s intense and often unforgiving environment can amplify emotions, leading to aggressive and hostile interactions. **P29** observed, *“The pressure to win makes some people lash out when things don’t go their way,”* suggesting that the competitive context of the mobile game may exacerbate toxic tendencies.

Strategies for Mitigating Toxicity

Participants proposed several strategies for reducing toxicity in the mobile game. A recurring suggestion was enhancing reporting systems and moderation efforts. Many players felt that the current reporting mechanisms were ineffective, as toxic behaviour often went unpunished. **P15** stated: *“Even if I report someone for being toxic, nothing happens. There should be immediate consequences for repeated offences.”* There was also strong support for stricter community guidelines and in-game reminders about respectful behaviour. Some players suggested displaying messages at the start of each match to reinforce fair play. **P16** proposed: *“There should be a message at the start of each match reminding players about the rules*

and penalties for harassment.” This proactive approach could serve as a deterrent to toxic behaviour. Lastly, community engagement initiatives were seen as a potential way to foster a more positive gaming culture. Some participants suggested organising some game events that prioritise teamwork and cooperation rather than just competition. **P17** explained: *“PUBG should host tournaments that focus on teamwork and positive gameplay rather than just winning.”* Encouraging a shift towards collaboration and sportsmanship could help reduce toxicity in the long term.

The research findings reveal that players experience trolling, verbal harassment, skill-based insults, gender-based discrimination, and cheating, all of which contribute to a hostile gaming environment. Addressing these issues effectively necessitates a combination of technological, community-driven, and policy-based interventions. Trolling and disruptive play, where players intentionally sabotage their teams by performing poorly or leading opponents to teammates, can be mitigated through an enhanced reporting and automated detection system (Greige, 2022). AI-driven moderation tools can flag disruptive behaviour, while progressive penalties, such as temporary suspensions, can deter repeat offenders. Additionally, encouraging positive gameplay through in-game rewards for teamwork and cooperation can shift player incentives toward more constructive interactions.

Verbal harassment and hate speech remain prevalent in the mobile game, often taking the form of offensive language, threats, and persistent insults (Makarova et al., 2020). Implementing real-time moderation tools that filter and flag toxic language can curb such behaviour. Furthermore,

stricter penalties, such as chat restrictions and temporary bans, should be enforced to discourage repeated offenders. In-game awareness campaigns reminding players of respectful communication norms can also foster a more positive community culture (Figueiredo, 2022). Skill-based insults and flaming, where players degrade others based on their perceived lack of skill, contribute to a demoralising environment. To counter this, the mobile game can integrate a system that encourages positive reinforcement, rewarding players who support their teammates rather than criticise them (Elfeky et al., 2021). Pre-match and post-match behavioural reminders can also help reinforce respectful communication, while a mentorship program could pair experienced players with newcomers to promote guidance instead of criticism.

Gender-based harassment and discrimination disproportionately affect female players in online gaming spaces (Vergel et al., 2024). To mitigate this, the mobile game can introduce features that allow players to conceal gender-specific identifiers, reducing the likelihood of targeted harassment (Rahtula, 2024). Additionally, providing dedicated, moderated spaces where female players can engage without fear of discrimination can foster a more inclusive environment. Strengthening the harassment reporting system and ensuring swift action against offenders will further enhance player safety and inclusivity. Cheating and unfair play, such as the use of hacks and exploits, undermine the competitive integrity of the mobile game. Strengthening anti-cheat mechanisms and enforcing a zero-tolerance policy for repeat offenders can serve as deterrents. Transparency in reporting and publicising penalties for cheaters can reinforce the developers' commitment to fair play and discourage exploitative behaviour (Freeman et al., 2022).

Beyond these targeted interventions, broader strategies can contribute to a healthier gaming ecosystem. Engaging the community through forums and social media discussions can help educate players on the impact of toxicity and the importance of collective responsibility in fostering positive interactions (Akar, 2025; Tonne, 2024). Additionally, developers must actively monitor in-game behaviour and update policies based on community feedback to ensure ongoing improvements. Encouraging self-regulation among players by promoting a culture of mutual accountability can further reduce toxicity and enhance the overall gaming experience.

Broader Implications of Toxicity

The ramifications of toxicity transcend the digital sphere. **P9** articulated apprehension that *"online toxicity can significantly influence offline interactions. I have observed friends becoming more aggressive after engaging in games such as PUBG."* Likewise, **P22** remarked, *"I believe it normalises inappropriate behaviour. If one witnesses players getting away with consequences for toxic remarks online, it may foster the perception that such conduct is acceptable in real life."* This issue is especially pertinent for younger players; as **P18** highlighted, *"for younger individuals, it could result in challenges with social skills. They may find it difficult to communicate effectively outside the gaming environment."*

In-Game Social Impact

Toxic behaviour affects teamwork, communication, and community cohesion within the PUBG ecosystem. Players reported that toxicity led to a lack of cooperation, with teams disbanding or players refusing to engage constructively. The

emergence of defensive behaviours and reduced willingness to communicate weakens the sense of community in multiplayer environments, making competitive gaming less enjoyable. This aligns with prior research indicating that hostile gaming environments contribute to decreased player retention (Kowert & Crevoshay, 2022).

Real-World Social Impact

Beyond gaming, exposure to toxicity can normalise aggressive behaviour and impact social interactions outside the mobile game. Some participants noted that prolonged exposure to toxicity made them more desensitised to negative behaviour or more prone to adopting hostile attitudes in real-life interactions. **P1** explained: *"I noticed that after a few months of playing, I started using trash talk in real life, even jokingly, without realising how aggressive I sounded."* These findings align with studies on digital socialisation, which suggest that repeated exposure to online aggression can alter real-world communication styles and interpersonal relationships (Monge & O'Brien, 2021). Additionally, younger players are particularly vulnerable to internalising toxic behaviour as a norm. **P7** stated: *"Some younger players I know pick up insults and use them in school without understanding the impact."* This underscores the broader societal implications of gaming toxicity, reinforcing the need for intervention strategies that educate players about respectful communication.

Positive Experiences and Initiatives

Notwithstanding the widespread toxicity, certain participants recounted positive experiences characterised by supportive

gameplay. **P5** remarked, *"I have observed certain players establish groups that actively advocate for kindness and sportsmanship, which is invigorating in contrast to the prevalent toxicity."* **P23** stated, *"There are instances when I have experienced excellent matches where all team members are supportive."* Those experiences serve as a reminder that not all participants exhibit toxic behaviour. Recommendations were proposed for an increased number of events emphasising collaboration over competition; as **P13** articulated, *"I believe we require additional community events centred on teamwork rather than competition."* This may assist in diminishing toxicity.

Challenges of Anonymity

Anonymity in virtual gaming environments diminishes the perceived repercussions of toxic behaviour. Players believe that their toxic actions in gaming contexts incur less severe repercussions than in non-anonymous settings. Some participants differentiated between toxic behaviour in virtual realms and the real world, suggesting that in-game toxicity is unlikely to lead to significant outcomes for players due to the anonymity afforded by virtual environments.

Discussion

The findings corroborate existing literature on the pervasive nature of the widespread toxicity in gaming communities and its effects on individual and collective dynamics. Participants' encounters with verbal abuse, trolling, and gender-based harassment correspond with research indicating that these behaviours are prevalent and normalised in gaming contexts (Beres et al., 2021; Ruvalcaba et al., 2018). For

instance, **P10** and **P19's** observations regarding trolling and skill-based insults reflect research that identifies competitive pressures and anonymity as facilitators of toxic behaviour. (Tang & Fox, 2016; Seo et al., 2021). Similarly, **P26's** account of gender-based harassment corroborates findings regarding the disproportionate targeting of women in gaming environments, as observed by Burnay et al. (2019).

Participants also highlighted the broader social consequences of toxicity, such as reduced team collaboration (**P17**) and the discouragement of new players (**P2**). This finding aligns with research showing that a welcoming community is crucial for maintaining player engagement and fostering long-term retention (Kowert & Crevoshay, 2022; Cook, 2023). This causes behavioural shifts which are consistent with findings from previous studies, which suggest that exposure to toxic environments can lead to increased withdrawal and social isolation within gaming spaces (Cook, 2023; Ruvalcaba et al., 2018). By limiting their interactions with other players, individuals attempt to protect themselves from hostile encounters, though this often comes at the cost of community engagement and collaborative play. The tendency for some players to adopt a defensive or retaliatory stance also highlights the cyclical nature of toxicity, where negative behaviour begets more negativity, creating a persistent culture of hostility within the mobile game (Seo et al., 2021). **P29** observed, *"The pressure to win makes some people lash out when things don't go their way, suggesting that the competitive context of PUBG may exacerbate toxic tendencies."* This aligns with the concept of toxic disinhibition, where the combination of anonymity, competition, and emotional investment leads to a breakdown

in social norms, increasing the likelihood of toxic behaviour (Kordyaka et al., 2020).

Participants' recommendations for alleviating toxicity, including enhanced reporting mechanisms (**P19**) and community events fostering collaboration (**P23**), correspond with interventions outlined in the literature. These include fostering accountability and reshaping community norms to prioritise inclusivity (Ferguson & Glasgow, 2021; Kordyaka et al., 2020). The focus of **P3** and **P14** on player accountability reinforces the significance of social learning in addressing toxicity, as positive peer modelling can affect behaviours (Tang & Fox, 2016). The reference to anonymity by P26 underscores the toxic disinhibition framework, which ascribes a significant portion of detrimental behaviour to the absence of accountability in digital environments (Kordyaka et al., 2020).

Conclusion

The study stresses the pervasive nature of toxicity in PUBG and its detrimental effects on players and community cohesion. Toxic behaviours, including trolling, verbal abuse, and harassment, impede constructive social interactions and affect offline aggression and attitudes. Enhanced moderation tools, community-building initiatives, and an emphasis on inclusivity are vital for reducing toxicity and fostering a healthier gaming atmosphere. Overcoming these challenges requires collaborative efforts among game developers, community leaders, and players to cultivate and foster a culture of respect and accountability in order to improve player's experience while playing the game.

Novel Contributions of This Study

While previous research has extensively examined gender-based harassment and toxicity in gaming environments, this study offers a novel contribution by focusing specifically on *PlayerUnknown's Battlegrounds (PUBG)* a mobile-first competitive gaming platform with unique social dynamics. Unlike existing literature that often generalises findings across multiple gaming genres, this study provides an in-depth, community-driven analysis based on player experiences within a fast-paced, multiplayer mobile game. Moreover, this study distinguishes itself by integrating qualitative data from player interviews with community forum analyses, offering a nuanced understanding of how toxicity manifests in PUBG and its broader social impact. It also highlights the psychological and behavioural consequences of prolonged exposure to toxicity, contributing to the growing discourse on digital socialisation and aggression. The research further expands upon mitigation strategies by proposing AI-driven solutions, player-driven moderation, and structural changes within gaming environments that are specifically tailored to PUBG.

By addressing gaps in existing literature, this study emphasises the importance of platform-specific investigations into toxicity, demonstrating how different gaming ecosystems influence toxic behaviour patterns. This research ultimately provides actionable insights for game developers, community managers, and policymakers seeking to create safer, more inclusive gaming spaces. By implementing these specific mitigation strategies, PUBG can create a more inclusive and enjoyable environment for all players, reinforcing fair play, respect, and positive social interactions.

Recommendations

- 1. Enhance Reporting Systems:** Game developers should implement user-friendly and efficient reporting mechanisms with timely punishment for toxic behaviour to deter offenders.
- 2. Supportive Community Events:** Organise events prioritising teamwork and cooperation to encourage positivity and reduce competitive aggression that fuels toxicity.
- 3. Automate Detection of Toxic Behaviour:** Integrate AI-driven tools to detect offensive language, harassment, and griefing in real-time. This technology can supplement human moderation, allowing for faster identification and response to toxic incidents.

Limitations and Future Research

While this study provides important insights into the forms and social impacts of toxicity in PUBG, several limitations must be acknowledged.

1. The sample size was limited to 30 participants, most of whom were recruited from online communities through purposive and snowball sampling. This may introduce selection bias and limit the generalizability of the findings beyond the studied population.
2. The reliance on self-reported data through interviews and forum analyses introduces the potential for subjective bias and recall inaccuracies. Participants may have underreported or overemphasised certain behaviours due to personal experiences or social desirability.

3. The study focused specifically on the PUBG community, which may differ in significant ways from other multiplayer gaming environments. As a result, the findings may not be directly transferable to other game genres or platforms with different cultural or gameplay dynamics.

Finally, the study was cross-sectional and did not capture how toxic behaviours and their effects might evolve with continued exposure or platform changes.

Future Studies/Research

1. Should consider employing longitudinal designs to track changes in player experiences and behaviours over time. Additionally, incorporating larger and more diverse samples, including players from different regions and backgrounds, would help enhance the generalizability of results.
2. Quantitative or mixed-methods approaches could also provide complementary insights, particularly in evaluating the effectiveness of mitigation strategies such as AI moderation or positive reinforcement systems.
3. Exploring toxicity in other mobile multiplayer games and conducting comparative studies across gaming platforms could further enrich our understanding of toxic dynamics in online environments.

Building on the findings and recommendations of this study, we intend to conduct future research that tests the practical implementation of proposed mitigation strategies. In particular, we are interested in evaluating the effectiveness of AI-driven moderation tools, real-time behaviour prompts, and community-focused initiatives (e.g., tournaments promoting

teamwork) in reducing toxic behaviour. A follow-up study could also assess player reactions to these changes and track behavioural shifts over time. By applying and empirically testing these interventions within the PUBG environment or similar multiplayer games, we aim to contribute actionable insights that further refine toxicity mitigation efforts in online gaming communities.

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Interview Guide

This interview guide is designed to explore the experiences and perceptions of players regarding toxicity in the Player Unknown's Battlegrounds (PUBG) community. The questions are organised according to the study's objectives and research questions.

Introduction

- **Purpose of the Interview:** "Thank you for participating in this interview. The purpose is to understand your experiences with toxicity in PUBG and its social impacts."
- **Confidentiality Assurance:** "Your responses will be kept confidential, and you can withdraw at any time."
- **Consent to Record:** "Do I have your permission to record this interview for accuracy?"

Section 1: Background Information

1. Can you tell me a bit about yourself?
 - Age
 - Gender
 - Gaming experience (how long have you been playing PUBG?)
 - Frequency of play (casual or competitive)

Section 2: Forms of Toxicity in PUBG

2. What types of toxic behaviour have you observed or experienced while playing PUBG? (Harassment, bullying, trolling, etc.)

3. How common do you think these behaviours are within the PUBG community?
4. Have you ever participated in or witnessed toxic behaviour? If so, can you describe that experience?

Section 3: Effects of Toxicity on Player Interactions and Community Cohesion

5. How do you think toxicity affects player interactions during gameplay?
 - (Team dynamics, communication, etc.)
6. In your opinion, how does toxicity influence the overall atmosphere of the PUBG community?
7. Have you noticed any changes in your own behaviour or attitudes as a result of toxic interactions in the mobile game?
8. Do you believe that toxic behaviour has impacted your willingness to engage with other players or communities? If yes, how?

Section 4: Strategies for Mitigating Toxicity

9. What measures do you think could be implemented to reduce toxic behaviour within PUBG?
 - (Community guidelines, reporting systems, etc.)
10. Have you seen any effective strategies or initiatives within the PUBG community that address toxicity? Can you provide examples?
11. What role do you think game developers should play in combating toxicity?

Section 5: Broader Implications of Toxicity

12. In your view, how does online toxicity in games like PUBG translate to offline behaviours or attitudes among players?

- (Thoughts on aggression, social interactions outside gaming, etc.)
13. Do you think there are broader societal implications of toxicity in gaming communities? If so, what are they?

Conclusion

14. Is there anything else you would like to share about your experiences with toxicity in PUBG that we haven't covered?
15. Would you be willing to participate in follow-up discussions if needed?

Closing

- Thank you for your time and insights.
- I want to assure your confidentiality and how your input will contribute to understanding toxicity in gaming communities.