Exploring Toxic Behaviour in Online Multiplayer Video Games

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Abstract

Antisocial behaviour exists across a variety of domains. A large body of literature exists investigating these behaviours, both in-person and technologically mediated. Negative outcomes of exposure to these behaviours have been well-documented across both domains and include lower self-esteem, increased anxiety, and increased levels of depression.

One digital domain that people are concerned about is antisocial behaviour occurring in video games, referred to as toxic behaviour. Toxic behaviour in games may have negative outcomes, as found in antisocial behaviour outside of games. Despite the potential for harm, important information such as what toxic behaviour consists of, and how often it is experienced is currently unclear, with no current large-scale research investigation these behaviours having been identified during the literature search. Similarly, little is known about whether players believe enough is already being done to combat toxic behaviour, and how players would suggest it can be mitigated. Knowledge of whether players believe industry is doing enough may help companies adapt to what may be occurring within their games to create a safer place for gamers.

To address this, two cross-sectional studies were conducted. The first study collected reports of players' most recent experience of toxic behaviour. These accounts were analyzed to form a hierarchical structure of toxic behaviour rooted in the experience of players themselves. The second study surveyed players regarding three key factors: How often they experienced toxic behaviour; Their beliefs on whether enough is being done to combat it; and suggestions for potential strategies to mitigate toxic behaviour in games. 92% of participants reported experiencing toxic behaviour in-game within the last 12 months, and 74.2% reported they do not believe the games industry is doing enough to combat at least one form of toxic behaviour. Additionally, nine methods for the mitigation of toxic behaviour were crowdsourced from players.

This thesis therefore provides an initial categorization scheme for toxic behaviour. Results also suggest players may experience toxic behaviour more commonly than believed in current research and believe games companies are not doing enough to combat these behaviours.

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Declaration

I declare that this thesis is a presentation of original work and I am the sole author. This work has not previously been presented for an award at this, or any other, University. All sources are acknowledged as References.

1. Introduction

Antisocial behavior refers to a range of socially unacceptable behaviours [1]. This kind of behaviour exists across multiple domains and is experienced by a variety of people. For example, children and adolescents may face bullying in school, ranging from physical behaviours such as assault, threats and other verbal harassment, and social behaviours such as rumor spreading or exclusion [2]. Similarly, In the workplace, antisocial behaviour may present in the form of contempt or incivility. These antisocial behaviors may include social exclusion, questioning of one's competence and other discourteous behaviour [3]. Experiencing these behaviours linked to lower self-esteem [4], higher levels of depression and, in the workforce, increased turnover rates [5].

However, antisocial behaviour is not limited to in-person interactions, and with the widespread use of technology such as mobile phones and social media, these antisocial behaviours have spread to the digital domain in forms such as cyberbullying and online harassment [6]– [11]**.** These forms of antisocial behavior appear to have similarly negative outcomes to their non-technologically mediated counterparts: For example, the reported consequences of cyberbullying include increased levels of depression, lower self-esteem, higher social anxiety [5], as well as suicidal ideation [12] and attempts [13]. Similarly, exposure to online harassment has been linked to depression or depressive symptoms, anxiousness [14], as well as anger and poor concentration [15].

One digital domain that people are particularly concerned about regarding antisocial behaviour is video games. Playing online video games is a popular pastime amongst people of all ages [16]. There are multiple reports of antisocial behaviour occurring in game, for example news articles discussing toxic behaviour (e.g., [17]– [21]) and players discussing their experiences of in-game antisocial behaviour via online forums (e.g., [22]– [25]). Antisocial behaviour within this domain is often referred to as toxic behaviour [26]– [28]. However, despite this interest, not much is known about either the forms that toxic behaviour occurring in online video games take; Player perception on whether video game companies are doing enough to mitigate toxic behaviour in games; and what potential strategies could be used in order to mitigate this behaviour. However, the vast body of literature researching other forms of antisocial behaviour have shown being subjected to this behaviour in other domains is linked to negative outcomes such as increased levels of depression and anxiety. The consequences of toxic behavior in games may therefore be important, and understanding both its expression, and potential mitigation strategies for it may be key.

To investigate this gap in the literature, two studies were conducted investigating antisocial behaviour in online video games. These two studies focused on four key research questions.

Study One:
RQ1: What behaviours constitute toxic behaviour in online multiplayer video games?

Study Two:
RQ2: How often are different forms of toxic behaviour experienced by players of online multiplayer video games?
RQ3: Do players believe industry is doing enough to combat toxic behaviour in online multiplayer video games?
RQ4: What suggestions for video game companies do players have for methods of mitigating toxic behaviour in online multiplayer video games?

To address these outlined research questions, two large cross-sectional studies were conducted. In the first study participants were asked to share their most recent experience of toxic behaviour in-game. Following analysis of this data a hierarchical structure of toxic behaviour emerged containing 4 categories of toxic behaviour containing a total of 9 subcategories.

In the second study, another online survey was conducted. Participants were asked how often they had experienced the behaviours identified above, whether they believe games companies are doing enough to combat this behaviour, as well as their ideas for what games companies could do to mitigate toxic behaviour. Results indicated participants commonly experience toxic behaviour in-game, with 92% of participants (n=932) experiencing some form of toxic behaviour within the last 12 months, and 57% of participants (n=582) experiencing this at least once per week within the last 12 months. On average, more participants reported believing industry is not doing enough to mitigate toxic behaviour in-game than participants that reported they do believe industry is doing enough to mitigate these behaviours. Finally, suggestions for what games companies could do to reduce toxic behaviour were analyzed and 9 categories of suggestions were identified.

Current research into antisocial behaviour across different domains will be discussed in greater detail in the following section (Section 2, Literature Review).

2. Literature Review

2.1. Introduction

This thesis deals with antisocial behaviour within video games. However, video games are not the sole domain in which antisocial behaviour has been observed. Indeed, people regularly engage in a variety of different social behaviours that have negative effects on the wellbeing of others in a variety of different contexts. As with video games, these contexts may be technology mediated. However, significant amounts of antisocial behaviour also take place 'offline'. This literature review therefore begins with subsection 2.2, which serves to give a summary of these behaviours that exist outside of games, with focuses on both the non-virtual and virtual world.

Following this, the literature focused on antisocial behaviour in games will be described in subsection 2.3.

2.2. Antisocial Behaviour Outside of Games

2.2.1. Offline Behaviours

In this section, a summary is provided of both the forms and impacts of antisocial behaviour that exists in a format that is not mediated by technology. Such behaviours are diverse, and range from children experiencing bullying [7], to adults facing antisocial behaviour in the workplace [29],and those experiencing harassment in the street [5].

Whilst these behaviours may be similar in that they occur in the physical world, they differ in name, content, and sometimes the outcomes and effects.

More specifically, in this subsection we will provide an overview of the following notable forms of antisocial behaviour**: Bullying; Incivility; and Harassment**.

2.2.1.1. Bullying

Two of the most commonly used definitions of bullying in the research literature are Olweus[30], and Smith et al [31] . These definitions both emphasize 3 common aspects that form the basis of bullying **repetition, intent,** and **power imbalance.**

Repetition refers to negative actions being repeated over-time [32], and not just isolated instances of antisocial behaviour. Intent refers to negative actions being carried out with the intention to do harm [33]. Power imbalance refers to a real or perceived difference in power between the perpetrator and the victim [32], this could be physical power such as size or strength, or social power such as popularity or social skills [34].

Examples of bullying include physical actions such as being punched, pushed, kicked or hit, verbal actions such as name-calling, threats, teasing and rumor spreading, as well as other actions such as social manipulation, exclusion, theft, and damaging property [35], [36].

What are the consequences of bullying? The research literature incorporates a variety of studies that link bullying to lower quality mental health. This includes increased levels of depression [5], [37], [38], lower self-esteem [5], and higher social anxiety [5], compared to non-victimized peers. Bullying has also been associated with self-harm behaviours, and other psychosomatic complaints [38]. These effects also include long-term consequences that an adult may face after being victimized as a child [39].

A final potential consequence of being bullied that it is important to note is Characterological Self-blame (CSB) has also been associated with being a victim of bullying [40]. CSB is where a person perceives a negative experience as a result of their own character, meaning it is "*internal, stable and uncontrollable*"[41]. CSB has been linked to psychological distress [42], [43] and depressive symptoms[43], [44].

2.2.1.2. Incivility

Incivility refers to a form of antisocial behaviour in which an individual acts discourteously [29] or with disregard for others [29], [45]. Boundaries between incivility and bullying are a source of debate, with some arguing that what is labelled 'workplace incivility' is essentially bullying that occurs within the workplace [5]. However, one division between bullying and incivility may be that incivility may occur without the intent that is a key characteristic of bullying [5].

Examples of incivility include ignoring or excluding colleagues [45], physical assault and threats, as well as other discourteous behaviours such as rude comments and thoughtless acts like neglecting to use manners, being impatient, and deliberately leaving rubbish on the floor for cleaners and maintenance workers to pick up.[29], [46].

The consequences of incivility are thought to be higher levels of depression, increased turnover rates and lower job satisfaction. For example, in [5] researchers distributed an online survey asking participants about incivility and bullying (both online and in-person) in the workplace. They found being a victim of in-person incivility was correlated with lower job performance, lower job satisfaction and higher levels of social anxiety, compared to non-victims. Similarly, [45] mailed surveys to US federal court employees, measuring experience of incivility and its correlates. They found incivility significantly reduces job satisfaction, increased turnover intentions, and adversely affected mental health. Additionally, [47] surveyed employees of a property management company investigating workplace experience including workgroup incivility. They found incivility linked to lower job satisfaction, and higher turnover intention.

2.2.1.3. Harassment

Harassment may be defined as unwanted conduct relating to "*relevant protected characteristics"* such as this conduct having the purpose of violating the victim's dignity or creating an "*intimidating,hostile, degrading, humiliating or offensive environment"* for the victim, and takes into account the perception of the perpetrator among other circumstances [48]. Protected characteristics include age, sex, sexual orientation, gender reassignment, race, disability, marriage, pregnancy and religionor beliefs. Harassment includes behaviours such as sexual harassment or racial harassment [49], which are both broadly incorporated into bias-based harassment [50].

Sexual Harassment

[51] defines sexual harassment as *"behavior that derogates, demeans, or humiliates an individual based on that individual's sex".* Examples of sexual harassment include acts or comments that insult someone due to their sex. This may include, but is not limited to, sexual objectification, exclusion due to sex, unwanted sexual acts, remarks or jokes, and sexual coercion [51]–[53].
Sexual objectification includes being cat-called, ogled, wolf-whistled, and groped among other things [54].

Sexual harassment is often described in relation to adults but may also exist in a school setting. According to Hill & Kearl (2011) [55], in a school setting sexual harassment can consist of 'verbal or written comments, making gestures, displaying pictures or images, using physical coercion, or any combination of these actions.'

The consequences of sexual harassment are diverse and include an increased risk of depression and anxiety, lower self-esteem, and lower psychological well-being.
For example, in [56] researchers investigated sexual harassment through a longitudinal study of 12 years following 735 teenagers through to adulthood using yearly surveys to gather data on mental health, job-related conditions and harassment. Results indicated that experience of sexual harassment positively correlates with depressive affect, as well as increased self-blame and self-doubt. Similarly, in [57] researchers surveyed 394 professional women regarding sexual harassment from clients and found those who experience experienced sexual harassment from clients had lower job satisfaction, higher turnover intentions, and experienced more psychological stress. Additionally, a meta-analysis conducted in [58] examined the consequences of sexual harassment across 41 studies, finding sexual harassment was negatively correlated with job satisfaction, and negatively impacts both mental and physical health, with some victims showing symptoms of PTSD.

Racial Harassment
Racial harassment involves *"deliberate racist behaviour* "that may involve *"unwelcome verbal comments, or gestures"* [59]. Examples of racial harassment include both verbal and physical assault [60].

Reported consequences of bias-based harassment include emotional effects such as anxiety, depression, self-doubt and distress [60], [61].
For example, in [60] researchers interviewed 20 participants who self-identified as African Americanregarding their perspectives on racial harassment. Through these interviews negative emotional effects were identified such as anger and frustration, self-doubt or crying, as well as confusion and distress. Similarly, in [61] researchers surveyed 149 participants regarding their harassment experiences in the workplace and related outcomes. It was found that racial harassment in the workplace negatively related to job satisfaction, and positively related to anxiety, depression, and other physical symptoms.

Street Harassment
Street harassment, also known as stranger harassment [62] or public harassment [63], differs slightly from other forms of harassment as it occurs in a public place [64]. It is, however, motivated by similar features to other forms of harassment, usually including factors (real or perceived) such as gender, sexual orientation, and gender expression [64]. There is overwhelming agreement in literature that this is usually perpetrated by men [62], [64], [65], although most of the research focuses on women's experiences, and no studies have been identified that focus specifically on the experience of men. Research has found that around 65% of women and 25% of men have experienced street harassment, with 84% and 76% respectively reporting experiencing it more than once [13].

A study by DelGreco & Christensen (2019) [66] on the effects of street harassment found significant correlations between street harassment and higher rates of anxiety, depression, and lower sleep quality [66]. This study did, however, use a convenience sample of 252 female undergraduate students from one rural university, so may not be generalisable to a wider population. Similarly, [64] conducted 10 focus groups between August 2012 and March 2014 discussing experiences of street harassment with groups comprised mostly of women, finding street harassment caused participants to avoid certain places, change how they act in public, and take greater caution in public spaces.

Literature commonly agrees that a lot of the power of street-harassment comes from the physical repercussions, "*The fear of what an aggressor will do next"* [64]*,* relating to the victims' fear escalation of the situation and namely rape, assault, and murder [63], [64].

2.2.2. Online Behaviours

With the widespread use of the internet, antisocial behaviours are no longer limited to the non-digital world. Real-life behaviours such as bullying, incivility, and harassment have online counter parts in the form of, cyberbullying, cyber-incivility, and online harassment. A growing body of literature in this area discusses the forms and consequences of technologically mediated antisocial behaviours. This literature is briefly summarized here.

2.2.2.1. Cyberbullying

Cyberbullying has been described as "Any behaviour performed through electronic communication or digital media by individuals or groups that repeatedly communicates hostile or aggressive messages intended to inflict harm or discomfort on others" [67], and in literature the words cyberbullying, cyberstalking and cyber-harassment are often used interchangeably [68], on the other hand it has been argued at cyberbullying relates only to children and teens, so when adults are involved it becomes cyber-harassment [69]. A key difference between bullying and cyberbullying is that in cyberbullying the identity of the perpetrator is often unknown [70], with some claiming that this distinction can give power to the perpetrator and making it more accessible to people who would not participate if their identity was known [71]. Cyberbullying may also be more constant than regular bullying. Traditional bullying ends at the end of the school day [5], but with the use of technology cyberbullying is pervasive [72] meaning the victim may get no break from victimization as they would with traditional bullying

Examples of cyberbullying behaviour includes "*nasty or threatening messages"* or image sharing, without permission, sent over the internet (Such as social media, e-mail, instant messaging), or via a mobile phone, online exclusion, and masquerading as another in attempt to "*hurt or embarrass"* the victim [73].

Through a meta-synthesis of 25 articles, Tokunaga (2010) [67] estimated the prevalence of cyberbullying to range from a minimum of 20% of youths experiencing victimization, to a maximum of 40%, yet a study of 447,000 children and youths from the US found only 5% of its participants had been cyberbullied [74]. Both [67], [74] note that the notoriety of cyberbullying is somewhat due to media coverage, with the media, and some researchers, falsely reporting increases in prevalence [74].

There is disagreement over whether cyberbullying is more harmful than traditional bullying [75][13], or whether neither is characteristically more severe [70]. The most reported effects cyber bullying, similar to traditional bullying, include increased levels of depression [5], [12], lower self-esteem [5], higher social anxiety [5], [13], suicidal ideation [12] and attempts [13], and a number of other personal difficulties such as declining academic performance and troubles at home [67]**.** Vranjes et al [76] found that cyber bullying in adults tended to interfere more with work, yet this was not necessarily the case for adolescents and schoolwork. Whilst this could show a difference in perception of bullying between adult and adolescents, it could also simply be due to the different surveys used, with the adult survey focusing more on work related behaviours (i.e., "Your emails, phone calls, and messages are being ignored at work") and the adolescent survey focusing more on social behaviours (i.e., "Someone spread rumors about me on the internet"). This is an important distinction to make, with other studies such as [67] finding schoolwork was indeed affected negatively.

However, whilst there are plenty of studies denoting the harmful nature of cyberbullying, Olweus [77] argues it may be difficult to know what effects cyberbullying actually has when victims are typically also experiencing traditional bullying.

2.2.2.2. Cyber-Incivility

Cyber incivility has been defined as "*communicative behaviour exhibited in computer-mediated interactions that violate workplace norms of mutual respect*" [78]. Simply put, it is incivility but "Occurring through the ICTs" [79]. Whilst intent is already less important when considering incivility[45], the lack of social cues present in cyber interaction may make intent even more ambiguous in cases of cyber incivility [5].

Examples of cyber-incivility include derogatory or hurtful comments received through email, using email for time sensitive messages, not replying to emails, and other rude or discourteous behaviours occurring through email or text [78], [79].

Most commonly, studies find that cyber-incivility links to increased turnover rates or intentions to quit [5], [78], [79], workplace deviance or counter-productive behaviours [5], [78]. Other identified effects include higher rates of depression [5], burnout and absenteeism [79] and lower job satisfaction [78].

Female employees are more commonly targets of cyber-incivility than male employees [79], though this may be due to females perceiving more things as uncivil than males. Whilst in youths traditional bullying is more common than cyberbullying [80], in the workplace incivility is less common than cyber-incivility [5]. This has been suggested to be due to the widespread use of technology within the workplace [5]. This could, in part, be due to cyber-communication lacking the social cues that are present in face-to-face communication, leading to greater chances of the message being misinterpreted [79].

2.2.2.3. Online Harassment

Online harassment has been defined as *"the use of information and communications technology (ICT)to harass individuals"* [11] and is often used synonymously with cyberstalking or cyberbullying [68][11].

Examples of online harassment include repeated messages that may threaten, insult, or harass someone, and sending unwanted pornography. [81]

Online harassment is thought to have become prevalent in recent years. In [81], researchers investigated online harassment amongst undergraduate students. 339 undergraduates completed a survey surrounding repeated use of e-mail and I-M to insult, harass, threaten, or send inappropriate material such as pornography. Approximately 10-15% of respondents had experienced online harassment from stranger, acquaintance or SO and 58.7% of respondents had received unwanted pornography. [82] adapted the survey used above, repeating a similar investigation 8 years later. From 342 surveyed university students, 43.3% reported experience of online harassment within the past 2 years. When looking at receiving unwanted pornography, 23.7% reported receiving this compared to the 58.7% in [81]. This difference was suggested to be due to the increased usage of online dating apps [82]. Similarly, in [83], researchers held 1499 telephone interviews with youths aged 10-17. They found 9% of respondents had been harassed online in the past year, 57% of these by online only contacts. Youths that been harassed by online-only contacts were more likely to engage in activities such as instant messaging, blogs, and online chats, compared to youths who had not experienced harassment.

There are also potential consequences of being subjected to online harassment. Reported effects include depression or depressive symptoms, anxiousness, caution in expression opinions publicly, as well as anger and poor concentration [14][9].
For example, in [14] 342 undergraduate students were surveyed about their experiences of online harassment. It was found that participants reported feeling depressed and anxious as a result of online harassment. Similarly, in [84] researchers conducted 1501 phone interviews with youths aged 10-17 regarding depressive symptomology and internet harassment. They found those who reported depressive symptomology were more likely to report being targeted by internet harassment. Additionally, in [15] researchers surveyed 1368 university student regarding frequency and impact of cyber-harassment. They found that those who reported being cyber-harassed reported feeling sad or hurt and feeling anxious. They also reported feeling anger, and poor concentration.

2.2.3. Summary

From this review of antisocial behaviour occurring both in the real world and digitally, it is clear that being subjected to these behaviours can cause negative consequences such as depressive symptomatology, increased levels of anxiety and other psychosomatic complaints (e.g. [12 - 15], [43-45]).
These are behaviours that occur outside of video games; therefore, the next section will discuss the current state of the literature in this area surrounding these antisocial behaviours within video games, and finally whether these behaviours may be similar across the domains.

2.3. Toxic Behaviour in Games

2.3.1. Introduction

Video gaming is a growing industry that is becoming increasingly popular and widespread. The current most popular game on PC platform Steam at the time of writing this, Counter Strike Global Offensive, has grown from a daily average of 355,905 daily players in September 2015 to 606,650 average daily players as of September 2020 [85], and the popular sandbox game Minecraft has 126 million monthly players as of May 2020 [86]. According to a recent report, released July 2020, from the Entertainment Software Association, 214.4 million people in the US are video game players, with 65% of these players playing video games with others [16]. However, the ability to connect online with people from all over the world through video games brings added methods of social interaction, allowing antisocial behaviour to potentially seep into the world of video games.

The commission of antisocial behaviour in video games is often referred to as toxic behaviour, or toxicity by gamers [22]– [25], [87]– [89], and within the literature [26]–[28]. The academic literature on toxicity is fragmentary. To understand the current state of the literature, along with the overlap and ambiguity amongst currently reported types of toxic behaviour in games, first an overview and discussion of the diverse definitions of toxicity that are used in the literature will be provided.

e Following this, literature will be discussed regarding both the consequences of exposureto toxic behaviour, and the measures that gaming companies are putting into place to mitigate the consequences of this behaviour.

Different genres of games will be discussed throughout this literature review, with these differing genres potentially providing opportunities for differing forms of toxic behaviour. For example, within Multiplayer Online Battle Arenas (MOBAs) “feeding” may occur. This consists of “feeding” the enemy team experience or items by repeatedly and deliberately dying to them [27]. However,

this behaviour may not exist in other games that do not involve team versus team combat. Other examples of genres that will be discussed include Massively Multiplayer Online Roleplaying Games (MMORPGS) and First-Person Shooters (FPS).

2.3.2. Forms of Toxic Behaviour

2.3.2.1. Griefing

Griefing is a term that is applied to a disparate variety of forms of toxic behaviour. In some contexts, griefing is used to refer to what might loosely be termed as *"unacceptable behaviour"* [90]. However, in others a different definition is applied. For example, in [91], griefing is defined as "the act of one player intentionally causing another player grief for personal gain". Conversely, in [92] griefing is considered to be "*general aggressive behaviour"*.

However, despite the differing views in the literature over what specifically constitutes griefing many definitions of griefing incorporate one common thread: griefing frequently is conceptualized as involving the intentional harassment of other players, typically using the mechanics of the game

[91], [93]– [95]. Examples of griefing may include harassment (shouting slurs, spamming chats, stalking, eaves dropping and threatening), power imposition (killing players as they respawn, killing new players), scamming, and greed play (kill stealing, stealing loot) [96].

2.3.2.2. Trolling

According to Kirkman, B., et al [93], trolling exists in a purely social domain, focusing on provoking other inan attempt to cause anger and upset . Examples of trolling differ across studies, some examplesinclude insults, threats, and other behaviours intended to evoke a reaction [97], or ruining gameplay,misdirection, spamming and trash talking [98].

Through 22 semi-structured interviews with trolls, [98] uncovered 3 definitions of trolling. First, the "Attack" definition, focusing on trolling as a direct attack on other players enjoyment of the game with the idea of "ruining game play for others". The second definition being "Sensation-seeking", creating drama for a reaction for the trolls' own enjoyment or pleasure. The final definition being "Interaction-seeking", a more neutral or even prosocial form of trolling to gain a positive response, often used between friends or to make friends. [98] also divided trolling behaviours into two key groups, verbal trolling such as trash-talking and flaming, and behavioral trolling which includes inhibiting one's own team and aiding the enemy team. However, this study consisted of a relatively small sample size of only 22 interviews. Therefore, it is unclear as to whether the provided definitions are generalisable to a wider gaming community. Similarly the interviews were all conducted with self-confessed trolls, and it is unclear whether those who experience trolling and those who identify as trolls consider the behaviour to be the same thing.

2.3.2.3. Harassment

Another way that toxicity in games is viewed is via the lens of harassment. Harassment is often split into two categories: General harassment and sexual harassment.

For example, in [99], researchers investigated predictors of the commission of harassment in games via an online survey of 425 males. In this study, general harassment was defined as skill-based taunting, insulting others intelligence, swearing and general insults. Sexual harassment was defined as sexist comments/insults, comments about appearance or weight, doubt about motivations for playing because of gender, unsolicited affection, and rape jokes/threats. Researchers found that execution of sexual harassment in videogames was predicted by social dominance orientation and hostile sexism, whilst general harassment behaviour was predicted by these along with commitment/investment in the game, and how much they played.

In a related vein, a body of evidence is emerging regarding harassment in Virtual reality. In [100] through interviews with 25 VR players about their experiences of harassment in VR, three categories of harassment were found: Verbal harassment (Personal insults, hate speech and sexual language), Physical harassment (unwanted touching, standing too close, sexual gestures), and environmental harassment (drawing offensive imagery, throwing objects).

2.3.2.4. In-game Cyberbullying

A further label used for some antisocial behaviour in games is cyberbullying, or cyber-victimization [6], [101]**.** Cyberbullying is considered *"anti-social behaviour that can be defined as repeatedly and intentionally causing harm"* using electronic devices, which also affects video games [101].

Examples of cyberbullying in video games include name-calling, using profanity, exclusion, sexual harassment, being excluded and racial and minority harassment [6], [101].

2.3.2.5. Hate Speech

A further key area in the study of toxicity is hate speech. Hate speech is variously used to refer either to racist speech in specific (As in [102] discussing interactions occurring over Xbox Live); or as a generic way to describe a variety of verbal interactions in game (as in [26] which investigated hate

speech within League of Legends). Examples of hate speech in video games include racist comments, cultural hate speech and other hateful speech based on gender, sexuality, ethnicity, or other sensitive personal properties[26], [102], [103].

2.3.2.6. Summary

The way that toxic behaviour in video games is defined is currently fragmentary. Different labels fortoxicity are typically defined by researchers themselves, and these definitions are often idiosyncratic. Consequently, much overlap exists between the different labels applied to toxic behaviour in games. For example, [104] classified griefing as its own form of harassment, yet in contradiction of this [95] specified griefing not to be a form of harassment in itself but an overarching term for various forms of harassment.

Indeed, discrepancies exist with reference to the definition of toxicity within individual concepts. For example, whilst griefing is said to exist purely in the social domain in [93], behavioral trolling is discussed in [98] which includes inhibiting one's own team, a behaviour that is not purely social but impacts on the way the game is played.

Why does this ambiguity persist? Some sources state that it may be due to the subjective and vague nature of toxic behaviour [27], [105], [106], or the diversity of toxic behaviours that exist between games. For example, "feeding" – deliberately repeatedly dying to the enemy team - is considered toxic in Multiplayer Online Battle Arenas (MOBAs) [27], but may not be applicable in other genres of games which don't have team-based player versus player combat.

However, another credible reason for the lack of a unified language to discuss toxic behaviour may be attributed to a lack of studies which empirically extract such a definition from gamers themselves, with researchers typically inventing their own ad-hoc definitions of toxic behaviour rather than allowing such definitions to emerge from stakeholders themselves. This explanation for the lack of unified language surrounding in-game toxicity is one factor motivating the first study of this thesis, described below.

Furthermore, there also exists a lack of explanation of where the researched behaviours come from.For example, in [104] researchers investigated disruptive behaviours and harassment in-game, examples of these behaviours included trolling/griefing, being embarrassed, being called names and beingharassed for a sustained period. However, the researchers did not provide an explanation as to why these behaviours were chosen to be investigated and how closely they match up with what players experience in game. Similarly, in [107] researchers investigated in-game abuse, the behaviours constituting in-game abuse being trolling, hate speech, threats, unwanted sexual contact, hacking, and unwanted sharing of personal information. As in the previously mentioned study no explanation or reasoning was givenas to why these specific behaviours are representative of toxic behaviour experienced in game.

2.3.3. Degree of Exposure

As described above, there is a lack of clarity regarding how toxic behaviour may be defined. Without a clear definition of the various forms of toxic behaviour that exist it may also be unclear just how frequently gamers experience toxic behaviour. Despite the lack of understanding, some research has attempted to investigate how frequently gamers are exposed to specific antisocial behaviours in games.

A recent report from the anti-defamation league explored harassment in online games. A sample of 1045 US-based participants aged 18 – 45 completed a survey surrounding their game experiences [104]. It was reported 74% of the sample experienced some form of harassment in an online game, this disruptive behaviour causing 19% of participants to quit certain games. Information regarding the impact of these disruptive behaviours was also collected, with 23% reporting being less social, 10% having depressive or suicidal thoughts, and 9% treating other people worse than usual as a result of the behaviours experienced in game. However, the definition of harassment given here wasthe following: trolling/griefing, personally embarrassing another player and calling a player offensive. One may argue that this is an overly specific description of harassment that could potentially miss out a vast array of other negative behaviours that may be experienced by players; similarly, one may suggest that this study proposes no clear reasoning for the choice of definition, therefore how closely this matches to players overall experience of harassment, or toxic behaviour, in-game is unclear.

Whilst this does suggest negative behaviours enacted towards other players in online games may be quite prevalent, some methodological flaws in this study appear clear. As noted above, one such issue lies in using a self-defined description of "disruptive behaviours" with no explanation as to why the specific description was used and getting players to rate whether they have experienced this. Due to the lack of knowledge of what behaviours constitute toxic behaviour it is unclear whether what this report measures accurately reflects toxic behaviour experienced by players. Toxic behaviour could instead be significantly more, or less, prevalent than described.

Similarly, from a survey of 2515 Habbo Hotel players exploring in-game abuse, 57% of respondents reported being bullied in an online game, 64% reported being trolled (Deliberately annoyed by another user, classed as *"a weaker form of bullying"*), and 47% receiving threats from somebody in an online game [107]. Whilst this suggests in game abuse may be common, it is important to again note that as with [104] researchers again self-specified how 'in-game abuse' was defined and measured. As with [104], it is therefore similarly unclear whether this accurately captures abusive in-game behaviours due to the lack of explanation of where their measures come from.

2.3.4. Victims of Toxic Behaviour

[6] investigated experiences of cyber-victimization in game, finding no significant difference in overall victimization between males and females, or heterosexuals and LGBT participants. However, both female and LGBT participants experienced significantly more sexual harassment and pursuit than their respective counterparts. On the other hand, [104] collected data on identity-based harassment, and from their sample 38% of women reported receiving harassment based on their gender, and 35% of LGBTQ+ players reported receiving harassment due to their sexual orientation or gender identity. No comparison between different groups was reported.

Some research has focused on specific victims of toxic behaviour, or groups that are presumed to face more toxicity whilst playing online multiplayer games. Most commonly, research discussed the experiences of minorities, such as females and ethnic minorities [26], [94], [108], [109].
For example, [108] investigated women's experiences of harassment in online videogames. Notably, this study did not report the number of participants who experienced harassment. However, reactions to harassment in-game were discussed, for example, quitting the game and rumination in response to sexual harassment. Similarly, [102] explored men's experiences of racism in online games, through interviews with 12 men of minority ethnicities, finding racism to be a frequent experience of participants.

2.3.5. Impacts of Toxic Behaviour

As previously discussed, no research has been conducted to investigate the full variety of toxic behaviours that exist in games. Despite this lack of knowledge regarding the diversity of toxic behaviour, some work has been conducted researching the impacts of toxic behaviour. It is important to note that whether this research accurately reflects the impact of the full range of toxic behaviours is unclear due to issues regarding the definition of toxic behaviour as outlined earlier in this literature review (See section 2.3.2.6 Summary). Throughout our literature search, only one report measuring and describing the impact of toxic behaviour was identified, and it did not fall within the peer-reviewed academic literature.

In [104], researchers surveyed 1045 US adults aged 18-45 regarding in-game experience. Participants answered questions regarding the impact of harassment in online games. 23% of participants reported being less social, 23% reported feeling uncomfortable or upset after playing, 15% reported feeling isolated or alone, 10% had depressive or suicidal thoughts, 9% treated people worse than usual, 8% reported having personal relationships disrupted, 8% reported taking steps to reduce risk

to their physical safety, 7% reported having academic performance negatively impacted and 5% reported contacting the police due to harassment in an online game.

2.3.6. Mitigation and Prevention

A handful of papers have focused on detecting and preventing toxicity in games. [106] proposed the use of empathic agents for defusing toxic behaviour in competitive team games. For example, the designed agent would monitor the use of pings in game to detect toxic use. Pinging is a method of directing team-mates attention to a specific area of the map using a brief audio and visual cue that flashes up for a couple of seconds. The agent would also monitor a player upset level and emotional valence, with changes in these triggering some form of action unspecified within the paper.

Considering report and punishment systems in-games, in a 2014 paper Blackburn and Kwak [105] implemented machine learning to predict the tribunal decisions in League of Legends. The tribunal system in league of legends allowed for experienced players to judge the reports submitted against other players to determine innocence or guilt [110] but is no longer in use. To try and predict tribunal decisions, four models were used. One model was based on player performance, including kills deaths and assists. The second model focused on how many times the player was reported. A third model was based around the chat and whether the player was toxic in chat. Finally, the fourth model incorporated all the above. The strongest result was produced by the fourth model, with 79.9% accuracy, however this was only the case where the tribunal had an overwhelming majority on whether the player was innocent or guilty, with the accuracy of the model dropping when the panel had anything less than overwhelming majority agreement.

The issue of toxicity in games is also recognized by many games companies who are working to reduce, or stop, toxic behaviours. For example, an artificial intelligence (AI) has recently been added to the multiplayer game Counter Strike: Global Offensive. This AI named Minerva was reported to have banned 20,000 players and sent warnings to an additional 90,000 for verbal abuse and spam within only the first month and a half of operation [111]. In addition, there are currently over 120 games companies, including Blizzard, EA, and Epic Games, who are members of the Fair Play Alliance [112]. The Fair Play Alliance being a group aiming to change games for the better, including "*stomping out harassment, discrimination, and abuse"* in games [113].

2.3.7. Summary

Toxic behaviour is an issue often discussed by gamers, the media, and games companies. It is an important issue that has come to attention of many. It is a seemingly prevalent issue amongst players of online games.

However, research in the area appears to be held back by a lack of foundational studies that clearly define what toxic behaviour is in the eyes of gamers. It is not clear what gamers consider to be toxic behaviour. Without knowledge of what is seen as toxic behaviour by players it is unknown whether current research accurately reflects this phenomenon. To date, no large-scale research has been conducted to investigate what these behaviours constitute from the player's point of view.

In addition, without knowing the full scope of toxicity in games it is unclear as to who experiences toxic behaviour, whether different individuals experience different forms of toxic behaviour more commonly, and what the overall effects of toxic behaviour are. Finally, without understanding the full scope of toxic behaviour, it is hard to gauge the extent to which the strategies employed by the video game industry are adequate in dealing with it.

2.3.8. The Present Research

Therefore, this work aims to address this some of these gaps in the knowledge.

The first aim of this work is to determine what constitutes toxic behaviour, and to codify the diverse forms of toxicbehaviour within a coherent classification scheme. To gain a clearer picture of what toxic behaviour is, those who experience it first-hand will be asked to share their experiences of toxic behaviour to gain an expansive classification scheme that represents what actually occurs in-game.

Secondly, to use this classification scheme to begin the investigation of how often toxicity is experienced in games. With more information about the range of toxic behaviour in games, a survey can be designed and implemented with the goal of discovering how often these behaviours are experienced and whether they are a common occurrence, or not.

Finally, use this novel classification scheme to investigate whether players believe games companies are doing enough to combat toxic behaviour, and to crowd-source solutions that industrycould implement to deal with these behaviours.

3. Study 1

3.1. Introduction

As outlined in the literature review, a significant amount of discussion and research exist surrounding toxic behaviour in games. However, despite this interest, no one has mapped out the kinds of toxic behaviour that exist. To begin exploring the prevalence and effects of this phenomenon, defining the range of existing toxic behaviours is the necessary first step.

Therefore, this first study will focus on discovering the types of toxic behaviour that exist in games. This will be done via a large-scale online survey with players from a diverse range of games. Participants will be asked to share their most recent experience of in-game toxic behaviour. A content analysis of their responses will then be conducted to map out what toxic behaviouris.

3.2. Method

3.2.1. Design

An online survey was conducted with a self-selected sample of gamers aged 18 or older. Reddit (a popular online bulletin board) was chosen for recruitment of participants.

Reddit was selected due to it providing easy access to a large range of gaming communities via special interest boards known as ‘subreddits’. In order to reach players of a wide variety of games, moderators of 59 separate subreddits were contacted. Subreddits were selected that represented the communities of popular games which had some form of online multiplayer capability. Torecruit as diverse a spread of gamers as possible, subreddits were targeted for popular games acrossvarious platforms and PC gaming stores (**Console:** PS4, Xbox One, Switch.
PC: Steam, Blizzard, Origin, Epic. **Mobile:** Google Play Store, iOS App Store). In addition to this, the subreddit for League of Legends was also selected for recruitment due to the games popularity despite not being on a specific store. A further 5 general gaming subreddits (i.e., subreddits not

specific to a single game) were also added to the list. In total 28 subreddits provided permission for the survey to be posted, leaving 31 subreddits which did not allow the survey or did not respond. A full list of these subreddits is included with this submission as Appendix A.

Demographic details about participants were collected. Participants were then asked a series of questions regarding their experiences of toxic behaviour in online multiplayer video games, described further in the 'Measurements' section below. Participants were also asked a series of questions regarding their experiences of prosocial behaviour in video games. These measurements are not discussed here.

The advertisement for this survey informed participants that the study was investigating player interactions in games specifying both toxic and prosocial behaviours, albeit for this thesis only the responses regarding experiences of behaviour were analysed. Prior to posting this advertisement, ethical approval for this study was gained from the University of York Physical Science Ethics Committee.

The full survey is available to view in Appendix B.

3.2.2. Participants

Data collection ran for 10 days, from the 18th to the 28th of February 2020.
A total of 1754 full responses were collected from participants. 29 of these responses were disregarded for being non-serious due to listing falsified information. For example, 5 participants listed their age as over 400, and a further 9 of these claimed to be over 90 with falsified genders such as "r****d" and "pink cloud with green snow rain". This left a total of 1725 responses. In addition, 138 participants listed their age as under 18, their data was excluded from this study.

Participants provided their gender via open-text response. 1508 participants (87.4%) reported their gender as male, 190 reported themselves as female (11%), 13 participants reported themselves as non-binary (0.8%),7 participants listed other genders (Transgender male, transgender female, both, agender, genderqueer) (0.4%) and a further 7 participants did not list a gender (0.4%).

Sexual orientation was also provided via open-text response. 1409 participants reported their sexual orientation as Heterosexual (81.7%), 150 described themselves as Bisexual (8.7%), 54 described themselves as Homosexual (3.1%), 37 participants listed other sexual orientations (2.1%) and 58 participants preferred not to say (3.4%). A further 17 participants did not provide an answer (1%).

Participant age ranged from 18 to 67 (M = 26.39, SD = 7.29), the majority of participants fell into the 18 – 24 age range (47.5%), 686 participants were aged 25-34 (39.8%), 175 were aged 35-44 (10.1%), and 45 were aged 45+ (2.6%).

Participants also provided their ethnicity. The majority of participants,1321, were white (76.6%), 173 were Asian (10%), 113 listed their ethnicity as Mixed (6.6%), 42 listed their ethnicity as Black (2.4%) and 76 participants listed their ethnicity as Other (4.4%).
Participants came from a total of 80 different countries, the largest number of participants coming from The United States (48%), United Kingdom (9%), Canada (6.9%) and Germany (6.7%).

Frequency of gameplay was measured by asking participants How often they had played online video games within the past 12 months. 1365 participants reported playing online video games 4 or more times per week (79.1%), 248 reported playing 2 or 3 times per week (14.4%), 56 reported playing once per week (3.2%), 28 reported playing 2 or 3 times per month (1.6%), 11 participants reported playing one per month (0.6%), a further 11 participants reported playing less than once per month (0.6%), and 5 participants reported not playing at all within the past 12 months (0.3%). 1

participant did not provide a response to this question.

3.2.3. Measurements

Exposure to toxic behaviour in-game was measured by asking participants *"Have you ever been subjected to toxic behaviour whilst playing an online video game?"*. Participants responded via

multiple choice of either Yes or No. In total, 1564 (90.7%) respondents reported having been exposed to toxic behaviour in online multiplayer video games.

Frequency of exposure was also measured. Participants who had been subjected to toxic behaviour were asked to share how often they experience toxicity whilst playing an online video game. Participants were asked "*In the past 12 months, how often have you experienced toxic behaviour whilst playing an online video game?"*.
61 respondents reported experiencing toxic behaviour every time they played (3.9%), 252 reported experiencing toxic behaviour most of the time (16.1%), 297 reported experiencing toxic behaviour about half the time (19%), 903 participants reported experiencing toxic behaviour sometimes (57.7%) and 50 participants reported never experiencing toxic behaviour within the past 12 months (3.2%). One participant did not provide an answer to this question.

Finally, the kinds of toxic behaviour experienced was collected by asking participants: *"In the box below, please describe your **most recent** experience of toxic behaviour in an online video game.".* This was an open-ended question upon which qualitative analysis was conducted.

3.3 Results

As described above, experience of toxic behaviour was measured by asking participants to describe their most recent experience of toxic behaviour. From the 1564 participants who had experienced toxic behaviour, 1511 responses to this question were analyzed, the remaining 53 responses were disregarded for not providing a full response such as leaving one letter answers, or simply not providing a response at all.

Each response was first read through by the researcher to determine whether it described one, or more, distinct toxic behaviours. If a response did contain a reference to more than one occurring behaviour, each distinct behaviour was split into a separate utterance. For example, a response stating "High levels of homophobia that is used to demean me. Passively witnessed racial slurs used to physical intimidate minority players" would be split into two utterances "High levels of homophobia that is used to demean me" and "Passively witnessed racial slurs used to physical intimidate minority players". A total of 1782 utterances were identified.

To avoid using preconceived notions and to allow for the categories to emerge from the data itself, the conventional approach to content analysis was followed as described [114]. This approach was used to allow codes to be derived directly from the data with the aim of capturing the key concepts. The dataset was then read through iteratively, with each utterance being assigned a code. After multiple pass-throughs to become immersed in the data 14 codes emerged. Following a further pass through these codes were condensed into a hierarchical structure containing 4 categories and 9 subcategories, these categories and subcategories providing a total of 10 possible codes : **Racism**, **Homophobia**, **Sexism**, **Ableism**, (slurs based on) **Religious Beliefs**, **Threats**, **Ill Wishes**, **Disruption impairing the ability to win**, **Disruption not impairing the ability to win**, and finally **Insults and Displays of Aggression**.
Figure 3-1 below shows the hierarchical structure.
Once this hierarchical structure had emerged, each utterance was read through a final time to make sure they had been correctly assigned to one of the 10 potential codes.

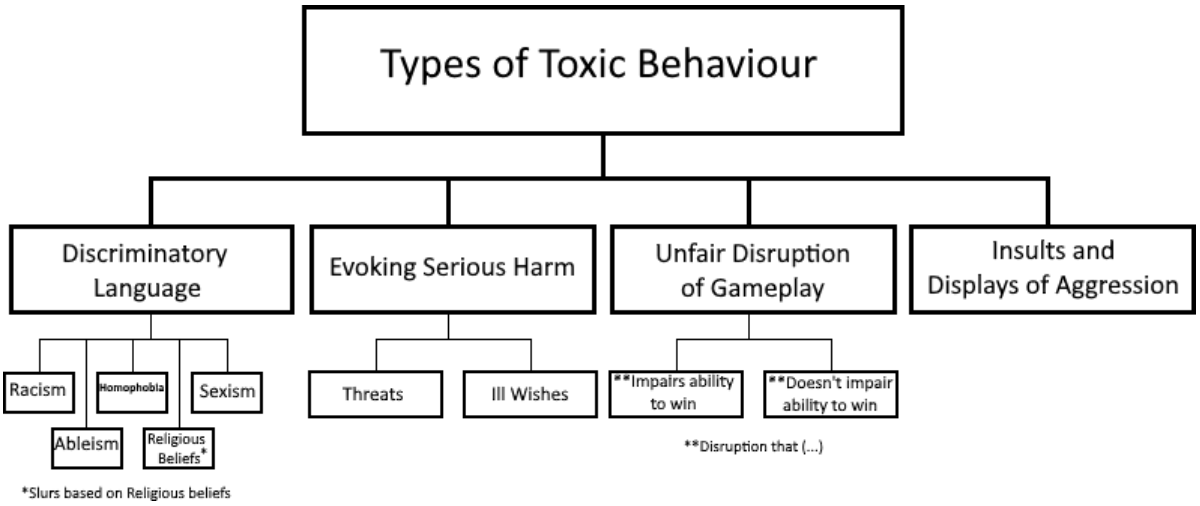

Figure 3-1 Hierarchical structure of Toxic Behaviour

In order to test the reliability of the coding scheme, inter-coder reliability was tested by having the data independently coded by an unrelated researcher based on the provided coding scheme. A code book was provided to the unrelated researcher describing the different categories. The code book is available to view in Appendix C.

Due to the large amount of data approximately 20% of the total utterances (362) were selected and analyzed by the second coder. If an utterance was randomly selected other utterances forming the total response were also included, this equated to 305 full responses (20.2% of responses).

The degree of agreement between coders was measured at Cohen's k = 0.810, indicating excellent agreement. The prevalence of each code within the sample is given below in Table 3-1.

Further description of each category will be given below.

Toxic Behaviours	Number	Percentage
Discriminatory Language	313	17.7%
Racism	161	9%
Homophobia	63	3.5%
Sexism	62	3.5%
Ableism	20	1.1%
Slurs based on Religious Belief	7	0.4%
Evoking Serious Harm	91	5.1%
Threats	22	1.2%
Ill Wishes	69	3.9%
Unfair Disruption of Gameplay	375	21.1%
Disruption that impairs the ability to win	290	16.3%
Disruption that does not impair the ability to win	85	4.8%
Insults and Displays of Aggression	869	48.8%

Table 3-1 Prevalence of codes within the sample

3.3.2. Discriminatory Language

Participants reported experiencing discrimination due to certain, real or perceived, characteristics. This was not always directed towards a single person, but often general comments that could be considered offensive or harmful by some groups. These responses were split into 5 separates

categories as shown below: Racism, Homophobia, Sexism, Ableism and Slurs based on Religious Beliefs.

3.3.2.1. Racism

9% of participants (n=161) reported experiencing racism, including racist language, in-game. This most commonly took the form of being called racial slurs, often *"the n-word",* through text chat or voice chat*,* but some participants also mentioned white supremacy. Whilst some participants described racism being directed more generally, directed towards "everyone on the team" and "everyone in the lobby", or just being "thrown about", some participants expressed racism directed towards, or triggered by their accent such as "comments related to russiaphobia" or "being called a terrorist" due to an accent.

> *"In Call of duty Modern Warfare the enemy team would use racial slurs everytime i killed them in the game"*
>
> *"Got called racial slurs due to in game performance"*
>
> *"Brief introduction of my connection to this game: I am from India living in United States for my Engineering job. I play Dota2 as a fun game in my free time at home on weekends and sometimes on weekdays. Sometime back in Dota2 online game I was talking on mic guiding a player to do something for our lane, he understood I have Asian accent with my English and started imitating it for everything I said. I muted him after a while and we lost the game of course, this incident felt very toxic to me the way he was imitating the whole game whatever I said. I stopped using my mic after this and just type whatever I wanna say."*

3.3.2.2. Homophobia

3.5% of participants (n=63) reported experiencing homophobia in-game. This incorporates homophobia and other derogatory comments, or slurs based on a person's sexual orientation. Players reported being "called gay" or receiving "homophobic slurs", sometimes directly due to a person's orientations. For example, trolls joining an LGBTQ+ server using homophobic slurs, and receiving slurs after another player finds out their sexual orientation.

> *"Female player calls me a fag when she finds out I am bi."*
>
> *"Told someone to use wards so they told me I was a faggot"*
>
> *"A player on the enemy team was throwing out homophobic slurs."*

3.3.2.3. Sexism

3.5% of participants (n=62) reported experiencing sexism in-game. These players reported witnessing, or experiencing, negative comments because of one's sex or gender. Some reported having their skills questioned or diminished due to be being female, receiving comments on their looks, and more sexually explicit remarks towards them.

> *"Someone in general chat was making really sexist comments about women, not only the normal "stay in the kitchen" stuff, but mostly really gross sexual comments about the female characters in the game. Someone else in chat that I'm pretty sure was a woman called him out and got called a bitch in response."*
>
> *"Player accused me of not being the one actually playing (he claimed my boyfriend must be playing for me), called me a bitch, said I had to be cheating."*

“When one of my teammates spoke up and they heard a female voice they both started awwwing and asking for nudes pictures and team killing her in game.”

3.3.2.4. Ableism

1.1% of participants (n=20) reported receiving derogatory slurs towards disabilities, as well as other ableist language. These participants most commonly reported being called “a retard”. Some participants reported other slurs relating to both physical and mental disabilities.

“Teammate used derogatory terms for people with mental disabilities to describe their teammates”

“Was called 'fucking retarded' for not understanding a mechanic in-game.”

“I was repeatedly called various derogatory slurs relating to autism.”

3.3.2.5. Slurs Based on Religious Belief

0.4% of participants (n=7) reported experiencing religious-based discrimination in-game. These participants reported receiving anti-Semitic comments and experiencing Islamophobia.

“People telling me to start the ovens up again and start gassing jews”

“Players making references to Islam when using bombs”

“Somebody was making anti-semitic comments over voice-chat. For what it's worth, I'm not Jewish (even if I was, I never give personal details like that, so they wouldn't know).”

3.3.3. Evoking Serious Harm

Participants reported experiencing threats or wishes of harm and death from other players. This was not always directed towards themselves but often also towards the targets family, friends, or pets. These responses were split into two categories: Threats, and Ill Wishes.

3.3.3.1. Threats

1.2% of participants (n=22) reported receiving threats from other players in-game. Some participants described threats of harm to themselves or family and friends, and death threats. Other participants report more general threatening behaviour such as demands for an address to be sent and threats of being hacked.

“A very young kid saying he wanted to fuck me to death”

“I was playing Pokemon GO and I was taking over a gym at my local YMCA. As I'm battling the gym, a guy angrily approaches my car and asks me what I'm doing. I told him what I was doing and he threatened to kill me for taking over his team's gym.”

“He said "i wil fuck your mother up" he was very aggressive”

3.3.3.2. Ill Wishes

3.9% of participants (n=69) reported experiencing ill wishes from other players in-game. Participants reported other players wishing harm or death upon them or their family. This was expressed in different forms, from direct wishes of harm such as getting “hit by a train” to hopes for disease and ill-health. Sometimes participants reported being told to commit suicide, or that they would be better off dead.

“Playing a 6vs6 team game (Overwatch) some random told me "get cancer""

“It is not rare to be told things like "I hope you die" or "I wish you get cancer"”

“Being texted to kill myself over winning a game of madden”

3.3.4. Unfair Disruption of Gameplay

Participants reported experiencing their gameplay being unfairly disrupted by other players. This disruption varied from physical actions, to auditory and text-based disruption. These disruptive behaviours were split into two categories: Disruption that impairs the ability to win, and Disruption that does not impair the ability to win.

3.3.4.1. Disruption That Impairs the Ability to Win

16.3% of participants (n=290) reported experience of disruptive behaviour in-game that directly altered gameplay. Participants described their ability to play the game, or progress, being unfairly impaired by the actions of other players. This was often in the form of team members deliberately not playing the game properly by harming their own team, and rage-quitting or leaving matches. Some participants also described being harassed by more experienced players for no gain to the experienced player or facing other players who used cheats or broken game mechanics to gain an advantage over them.

“People get too aggressive when there is a screen disconnecting them from the fact that there is a real, flesh and blood person behind every interaction. For example, destroying everything I own while I’m offline to no benefit of their own. Just because they could, it’s funny to them, and their tribe is bigger than mine.”

“Getting team killed before the round even started without any reason. It was the beginning of the game and another player walked up to me and killed me without saying a word.”

“Usage of cheats to kill a monster in a single hit in a multiplayer session, ruining the experience of the hunt”

3.3.4.2. Disruption That Does Not Impair the Ability to Win

4.8% of participants (n=85) reported experiencing disruptive behaviours in-game that did not cause a disadvantage or directly impair the ability to win. These players reported being taunted with in-game actions, items or sounds, spamming pre-set messages and repeated pinging, their opponents wasting time by not starting a match or not taking their turn, and being falsely reported (with no action taken upon the report).

“The most recent was in the Pokemon TCG online, chat is limited but some players keep spamming angry faces and delaying their turns when losing.”

“T bagging was my last experience of toxic behaviour. It often occurs if you are killed by someone cause of an outplay. So he is blaming you because you werent able to kill him or if he kills you after he was killed by you to show you how superior he is.”

“someone mass pinging me in dota because he was unhappy with my decision”

3.3.5. Insults and Displays of Aggression

48.8% of participants reported experiencing insults and displays of aggression in-game. These participants reported being insulted, flamed and trash-talked, often relating to their skills and ability to play the game. Some players described experienced of other forms of language that insulted or offended them such as name-calling, swearing, cussing and other forms of profanity. Others reported excessive anger from players such as “throwing tantrums”, or “yelling”.

“Just making me feel bad for not doing as well as my other teammates, calling me trash and other expletives to demean me. Constant negativity in the text chat, making it a very hostile and uncomfortable environment.”

“Someone I was playing with set their auto-reply comments in response to various situations to rude and/or uncomfortable responses, such as "WHY ARE YOU DOING THAT", "Rape that monster", "Go back to base" etc. These are responses that made me feel uncomfortable and frustrated even if they could have been worse.”

“Blame-shifting that defies logic. Everything is somebody else’s fault, they have no agency. Their mistakes never happened - it’s YOU. Yelling and screaming into the mic. Don’t dare try debate logically with them over voice chat. Whoever yells the loudest, says the most obscenities won the argument in their viewpoint.”

3.4. Discussion

Several of the described toxic behaviours occurring in game share similarities with forms of antisocial behaviour outside of games. For example, a large proportion of the sample shared experiences of receiving insults or being subjected to other forms of aggression. This parallels forms of cyberbullying, with nasty, hostile, or aggressive messages being a common aspect of cyberbullying[67], [115]. A key feature of bullying and cyberbullying is the idea that the antisocial behaviours are repeated [8], [33], [35], [74]. This idea of repetition could also be similar in the domain of toxic behaviour in online games. Cyberbullying literature debates whether multiple instances of a behaviour are required for repetition, or if the public nature of cyberbullying instead represents repetition in and of itself as a single act of cyberbullying, such as nasty posts on social media, may beviewed repeatedly and by several people [80], [116]. This is notable as one instance of a player being insulted or receiving toxic messages could be viewed multiple times by the entire team, lobby,or guild depending on which game they are playing and how the message is sent. However, it is unclear it is unclear how similar insults and other displays of aggression are to cyberbullying. Cyberbullying most often relates to children and adolescents, with most of thecurrent literature being focused here. On the other hand, online gaming is not limited to children and adolescents and instead is open for people of all ages to interact.

Interestingly, the behaviours reported by the participants of this survey do match reports of toxic behaviour in gaming articles and academic research. Toxic chat messages in League of Legends were discussed as a commonality during play in [117], which is backed up by 48.8% of participants here reporting experience of similar behaviours. A further similarity lies within the discussions of Tang and Fox (2016) who discussed two forms of harassment in videogames [99]. They described general harassment to include insults and swearing, and sexual harassment which included sexist comments and comments about appearance. Both forms of behaviours were found in this qualitative analysis of toxic behaviour, with general harassment matching closely to Insults and displays of aggression, and sexual harassment mirroring the sexism subcategory of Discriminatory Language.

However, some difference with the literature do occur. Often the current literature lumps different behaviours together, such as [99] classifying both sexism and insults under harassment and [102] describing racism as forming a part of trash talk. This study however has found certain toxic behaviours to be more distinct from one another. Racism and other forms of discriminatory language were found to be distinct from other forms of insults and sexism and insults were similarly found to be distinct behaviours.

However, it is important to note that whilst this study has identified different forms of toxic behaviour experienced by players during online play, only the most recent experience of toxic behaviour was shared by players. Therefore, without further investigation it is still unclear who is experiencing this phenomena, and how common exposure is to these different forms of in-game toxicity.

4. Study 2

4.1. Introduction

In the previous study player experience of toxic behaviour was investigated, and an empirically derived classification scheme for the different varieties of toxic behaviour in online video games was created. However, it is still unclear how commonly these behaviours are experienced. Furthermore, it unclear whether players perceive industry as doing enough to combat these specific forms of toxic behavior; it is also unclear what strategies players perceive as being potentially effective in mitigating the effects of these strategies.

Therefore, this study will focus on the following three outcomes: first, it will attempt to explore how commonly each identified category of toxic behavior is experienced amongst gamers; secondly, it will explore player perceptions of whether industry is doing enough to counter toxic behavior; finally, it will crowd-source ideas from players as to what they believe industry could be doing to mitigate toxic behaviour in-game.

In order to achieve these aims, we again conducted a large-scale online survey with players from a diverse range of games. Participants were asked to report if they had experienced each of the toxic behaviours uncovered in Study 1, and how often this exposure had occurred. They were then asked whether they were believed industry was doing enough to mitigate each of the separate behaviours; Finally, they were asked for their thoughts regarding what industry could do with reference to toxic behaviour. A content analysis of their responses to this final question was then conducted in order to crowd-source potential interventions for toxic behaviour in games.

4.2. Method

4.2.1. Design

An online survey was conducted with a sample of adults aged 18 or over. As in the first study, Reddit was chosen to recruit participants to gain easy access to players from a diverse selection of games. Moderators for the 28 subreddits that allowed the first survey were contacted once again to ask for permission to conduct this survey. In total, 21 of the subreddits gave permission for the survey to be posted, leaving 7 subreddits which did not respond or did not give permission. A full list of subreddits is available to view in Appendix D.

Participants were asked a series of questions. The survey incorporating these questions was split broadly into 4 sections: **Demographics, Frequency of play, Exposure to Toxic Behaviour,** and **Opinions on Industry.**

The advertisement for this survey informed participants that the study was investigating experiences and opinions relating to toxic behaviour in games. Prior to posting this advertisement, ethical approval for this study was gained from the University of York Physical Science Ethics Committee.

4.2.2. Participants

The survey ran between September 26th and October 2nd, in which time 1108 responses were collected. 21 of these responses were removed for being non-serious, such as listing impossible ages, providing offensive or non-serious genders such as “Battletank” or “Pedophile Crocodile”, or leaving abusive messages within open-text responses. A further 71 participants listed their age as under 18 and so their data was not collected. This left a total of 1016 responses to the survey.

Participants provided their gender. If a participant listed their gender as “Other” an open-text

response was opened. The vast majority of participants, 881, reported their gender as male (86.7%), 112 participants listed their gender as female (11%), 15 participants listed other genders (Nonbinary,

Transgender Male or Female, Genderfluid, Neither) (1.5%), and a further 8 did not list a gender or preferred not to say (0.8%).

Participants also provided their sexual orientation. 814 participants reported their sexual orientation as Heterosexual (80.1%), 115 participants described themselves as Bisexual (11.3%), 31 participants described themselves as Homosexual (3.1%), 25 participants described themselves as having other sexual orientations (2.5%), and a further 31 did not report an orientation or preferred not to say (3.1%).

Participant age ranged from 18 to 69 (M = 26.97, SD = 8.08), a large number of participants,465, fell into the 18 – 24 age range (45.8%), 409 participants were aged 25-34 (40.2%), 98 were aged 35-44 (9.7%), and 44 were aged 45+ (4.3%).

Participants also provided their ethnicity. The majority of participants,811, were white (79.8%), 70 were Asian (6.9%), 64 listed their ethnicity as Mixed (6.3%), 15 listed their ethnicity as Black (1.5%) and 35 participants listed their ethnicity as Other (3.4%).A further 21 participants preferred not to share their ethnicity (2.1%)
Participants came from a total of 63 different countries, the largest number of participants coming from The United States (40.6%), United Kingdom (10.5%), Canada (8.7%) and Germany (8.3%).

Frequency of gameplay was measured by asking participants How often they had played online video games within the past 12 months. 808 participants reported playing online video games 4 or more times per week (79.5%), 136 reported playing 2 or 3 times per week (13.4%), 36 reported playing once per week (3.5%), 20 reported playing 2 or 3 times per month (2%),7 participants reported playing one per month (0.7%), a further 6 participants reported playing less than once per month (0.6%), and 3 participants reported not playing at all within the past 12 months (0.3%).

4.2.3. Measurements

Participants exposure to toxic behaviour was measured by asking “Over the past 12 months, how often have you been subjected to the following behaviours whilst playing video games”?”. Categories of toxic behaviour were then listed along with an explanation of each category. Exposure was measured via a 7-point Likert scale ranging from “Not at all” to “4 or more times a week”.
The listed categories were:

1. Verbal abuse based on Race
2. Verbal abuse based on gender
3. Verbal abuse based on age
4. Verbal abuse based on religion
5. Verbal abuse based on sexual orientation
6. Verbal abuse based on disability
7. Threats
8. Ill Wishes
9. Unfair disruption of gameplay that impairs the ability to win
10. Unfair disruption of gameplay did does not impair the ability to win
11. Insults and displays of aggression not already covered by previous questions.

Following this, participants were asked to list a game they had most experienced the listed toxic behaviours within. Participants were asked, “Thinking back over the past 12 months, which game have you experienced these kinds of things most commonly in?”.

Player opinion on whether industry is doing enough to counter toxic behaviour was investigated via the question “Do you believe that the video game industry is doing enough to deal with each of the following behaviours?”. The same behaviours as above were listed, and participants responded through multiple choice of Yes/No/I don’t know.

Finally, participants were asked for their opinion on what industry could do to mitigate toxic behaviour. The optional question “Thinking about the games that you play, what is one thing that video game developers and publishers could do to cut down on the impact of toxic behaviour?” was asked using open-text response.

The full survey is available to view in Appendix E.

4.3. Results

4.3.1. Exposure to Toxic Behaviour

Overall, 92% of participants (932) had been exposed to some form of toxic behaviour in the last 12 months. 57% of participants (582) had been exposed to some form of toxic behaviour at least once per week in the last 12 months.

In total, 741 participants provided a game in which they experienced the previously mentioned forms of toxic behaviour. 79 unique series of games were listed, with the commonly mentioned games including: World of Warcraft (103, 13.9%), League of Legends (93, 12.6%), RocketLeague (82, 11.1%), Overwatch (64, 8.6%) and DotA2 (61, 8.2%). The full list of games is available toview in Appendix F.

Where possible, exposure to specific forms of toxic behaviour has been split by the relevant demographics. Due to the lack of diversity in the sample, minority groups were grouped together to report these descriptive statistics.

4.3.1.1. Verbal Abuse Based on Race

During the past 12 months, 9.7% (N=99) of participants received verbal abuse based on race at least once per week, 38.9% (N=388) of participants received verbal abuse based on race at least once, and 61.8% (N=628) of participants did not receive any verbal abuse based on race.

Ethnicity	Proportion of sample experiencing verbal abuse based on race within the last 12 months						
	4+ times per week	2-3 times per week	Once a week	2-3 times a month	Once a month	Less than 10 times total	Not at all
Participants of Colour (N = 184)	7.1%	3.8%	1.6%	8.2%	10.3%	20.7%	47.8%
White Participants (N = 811)	3.1%	2.6%	3.2%	3.9%	5.7%	16.5%	65%
Participants who preferred not to list ethnicity (N = 21)	4.8%	4.8%	4.8%	4.8%	0%	19%	61.9%
Overall Percentage (N = 1016)	3.8%	2.9%	3.1%	2.9%	6.4%	17.3%	61.8%

Table 4-1 Frequency of exposure to verbal abuse based on race

4.3.1.2. Verbal Abuse Based on Gender

During the past 12 months, 6.3% (N=64) of participants received verbal abuse based on gender at least once per week, 21.9% (N=222) of participants received verbal abuse based on gender at least once, and 78.1% (N=794) of participants did not receive any verbal abuse based on gender.

Gender	Proportion of sample experiencing verbal abuse based on gender within the last 12 months						
	4+ times per week	2-3 times per week	Once a week	2-3 times a month	Once a month	Less than 10 times total	Not at all
Male (N = 881)	1.9%	0.7%	1.4%	0.5%	2.2%	8.3%	85.1%
Female & Other (N = 127)	3.9%	6.3%	11.8%	11%	9.4%	26%	31.5%
Prefer not to say (N = 8)	12.5%	0%	0%	0%	25%	12.5%	50%
Overall Percentage (N = 1016)	2.3%	1.4%	2.7%	1.8%	3.2%	10.5%	78.1%

Table 4-2 Frequency of exposure to verbal abuse based on gender

4.3.1.3. Verbal Abuse Based on Age

During the past 12 months, 3.7% (N=38) of participants received verbal abuse based on age at least once per week, 23.3% (N=237) of participants received verbal abuse based on age at least once, and 76.7% (N=779) of participants did not receive any verbal abuse based on age.

Age	Proportion of sample experiencing verbal abuse based on age within the last 12 months						
	4+ times per week	2-3 times per week	Once a week	2-3 times a month	Once a month	Less than 10 times total	Not at all
18-24 (N = 465)	1.5%	0.4%	2.2%	1.5%	4.5%	14.4%	75.5%
25-34 (N = 409)	2.7%	0.2%	0.5%	2.4%	3.2%	13.4%	77.6%
35-44 (N = 98)	0%	0%	3.1%	0%	6.1%	10.2%	80.6%
45+ (N = 44)	2.3%	0%	2.3%	2.3%	4.5%	15.9%	75%
Overall Percentage (N = 1016)	1.9%	0.3%	1.6%	1.8%	4.1%	13.7%	76.7%

Table 4-3 Frequency of exposure to verbal abuse based on age

4.3.1.4. Verbal Abuse Based on Religion

During the past 12 months, 2.7% (N=27) of participants received verbal abuse based on religion at least once per week, 11.2% (N=114) of participants received verbal abuse based on religion at least once, and 88.8% (N=902) of participants did not receive any verbal abuse based on religion.

	Proportion of sample experiencing verbal abuse based on Religion within the last 12 months						
	4+ times per week	2-3 times per week	Once a week	2-3 times a month	Once a month	Less than 10 times in total	Not at all
Overall Percentage (N = 1016)	1.4%	0.4%	0.9%	1.2%	1.9%	5.5%	88.8%

Table 4-4 Frequency of exposure to verbal abuse based on religion

4.3.1.5. Verbal Abuse Based on Sexual Orientation

During the past 12 months, 8.9% (N=90) of participants received verbal abuse based on sexual orientation at least once per week, 32% (N=325) of participants received verbal abuse based on sexual orientation at least once, and 68% (N=691) of participants did not receive any verbal abuse based on sexual orientation.

Sexual Orientation	Proportion of sample experiencing verbal abuse based on Sexual Orientation within the last 12 months						
	4+ times per week	2-3 times per week	Once a week	2-3 times a month	Once a month	Less than 10 times total	Not at all
Heterosexual (N = 814)	3.4%	2.5%	2.5%	4.9%	4.5%	11.2%	71%
Other (N = 161)	4.1%	5.3%	2.3%	9.4%	9.4%	15.2%	53.4%
Prefer not to say (N = 31)	3.2	0%	3.2%	9.7%	3.2%	16.1%	64.5%
Overall Percentage (N = 1016)	3.5%	2.9%	2.5%	5.8%	5.3%	12%	68%

Table 4-5 Frequency of exposure to verbal abuse based on sexual orientation

4.3.1.6. Verbal Abuse Based on Disability

During the past 12 months, 10.9% (N=110) of participants received verbal abuse based on disability at least once per week, 30.2% (N=307) of participants received verbal abuse based on disability at least once, and 69.8% (N=709) of participants did not receive any verbal abuse based on disability.

	Proportion of sample experiencing verbal abuse based on Disability within the last 12 months						
	4+ times per week	2-3 times per week	Once a week	2-3 times a month	Once a month	Less than 10 times in total	Not at all
Overall Percentage (N = 1016)	4.2%	3.6%	3%	4.5%	5.7%	9.2%	69.8%

Table 4-6 Frequency of exposure to verbal abuse based on disability

4.3.1.7. Threats

During the past 12 months, 11.2% (N=114) of participants received threats of harm at least once per week, 47.9% (N=487) of participants received threats of harm at least once, and 52.1% (N=529) of participants did not receive any threats of harm.

Name of Toxic Behaviour	Proportion of sample experiencing this behaviour within the last 12 months						
	4+ times per week	2-3 times per week	Once a week	2-3 times a month	Once a month	Less than 10 times in total	Not at all
Threats (N = 1016)	3.4%	3.3%	4.4%	5.4%	8%	23.3%	52.1%

Table 4-7 Frequency of exposure to threats

4.3.1.8. Ill Wishes

During the past 12 months, 21% (N=213) of participants received wishes of harm at least once per week, 70% (N=711) of participants received wishes of harm at least once, and 30% (N=305) of participants did not receive any wishes of harm.

Name of Toxic Behaviour	Proportion of sample experiencing this behaviour within the last 12 months						
	4+ times per week	2-3 times per week	Once a week	2-3 times a month	Once a month	Less than 10 times in total	Not at all
Ill Wishes (N = 1016)	7.7%	6.2%	7.1%	9.5%	12.4%	27.1%	30%

Table 4-8 Frequency of exposure to ill wishes

4.3.1.9. Unfair Disruption of Gameplay that Impairs the Ability to Win

During the past 12 months, 32.9% (N=334) of participants experienced unfair disruption of gameplay that impacted their ability to win at least once per week, 78% (N=792) of participants experienced unfair disruption of gameplay that impacted their ability to win at least once, and 22% (N=224) of participants did not experience any unfair disruption of gameplay that impacted their ability to win.

Name of Toxic Behaviour	Proportion of sample experiencing this behaviour within the last 12 months						
	4+ times per week	2-3 times per week	Once a week	2-3 times a month	Once a month	Less than 10 times in total	Not at all
Unfair disruption of gameplay that impair the ability to win (N = 1016)	12.2%	9.5%	11.1%	12.6%	12.3%	20.2%	22%

Table 4-9 Frequency of exposure to game play disruption impacting the ability to win

4.3.1.10. Unfair Disruption of Gameplay that Does Not Impair the Ability to Win

During the past 12 months, 37.4% (N=380) of participants experienced unfair disruption of gameplay that did not impact their ability to win at least once per week, 77.9% (N=791) of participants experienced unfair disruption of gameplay that did not impact their ability to win at least once, and

22.1% (N=225) of participants did not experience any unfair disruption of gameplay that did not impact their ability to win.

Name of Toxic Behaviour	Proportion of sample experiencing this behaviour within the last 12 months						
	4+ times per week	2-3 times per week	Once a week	2-3 times a month	Once a month	Less than 10 times in total	Not at all
Unfair disruption of gameplay that does not impair the ability to win (N = 1016)	17.5%	9.7%	10.1%	10.8%	9.4%	20.3%	22.1%

Table 4-10 Frequency of exposure to game play disruption that does not impact the ability to win

4.3.1.11. Other Insults and Displays of Aggression

During the past 12 months, 46.5% (N=472) of participants received other insults and displays of aggression at least once per week, 84.5% (N=859) of participants received other insults and displays of aggression at least once, and 15.5% (N=157) of participants did not receive any other insults and displays of aggression.

Name of Toxic Behaviour	Proportion of sample experiencing this behaviour within the last 12 months						
	4+ times per week	2-3 times per week	Once a week	2-3 times a month	Once a month	Less than 10 times in total	Not at all
Other Insults and Displays of Aggression (N = 1016)	23.2%	12.3%	10.9%	10.6%	11.9%	15.6%	15.5%

Table 4-11 Frequency of exposure to other insults and displays of aggression

4.3.2. Player Opinion on Whether the Video Game Industry is Doing Enough to Combat Toxic Behaviour

Overall, 74.2% of participants reported, for at least one category, they believe industry is not doing enough to combat toxic behaviour. The breakdown of participant responses by category is shown below.

4.3.2.1. Verbal Abuse Based on Race

37% (N=376) of participants believe that the video game industry is doing enough to deal with verbal abuse based on race, 43.8% (N=445) of participants believe that the video game industry is not doing enough to deal with verbal abuse based on race. 19.2% (N=195) do not know or prefer not to say.

Ethnicity	Participant belief on whether enough is being done to combat verbal abuse based on race		
	Yes, it is doing enough.	No, it is not doing enough	I don't know/Prefer not to say
Participants of Colour (N = 184)	31.5%	48.9%	19.6%
White Participants (N = 811)	38%	43.2%	18.9%
Prefer not to Say (N = 21)	47.6%	23.8%	28.6%
Overall Percentage (N = 1016)	37%	43.8%	19.2%

Table 4-12 Beliefs on whether industry is doing enough to combat verbal abuse based on race.

4.3.2.2. Verbal Abuse Based on Gender

31.7% (N=322) of participants believe that the video game industry is doing enough to deal with verbal abuse based on gender, 48.8% (N=496) of participants believe that the video game industry is not doing enough to deal with verbal abuse based on gender. 19.5% (N=198) do not know or prefer not to say.

Gender	Participant belief on whether enough is being done to combat verbal abuse based on Gender		
	Yes, it is doing enough.	No, it is not doing enough	I don't know/Prefer not to say
Male (N = 881)	33.7%	46%	20.3%
Female & Other (N = 127)	18.9%	67.7%	13.4%
Prefer not to Say (N = 8)	12.5%	62.5%	25%
Overall Percentage (N = 1016)	31.7%	48.8%	19.5%

Table 4-13 Beliefs on whether industry is doing enough to combat verbal abuse based on Gender.

4.3.2.3. Verbal Abuse Based on Age

39% (N=396) of participants believe that the video game industry is doing enough to deal with verbal abuse based on age, 31.1% (N=316) of participants believe that the video game industry is not doing enough to deal with verbal abuse based on age. 29.9% (N=304) do not know or prefer not to say.

Age	Participant belief on whether enough is being done to combat verbal abuse based on Age		
	Yes, it is doing enough.	No, it is not doing enough	I don't know/Prefer not to say
18-24 (N = 465)	46.7%	27.3%	26%
25-34 (N = 409)	34.2%	32%	33.7%
35-44 (N = 98)	29.6%	38.8%	31.6%

45+ (N = 44)	22.7%	45.5%	31.8%
Overall Percentage (N = 1016)	39%	31.1%	29.9%

Table 4-14 Beliefs on whether industry is doing enough to combat verbal abuse based on Age.

4.3.2.4. Verbal Abuse Based on Religion

34% (N=345) of participants believe that the video game industry is doing enough to deal with verbal abuse based on religion, 37.8% (N=384) of participants believe that the video game industry is not

doing enough to deal with verbal abuse based on religion. 28.2% (N=287) do not know or prefer not to say.

4.3.2.5. Verbal Abuse Based on Sexual Orientation

32% (N=325) of participants believe that the video game industry is doing enough to deal with verbal abuse based on sexual orientation, 47.7% (N=485) of participants believe that the video game industry are not doing enough to deal with verbal abuse based on sexual orientation. 20.3% (N=206) do not know or prefer not to say.

Sexual Orientation	Participant belief on whether enough is being done to combat verbal abuse based on Sexual Orientation		
	Yes, it is doing enough.	No, it is not doing enough	I don't know/Prefer not to say
Heterosexual (N = 814)	34.4%	44.3%	21.3%
Other (N = 161)	22.2%	59.1%	28.7%
Prefer not to Say (N = 31)	22.6%	41.9%	35.5%
Overall Percentage (N = 1016)	32%	47.7%	20.3%

Table 4-15 Beliefs on whether industry is doing enough to combat verbal abuse based on Sexual Orientation.

4.3.2.6. Verbal Abuse Based on Disability

31.3% (N=318) of participants believe that the video game industry is doing enough to deal with verbal abuse based on disability, 43.9% (N=446) of participants believe that the video game industry is not doing enough to deal with verbal abuse based on disability. 24.8% (N=252) do not know or prefer not to say.

4.3.2.7. Threats

30.7% (N=312) of participants believe that the video game industry is doing enough to deal with threats of harm, 51.2% (N=520) of participants believe that the video game industry is not doing enough to deal with threats of harm. 18.1% (N=184) do not know or prefer not to say.

4.3.2.8. Ill Wishes

32.4% (N=329) of participants believe that the video game industry is doing enough to deal with wishes of harm, 49.7% (N=505) of participants believe that the video game industry is not doing enough to deal with wishes of harm. 17.9% (N=182) do not know or prefer not to say.

4.3.2.9. Unfair Disruption of Gameplay that Impairs the Ability to Win

30.6% (N=311) of participants believe that the video game industry is doing enough to deal with unfair disruption of gameplay that impairs the ability to win, 53.6% (N=545) of participants believe that the video game industry is not doing enough to deal with unfair disruption of gameplay that impairs the ability to win. 15.7% (N=160) do not know or prefer not to say.

4.3.2.10 Unfair Disruption of Gameplay that Does Not Impair the Ability to Win

38.4% (N=390) of participants believe that the video game industry is doing enough to deal with unfair disruption of gameplay that does not impair the ability to win, 44.6% (N=453) of participants believe that the video game industry is not doing enough to deal with unfair disruption of gameplay that does not impair the ability to win. 17% (N=173) do not know or prefer not to say.

4.3.2.11. Other Insults and Displays of Aggression

35.9% (N=365) of participants believe that the video game industry is doing enough to deal with other insults and displays of aggression, 46.6% (N=473) of participants believe that the video game industry is not doing enough to deal with other insults and displays of aggression. 17.5% (N=178) do not know or prefer not to say.

4.3.3. Crowdsourcing of Methods to Mitigate Toxic Behaviour

545 participants provided their thoughts about what video game developers and publishers could do to cut down on the impact of toxic behaviour. Qualitative analysis was performed as in the first study, following the conventional method as discussed in [114] to allow codes to be induced emergently from the data. Each response was read through to ascertain if the response contained one, or more, suggestions. Each separate suggestion was split into an individual utterance. For example, the response: "keyword filter for slurs and abuse in chat, punishment for abusive actions" was split into the two utterances "keyword filter for slurs and abuse in chat" and "punishment for abusive actions". A total of 618 utterances were identified.

The data was read through iteratively, following 3 full pass-throughs an initial 12 codes emerged. Following reading through the dataset a further 2 times, these codes were condensed into 9 categories. One final pass through was conducted to ensure each utterance was assigned to a category for a total of 6 full pass-throughs of the data.

To test the reliability of the coding scheme, inter-coder reliability was tested by having the data independently coded based on the provided coding scheme. A codebook was used to describethe different categories. The codebook is available to view in Appendix G.
Due to the large amount of data 20% of the total responses (109) were selected and analyzed by a second coder. The degree of agreement between coders was measured at Cohen's k = 0.865, indicating excellent agreement. The prevalence of each code within the sample is given below in Table 4-16. A description of each category will also be provided below.

Suggestions for methods to reduce toxicity	Number	Percentage
Improved Report and Punishment System	206	33.3%
Nothing can or Should be Done	81	13.1%
Promoting a Friendly Environment	62	10%
Increased Moderation	58	9.4%
Self-Policing	52	8.4%
Game Design	49	7.9%
Better Detection of Toxic Behaviour	39	6.3%
Clear Communication	26	4.2%
Less Anonymity	16	2.6%

Table 4-16 Crowdsourced solutions to toxic behaviour in games

4.3.3.1. Improved Report and Punishment Systems

33.3% of participants (N = 206) suggested toxic behaviour could be limited through improving the systems used to handle reports and punishments. Participants commonly suggested systems should be actedon more quickly, and reports should be taken seriously. Participants also suggested harsher punishments should be used including IP bans to stop users making new accounts to avoid bans, and records of past violations be kept to decide on an appropriate punishment for future violations. Some participants suggested the report system should be easier to use, with a better user-interface and more options for reporting.

"Improve user report systems or prevent toxic behaviour entirely, for example by putting in

disadvantages for players that are frequently toxic."

“Banning them hardly and not allowing them to play anymore, not even with new accounts. But there is nothing you can do to change people, as when we play online de just act as we really are because the other person cant do nothing to stop us, for the better in some cases and for the worse on others”

“I would suggest penalties for engaging in this type of behavior. This has previously been in the form of being suspended from playing or matchmaking but I feel it should be a strike system and then you are banned from the game.”

4.3.3.2. Promoting a Friendly Environment

10% of participants (N = 62) suggested in-game toxicity could be reduced through promoting a friendly environment. These participants made suggestions to reward good behaviour in players, sometimesthrough behaviour score systems. Others suggested taking toxic players out of the normal playing pool, keeping them away from standard players. Some participants suggested toxicity could be reduced if games companies stop promoting pro, or notable, players who show these toxic behaviours.

“Not promote 'content creators' who consistently exhibit rule-boundary behaviour (not the absolute worst, but easily misinterpretable by viewers as being equivalent to other less acceptable behaviours). Also, in some cases, not promoting content creators who consistently 'joke' about rule-breaking behaviour. Again, it's easily misinterpretable.”

“Player ratings rated by fellow gamers. Toxic players labelled as such and matchmaking accordingly.”

“Maybe they could even reward those who are being nicer than normal, to encourage friendly behavior. Imagine a reverse report button, where you basically report them for being nice people. Enough of those nice points and the devs could reward the player for being a good memeber of the community.”

4.3.3.4. Increased Moderation

9.4% of participants (N = 58) suggested in-game toxicity could be reduced through increased moderation of games and reports. Participants made suggestions of having more human moderation of in-game chats and voice chats, as well as having human review of some reports. Other participants suggestedmore community-ran moderation. This included tribunal systems for crowd-sourced decisions from players as to whether a reported player has been toxic, and private servers ran by the community who can provide their own moderation.

“I guess, LoLs Tribune system was good. Something for players to be able to moderate each other. It's not realistic to have thousands of GMs to review player conduct/behaviour.”

“Most companies that create games with in-game chat earn enough money to employ more people to moderate that chat. This should be part of increased regulation on video game companies in countries worldwide.”

“Allow private servers/sessions so people can play with just people they trust.”

4.3.3.5. Self-Policing

8.4% of participants (N = 52) suggested in-game toxicity could be reduced by giving players the ability to self- police. Participants suggested games should incorporate the options for players to be able to mute, avoid, and block other players, or that players should have their own option to opt-out of chat or use

filters. Other players suggested that parental controls should be incorporated in games allowing parents to utilize the above suggestions on their children's accounts.

> *"I think that the option to mute or block other players is sufficient to cut down toxic behaviour."*
>
> *"Allow players to optionally turn off chat"*
>
> *"I think games should have parental controls. I really hate autoban systems. I honestly think most companies are trying far too hard to squelch chat. There's a voice and chat mute button in most games if someone is annoying you, you can manually mute people. Videogames don't need policing."*

4.3.3.6. Game Design

7.9% of participants (N = 49) suggested in-game toxicity could be reduced through the design of the game. Participants suggested in-game features should be designed to be less exploitable, such as participants suggesting spawn-invincibility to combat spawn camping, the removal, or limiting, of some features such as making voice-chat less necessary and having more features in place to limit the disadvantage that arises when teammates work against the team. Other participants suggestedremoval of the ability to use add-ons.

> *"Build mechanics around teamwork and leave less room for accidental or intentional sabotage. It cannot work for all games but for some it can be an huge improvement, especially in older still active games"*
>
> *"Make games more inclusive (e.g. more diverse casts of characters, both playable and non playable)."*
>
> ***"****invent less ways to be toxic / abusing autoban systems is becomming more and more part and parcel of gaming and while i agree that certain behaivior is toxic and lessens the fun nothing is less fun than getting reported and autobanned before the match even started so the reporting team gets rewarded with ez wins"*

4.3.3.7. Clear Communication

4.2% of participants (N = 26) suggested in-game toxicity could be reduced through games companies communicating clearly with their players. Participants suggest rules and punishments should be communicated clearly with players, and that industry should communicate with the player-base todiscover what problems exist within the game and provide clear links to help resources for playersaffected by in-game toxicity. Other respondents suggested that it should be made clearer when action is taken after a report is submitted, for example, through naming and shaming.

> *"More transparency regarding things they have done, including publishing the names of players that have punished and what they were punished for."*
>
> *"Communicate with the community and collect responses from those with valid, well-written pieces of opinions since they can more effectively point out to what exactly is their issues with toxic behaviour/toxic individuals in-game."*
>
> *"Provide links to counselling/bullying help services in your country when the game loads for example "*

4.3.3.8. Less Anonymity

2.6% of participants (N = 16) suggested in-game toxicity could be reduced through reducing anonymity in- game. Participants suggest some form of ID should be required to play online video games, or thataccounts should be linked to some form of personally identifiable information.

> *"Require some form of identification before you sign up, similar to how a LoL account in Korea has to be linked to their social security number. That way people would think twice about giving death threats casually."*
>
> *"Toxic behavior ultimately stems from anonymity. If players had their face and name associated with their actions in-game, I strongly suspect toxic behavior would be eliminated."*
>
> *"linking real person to online gaming to minimize anominimity"*

4.3.3.9. Nothing Can or Should be Done

13.1% of participants (N = 81) suggest that nothing should be done to reduce in-game toxicity, or nothing canbe done to reduce it. Participants suggest that toxic behaviour in games is not the problem of
industry, sometimes providing suggestions of who is responsible, for example, "parents". A selection of participants suggest toxicity is part of the game, or fun, and so should not be removed. Other participants suggest nothing can be done, due to it being too hard or complicated.

> *"They should ignore the small minorities of vocal players and just make the games fun without needing to cater to every1"*
>
> *"Toxic behavior is not a game developer problem, people are raised poorly and there is no repercussions when acting out any more, my kids play tons of online games and when they act toxic they get Game time outs and we talk about why people act like that online, and why they should not be that person. Developers should focus on games and parents should focus on raising better people and young people should focus on being better people all together."*
>
> *"I do not think they can do anything at all. They can't change their players."*

4.4. Discussion

The frequency of exposure to toxic found in this study shows a starker picture than painted in other studies looking at players exposure to toxic behaviour. In [104], the Anti-Defamation League reported 74% of online multiplayer gamers have experienced some form of harassment in online multiplayer games, similarly, Ditch the Label [107] reported 57% of their sample has been bullied in an online game. Despite this, this study found 93% of the participants had experienced some form oftoxic behaviour in-game during the last year. Some factors may explain this difference in exposure found between the studies. As discussed in the literature review, neither study mentioned gave an explanation as to how they decided upon their measures. With these measures being self- defined it was unclear how accurately they depicted toxic behaviour that occurs in game; however, this study based the questions from a previous qualitative analysis of player experience which should therefore more accurately represent player experience. However, it is notable that participants taking part in this second study of the thesis were overwhelmingly white (79.8%), male (86.7%) and heterosexual (80.1%) and therefore is not the most representative but still showed a high frequency of exposure to toxic behaviour.
Potentially with a more diverse, representative sample, exposure to toxic behaviour would be even more frequent than reported here.

Considering specific forms of toxic behaviour in games, [104] reported 44% of online multiplayer

gamers experiencing physical threats. Similarly, this study found 47.9% of participants experiencing

threats in-game during the last 12 months. This statistic may match more closely than overall experience due to the specific nature of the question, directly referencing a quantifiable behaviour that players experience in games.

Player opinion of whether industry is doing enough to combat toxic behaviour was also investigated. Overall, participants suggested industry is not doing enough, with 74.2% of the sample reporting this for at least one form of toxic behaviour. Games companies themselves tend to be working towards limiting toxicity in some way. For example, League of Legends discussed plans for a behavioral system update in July of this year [118] focusing on behaviors that directly impact the game's outcome. Despite companies seemingly working towards less toxic gaming environments, it would appear they still have ways to go from the players perspective.

Finally, this study crowd-sourced and analyzed suggestions on how industry could reduce toxicity within their games. The most common suggestions revolved around improved systems to manage reports and punishments of players, suggesting whilst most games do have these features, they may not fully account for all toxic behaviour that exists, or set appropriate punishments for behaviours. Notably, respondents suggested more moderation of games would be a helpful step, including crowd-sourced decisions on whether a reported player is guilty or not. As discussed in the literature review, this idea of a player-based tribunal was implemented by League of Legends but later removed, an Ask Riot post [119] shared two drawbacks of the system, inefficiency and an inaccurate (sometimes biased) system due to rewards. For this reason, if a crowd-sourced decision system was to be implemented as suggested, it would need to learn from the issues that arose in the system used by League of Legends to implement a more efficient and balanced system. Despite this, reasonable suggestions that could be acted upon were made by participants that could be used by industry to potentially reduce toxicity, such as improving the user interface for reporting other players, having more options open to players to reduce their own contact written or verbal toxicity, and highlighted an importance for clear communication between players and industry in order to actively work on issues that matter to players.

5. Conclusion

5.1. Introduction

In this thesis, toxic behaviour in games was investigated with four key aims.

1. Investigate what behaviours constitute toxic behaviour in games.
2. Investigate how often toxic behaviour is experienced in-game.
3. Investigate player beliefs as to whether industry is doing enough to combat toxic behaviour,
4. Collect player suggestions on how industry could reduce toxic behaviour.

Therefore, two cross-sectional studies were conducted with 1725 and 1016 participants respectively. Across the two studies, participants answered a variety of questions such as their most recent experience of toxicity in-game; how often they experience different forms of toxic behaviour; whether they believe industry is doing enough to combat toxic behaviour; and their suggestions as to how toxic behaviour could be reduced in games. The outcomes of these studies provide evidence of the following:

Toxic behavior in games can be reliably split into four categories, with these high-level categories split further into nine subcategories:
Discriminatory Language: Racism; Sexism; Homophobia; Ableism; and Discrimination based on Religious Belief.
Evoking Serious Harm: Threats; and Ill Wishes.
Unfair Disruption of Gameplay: Disruption that impairs the ability to win; and Disruption that does not impair the ability to win.
Insults and Displays of Aggression.
This hierarchical structure of behaviours emerged through qualitative content analysis which underwent reliability testing. This provides conceptual clarity over the literature which currently consists of researchers using fragmentary or self-defined descriptions of toxic behaviour.

Within the sample, exposure to toxic behaviour in-game appeared to be a common experience. In total, 92% of participants had experienced some form of toxic behaviour within the last 12 months. In addition to this, 57% of participants had experienced some form of toxic behaviour at least once per week within the last 12 months.

Overall, 74.2% of the sample felt that industry was not doing enough to address at least one form of toxic behaviour. Additionally, for all but one form of toxic behaviour a higher percentage of the sample believed industry was not doing enough, compared to those that believed industry is doing enough. For example, 51.2% of the sample reported they believed that industry is not doing enough to combat threats of harm occurring within online games.

Participants suggested a variety of methods for reducing in-game toxic behaviour. Some of these suggestions have been previously studied within the literature. For example, players suggested **better detection of toxic behaviour** may be one such method, and existing studies have proposed and explored the use of machine learning to detect toxic behaviour. However, other suggestions are novel. For example, players suggested games companies should **promote a friendly environment**, which includes games not promoting notable players who are exhibiting these behaviours in front of an audience. Notably, some players suggested they believe **nothing can or should be done**. This ranged from players who enjoy the toxicity to those who feel nothing can be done to reduce the occurrence of these behaviours.

This chapter first provides a summary of the research conducted in this thesis. Following this the contributions to the literature will be discussed. Next, limitations of the two studies will be described. Finally, further work which is necessary within this domain will be discussed.

5.2. Summary of Research

During the first study, research was conducted to investigate what behaviours constitute toxic behaviour. Qualitative analysis of players experiences of toxic behaviour in game was performed on data collected through an online survey. A hierarchical structure of behaviours was identified; **Discriminatory Language**, split into Racism, Homophobia, Sexism, Disability related slurs, and slurs based on religious belief, **Evoking Serious Harm**, split into Threats and Ill Wishes, **Unfair Disruption of Gameplay**, split into Disruption that impairs the ability to win, and Disruption that does not impair the ability to win, and **Insults and Displays of Aggression**.

However, whilst the results of this study suggested the forms of toxic behaviour that players are exposed to within games, it was not clear how often players experience these different behaviours and, indeed, how often in-game toxic behaviour is experienced in general. Similarly, player perception as to whether enough is already being done by games companies to combat toxic behaviour, and what players themselves believe could be done to mitigate this, was also unclear. Therefore, for the second study three key aims were investigated.

1. How frequently are players exposed to different forms of toxic behaviour.
2. Do players believe industry is doing enough to combat toxic behaviour.
3. What suggestions do players have to mitigate toxic behaviour.

It was found that the overwhelming majority of the sample, 92%, had experienced toxic behaviour in the last 12 months, with over half the sample, 57%, experiencing this at least once per week.
In all but one case more participants believed Industry is not doing enough to deal with toxic behaviour, than participants who believe industry is doing enough to deal with toxic behavior.
Suggestions for what participants believe Industry could do to reduce toxic behaviour were also analyzed. Here, nine categories emerged; **Improved Report and Punishment Systems**, **Better Detection of Toxic Behaviour**, **Promoting a Friendly Environment**, **Increased Moderation**, **Self-Policing**, **Game Design**, **Clear Communication**, **Less Anonymity**, and **Nothing can or should be done**.

5.3. Contributions

5.3.1. Toxic Behaviour may be More Diverse and Complex than the Literature Currently Describes it as Being

During this research several forms of toxic behaviour emerged that are not currently discussed in the literature. For example, no identified literature discusses players being exposed to some specific forms of **Discriminatory Language** such as **Ableism.** This is despite other studies investigation hate speech within video games. Similarly, the subcategory **Ill Wishes** falling into the category of **Evoking Serious Harm** is not described within current literature.

Other identified forms of toxic behaviour do exist in the literature but may be submerged together under the same construct. Past research into toxic behaviour suggested behaviour such as harassment involving slurs, spam, stalking and threatening in Foo, C., and Koivisto, E. [96].
[96] taxonomised grief play as harassment (Slurs, chat spam, offensive emotes, stalking, eavesdropping, threatening), power imposition (Newbie killing, respawn killing), scamming, and greed play (Ninja looting, kill stealing, camping). Similar behaviours were identified within this thesis. These behaviours being: Slurs, categorized into different subcategories of Discriminatory Language;

Spam, being categorized as Unfair Disruption of Gameplay; Finally, Stalking and Threatening being categorized as Threats. However, no mention of scamming was found within the first study of this thesis which differs from the taxonomy provided by [96].

Similarly, racist trash talk was discussed in [102]. Within the categorization system created in this thesis, this would now fall under the subcategory **Racism** under **Discriminatory Language**.

Within this thesis an initial categorization scheme for discussing toxic behaviour in online video games has been created based on the experiences of players themselves.

Prior to this research, studies focused on toxic behaviours as decided by the researchers. Examples of this include the Anti-Defamation League [104] and Ditch the Label [107] which both ran surveys but provided no explanation as to how they decided which behaviours to investigate. This suggests a potential lack of consideration of the experience of players, and so may have missed certain facets of toxicity in-games and not accurately reflected the perspective of players.

Some previous research such as [96] did indeed investigate player perception of what is considered antisocial behaviour in games; however, the study contained a relatively small sample size of 22. The research presented for this thesis investigated toxic behaviour with a relatively large, albeit not the most generalisable, sample (this will be further discussed within section 5.4. Limitations).

5.3.2. Within the research conducted for this thesis, participants were sampled across multiple online games and categories emerged directly from their experiences. For this reason, the categorization scheme proposed here may be a useful addition to the literature describing toxic behaviour in online games. Toxic Behaviour Appeared Frequent, and Gamers may Widely Perceive Industryas Not Doing Enough to Prevent it

In total, 92% of the sample reported experiencing toxic behaviour within the past 12 months, and 57% reported experiencing toxic behaviour at least once per week within the past 12 months. This suggests toxic behaviour in games may be more common than current literature suggests. For example, [104] reported 74% of their sample had experienced some form of harassment in online multiplayer games, and [107] reported 57% of their sample had experienced bullying in an online game. This may be the case due to the definitional reasons outlined above (See section 5.3.1.). 74.2% of the sample reported they do not believe the games industry is doing enough to combat at least one form of toxic behaviour, and for all but one form of toxic behaviour, a greater number of participants felt industry is not doing enough to combat the toxic behaviour than those who felt industry is doing enough.

This paints a picture of a stark reality in games, toxic behaviour may be a common experience for players during gameplay, and in general players may not believe industry is doing enough to combat these negative behaviours. However, caution should be used when interpreting these results. Participants for the study were recruited via Reddit, and Reddit users may not represent the general population. Similarly, the sample lacked diversity being mostly populated by those who are white, male, and heterosexual. This limitation will be further described in Section 5.4.

5.3.3. Gamers Provided Nine Distinct Suggestions for the Mitigation of Toxic Behaviour

Analysis of player suggestions for methods to mitigate toxic behaviour revealed nine distinct suggestions; **Improved Report and Punishment System**; **Better Detection of Toxic Behaviour**; **Promoting a Friendly Environment**; **Increased Moderation**; **Self-Policing**; **Game Design**; **Clear Communication**; **Less Anonymity**; and **Nothing can or Should be Done**. In some cases, this matched current literature such as [106] proposing the use of empathic agents for better detection of toxic behaviour during competitive team-based games. Similarly, [105] investigated a potential

improvement of punishment systems via the use of machine learning to predict crowd-sourced decisions of League of Legends since removed tribunal system.

However, other suggestions are not well-represented within the current literature. For example, players suggested clear communication between the player-base and game company may aid in mitigating toxic behaviour. Indeed, this included the suggestion of games companies reaching out to players to discover what toxic behaviours occur in games to combat the behaviours that players themselves are exposed to. Conversely, not all players suggested action should be taken.
Some players suggested nothing should be done to mitigate toxic behaviours due it being fun or part

of the game, whilst others similarly reported nothing can be done to reduce toxic behaviours via the actions of games companies.

5.4. Limitations

The research presented within this thesis contains several limitations. These are described below.

Both studies used a limited sampling frame. Participants for both studies were recruited via Reddit. Reddit was used to recruit participants from a wide variety of games, with participants being recruited from a total of 28 subreddits in the first study, and 21 subreddits in the second study. As intended, this provided a sample of avid gamers, with most participants across both samples (Study 1: 96.7%; Study 2: 96.4%) playing online video games at least once per week with thepast 12 months. However, whilst providing easy access avid gamers from a large variety of gaming communities, sampling via Reddit provides a specific subset of gamers. This subset of gamers may not accurately reflect gamers overall, and therefore may not be generalizable to the general population potentially causing the data to be skewed. For example, across both studies the sample was overwhelmingly white, male, and heterosexual.

Following on from the previous limitation, considering real life antisocial behaviour minority groups often face more discrimination than the general population as previously discussed in Section 2.2.1.3. This may also be the case in the domain of online video games. However, by having a sample overwhelmingly populated by those who are white, male, and heterosexual, it is still unclear whether these underrepresented groups are exposed to more toxicity in-game. Similarly, the experiences of these minority groups may not be accurately captured within this research.

It is also important to note that focusing on online games overall may miss some finite details of toxicity that may occur in specific games, genres or even within specific gaming communities themselves. By focusing on the overall picture, some forms of toxic behaviour could go unnoticed. Indeed, what is considered to be toxic could differ between games with what may be considered normal in one game being considered taboo in another.

Whilst results suggest toxic behaviour may be a common experience within online video games, no work is done here to discover direct evidence of casual effects. As discussed in Section 2.2., antisocial behaviour in other domains has known negative effects on those who are subjected to these behaviours. Therefore, it is crucial to investigate causality in future to discover whether exposure to in-game toxic behaviour also has negative consequences.

This research focused on the experience of players aged 18 or older. However, gaming is not limited to adults, with children and adolescents also making up a proportion of the gaming population. Whether the experience of adults in-game matches that of children and adolescents is therefore unclear.

5.5 Further Work

The work conducted for this thesis also opens the path for further work. These important areas for future research are as follows.

As described in section 5.4., the sample for both studies lacked diversity. Therefore, further work investigating frequency of exposure to the different forms of toxic behaviour could be conducted using a larger, more diverse sample. Indeed, a well-funded survey could focus specifically on underrepresented groups to discover who experiences different kinds of in-game toxicity, and whether certain groups experience more toxicity than others.

Research conducted within this thesis focused on the experiences of players aged 18+. However, gaming is not a pastime limited to this group. For this reason, work needs to be conducted to discover whether children and adolescents under the age of 18 also face the same forms of in-gametoxicity as adults, and how often this group experiences these behaviours during play.Similarly, no single genre of game was investigated here and instead the focus was on online gaming as a whole. This may cause certain details to be missed and not provide a view as to which behaviours occur in what genre of games. Indeed, what is considered to be antisocial behaviour may differ from genre to genre and further work would be required to determine what toxic behaviours are universal across games but also how toxic behaviour differs between games.

Whilst different forms of toxic behaviour have now been identified, no work was conducted to discover the effects of exposure to this. Through the knowledge of these distinct forms of toxicity, research can be conducted to investigate the effects exposure may have.

Whilst this may provide ethical issues, due to deliberately exposing participants to negative situations, potential effects of exposure to toxicity could be investigated. For example, participants could be observed during their normal gameplay within a controlled environment, using what occurs naturally within the game to investigate effects of exposure to that kind of negative behaviour. This could also be repeated across different situations to see, for example, whether experiencing this behaviour in a competitive game has the same outcomes as experiencing this in a cooperative game.

Additionally, more practical research could be conducted into the implementation of some suggestions from players into ways industry could reduce toxic behaviour in their games. This could involve designing new solutions for chat filters or testing the effectiveness of personalized chat options for players. Similarly, work could be conducted to improve on report and punishment systems in-game. This may involve collecting more information from players on specific ways they believe these systems could be improved, as well as information from games companies themselves on what methods are currently implemented to handle player report and punishment.

Appendices

A. Study 1: Subreddits in which the survey was posted to and subreddits which were contacted but did not allow the survey to be posted.

Subreddits that allowed the post	
Name	URL
Origin	https://www.reddit.com/r/origin/
Steam	https://www.reddit.com/r/Steam
DotA2	https://www.reddit.com/r/DotA2
Monster Hunter World	https://www.reddit.com/r/MonsterHunterWorld/
Rainbow 6 Siege	https://www.reddit.com/r/Rainbow6/
Rust	https://www.reddit.com/r/playrust/
Football Manger	https://www.reddit.com/r/footballmanagergames/
Battlefield V	https://www.reddit.com/r/BattlefieldV/
Madden	https://www.reddit.com/r/Madden/
Overwatch	https://www.reddit.com/r/Overwatch/
World of Warcraft	https://www.reddit.com/r/wow/
Starcraft 2	https://www.reddit.com/r/starcraft2/
Super Smash Bros Ultimate	https://www.reddit.com/r/SmashBrosUltimate/
Pokemon SW/SH	https://www.reddit.com/r/PokemonSwordAndShield/
NBA2K	https://www.reddit.com/r/NBA2k/
Rocket League	https://www.reddit.com/r/RocketLeague/
Forza Horizon	https://www.reddit.com/r/ForzaHorizon/
Anno	https://www.reddit.com/r/anno/
Raid Shadow Legends	https://www.reddit.com/r/RaidShadowLegends/
Pokemon GO	https://www.reddit.com/r/pokemongo/
Clash of Clans	https://www.reddit.com/r/ClashOfClans/
Super Kirby Clash	https://www.reddit.com/r/SuperKirbyClash/
Tetris 99	https://www.reddit.com/r/Tetris99/
Mechwarrior 5	https://www.reddit.com/r/Mechwarrior5/
World War Z the Game	https://www.reddit.com/r/worldwarzthegame/
Cycle	https://www.reddit.com/r/thecyclegame/
Candy Crush	https://www.reddit.com/r/candycrush/
Words With Friends	https://www.reddit.com/r/WordsWithFriends/

Contacted Subreddits that id not allow the post	
Name	URL
Blizzard	https://www.reddit.com/r/Blizzard/
PS4	https://www.reddit.com/r/PS4/
Nintendo Switch	https://www.reddit.com/r/NintendoSwitch/
CS:GO	https://www.reddit.com/r/csgo/
PUBG	https://www.reddit.com/r/PUBG/
GTA V	https://www.reddit.com/r/GTAV/
Destiny 2	https://www.reddit.com/r/destiny2/
Team Fortress 2	https://www.reddit.com/r/tf2/
Anthem	https://www.reddit.com/r/AnthemTheGame/
Dead Space	https://www.reddit.com/r/DeadSpace/
Star Wars Battlefront	https://www.reddit.com/r/StarWarsBattlefront/
Hearthstone	https://www.reddit.com/r/hearthstone/
Diablo 2	https://www.reddit.com/r/diablo2/
Diablo 3	https://www.reddit.com/r/diablo3/
Starcraft	https://www.reddit.com/r/starcraft/
Modern Warfare	https://www.reddit.com/r/modernwarfare/
Black Ops 4	https://www.reddit.com/r/Blackops4/
Minecraft	https://www.reddit.com/r/Minecraft/
Apex Legends	https://www.reddit.com/r/apexlegends/
Titanfall	https://www.reddit.com/r/titanfall/
Satisfactory	https://www.reddit.com/r/SatisfactoryGame/
Enter the Gungeon	https://www.reddit.com/r/EnterTheGungeon/
Roblox	https://www.reddit.com/r/roblox/
CoD Mobile	https://www.reddit.com/r/CallOfDutyMobile/
League of Legends	https://www.reddit.com/r/leagueoflegends/
A Way Out	https://www.reddit.com/r/AWayOut/
Luigis Mansion 3	https://www.reddit.com/r/LuigisMansion3/
Dream League Soccer	https://www.reddit.com/r/DreamLeagueSoccer/
Uno	https://www.reddit.com/r/unocardgame/
8 Ball Pool	https://www.reddit.com/r/8BallPool/
Slither io	https://www.reddit.com/r/Slitherio/

B. Study 1 full survey

Experiences of Toxic/Prosocial Behaviour

Start of Block: Informed Consent

Informed Consent Sheet

This study is being conducted by a Research Student from the University of York.

This survey is about the kinds of behaviour people engage in in online v… this research to understand more about the various interactions people … video games.

Jo
2022-01-31 15:44:44

Explain in each study why you did not make it clear at the start they would be asked about toxicbehaviour - and how you tried to mitigate any potential harm.

Please be assured that your information is confidential and will be kept … identified or identifiable in any materials related to the research.

You must be 18 or over to take part in this study.

Your participation in this study is voluntary. You have the right to withdraw at any point during the study, for any reason, and without any prejudice.

By ticking the box below, you acknowledge that your participation in the study is voluntary, that you have read and understood the information above thoroughly, and that you are 18 or over. By ticking the box you also confirm that you are aware that you may choose to terminate your participation in the study at any time and for any reason.

- ○ I consent to taking part in this study, begin the survey. (1)
- ○ I do not consent to taking part in this study, end the survey. (2)

Skip To: End of Survey If Informed Consent Sheet This study is being conducted by a Research Student from the University of... = I do not consent to taking part in this study, end the survey.

Here is your ID:
${e://Field/RandomID}

Please make a copy of this ID.
If you wish to withdraw from this study, contact rm1776@york.ac.uk with this code and your responses will be deleted.

Once you have noted down this code, press the arrow to continue with the survey.

End of Block: Informed Consent

Start of Block: Demographics

What is your age?

_____

Skip To: End of Survey If Condition: What is your age? Is Less Than 18. Skip To: End of Survey.

What is your gender?

_____

What is your ethnicity?

- ○ Asian (1)
- ○ Black (2)
- ○ Mixed (3)
- ○ White (4)
- ○ Other (5)

In which country do you currently reside?

▼ Afghanistan (1) ... Zimbabwe (1357)

Which of the following best describes your sexual orientation?

- Heterosexual (1)
- Homosexual (2)
- Bisexual (3)
- Other (4) _____
- Prefer not to say (5)

End of Block: Demographics

Start of Block: Game Play

In the past 12 months, how often have you played online video games?

	Not at all (1)	Less than once per month (2)	Once per month (3)	2 or 3 times per month (4)	Once per week (5)	2 or 3 times per week (6)	4 + times per week (7)
(1)							

As a general rule, what gender do you choose for your in-game avatars?

- Male (1)
- Female (2)
- Other (3) _____

When playing a game, do you share information about yourself, such as gender, age, sexual orientation, etc?

- ○ Yes (1)
- ○ No (2)
- ○ Sometimes (3)

End of Block: Game Play

Start of Block: Experiences of Toxic Behaviour

Have you ever been subjected to toxic behaviour whilst playing an online video game?

- ○ Yes (1)
- ○ No (2)

Skip To: End of Block If Have you ever been subjected to toxic behaviour whilst playing an online video game? = No

In the past 12 months, how often have you experienced toxic behaviour whilst playing an online video game?

(1)	○ Every time (1)	○ Most of the time (2)	○ About half the time (3)	○ Sometimes (4)	○ Never (5)

Page Break

In the box below, please describe your **most recent** experience of toxic behaviour in an online video game.

_____

_____

_____

_____

_____

In which game did the experience you described above occur?

_____

End of Block: Experiences of Toxic Behaviour

Start of Block: Experiences of Pro-social Behaviour

Have you ever experienced prosocial behaviour whilst playing an online video game?
You can consider prosocial behaviour as any behaviour that is positive or helpful.

- ○ Yes (1)
- ○ No (2)

Skip To: End of Block If Have you ever experienced prosocial behaviour whilst playing an online video game? You can consid... = No

In the past 12 months, how often have you experienced prosocial behaviour whilst playing an online video game?

(1)	○ Every time (1)	○ Most of the time (2)	○ About half the time (3)	○ Sometimes (4)	○ Never (5)

Page Break

In the box below, please describe your **most recent** experience of prosocial behaviour in an online video game.

_____

_____

_____

_____

_____

In which game did the experience you described above occur?

_____

End of Block: Experiences of Pro-social Behaviour

Start of Block: End of Survey

Thank you for taking part in this survey regarding toxic and prosocial interactions in online video games.

Data from this survey will be used to help us gain a deeper understanding of the variety of toxic and prosocial behaviours that take place in online games.

A deeper understanding of the kind of toxic and prosocial behaviours will help us to examine the effects (good and bad) of experiencing these behaviours.

Our research group regularly runs small, lightweight surveys in order to find out more about gamers' experiences. If you would like to take part in more of these surveys, please enter your email address below. This is completely voluntary - if you do not want to take part in any more surveys, please just leave this box blank.

We will also use this email list to tell participants about the outcomes of this research.

If you have any further questions about the survey, contact me at rm1776@york.ac.uk.

End of Block: End of Survey

C. Forms of Toxic Behaviour in Games Codebook

Toxic Behaviours in Games – Codebook

Coders should code each participants response with what they believe to be the type of toxic behaviour occurring. If a response is deemed to have more than one behaviour within it, coders should code the part of the response that is in bold.

Discriminatory Language

Code 1 – Racism

Some respondents report exposure to racially insensitive language, or targeting due to their race and country of origin. Players sometimes report witnessing 'racial slurs' and being called the 'n-word'.

> *"I've been told I sound black (which I am) and often get called "n*****". Doesn't phase me, but it happens."*

Code 2 – Homophobia

Some respondents report being subjected to 'homophobic slurs', or targeting due to their sexual orientation.

> *"Was called a f***** from a door camper"*

Code 3 – Sexism

Some respondents report experiences of being targeted due to their gender. For example, some report receiving 'harassment' and 'crude remarks' due to their gender, or being told their gender affects their ability to play the game.

> *"Being told that girls are not supposed to play games and other sexist jokes."*

Code 4 – Disability based slurs/ableism

Some respondents report receiving 'derogatory slurs' towards disabilities, as well as other ableist language.

> *"A player from the opponent's team was calling my own team a bumch of retards."*

Code 5 – Slurs based on religious belief

Some respondents report exposure to discriminatory language based on religious beliefs. Players reported 'anti-Semitic comments', and Islamophobia such as a player named 'End Islam'.

> *"People telling me to start the ovens up again and start gassing jews."*

Evoking Serious Harm

Code 6 – Threats

Some respondents report receiving threats of harm or death. This may be targeted towards the respondent or their family, friends, and pets.

> *“He said "i wil f*** your mother up"””*

> *“I was playing Pokemon GO and I was taking over a gym at my local YMCA. As I'm battling the gym, a guy angrily approaches my car and asks me what I'm doing. I told him what I was doing and he threatened to kill me for taking over his team's gym.”*

Code 7 – Ill Wishes

Some respondents report receiving wishes of harm, targeted towards themselves, their family, friends or pets. These wishes of harm also take the form of being told ‘kys’ (kill yourself) or other suggestions of suicide, whilst other players report being told ‘get cancer’.

> *“One player wishing me cancer for killing him and his friend”*

Unfair Disruption of Gameplay

Code 8- Disruption that impairs the ability to win

Some respondents report being subjected to behaviours that directly alter gameplay, impairing a player’s ability to play the game or to progress, resulting in some form of disadvantage. Some players report being ‘unfairly killed’, or other players deliberately losing the match or ‘throwing’.

> *“I play Rainbow Six Siege which is a hub for toxic players. They will turn around and kill their teammates at the start of the round and then quit the match, making you stare at a respawn screen for minutes on end for no reason other than them being toxic. Super toxic people will do this anytime they are leaving a match”*

Code 9 – Disruption that does not impair the ability to win

Some respondents report experiences of disruptive gameplay that does not cause a disadvantage or directly impair the ability to win. For example, some players report ‘emote spamming’, ‘running out the clock in a losing position’ or ‘getting teabagged’.

> *“Cancelling a finisher over and over again to draw out my death animation and take longer to die”*

Code 10 – Insults and displays of aggression

Some respondents report receiving insults, flaming and trash-talk. This is sometimes due to either game-related factors such as skill, knowledge and playing poorly, or diminishing one's skills and abilities outside of the game. Players also report experiencing name-calling, swearing, cussing and other forms of insulting language. For example, one player reported being told ‘suck my dick’. Some respondents also report excessive anger from other players such as ‘throwing tantrums’, or “yelling”. Responses may belong to this category if they cannot be categorised any other way, such as “people say *“we raped them.””*.

It is important to note that this code includes any instances in which a player reports bad language, insults being dealt, or anger of any kind. For example, some respondents report “bad language” and ““flaming” in chat”.

> *“Just making me feel bad for not doing as well as my other teammates, calling me trash and other expletives to demean me. Constant negativity in the text chat, making it a very hostile and uncomfortable environment.”*

Jo
2022-01-30 18:13:02

You thesis may need a content warning to make potential readers are aware there will come across quotes like this.

Code 0 – Uncategorizable

Some responses are uncategorizable as they do not clearly express what behaviour or action is occurring. Responses may be vague, such as “verbal offenses” with no clear explanation as to whether it is insults, discriminatory language or another category.

> *“Just some random dude being toxic in chat. Nothing special.”*

D. Study 2: Subreddits in which the survey was posted to and subreddits which were contacted but did not allow the survey to be posted.

Contacted Subreddits that allowed the post	
Name	URL
Overwatch	https://www.reddit.com/r/Overwatch/
Clash of Clans	https://www.reddit.com/r/ClashOfClans/
Rust	https://www.reddit.com/r/playrust/
Rocket League	https://www.reddit.com/r/RocketLeague/
Steam	https://www.reddit.com/r/Steam
Madden	https://www.reddit.com/r/Madden/
Origin	https://www.reddit.com/r/origin/
Football Manger	https://www.reddit.com/r/footballmanagergames/
Cycle	https://www.reddit.com/r/thecyclegame/
DotA2	https://www.reddit.com/r/DotA2
Forza Horizon	https://www.reddit.com/r/ForzaHorizon/
Rainbow 6 Siege	https://www.reddit.com/r/Rainbow6/
Anno	https://www.reddit.com/r/anno/
Raid Shadow Legends	https://www.reddit.com/r/RaidShadowLegends/
Pokemon GO	https://www.reddit.com/r/pokemongo/
World War Z the Game	https://www.reddit.com/r/worldwarzthegame/
Candy Crush	https://www.reddit.com/r/candycrush/
Words With Friends	https://www.reddit.com/r/WordsWithFriends/
NBA2K	https://www.reddit.com/r/NBA2k/
Tetris 99	https://www.reddit.com/r/Tetris99/
Pokemon SW/SH	https://www.reddit.com/r/PokemonSwordAndShield/
World of Warcraft	https://www.reddit.com/r/wow/

Contacted Subreddits that did not allow the post	
Name	URL
Monster Hunter World	https://www.reddit.com/r/MonsterHunterWorld/
Battlefield V	https://www.reddit.com/r/BattlefieldV/
Starcraft 2	https://www.reddit.com/r/starcraft2/
Super Smash Bros Ultimate	https://www.reddit.com/r/SmashBrosUltimate/
Super Kirby Clash	https://www.reddit.com/r/SuperKirbyClash/
Mechwarrior 5	https://www.reddit.com/r/Mechwarrior5/

E. Study 2 Full Survey

Distribution and Correlates of Toxic Behaviour

Start of Block: Informed Consent

Informed Consent Sheet

This study is being conducted by a Research Student from the University of York.

This survey is about the kinds of behaviour people engage in in online video games. The purpose of this research to understand more about the various interactions people experience within online video games.

Please be assured that your information is confidential and will be kept anonymous. You will not be identified or identifiable in any materials related to the research.

You must be 18 or over to take part in this study.

Your participation in this study is voluntary. You have the right to withdraw at any point during the study, for any reason, and without any prejudice.

By ticking the box below, you acknowledge that your participation in the study is voluntary, that you have read and understood the information above thoroughly, and that you are 18 or over. By ticking the box you also confirm that you are aware that you may choose to terminate your participation in the study at any time and for any reason.

- ○ I consent to taking part in this study, begin the survey. (1)
- ○ I do not consent to taking part in this study, end the survey. (2)

Skip To: End of Survey If Informed Consent Sheet This study is being conducted by a Research Student from the University of... = I do not consent to taking part in this study, end the survey.

Here is your ID:
${e://Field/RandomID}

Please make a copy of this ID.

If you wish to withdraw from this study, contact rm1776@york.ac.uk with this code and your responses will be deleted.

Once you have noted down this code, press the arrow to continue with the survey.

End of Block: Informed Consent

Start of Block: Demographics

What is your age?

_____

Skip To: End of Survey If Condition: What is your age? Is Less Than 18. Skip To: End of Survey.

Which of the following best describes your gender?

- ○ Male (1)
- ○ Female (2)
- ○ Other (4) _____
- ○ Prefer not to say (5)

What is your religion? Please enter N/A if none apply

_____

Which of the following best describes your ethnicity?

- ○ Asian (1)
- ○ Black (2)
- ○ Mixed (3)
- ○ White (6)
- ○ Other (4) _____
- ○ Prefer not to say (5)

In which country do you currently reside?

▼ Afghanistan (1) ... Zimbabwe (1357)

Which of the following best describes your sexual orientation?

- ○ Heterosexual (1)
- ○ Homosexual (2)
- ○ Bisexual (3)
- ○ Other (4) _____
- ○ Prefer not to say (5)

End of Block: Demographics

Start of Block: Game Play

In the past 12 months, how often have you played online video games?

(1)	○ Not at all (1)	○ Less than once a month (2)	○ Once a month (3)	○ 2-3 times a month (4)	○ Once a week (5)	○ 2 or 3 times a week (6)	○ 4+ times a week (7)

When playing a game, do you share information about yourself, such as gender, age, sexual orientation, etc?

- ○ Yes (1)
- ○ No (2)
- ○ Sometimes (3)

Over the past 12 months, how often have you been subjected to the following behaviours whilst playing video games?

	Not at all (1)	Less than 10 times in total (2)	Once a month (3)	2-3 times a month (4)	Once a week (5)	2-3 times a week (6)	4 or more times a week (7)
Verbal abuse based on race (for example, being the target of a racial slur) (1)	○	○	○	○	○	○	○
Verbal abuse based on gender (for example, being criticised because of your gender) (2)	○	○	○	○	○	○	○
Verbal abuse based on age (for example, being criticised because of your age) (3)	○	○	○	○	○	○	○
Verbal abuse based on religion (for example, being the target of an anti-Semitic or Islamophobic slur) (4)	○	○	○	○	○	○	○
Verbal abuse based on sexual orientation? (for example, being the target of a homophobic slur) (5)	○	○	○	○	○	○	○

Verbal abuse based on disability (for example, being the target of disability-related slurs) (6)	○	○	○	○	○	○	○
Threats (for example, receiving death threats or people saying that they will hurt you in real life) (7)	○	○	○	○	○	○	○
Ill-wishes (for example, someone saying that they hope you get an illness or die) (8)	○	○	○	○	○	○	○
Unfair disruption of your gameplay that impairs your ability to win (for example. being unfairly killed, having items unfairly stolen, being spawn-killed) (9)	○	○	○	○	○	○	○

Unfair disruption of your gameplay that does not impair your ability to win (for example, someone spamming emotes at you, someone engaging in an obscene in-game gesture at you) (12)	○	○	○	○	○	○	○
Insults and displays of aggression that are not already covered by previous questions (e.g. criticising your skill or personality, calling you names, swearing or cursing at you) (13)	○	○	○	○	○	○	○

Thinking back over the past 12 months, which game have you experienced these kinds of things most commonly in?

_____

Do you believe that the video game industry is doing enough to deal with each of the following behaviours?

	No, it is not doing enough (1)	Yes, it is doing enough (2)	Do not know / Prefer not to say (3)
Verbal abuse based on race (for example, being the target of a racial slur) (1)	○	○	○
Verbal abuse based on gender (for example, being criticised because of your gender) (2)	○	○	○
Verbal abuse based on age (for example, being criticised because of your age) (3)	○	○	○
Verbal abuse based on religion (for example, being the target of an anti-Semitic or Islamophobic slur) (4)	○	○	○
Verbal abuse based on sexual orientation? (for example, being the target of a homophobic slur) (5)	○	○	○
Verbal abuse based on disability (for example, being the target of disability-related slurs) (6)	○	○	○
Threats (for example, receiving death threats or people saying that they will hurt you in real life) (7)	○	○	○
Ill-wishes (for example, someone saying that they hope you get an illness or die) (8)	○	○	○
Unfair disruption of your gameplay that impairs your ability to win (for example. being unfairly killed, having items unfairly stolen, being spawn-killed) (9)	○	○	○

Unfair disruption of your gameplay that does not impair your ability to win (for example, someone spamming emotes at you, someone engaging in an obscene in-game gesture at you) (12)	○	○	○
Insults and displays of aggression that are not already covered by previous questions (e.g. criticising your skill or personality, calling you names, swearing or cursing at you) (13)	○	○	○

This is the last question in the survey.

Thinking about the games that you play, what is one thing that video game developers and publishers could do to cut down on the impact of toxic behaviour?

If you have no suggestions, please feel free to leave your answer blank.

_____

_____

_____

_____

_____

End of Block: Game Play

Start of Block: End of Survey

Thank you for taking part in this survey.

The purpose of this survey is to find out how common various kinds of toxic behaviour are, and whether some groups of players (e.g. minorities) are more likely to be exposed to them than others.

We also want to find out whether gamers think the industry is doing enough to combat these behaviours, and to crowdsource some suggestions for how they can be dealt with.

Our research group regularly runs small, lightweight surveys like this one in order to find out more about gamers' experiences. If you would like to take part in more of these surveys, please follow this link and enter your email address. This is completely voluntary.

We will also use this email list to tell participants about the outcomes of this research.

If you have any further questions about the survey, you can contact me at rm1776@york.ac.uk.

Please continue to the next page to submit your responses.

End of Block: End of Survey

F. Study 2: Full List of Reported Games

Games Participants have most commonly reported experiencing toxic behaviour within.	
Name	Number of Participants
World of Warcraft	103
League of Legends	93
Rocket League	82
Overwatch	64
DotA2	61
CoD	41
CS:GO	38
Rainbow Six Siege	28
Rust	26
NBA2K	15
GTA	14
Valorant	13
Heroes of the Storm	12
Apex Legends	10
Team Fortress 2	8
Dead by Daylight	7
Fortnite	5
World War Z	5
Final Fantasy XIV	5
World of Tanks	5
Minecraft	5
Among Us	4
Words with Friends	4
Smite	3
Left 4 Dead 2	3
Clash of Clans	3
Super Smash Bros. Ultimate	3
PUBG	3
Path of Exile	3
Company of Heroes 2	3
Destiny 2	3
Battlefield 4	3
Worlds of Warships	3
Halo	3
Escape from Tarkov	3
Elder Scrolls Online	3

Splatoon	2
Clash Royale	2
Pokemon Go	2
War Thunder	2
Gary's Mod	2
Starcraft 2	2
Fifa	2
Madden	2
Warzone	2
Warcraft	2
The Cycle	2
Sea of Thieves	1
Corruption of Champions	1
Tetr.io	1
Brawl Stars	1
Tribal War	1
Mordhau	1
Star Wars Battlefront 2	1
Squad	1
Tetris 99	1
Online Chess	1
Last Oasis	1
Monster Hunter World	1
Red Dead Redemption 2	1
Fall Guys	1
Ace Combat 7	1
Payday 2	1
Star Wars the Old Republic	1
Fallout 76	1
Hearthstone	1
Street Fighter V	1
Hearts of Iron IV	1
Raid	1
Dirty Bomb	1
Killing Floor 2	1
Insurgency Sandstorm	1
Magic the Gathering	1
Gears of War	1
Eve Online	1
Forza	1
Crash Team Racing	1
Defiance	1
Rec Room	1

F. Crowdsourced Solutions to Toxic Behaviour in Games Codebook

Crowdsourced Solutions to Toxic Behaviour in Games- Codebook

Coders should code each participants response with what they believe to be the type of solution that has been suggested. If a response is deemed to have more than one solution within it, coders should code the part of the response that is in bold.

Code 1: Improved Report and Punishment System

Some respondents suggest toxic behaviour could be limited if games improved their systems for reporting and punishing players. Respondents suggests companies should act faster on reports, take reports seriously, providing consequences for breaking of rules, and keep records of player behaviour. Some respondents also suggest design changes to these systems, like a more usable interface, or having humans review the reports.

> ***"****Have infinitely more severe consequences for those who engage in such actions and are reported"*
>
> *"Take reports seriously and punish players who are repeatedly being toxic."*
>
> *"I would suggest penalties for engaging in this type of behavior. This has previously been in the form of being suspended from playing or matchmaking but I feel it should be a strike system and then you are banned from the game."*

Code 2: Better Detection of Toxic Behaviour

Some respondents suggest toxic behaviour could be limited if better detection methods are implemented. These respondents suggest systems should be in place to detect threats and other verbal abuse to auto-ban or warn offenders, and that in-game chats should be filtered or censored.

> *"Many toxic behaviors are already covered through text chat filter and monitoring, gameplay based disruptions such as spawn killing, or taking items can't and shouldn't be reported unless it is griefing(purposefully making teammates experience worse) since if it takes place by the opponents(emote spam etc.) It can be them trying to get a mental edge, plus I don't think emote spam or t-bagging is serious enough to warrant any sort of action. However, I think better voice monitoring could be implemented, or text filters recognizing common substitution for prohibited words such as @ being used as a, or numbers as letters."*
>
> *"Stricter punishments will not help in most cases so designing better systems to help detect this type of behaviour is the solution I would choose."*
>
> *"Being less relient on reports and instead taking action immidiotly if certain criteria is met (IE: saying "hope you die" or "kys" results in a immidiot ban rather than reports)."*

Code 3: Promoting a Friendly Environment

Some respondents suggest toxic behaviour could be limited by promoting a good community. Some respondents suggest this could be done through reward systems for positive behaviours, whilst other players believe behaviour based matchmaking, to take toxic players out of the standard player pool, to be the solution for this. Some respondents suggest the use of behaviour scores to tell the prosocial players apart from toxic players. Other responses include suggestions that notable, or pro, players should no longer be promoted by the game if they show toxic behaviours.

> *"Maybe they could even reward those who are being nicer than normal, to encourage friendly behavior. Imagine a reverse report button, where you basically report them for being nice people. Enough of those nice points and the devs could reward the player for being a good memeber of the community."*
>
> *"Player ratings rated by fellow gamers. Toxic players labelled as such and matchmaking accordingly."*
>
> *"Shift the focus to rewarding the opposite type of behaviour, like being encouraging to other players in the game and maintaining a positive mindset while playing. "*

Code 4: Increased Moderation

Some respondents suggest toxic behaviour could be limited through increased moderation. These - players suggest more human moderation of in-game chats and voice chats, and more human reviews of reports. These respondents also suggest more community-ran moderation, such as tribunals for crowd-sourcing decisions on whether a player was toxic, and private servers ran by the community who can then provide moderation.

> *"have a clear effort in enforcing [unacceptable behaviour] through a community-sourced system for example, as is already done in some games for other sorts of cheating"*
>
> *"Manually review match chats containing signal words and decide on ban afterwards"*
>
> *"Most companies that create games with in-game chat earn enough money to employ more people to moderate that chat. This should be part of increased regulation on video game companies in countries worldwide."*

Code 5: Self-Policing

Some respondents suggest toxic behaviour could be limited through allowing players to self-police. These respondents suggest the use of chat options such as muting, optional chat filters, as well as the ability to opt-in or out of chat. Other players believe the ability to block and avoid other players would be useful in curbing toxic behaviour. Some players also suggest the use of parental controls, which may incorporate some of the other self-policing suggestions.

"User-control for dealing with individual people is enough. Otherwise, in any community-based games, fostering a healthy community is key. You can't really do that in online matchmaking shooters, but in MMOs it's pretty easy."

“I think games should have parental controls. I really hate autoban systems. I honestly think most companies are trying far too hard to squelch chat. There's a voice and chat mute button in most games if someone is annoying you, you can manually mute people. Videogames don't need policing.”

“Implement a mute option. If someone's too toxic i'll just mute them and move on”

Code 6: Game Design

Some respondents suggest toxic behaviour could be limited through the design of games. These respondents may suggest in game features should be made less exploitable, such as spawn invincibility to stop spawn camping, removing the ability to use add-ons, and making some game features less necessary, or removing them. Other respondents suggest there should be more in place to prevent an unfair advantage if team-mate is throwing the game.

“It should also be easy for games to have inbuild mechanics that punish people who abuse gameplay elements to repeatedly troll others. If someone is spawn killing, players could also just spawn somewhere else**”**

“invent less ways to be toxic / abusing autoban systems is becomming more and more part and parcel of gaming and while i agree that certain behaivior is toxic and lessens the fun nothing is less fun than getting reported and autobanned before the match even started so the reporting team gets rewarded with ez wins”

Code 7: Clear Communication

Some respondents suggest toxic behaviour could be limited through industry communicating more clearly with players. This includes being clearer about what the rules are, and what the punishments are and communication more with the community about what problems exist within the game and what tools are already available to combat toxic behaviour. Some respondents also suggest it should be made clearer when action is taken upon a report, using naming-and-shaming.

> *“More transparency regarding things they have done, including publishing the names of players that have punished and what they were punished for.”*
>
> *“Communicate with the community and collect responses from those with valid, well-written pieces of opinions since they can more effectively point out to what exactly is their issues with toxic behaviour/toxic individuals in-game.”*

Code 8: Less Anonymity

Some respondents suggest toxic behaviour could be limited through making games less anonymous. These respondents suggest ID should be required to sign up to games, or accounts should be linked to personally identifiable information.

> *“Tie online accounts to real-life information such as social security number like in Korea”*

Code 9: Nothing Can or Should be Done

Some respondents suggest nothing can, or should, be done about toxicity. These respondents may suggest it is not up to Industry, and occasionally provide suggestions on who should do something about it.

> *"I think as far as developers go, they are doing what they can In game to help with these issues, they have good report systems and often verbal abuse is dealt with strictly and quickly - there is zero tolerance. I feel the work lies more with the publishers and management in the culture around games, gaming communities as a whole can be quite sexist, racist and homophobic so these attitudes can build up and come out in games. More needs to be done with culture of gaming to tackle why toxic behavior starts in the first place."*

> *"Toxicity is a part of interacting with kids, those who have the most time to play. Parents should bear responsibility, not the industry."*

> *"They shouldnt do anything, its good as it is."*

Code 0: Uncategorizable

Some responses may not contain a suggestion, and are therefore uncategorizable.

> *"I think people who are disrupted by toxic behavior that isn't impacting their ability to play the game in a functional sense (ie, spawncamping or related) should get over it, quite honestly"*

> "care more about the people driven away by bigots than codling those same bigots"

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