What drives gamer toxicity? Essays from players

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Abstract

Negative online behaviors, such as toxicity, continue being issues in several popular multiplayer online games. Related research suggests that there are individual differences in how players understand the concept, and that various interconnected variables are relevant in understanding the emergence of toxicity. To explore this topic further, in this study, we gathered 16 essays from gamers regarding their experiences of toxicity in online games. Using the Gioia method for qualitative analysis, we divided the concepts described in the essays broadly into characteristics related to (1) the socio-technological setting in which the playing takes place; (2) the stakeholders' individual disposition including personality and player relationships; and (3) situational drivers, meaning events and actions that transpire during gameplay. As an important meta-level implication, our findings raise concerns regarding the lack of a universally shared view on toxicity, which were visible even with the rather homogenous sample of participants in this study.

Keywords [1]

Gamer toxicity, toxic behavior, League of Legends, video games, multiplayer online games

1. Introduction

After a long day of work, Fynn comes home, takes off their jacket and riles up an old desktop computer. They click open the Riot client and start playing League of Legends (one of the most popular eSports titles at the moment). While in the matchmaking queue (a pre-game environment to decide what champion to play), Fynn envisions dominating the game with their favorite champion, Galio, and naturally, Fynn expresses to their teammates intention to pick this champion. But oh no - a player from their own team bans Galio x(due to a communicative misunderstanding)! Angry, frustrated and disappointed by this, Fynn starts plotting revenge picking Tahm Kench. When the game starts, Fynn levels up top lane Tahm Kench normally, until reaching level 6 (reaching a relevant power spike of champions within the game). Fynn then walks to the midlaner (who banned Galio in the matchmaking queue) and eats him up (using one of Tahm Kench's abilities, which is an indicator of toxic escalation). Using R (the most important ability of champions in the game), Fynn teleports them both directly behind the enemy turret, killing both players almost instantly (illustrating sincere behavioral toxicity). After this ordeal, Fynn reads a new message in the chat. It is the midlaner: *"fucking donkey"*.

The above description is a typical example of toxicity in League of Legends. Perhaps starting from a misunderstanding or a minor provocation, team members end up spoiling each other's game through both in-game actions and messages in the chat. Industry stakeholders as well as academic researchers have studied this phenomenon extensively (see, e.g. [5, 7, 24]), and designed various counter measures for curbing such negative behaviors, including both (1) proactive measures, such as removing certain interaction opportunities or offering players the option to shield themselves from unwanted actions [28], and (2) post hoc measures, such as allowing players to report malicious actors [20, 22].

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Despite these extensive efforts, toxicity remains a huge challenge in not only multiplayer online games such as League of Legends, but also discussion forums and other online platforms where people meet each other. A good example of a recent development is the Zero Harm in Comms project, an industry-driven initiative that seek to develop AI tools among other solutions for mitigating gamer toxicity[2].

The first step to solving a problem is accurately defining it. Rooted in theories of cyberbullying [2–4] and nurtured by newly arisen technological opportunities to interact with others in real-time [13], online toxicity (or toxic behavior) is characterized as a prominent, yet still unresolved challenge in a variety of video games, such as multiplayer online battle arena games (MOBAs). Toxicity is generally understood as an umbrella term for negative behaviors in multiplayer video games [1]. In contrast to better established and understood concepts such as cyberbullying and online harassment, toxicity is of short duration, non-systematic and fueled by situational frustration and anger and the high levels of real time competition [16]. The toxic behavior has various forms of expression such as insulting, criticizing, resource stealing, and external attribution which are dependent on the perpetrator's actions, the players' subjective interpretation of these actions, and the affordances of the online platform where the interactions take place. Within these tensions, toxicity is generally accepted as negative and the umbrella of toxic behaviors are associated with decreased positive player experience and game atmosphere, and in the worst cases, enduring toxicity can even affect players' mental health [21].

While previous research has looked at toxicity in various settings and through multiple theoretical lenses, deriving insights related to relationships between social exclusion, and group norms [10, 11], the role of social identity [18, 29], team composition [25], measurement instruments [15] and many more, it remains unclear to what degree the academic understanding of the concept matches with players' lived experiences and the conceptions that gamers have regarding toxicity. To address this research gap, in this study we gathered structured essays from gamers, where they explain on a deep level how they understand the emergence of toxicity in online video games. Through the analysis of these essays, we then systematically observed what are the most pertinent components of drivers of gamer toxicity, and whether there are outstanding fundamental epistemic or ontological differences between the players' thinking. In order to guide this research including data collection and analysis, we thus propose the following research question (RQ):

RQ: *What factors from a gamer's perspective lead up to the occurrence of toxicity in multiplayer online games?*

Through answering the RQ, we demonstrate how gamers perceive the various factors influencing the emergence of toxicity. We also look at the differences between players in their thinking and show that there is subjectivity involved in the interpretation of toxic intent. These findings have important implications on both academia and industry, such as highlighting the importance of communication for neglecting false positives in toxic intent interpretation. The rest of this study is structured as follows. First, we present our research methodology followed up by the findings. We then discuss the key results and position our work back to real life situations in which gamer toxicity takes place. We conclude the study by discussing the limitations and future research directions.

2. Methodology

As a methodological guide for our data collection and analysis, we selected the Gioia method [12]. This method makes a few assumptions that are important to clarify. First, the method assumes that the participants are experts on the topic, and as such, their views and opinions are not critically evaluated in the analysis. This is a distinction over alternative methods (e.g. [8]), where the participants' views are debated, challenged and reflected against existing knowledge bases. In our case, since we were specifically interested in discovering the participants' views on toxicity, the assumption of participants as knowledgeable agents was sensible. Second, the Gioia method is an inductive method, where the data is coded, the codes are then grouped together, and finally connected to theory-guided aggregate dimensions. Because of this streamlined approach, the method has been called "template-based" and "procedurally

[2] Zero Harm in Comms industry research project for mitigating gamer toxicity: https://www.riotgames.com/en/news/riot-games-ubisoft-tackling-toxicity-in-games-with-new-project, visited January 8, 2022

rigorous", but also criticized for the lack of interpretive rigor [23]. In our case, the clear analysis procedure provided a framework within which we could compare individual differences between the participants. Despite qualitative research being inherently interpretive, the Gioia method helped bring structure and hence objectivity in the otherwise multi-layered and iterative sense-making process. Regardless, the analysis process was iterative, and the authors debated and refined the data structure multiple times through reasoning, interpretation and discussion along with increasing familiarization with the data. Continuing with the Gioia method [12], we next describe our data collection, introduce profiles of the research participants, and describe the analysis process.

2.1. Data collection

In order to address our RQ, we collected data from a sample of university students in the form of written essays (three pages or ~2000 words). The advantages of having a sample of university students over anonymous samples were the following. First, as the assignment was evaluated and participants were scored based on their essays, they had an additional incentive to provide thoughtful and thorough essays. This is an important distinction to alternative data collection methods such as Prolific or MTurk samples, where the users are incentivized to simply return passing works as fast and efficiently as possible with emphasis on producing not more than passing quality. Second, the participants of our study were exposed to teaching about toxicity, which gave them time and tools to conceptualize the phenomena and potentially also express using the scientific theories and understanding of the topic. Simultaneously this strength could also be a limitation, as the teaching the students received related to e.g., the online disinhibition effect could have also guided their thoughts to a more narrowed direction.

The instructions for the essays that the students wrote were as follows. After a lecture on using gamification to address toxicity in online environments, we asked students to write about their personal experiences and understanding of online toxicity, and to enumerate what they thought causes online toxicity. Students were required to write at least three pages and were asked whether they would provide us the permission to use their responses anonymously for research. Those students who did not give permission were assessed for the course, but not included in this study. Participants were explained that declining to partake in the research had no impact on their grade.

As the content of the course from where we collected the essays was designed around examples from the game League of Legends, we suggested the students also use the game as an example in their essays, but this was not mandatory. After collecting the essays and grading them, the essays which students had given permission to use in research were anonymized and shared with the rest of the research team for analysis. Altogether out of 18 participants, 16 gave permission to use their responses in research. Half of the students (n=8) were female, and the age range of participants was between 20-38 (M =26.06, SD = 4.78). All participants were familiar with video games, were third year students, and had been exposed to academic definitions of toxicity during the university course. All of the 16 participants also received a passing grade, with no signs of plagiarism or computer-generated responses detected in their essays. Students were given the choice to write the essays in either German or English, and we received essays in both languages.

2.2. Data analysis

The data analysis proceeded following the Gioia method (Gioia et al., 2013) as follows. First, we labeled the essays with a number P1-P16. We shared the essays with the research team and proceeded with familiarizing ourselves with the material by reading the essays. In this step we made notes of interesting remarks, potential codes or concepts related to the RQ. Next, we went through the essays, coding passages that discussed a specific concept related to the RQ, such as frustration, provocation, social norms, self-regulation and losing. At this stage we were not worried about looking at individual differences, but our concern was on identifying all unique concepts mentioned in the essays. Some of the codes were not clear, as students did not explain their thoughts in a way that could be condensed into a few words or into one. In these cases, we highlighted complete sentences, or in a few cases even paragraphs. Altogether, in the first step we identified 30+ codes that describe the participants' understanding of gamer toxicity, and factors leading to the emergence of it. The coding

process was done by the first author due to a language barrier, and key quotes were translated and shared with the rest of the team.

In the second step of the analysis, continuing to follow the Gioia method, we grouped the 1st level concepts together based on similarity to form 2nd order themes. This was done together by the first three authors, who discussed the data structure and framework on multiple occasions to form themes that best describe the data. This process was iterative, and the authors adjusted the themes and the grouping multiple times. As an outcome, we ended up with ten 2nd order themes, which are described in Figure 1.

As the third and final step, Gioia et al. (2013) describes that the authors should take their findings towards a more theoretical direction and connect the 2nd order themes to abstract aggregate dimensions. For this step, we looked at factors related to (1) the setting, meaning things related to the game or platform, social norms or the real world environment in where players sit when accessing online content; (2) individual's disposition, meaning things such as personality, motivation to play and possible relationships with other players; and (3) situational drivers, describing things such as emotions that spark during gameplay, in-game events (winning or losing) and between-players interactions. All ten 2nd order themes could be connected to one of these three dimensions.

3. Findings

Through the analysis process of the Gioia method, we discovered multiple drivers of toxicity, which we ultimately sorted into ten 2nd order themes and further into three aggregate dimensions. As we discuss the emerging themes, we do so under the three above-mentioned aggregate dimensions. We present some illustrative passages from the participants' essays, which are direct quotes in case the essay was written in English, or translations made by the authors in case the essay was written in German.

3.1. The toxic setting

The first aggregate dimension that emerged was the toxic setting, which sets the boundaries of the game and events within it, and consequently, also toxicity. This dimension refers to events that are taking place before playing the game. These events are rather static, and influenced by the themes of game affordances, game context, social norms, and real-world environment.

3.1.1. Game affordances

The first theme that showed itself described affordances of the game located on a level of technology design. Specifically, several of the participants mentioned manifestations such as the chat function and pinging during games, where sometimes no clear distinction can be made here between normal communication and toxicity. The two subsequent passages from P3 and P7 describe corresponding instantiations:

"*It's always a dilemma in ranked games to choose between more communication by not muting the chat and more toxicity or less toxicity and worse communication by muting the chat. I don't really have an appropriate answer to this challenge." (P3).*

"…another challenge is that there is often no consistent use of the ping command, which leads to a variety of misunderstandings and ultimately to irritation and toxicity." (P7).

3.1.2. Game context

Another relevant theme here was the game context comprising concepts such as the ranked game mode and its competitive environment that had an impact on the likelihood of experiencing toxicity in different roles during gameplay, which showed itself in statements such as the following:

"…since the ranked game mode is very competitive by nature, the stakes are high as players invest a lot of time and effort into improving their gameplay and climbing the ranks. This high-pressure environment can lead to players becoming more toxic." (P1).

Another relevant notion that emerged were characteristics of the solo queue game mode, which was mediated by the present anonymity in the game.

"In solo-queue players always get frustrated if they do not get the role they want during the champ selection process before the games. As a consequence, the perpetrate toxicity before the game has even started." (P10)

3.1.3. Social norms

References to the social surrounding were frequent in the essays. This was expected, as

gamer toxicity remains an inherently and holistically social phenomena. In relation to the theme at hand (the setting where toxicity occurs), P11 expressed their thoughts about the social influence as follows:

"*That [the online disinhibition effect] potentially leads to social and ethical norms being ignored online. Another important factor is the absence of education about online behaviour and communication." (P11)*

"In my own experience the lack of consequences for toxic behavior is a sincere problem that can be even considered an accepted part of the game related culture." (P12)

The communication here refers to phenomena discussed further in the third aggregate dimension, but this quote also introduces the idea that real world social and ethical norms are less relevant, or not relevant at all, in certain online environments. For example, in League of Legends the developer takes a strong stance in dictating what kind of behavior is acceptable in their game, becoming the ultimate arbiter of socially acceptable behavior in the online environment. Here we noticed that some participants were against the idea that platform owners would have such power over people (P3, P7), while others felt that it was necessary for the developer to take a stance and interfere with toxicity, even more strongly than what they do currently (P2, P13).

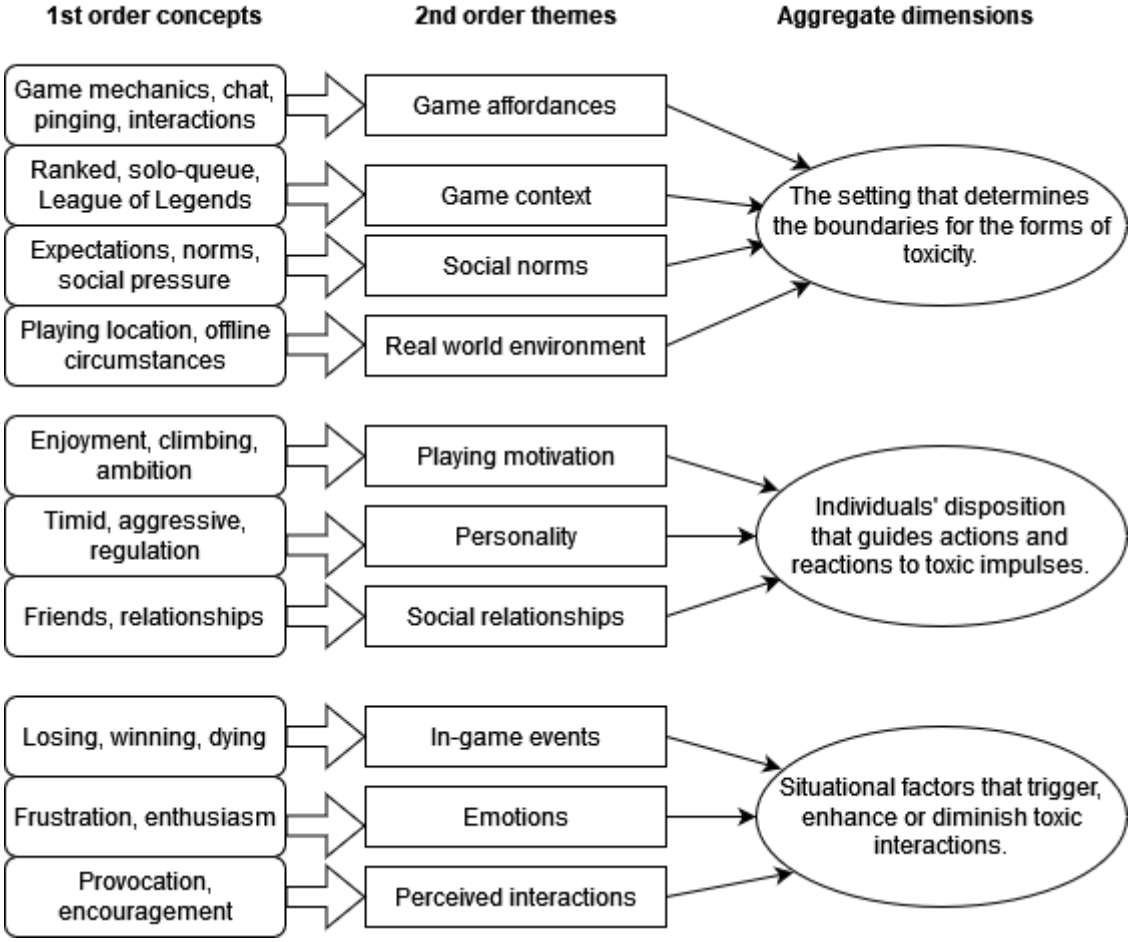

Figure 1: The results of the qualitative analysis encouraged by Gioia et al. (2013)

3.1.4. Real world environment

Furthermore, the dimension encapsulates the real-world environment. As people go online, they are still simultaneously present in the physical world, and events happening in the physical world (such as network latency issues, lighting of the room, interference by roommates) can translate into emotions and actions that players experience in the online environment. In the essays participants discussed various ways they consider the environment before playing, to reduce interruptions that may lead to toxicity, but

to also provide them with the adequate tools to deal with toxicity if it were to arise during a match. For example, P7 and P 14 wrote the following:

"During matchmaking I always use a process consisting of three steps: first, I make sure to pick a suitable champion in relation to the opponent and the own team; second, I make sure I have the right runes selected; third, I select the appropriate summoner spells." (P7)

"…before every game session I mute my phone to make sure I don't get interrupted." (P14).

Another example comes from P1, who wrote about how they prepare for games by checking their settings:

"To avoid the problem [of having to endure toxicity], I make sure that my chat- and ping settings are accurate in relation to if I play normal or ranked." (P1)

3.2. Individual pre-dispositions that guide actions and reactions

The second aggregate dimension that emerged were individual pre-dispositions that guide player actions and reactions during games that may lead to toxicity. In accordance with the first dimension, events are rather static, and influenced by the themes of playing motivation, personality, and social relationships.

3.2.1. Playing motivation

The first theme, playing motivation, that had an impact on the likelihood of experiencing toxicity in different roles during gameplay, which showed itself in statements such as the following:

"*The motivation before a game is a complex topic but definitely has an influence how sensitive I will react in relation to situations that drive me mad." (P13).*

"During the end of every season I want to improve my Elo level. As a consequence, my motivation is much more achievement related and I react to losses much more sensitive, which (probably) shows in my own toxicity perpetration." (P5)

3.2.2. Personality

The second theme, players' individual predispositions, described a rather static pre-given characteristics of individuals such as their personality that players carry with them to games, and which are not subject to change in the short term. Related to this theme a substantial part of participants wrote about the influence of the personality of players affecting toxicity as P10 and P14 stated:

"Players have different personality characteristics that hurt or make other players mad. As an example, if you are a very extroverted person this might increase the likelihood of portraying toxicity during games." (P10)

"Some players just lack resiliency to deal with challenging moments of conflicts during games, which oftentimes leads to toxic behavior." (P14)

3.2.3. Social relationships

Furthermore, social relationships occurred as another relevant concept that occurred. Accordingly, participants mentioned that social relationships are one relevant predisposition as well, regarding the likelihood of the occurrence of toxicity and the potential to deal with negative situations. Interestingly, some even stated that they experienced higher levels of toxicity playing with friends (opposed to strangers):

"*As I played these games with my friends, we steadily improved and with that my ambition grew. In this situation and similar situations, it is easier to be toxic, as you know the other players." (P15)*

However, we found the complementary relationship in our data as well:

"One of my former boyfriends introduced me to the game and we played hundreds of hours in duo queue together. Since I knew him quite well, it was much easier to avoid misunderstandings in the game and it happened very rarely one of use carried out toxic perpetration." (P16)

3.3. Situational factors triggering toxicity

The third aggregated dimension, situational factors, referred to events that happen during the game. These events were highly dynamic and comprised the 2nd order themes in game events, emotions, and perceived interactions.

3.3.1. In-game events

Multiple participants expressed in their essays how frustrating in-game events such as losing a

match, dying, others not following communication or being provoked by the enemy team were often the catalysts for toxicity. As a rationale, participants stated that players feel greater pressure to perform and can become frustrated when their team does not perform as well as they would like due to events during the game, which can lead to higher levels of toxicity in communication between players, such as blaming others for mistakes.

"The sad thing about ranked games in League of Legends is that the outcome often depends on just a few key moments. For example, a baron fight after 30 minutes is often game-changing. Accordingly, it's hard to understand why players don't listen to communication when preparing the target, but just farm somewhere on the map." (P9)

"As a top laner it is really annoying if you have three AP champions on your team and the opponent still buys lots of armor. As a consequence, you're pretty useless then and need to burn off some steam." P12

3.3.2. Emotions

Another important theme that was ubiquitous in the essays related to the situational drivers were players' emotional states. Triggered by the above-discussed frustrating in-game events, or possibly things that occur offline such as a boyfriend nagging or having poor internet, participants connected the resulting negative sentiment to triggers of toxicity and subsequent malicious actions. The following two quotes' passages illustrate these ideas:

"People get easily frustrated if the game does not go how they expected it to go. That happens especially in higher ranked competitive games which can have very long queue times and losing such games multiple times in a row because of someone else's (they themself always play perfectly!) is frustrating and that frustration can turn into anger" (P8)

"The possibilities of spreading toxic behavior via an anonymous account and thus letting out frustration, stress and suppressed feelings are manifold." (P4)

3.3.3. Perceived interactions

Connected to the negative emotions was the idea that toxicity was provoked in some way or another due to interactions during the game. The provocation did not have to be intentional and could simply be the result of the team losing (which happens roughly 50% of the time). The participants also talked about insulting, a specific form of toxicity, which was one of the most often mentioned expressions of toxicity. The following two quotes highlights this:

"*Another well-known way of Insulting is (obviously) insulting the enemy team if they killed someone or won the game itself or even if one of the enemies or the whole team got outplayed in an unexpected way*" (P8).

"What really drives me mad is behavioral toxicity I experience during gameplay such as if others steal my experience by stealing camps in my jungle." P3

4. Discussion

4.1. Key findings

Through our analysis of student essays from a rather homogenous sample of gamers (n=16) we identified ten 2nd order themes that are relevant in the emergence of toxicity in online multiplayer games, which we then connected to three aggregate dimensions that all show references to previous work dealing with toxicity: (1) the setting in which toxicity occurs comprising game related affordances and game content, social norms, and real-world environment [6, 19, 26]; (2) individual dispositions consisting of motivation, players' personality, and social relationships [14, 17]; and (3) situational drivers such as in-game events and interactions that transpire between players such as in-game events, emotions, and interactions [9, 27].

We now return to the illustrative story presented in the Introduction section. In Figure 2, we show how the initial perpetrator of the story may have banned Galio from Fynn out of (a) malicious intent, (b) simply being clueless regarding the situation, or (c) through another reason which Actor 1 failed to communicate to Fynn. The action of banning Galio can be interpreted by Fynn (Actor 2) in multiple ways. For example, they can give Actor 1 the benefit of the doubt and assume a positive interpretation of the action such as that Actor 1 banned Galio as they were afraid the opposing team would steal it. On top of the intention and interpretation, the actors can choose to suppress or commit to their impulses for actions. In Figure 2, we show how the three aggregate dimensions (to which our second order themes, and consequently the 1st order concepts relate to) can be used to explain

this situation. First, we have the setting (e.g., the game and the affordances) that dictates the interactions at a high level. Nested inside this are the actors and their interactions, which are impacted by the individual dispositions. There are then the events and situational drivers that transpire during games, that all ultimately contribute to the actions (toxic or not) that players take during the game.

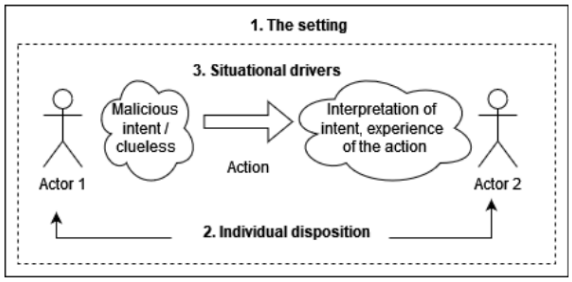

Figure 2: Relationships aggregated dimensions

4.2. Implications for research and practice

In this study we sought out to better understand drivers of gamer toxicity through an analysis of 16 essays that provide some added value for research and practice. Our purpose was not to produce a new definition, but rather, to map and elucidate the various circumstances that are relevant in the emergence of toxicity. Through this approach, we were able to elucidate 10 themes which could be broadly divided into three dimensions.

The quotes regarding the first aggregate demonstrate the participants' lived experiences when playing League of Legends, where they are actively preparing themselves for situations where toxicity may occur. While participants have some leeway in controlling the environment (e.g., through arranging the offline environment and tweaking in-game settings), and even on a meta-level selecting which game they play, when committing to a match of League of Legends there are countless of environmental factors that are beyond the participants' control, such as who happen to be their teammates, what in-game affordances there are and what are the social norms and expectations of their teammates. Thus, while there is personal responsibility involved in combating toxicity in terms of the setting where toxicity takes place, we cannot rule out the influence of other factors such as the game developer.

The given examples in relation the second aggregate dimension highlight how fundamental human interactions and relationships inherently indicate behavior. Participants agreed that relationships and personality were critical factors in explaining gamer toxicity. Furthermore, these factors are by large out of the developers' control, meaning that developers need to compensate in their platform things that are fundamental human issues by imposing rules and regulations for fair play and behavior. They also need to reinforce those rules, which may lead to various issues. For example, even in our homogenous sample not all participants agreed on what was toxic and what was not (see the first dimension). Furthermore, games such as League of Legends are played globally, with players coming from various cultural background and having potentially very different behavioral expectations and understandings on what sort of behavior is allowed. All these factors combined; this dimension showcased aspects related to individuals' predisposition and factors prima facie disconnected from the technology platform, that still need to be accounted for and dealt with by the developer.

The quotes regarding the third aggregated dimension suggest that players are creative in making use of various affordances in behaving in a toxic fashion. For the victims, this is a difficult situation as it is almost impossible to shield oneself from all the possible expressions of situational toxicity. Even if the developer punishes perpetrators retroactively, many of the toxic actions are not necessarily done with malicious intention, hence punishing for such behaviors would result in false positives. As players learn which malicious actions are punished and which are not, they gravitate towards those actions that are not punished. For example, currently we are seeing the chat being heavily regulated in League of Legends, which has simply moved the toxic expression more and more to the in-game actions.

Summarizing, through Figure 2, we demonstrate how the discovered framework can be used to explain the occurrence of toxicity in League of Legends. These findings contribute to the literature on online toxicity [1,5,6,12,13,14] as follows:

First, the findings suggest that as there is subjectivity involved in the interpretation of toxicity. To counter this, stakeholders should investigate strategies for improving player communication, and to also identify situations in which misunderstandings happen in the first place (such as Champion selection screen in League of

Legends) to break the cycle of toxicity at an early stage.

Second, the findings show that much of the factors leading up to toxicity are beyond the control of the developer. Furthermore, the current measures of developers (very strict chat rules, interaction disabling, judgement and report systems), may in fact overcompensate and step beyond the boundaries of what the developer should do, interfering with the territory of social norms and other broader characteristics of culture which arguably should be beyond the control of individual tech companies.

Third, the findings illustrate that toxicity occurs in various places throughout even an individual match, and to various degrees, and that the actions and reactions of individuals contribute to a complex dance of player interactions nested inside the game setting and influenced by individual predispositions. This suggests that instead of punishing individual acts of toxicity, malicious online behavior should be looked at more broadly.

4.3. Limitations and future work

The empirical data collected for our research consisted of 16 essays from a heterogenous group of League of Legends players, and accordingly, the final list of characteristics should not be considered exhaustive. Despite this, we still identified differences in characteristics and views that the participants expressed in their essays. However, due to the limitations of the sample, future steps of this research will include refining the essay instructions and expanding the essay recruitment to a larger audience. Furthermore, alternative strategies such as player interviews or ethnographic observations could be used to support and triangulate the findings of our approach. Another limitation relates to the research setting being tied to the game League of Legends. For the purpose of deriving a holistic conceptualization of the factors impacting the emergence of toxicity we encourage critical studies between various environments that seek to identify which factors are specific to the context (such as League of Legends), and which are more universal.

5. Conclusion

To conclude, we return to the title of this work, and address the question of *"What drives gamer toxicity?"* According to our findings, it is the interplay of the three dimensions a) the game related setting, b) dispositions of players, and c) situational factors that lead to actions that cause negative emotion and sentiment to other players. Participants in our data emphasized these dimensions to varying degrees, highlighting individual differences in understanding the drivers of toxicity. We encourage future research addressing gamer toxicity to focus on dimensions of drivers of toxicity rather than individual displays of actions such as swearing, stealing a resource or leaving the game.

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