



Utrecht
University

An investigation into the state of communication design in online video games and its relation to toxicity prevention

Ilham El Bouhattaoui (8453896)

Supervisor: J. Frommel

Second Examiner: S.C.J. Bakkes

Abstract

With the prevalence of toxicity becoming a growing issue in online video games, developers have implemented systems to combat this, with much of the focus being on moderation in the past. Nowadays, developers have started to restrict communication or offer alternative communication options to free communication channels, like text chat and voice chat, so players do not feel pressured to use these channels and toxicity is perceived less frequently. However, whether or not this actually reduces toxicity is only an assumption, an assumption that this a thesis aimed to check. Using a combination of literature research, a survey and drawing from my own experience, I attempt to give an overview of existing communication features in games, survey player's experiences with them and see if there are any issues they face, give recommendations on how to fix them and see if there are any ways communication design actually may impact toxicity. The results of the survey show that players' attitudes are quite neutral about this topic. That is not to say they do not have concerns but these are quite specific. In this thesis, I attempted to generalise those issues to create specific recommendations, especially surrounding the integration of tools and specific control-related issues. Lastly, on the topic of toxicity, the answer is dependent on many factors, and can only really be answered in individual scenarios.

Acknowledgements

Special thanks to Julian Frommel and Michel Wijkstra for their feedback and guidance during this thesis. I would also like to thank Sander Bakkes for being my second supervisor and for his insightful questions during the defence. Furthermore, I would like to thank my FFXIV raid static, my FC mates as well as my other friends for the enthusiasm they showed, even if some of them had no idea what I was talking about half of the time.

Table of Contents

Chapter 1	6
Introduction	6
1.1. Background & Motivation	6
1.2. Research questions and methods	7
1.3. Contribution	7
1.4. Overview of this thesis	7
Chapter 2	8
Related Work	8
2.1. The online gaming space	8
2.1.1. The "gamer" identity	8
2.1.2. The games	8
2.2. Toxicity in gaming	9
2.2.1. Contributing factors and causes	12
2.2.2. Proposed Solutions	15
Chapter 3	17
Communication design in games	17
3.1. Theory	17
3.2. Commonly used communication mechanics	20
Chapter 4	22
Research questions and Approach	22
4.1. Research Questions	22
4.2. Approach	22
4.2.1. The Survey	22
4.2.1.1. Section 1: General Information	22
4.2.1.2. Section 2: Information about the game	22
4.2.1.3. Section 3: General questions around communication	23
4.2.1.4. Section 4: Rating individual channels	23
4.2.2. Procedure	24
4.2.3. Participants	24
4.2.4. Analysis	24
Chapter 5	26
Results	26
5.1. Quantitative results: General Questions About Communication in games	26
5.2. Quantitative results: Different channels	26
5.3. Qualitative results: Control settings	29
5.3.1. Native Configurations	29
5.3.2. Ways to Improve Skill level	30
5.3.3. Interface Design	30
5.3.4. Bugs	30
5.4. Qualitative results: Summary per channel	30

5.5.	Qualitative results: Overarching themes between communication tools	31
5.5.1.	Quality control	31
5.5.2.	User Experience	31
5.5.2.1.	Integration	32
5.5.2.2.	Confusing/Contrarian design decisions	33
5.5.2.3.	Usefulness	34
5.5.3.	Moderation	35
5.6.	Qualitative results: Toxicity	35
Chapter 6		38
Discussion		38
6.1.	The state of communication in online video games	38
6.2.	Players' view on communication	39
6.3.	Integration issues & Recommendations	41
6.3.1.	Recommendations	43
6.4.	Restricting communication to combat toxicity	44
6.5.	Limitations & Future Work	46
Chapter 7		48
Conclusion		48
References		49
Chapter 8		56
Appendix		56
8.1.	Ethics and Privacy scan	56
8.2.	Survey	63

Chapter 1

Introduction

1.1. Background & Motivation

If I could get a euro for every time someone told me "Ilham, do not play this game, the community is really toxic", I would probably not be rich but it is still quite telling. Playing online video games has had many positive impacts, both for myself as well as those reported by others, such as gaining access to new communities of friends that have led to new experiences I would not have had otherwise. Despite that, most people that often play video games are more than aware of the negative aspects that online gaming brings with them, to the point that these aspects, such as toxicity, are often treated with a sense of irony.

One way to define toxicity is a definition used by Juvrud in his thesis which is: **"Player behaviour that purposely disrupts another user's experience and is perceived as hostile within a given gaming community."** (Juvrud, 2020). This definition also reveals the issue with defining this phenomenon. Toxicity is a problem in online gaming that is growing, despite efforts from gaming companies to curb it. How these negative behaviours are perceived varies and more often than not, context is important in determining if an action is considered toxic or not. For example, a player repeatedly dying in a game of League of Legends could be accused of feeding the enemy, but a bad player is not necessarily toxic, they might be new or just...bad (Juvrud, 2020; Blackburn & Kwak, 2014). A line is drawn on intent, which can be hard to recognise when it is difficult to communicate this intent. Furthermore, some people perceive toxicity more harshly than others, which makes it hard to research this topic, because, from my experience on the internet, it is easier to ignore toxicity than to actively engage with it, and the common idea is that one just needs to "suck it up" to avoid being seen as too sensitive. As such, the line between what is considered to be toxic and what is not can be very blurry.

Communication in cooperative online game settings, whether they have competitive aspects to them or not, is very important for strategising during matches, but games also have a certain social aspect to them. This is not just from personal experience, the ADL reports that 94% of young people and 89% of adults have made friends during their time playing games (ADL, n.d.-b). However, communication channels where free communication occurs, such as text and voice chat, give rise to many opportunities for toxic conduct, to the point where muting these channels is an option in many games. Accounting for this toxicity and to also optimise communication between players, developers have started to introduce systems in their games that allow for faster communication of commonly called out things, which are commonly referred to as a ping system. What this ping system tends to look like depends on the game, with some games, like Apex Legends, having a ping system so comprehensive that it reduces the need to use other communication channels. More often than not, a ping system includes markers on the map to indicate locations that are of interest, chat phrases and audio cues to indicate the status of a character's health or abilities, and cues to indicate that a certain action is necessary for the team to perform (i.e. Fall Back! or Don't attack this player!). There are some upsides to using these different methods. Pings in League of Legends have been known to carry a benefit in terms of performance and considering that using text chat often means that focus is taken away from the rest of the game, having quick options for simple phrases is quite beneficial in many respects (Leavitt, Keegan, & Clark, 2016). However, there are some potential downsides to these options. For example, some pings have been known to be used in ways they were not intended, either by users spamming them, or attributing new meanings to them. Furthermore, some games have opted to completely remove text and voice chat from the core of the game, or in certain gameplay instances, meaning that your ability to coordinate with your teammates now exclusively depends on the comprehensiveness of the ping system in place (Türkyay & Adinolf, 2019).

Furthermore, the question remains if the addition of a ping system is necessarily an anti-toxicity measure, and more broadly, if there is any relation between communication design in games and

the prevalence of toxicity in those games. The reason for these questions is the release of Over-
watch 2, the update to its popular predecessor. As part of the update, Blizzard added a bunch
of new anti-toxicity measures collectively named the Defense Matrix. These measures include
systems to verify identity through SMS verification, automated toxicity detection, a redesigned
new player experience, endorsements to good players, the removal of ranks, and most notably
for this thesis, the removal of general chat and the addition of a ping system (Blizzard Enter-
tainment, n.d.). With general chat being a disruptive channel, this decision as part of a system
of measures to reduce toxicity would make sense. But the assumption that a ping system will
help toxicity in-game, is only an assumption and has not necessarily been validated.

1.2. Research questions and methods

This thesis centers around answering the following research questions:

1. How is communication currently being facilitated in online video games?
2. How do players experience the use of communication mechanics in online video games?
3. How can communication mechanics be better integrated into games?
4. How does restricting communication, or providing alternatives through the use of a ping system, impact the prevalence of toxicity in-game?

The following table showcases the different questions and the ways in which I sought to answer these questions during my thesis.

Research question	Method
RQ 1	Literature Review & Game overview
RQ 2	Survey
RQ 3	Survey
RQ 4	Survey

Table 1.1: Table 1: Showcase of the methods used in this thesis per research question.

1.3. Contribution

This research contributes to other research on social features in online games, as well as research on communication features in online games. With this research, I tried to give a better overview of existing features in games, as well as draw a relationship between communication design and toxicity.

1.4. Overview of this thesis

Chapter 2 will give an overview of the related research I read for this thesis. It will start with an overview of what gaming culture entails and which online games are currently very popular in this space. I will then go over some related research on toxicity as well as contributing factors and solutions to this issue. Chapter 4 focuses on my research questions as well as the approach I took to answer them. In chapter ?? I go over the qualitative and quantitative results of my thesis. Chapter 6 discusses these results and links them research and in chapter 7 I round the thesis off with a conclusion.

Chapter 2

Related Work

2.1. The online gaming space

2.1.1. The "gamer" identity

Gaming culture is not a monolith. Each game, server, clan or guild might have its own social practices and a shared online identity. Even outside of that, what it means to be a "gamer" differs from person to person, let alone whether or not one accepts the label of a gamer (Vilasís-Pamos & Pires, 2022). Research on gamer identity construction has stipulated that with the start of the commercialisation of video games in the 1980s, the target demographic had been a white, heterosexual, adolescent male, at least in the West, and has largely been the demographic developers cater to (De Grove, Courtois, & Van Looy, 2015; Howe, Livingston, & Lee, 2019). This stereotype persists to this day and might be a factor in explaining why this target group is more likely to associate themselves with the label of a gamer, it might also be why many other demographics that do not fit this stereotype do not necessarily want to identify themselves as a gamer (Bergstrom, Fisher, & Jenson, 2016; Kowert, Griffiths, & Oldmeadow, 2012). Subconsciously, it seems that there is a line that has been drawn between who is and who is not a gamer, based on who they are and what games they play. For example, there are certain types of games that are often considered more "hardcore" than others, and the players that play those games are more often considered to be gamers than players that play more casual types of games (Eklund, 2016; Poels, Annema, Verstraete, Zaman, & Degroof, 2012; Kuittinen, Kultima, Niemelä, & Paavilainen, 2007). This is further illustrated by the fact that women account for about half of video game players, but because they tend to play more "casual" games, are not often considered gamers (*Gaming Statistics - TrueList 2022*, 2022; Eklund, 2016; Poels et al., 2012; Kuittinen et al., 2007). Furthermore, there is a stigmatized aspect to playing video games, particularly for those growing up in the 90s, that makes it harder for those that do not feel comfortable being labelled as "nerdy" or "geek" to identify as a gamer (Shaw, 2011; Bergstrom et al., 2016).

The gamer identity is an important topic in research, but also important in relation to research on toxicity. However, as Grooten and Kowert note, the lack of consensus in research when it comes to how gamer identities are formed is troubling (2015). The 2014 Gamergate controversy is often used to highlight how the changing viewpoints on diversity and representation, particularly of minority groups, are seen as an attack on traditional gamer culture (Mortensen, 2018). Anyone who falls outside of this norm is more likely to be targeted by some form of toxic behaviour, particularly based on gender(-identity) (ADL, n.d.-b). On the other hand, research suggests that those that are part of an online community (e.g. a guild or raid group) are less likely to partake in problematic gaming habits and symptoms. As such, those within such a community are more likely to feel and be protected from toxic behaviours (Pham, 2021). Women are slowly getting more accepted within gaming spaces, online gaming channels can be a significant factor in increasing the well-being of players (Pham, 2021).

2.1.2. The games

For those unfamiliar with video games, it is important to break down this online gaming space to give a clearer picture of what it is that will be discussed all throughout this thesis. Video games as a medium are very diverse. Around 3 billion people worldwide play video games (*Gaming Statistics - TrueList 2022*, 2022). This share of players multiplied quickly during the COVID-19 pandemic, especially online (*Gaming Statistics - TrueList 2022*, 2022). In this context, online multiplayer games were considered a pastime that could replace social activities and serve as digital hangout spots (Truelist, 2022). Most developers for online games develop for PC primarily, however, many players do not necessarily play on PC (*Gaming Statistics - TrueList 2022*, 2022). Most game studies, however, focus on PC gaming. Why this is, is hard to tell, but it could be because the types of games that are often investigated in game studies are primarily available on PC. For this thesis, we will be looking at games from a few different genres. Currently, most games that are used in research on the topic of toxicity have Player vs Player (PvP) elements to them.

The genre that is most commonly studied is the Multiplayer Online Battle Arena (MOBA) genre, but genres such as First Person Shooters and Battle Royale Style shooters are also incredibly popular genres. Games with PvP elements generally have players play matches in teams of four or five players, the exception being Battle Royale games like Fortnite, where you can opt to play on your own instead of playing as part of a team. This means that there is an element of cooperation in these games. Being able to coordinate and communicate with teammates is incredibly important for winning a match, as one player can be very impactful in shifting the balance between a team winning or losing. Most of these games give options for playing with friends or playing in matched parties, where you play with other random players. How the matching is done depends on the game and the particular game mode that you are playing in. Games such as League of Legends and Overwatch II have competitive game options, where you are matched with people based on your skill level.

Player vs Enemy (PvE) games are games where you play with a group of players with the purpose of completing an in-game objective. Largely what this comes down to is players banding together to defeat an in-game boss or another type of enemy. In this setting, your performance in relation to your teammates is incredibly important, mostly because one death or mistake might ruin the entire team's progress. In many of these games, there is an emphasis on completing game mechanics in a certain manner with the rest of your teammates, for example by coordinating positions or determining which enemy needs to be killed first. Team sizes are often a lot larger than what you will find in your average MOBA or FPS game, with 8 to 48-player groups not being uncommon. The most popular genre is the Massively Multiplayer Online Role Playing Game (MMORPG).

MMORPGs are often researched when it comes to social interactions and communication patterns, but research on the relationship between these patterns and toxic behaviour is scarce (Achterbosch, Miller, & Vamplew, 2017). Furthermore, competitiveness is often defined as a driving factor for toxic behaviour, which will be discussed at length later on in this chapter. Personal experience, as well as limited research on MMORPGs, suggests that toxic behaviour does take place in games that are not necessarily competitive and that there may be some overlap between toxic behaviour in PvP and PvE settings (Achterbosch et al., 2017; Barnett, Coulson, & Foreman, 2010). But why this toxicity occurs and what motivates people to be toxic in PvE games is a question in and of itself that has not been conclusively answered yet. There are those, such as Daniel Fu, that suggest that toxicity in MMORPGs, because of their PvE design, rarely occurs (Fu, n.d.). However, raiding in MMOs can be a competition to some. During raids, doing damage is incredibly important, and every role has to do its fair share. However, most games do not explicitly showcase this, which is why tools have been designed, both by developers themselves but also by players to showcase the contribution each player makes to the raid. These damage meters or DPS meters will show how much damage players do, how much healers heal for and how much damage tanks take compared to other players, among other things (Kelly, Watts, & Payne, 2016). However, such damage meters can also cause some toxicity, with people getting called out and excluded if their performance is not up to par (Valanne, 2020).

2.2. Toxicity in gaming

In the context of online gaming, toxicity is a term used to describe a variety of negative behaviours including but not limited to harassment, flaming, trolling, and cheating during games. The term "toxic" is very ambiguous (Laumann, 2021). You will find that different researchers and companies have other definitions of this term and other umbrella terms that are used interchangeably to indicate toxic conduct, such as griefing. Some researchers will go as far as to define toxic behaviour for the specific context that is being written about, such as how Kou defines toxicity in the context of League of Legends (Kou, 2020). Specific terms have been used as an alternative to the word "toxic". The Fairplay alliance, a partnership between 200 game companies, uses disruptive behaviour to describe all negative behaviours. Ubisoft uses the terms toxicity and disruptive behaviour interchangeably (Ubisoft, 2022). The ADL distinguishes between two main types of behaviour, disruptive behaviour and harmful behaviour (ADL, n.d.-a). Disruptive behaviour is used as an all-encompassing term to refer to conduct that does not align with the

norms set by players and the community. Most disruptive behaviour arises from mismatched expectations between groups of players, such as an expectation of skill or play style. This behaviour can be unintentional, but can still be negatively perceived by those involved. However, disruptive behaviour also includes previously described actions and more harmful behaviours such as sending out hateful messages or threats of violence. Harmful conduct is seen as a subset of disruptive behaviour. This term describes conduct that causes significant harm to players or those around them in different ways.

For the purpose of uniformity, this thesis will be using the terms toxicity and toxic behaviour similar to how Juvrud defined the terms (Juvrud, 2020). Since this thesis also does not deal with creating a taxonomy of different toxic behaviours, it will also deal with these different taxonomies without too much depth.

Toxic behaviour shows up in different ways. There have been a few attempts of distinguishing types of toxic behaviour from one another (ADL, n.d.-a; Kou, 2020; Kowert, 2020; Deslauriers, Lafrance St-Martin, & Bonenfant, 2020). Toxic behaviour comes up in both verbal and non-verbal ways. The ADL (ADL, n.d.-a) has quite a complex categorisation of toxic behaviours, but some of the terms used are too broadly defined (e.g. anti-social actions) and could be used interchangeably with other terms. Kou categorised toxic behaviour in League of Legends, a very popular MOBA. Their taxonomy includes five different toxic behaviours. They do this from the viewpoint that toxic behaviour is a situated action, which refers to the idea that human actors are not isolated from, but reflect on the contexts that the actions are performed (Kou, 2020). The categories used in this paper are also very all-encompassing and broad, and while it could be argued that some of these categories are universally seen across different online gaming genres, the context of this paper is very specific to this particular game and competitive games in general. Kowert's categorisation is more specific and includes both verbal and behavioural behaviours. Whilst some of the categories (e.g. doxxing, hate raiding and swatting) are more prevalent outside of the game setting, such as through the use of streaming platforms and other social media, this community-inspired list is quite up-to-date and includes actions not often found in other literature. (Kowert, 2020).

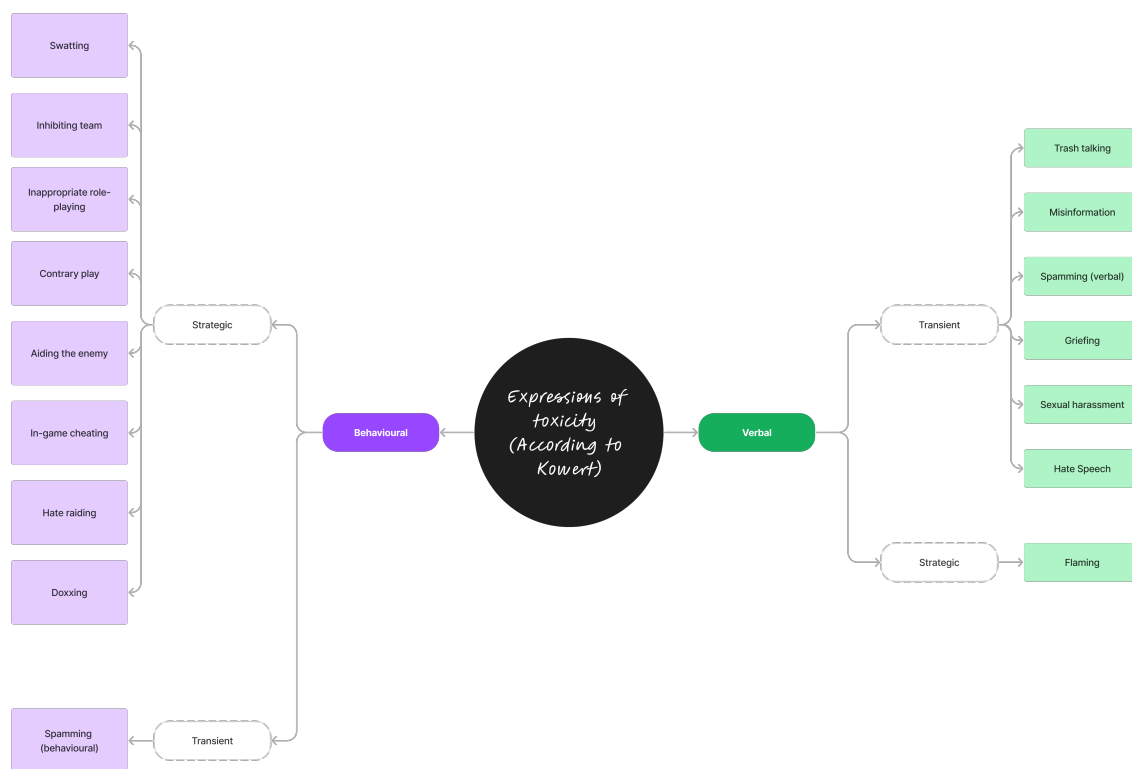


Figure 2.1: Kowert’s categorisation of toxic actions in games. The paper categorises based on if an action is verbal or behavioural and strategic (thought through) or transient (committed in the moment) (Kowert & Cook, 2022)

Toxicity is seen as a huge issue in the video game industry. According to the ADL, an overwhelming majority, about 80 percent, of Americans experience some form of it whilst playing games online. Most players reported being victims of harassment, in any form (ADL, n.d.-b). According to a study by Zsila et al. male players were 4.90 times more likely to be targets of toxicity and 2.81 times more likely to participate in it (Zsila, Shabahang, Aruguete, & Orosz, 2022). These statistics seem to not correspond to those reported by the ADL. As when their survey looked at specific types of hate and harassment, they tended to be targeted, based on gender(-identity), race or disability status. Zsila suggests that this might be because women and LGBTQ+ players tend to be more anonymous when playing, being very careful about how they conduct themselves while playing, what they share about themselves, and who they play with. Players also reported changing aspects of their in-game character, to avoid being harassed (ADL, n.d.-b). Toxic behaviour has many consequences, for both players and developers alike. Players tend to stop playing when (repeatedly) getting exposed to toxic behaviour online. They will also tend to avoid certain games for fear of being targeted by toxic behaviour. For players, the consequences are almost always negative. Those who are repeatedly victimised by toxic behaviour reported more symptoms of depression and Internet gaming disorder than those who did not (Zsila et al., 2022). Strategies to cope and deal with toxic behaviour vary. Most commonly, players tend to avoid confrontation with toxic players and ignore it, or mute players or entire chats so as not to have to deal with toxicity. Players tend to not always report toxicity. In both surveys I looked at, by the ADL and by Passmore and Mandryk, around 10 percent of participants would report toxic behaviour when it happened to themselves. Reports on toxicity that are not necessarily targeted at oneself are reported on even less frequently (ADL, n.d.-b; Passmore & Mandryk, 2020). Reasonable explanations for this could include a bystander effect, or group favouritism if the toxic

player is from an allied team. What is being reported is also important to note. Offensive or abusive language tends to be the most reported type of toxic behaviour by most players (Blackburn & Kwak, 2014). Kwak et al. note that in League of Legends players in South Korea tend to more frequently report in-game behaviours that affect the results of the match, such as intentional feeding (killing off your character in-game to assist the enemy team) (Kwak, Blackburn, & Han, 2015). Flores' survey also showed that in-game behaviours such as cheating and intentional feeding that use game mechanics to intentionally be toxic are considered the most annoying by players (Romo Flores, 2020). Since most games allow the option to mute chat, it can be easily ignored, but a player constantly dying is not as easily ignored and directly affects the gameplay of the other players in a team (Laumann, 2021). There seems to be a general lack of faith in reporting toxic players. Most of this lack of faith boils down to there being a lack of transparency from the developers' side on how the reports are being handled and disagreements on how toxic players should be dealt with (Pohjanen, 2018). Furthermore, how toxicity is perceived by players varies highly (Pohjanen, 2018). Toxicity seems to be largely normalised in gaming communities (Beres, Frommel, Reid, Mandryk, & Klarkowski, 2021). But for many players, there are also levels of toxicity, which will determine how they deal with being victimised by it (Pohjanen, 2018). These differences in perception, as well as this lack of faith in systems that are currently in place, pose a mighty challenge for developers to tackle it.

2.2.1. *Contributing factors and causes*

In recent years, researchers have sought to define underlying causes of toxicity, focusing on behavioural theory, game design, and industry practices. Toxicity is very vague by nature and there are many ways players can behave negatively in-game. However, it is possible to break down some of these factors into a couple of central themes.

1. **Game Design** How a game is designed is an important factor in how toxic behaviour manifests. This starts with the design process. Gaming culture and its practices have been largely static and normalised. This also goes for toxic behaviour as well. Co-creation, where fans of a certain game studio or game are invited to help work on a new game or in-game concept, is quite commonplace in the gaming industry (Schütler, Waldkirch, Burmeister-Lamp, & Auernhammer, 2022). With that being said, it can be argued that this practice makes it easier to pass down toxic gaming practices to new games, essentially keeping them alive. Furthermore, recently developed and released games and their developers are more likely to get toxic comments and reviews, leading to less community involvement from developers as well as long update cycles. This might result in a cycle of negative behaviour as slower update cycles mean that players will keep experiencing bugs and issues that the game might have for long periods of time (Schütler et al., 2022).

Competitiveness has also been considered a large factor when it comes to enabling toxic behaviour, similar to how un-sportsman-like behaviour is prevalent in competitive sports (Fu, n.d.). It is suggested that toxicity mostly happens in the heat of the moment. However, as has been suggested by Kowert, strategic forms of toxic behaviour are also prevalent, and whilst some of these behaviours happen outside of the game, flaming, spamming, and inhibiting behaviours are in-game tactics. Competitiveness does fuel quite a few negative emotions, especially for new players who are trying to find their footing in a game and do not know all the practices and rules (Kou, 2020). Veteran players also tend to be more toxic than newer players (Shen et al., 2020). There is an argument to be made that these same emotions can be drawn out by non-competitive PvE games (Achterbosch et al., 2017). They may produce less toxic communities overall, as Fu states, but there are elements within raiding that can be quite competitive (Chen, 2009).

There are also ways that games can enable toxic behaviour, even if they do not necessarily intend to. In his book *The Toxic Meritocracy of Video Games: Why Gaming Culture is the Worst*, Christopher A. Paul argues that most games are inherently designed to be meritocratic (Paul, 2018). Conversely, games that have meritocratic elements are considered more "real" than games that do not have these elements. For example, quite a few game genres revolve around completing small, repetitive tasks, often on a daily basis. This "grind"

is rewarded and encouraged by video game developers through the ability to attain new skills, currency, and items. Another example would be the levelling process in League of Legends. When players kill opponents from another team or other mobs, they accumulate experience points and resources. Hence, if a certain team is better at killing the other team, it will shift the balance towards the better team from the beginning. This makes it pretty clear who is going to win. This triggers the feeling of powerlessness and perceived loss (Kou, 2020), even if the balance could be shifted later on. Paul also argues that disciplining players and finding new ways of doing so points to greater problems in the game that should be fixed. The process of balancing the game, to create an environment where only skill matters, creates an environment where certain optimised modes of play are encouraged (metagaming). It also creates a culture where only those with skill are expected to be rewarded, and where games that try to make a match interesting for all players, such as the use of the blue shell in Mario Kart, are seen as unfair. This constant need for balance is also the reason why certain characters are effectively banned from competitive play, in an effort by developers and players to keep everything fair and not let "broken" characters or team compositions win out constantly.

2. **Communication mismatch** Despite the most popular and most researched games being competitive, these competitive games usually have an element of teamwork to them. For example, MOBA's are played in a team of five players, Overwatch II has similar team sizes. MMORPG's such as FFXIV and World of Warcraft, which are more collaborative in nature, can have even larger team sizes. Savage and Ultimate raids in FFXIV have raid groups of 8 people. Larger group sizes are usually reserved for more casual content, however, there are two higher-end raids that can have 24 people at a time. World of Warcraft's raids contain 5-40 players at a time. Coordinating between these teammates requires adequate communication channels and the use of those channels. Toxicity generally arises as a result of a mismatch in expectations between players, and frustration about this mismatch. These expectations can be about what strategy to use, team compositions, how to play a certain class/role/character, and the list goes on (Kou, 2020). There is also an expectation of skill. Many competitive games have a ranking system, where you have to get through and win a number of games to move up the ranking. In these games, you are matched with people of a similar rank. This creates an expectation of skill that, if not matched, will inevitably lead to more toxic behaviour. Considering that a lot of games are team-based, individual players' skill level is not the only factor when it comes to winning a game or beating a boss. Games that have no rank or skill matching, or where that is not even a possibility tend to have even higher skill discrepancies and tense environments.

As previously stated, effective collaboration between players can only be achieved if players get the tools to do so. Furthermore, a lot of communication in-game is non-verbal, and players will have to understand these cues (Leavitt et al., 2016). For new players, this might be even harder, as whilst learning what type of play style, character or class fits you, you are also having to keep in mind the different norms that the community enforces. A lot of these norms, such as the "meta" are implicit, the game itself does not tell you how to play it, it is the community that plays the game that sets up these norms, such as which strategies to use, how to build classes, etc. (Paul, 2018; Köles & Péter, 2016; Donaldson, 2017).

3. **Normalisation** One thing to note is that what is considered toxic by one person, can be considered a normal day-to-day online interaction by another. But it can be concluded that toxic behaviour in video gaming has become largely normalised, despite the growing concerns from academics, developers and other players. Toxicity is highly contagious, and being subjected to or witnessing toxic behaviour and other players' responses to it can have an effect on one's own perception of toxicity. Furthermore, as Shen et al. conclude, more veteran players tend to be more toxic than beginner players, just as Murnion et al. concluded in a similar study a few years prior (Shen et al., 2020; Murnion, Buchanan, Smales, & Russell, 2018). As they state: "More experienced players seem to engage in similar levels of cyberbullying to that of more junior players. It was notable however that this is not true for very

new players suggesting that toxic behaviour is possibly a learned behaviour from other cyberbullies." (Murnion et al., 2018). Shen et al. theorise that there are various reasons for this. For one, experienced players have spent and invested a long time in the game, and have largely learned and perhaps shaped the social norms. Furthermore, toxic behaviour in gaming has similar characteristics to cyber bullying, where differences in rank and status matter. As such, a player that has spent a significant time in a game to get certain ranks and statuses might look down on newer less experienced players. This might also make them more impatient towards new players, and new players that push through these experiences and reach higher levels might develop similar feelings that these veteran players have toward beginner players. The online disinhibition effect is a theory that is frequently mentioned in relation to this topic. This theory refers to the freedom an individual feels to express themselves online in ways that they would not in offline settings (Suler, 2004; Beres et al., 2021). This freedom to express oneself comes in two forms. Benign disinhibition refers to the feeling of being able to express feelings that one would be reluctant to share otherwise. Toxic disinhibition refers to expressing oneself negatively through hateful language, swearing, threats or other forms of toxic behaviour. Studies have shown that toxic disinhibition is the most meaningful factor when it comes to toxic behaviour in video games (Kordyaka, Jahn, & Niehaves, 2020).

4. **Community building** Community building in video games is actually a very complex topic, worth its own study, but it is important to mention the different factors behind it, and how they influence toxicity. Ruggles' outlined a few of the techniques companies use for community building, both in-game and out-of-game (Ruggles, Wadley, & Gibbs, 2005). These suggestions include things on how to facilitate the formation of groups, guilds, or clans, and have a matching system that allows players to find such groups that match their interests and criteria. Furthermore, players should be encouraged to participate in community events and be applauded when they behave well and reported when they do not. Another suggestion is to build the game world with social spaces in mind. As Thorne and Fischer also suggest in their study, games are their own social media platform, and such a platform can be used in ways that it was not designed to be, such as for language learning (Thorne & Fischer, 2012). Online spaces outside of the video game space are similarly important for community building. At the advent of social media's popularity, Burger-Helmchen and Cohendet's study suggested that video game companies recognise that online spaces outside of the developer's reach were gaining more and more traction and that it posed a great challenge to them, as they did not necessarily have a strategy on how to capitalize on them (Burger-Helmchen & Cohendet, 2011). The influence of social media on video games has only grown since then. For example, Discord is one of the biggest online platforms for voice chat communication, and many communities have their own separate server on this platform (Bankov, 2019).

Having communities on external platforms introduces many challenges for developers and researchers alike. But on the other hand, also introduces some positive aspects. Data on these platforms is publicly accessible, some studies on toxicity in gaming have been conducted using data from Reddit, Twitter and Facebook (Deslauriers et al., 2020; Ghosh, 2021). Streamers, people who play video games live on platforms such as Twitch and Youtube, can largely function as an ambassador of a game, even if a video game company does not back them. How companies interact with these players, especially in the face of toxic behaviour, could be a factor that influences how players perceive a developer's response to this behaviour. Furthermore, how players behave is already an influencing factor, as their behaviour can further propagate the normalisation of toxic behaviours. Twitch in particular is an interesting case, and as Felczak states, showcases that in streaming and e-sports communities, there is a lack of a universal code of conduct among players, creating this reserved space where anything goes (Felczak, 2022). Communities surrounding such players, and e-sports events, are becoming more and more important when it comes to inviting new players to the game, but also when it comes to players' perception of a game's community and environment. Furthermore, the social media platform's algorithm can affect how

toxic conduct is propagated and its policies can encourage toxic users (Massanari, 2017).

2.2.2. Proposed Solutions

This section will elaborate more on proposed as well as actually realised solutions to toxic behaviour in gaming, as well as their effectiveness. To start, this section will discuss some general solutions and recommendations outlined in research, and will then move on to some solutions enacted by gaming companies and their effectiveness.

To combat toxicity in the gaming industry, the Fair Play Alliance was established as a partnership of 200 gaming companies including Riot Games, Blizzard, Ubisoft and EA to name a few. This partnership, in collaboration with ADL, has created a framework to address and combat toxic behaviour in video games. This framework consists of four pillars. The first pillar is to assess the behaviour landscape of the game, see if it corresponds to the vision a developer had of how it should be and analyse your player base. The second pillar is to plan a penalty and reporting system and to think of the impact such a system would have. The third pillar is to build and implement such a system. The fourth pillar is to generate meaningful and effective community guidelines. This is similar to recommendations found in the conclusions of related research (Türkay, Formosa, Adinolf, Cuthbert, & Altizer, 2020; Shen et al., 2020; Beres et al., 2021; Chesney, Coyne, Logan, & Madden, 2009; Romo Flores, 2020; Deslauriers et al., 2020; Eklund, 2016; Lapolla, 2020), however, some go a bit further than this. Turkay et al. suggest that self-regulatory measures should also be introduced, so players can recognise their own behaviour and deal with their frustrations, which is similar to a recommendation by Kordyaka et al. (Türkay et al., 2020; Kordyaka et al., 2020). In his thesis, Lapolla suggests that gaming companies should find new ways to address toxicity, by overhauling the systems used to report players and making them more comprehensive (Lapolla, 2020). Furthermore, various studies emphasise that positive role models could help shift the balance away from toxic behaviour (Kordyaka et al., 2020; Adinolf & Türkay, 2018). Better and more transparent feedback systems could also be given about toxic behaviour. For example, players could get the opportunity to play with less toxic players even if it leads to longer queues, provided that the rating systems for these players are accurate (Lapolla, 2020; Kordyaka et al., 2020). Overall, there should be better systems rewarding players that behave well, and players that behave poorly. This does come with a caveat. If a game has very ambiguous rules and codes of conduct, such as in the case of *Dead by Daylight*, it is very hard to understand if a certain behaviour is toxic or not, or even punishable (Deslauriers et al., 2020). Furthermore, whilst there are tools to report toxic behaviour by players, these tools might either be lacking or are not used at all due to a lack of faith by the community (Pohjanen, 2018). The Terms of Service (ToS) of a game and how it is enforced might also be a significant factor in curbing toxicity as well. But if there is any vagueness about the enforcement of such rules, it creates a vacuum where anything goes (Deslauriers et al., 2020). Public enforcement of the ToS has also shown to be effective in creating discussions about norms and values in games.

Some developers have addressed these problems on their own. In 2011, League of Legends implemented the Tribunal System as part of an effort to combat toxicity. This system was later discontinued, as it was slow and inefficient, and could be biased (*Player Dynamics Design: Looking Behind the Curtain*, n.d.). Blackburn and Kwak implemented a system that would predict decisions made by tribunal judges using a classifier (Blackburn & Kwak, 2014). This system was quite effective, but not very portable across different languages, and had a lot of features it needed to take into account. Riot games themselves also took the route of automation, and have put a significant effort into detecting toxic in-game actions such as intentional feeding and trolling, but despite all this effort, players will still have to report toxic encounters. Developers have also put more effort into predicting toxicity through the use of machine learning. A popular way is by restricting certain words that are attributed to toxicity, such as certain swear words. However, more effort has been made to use datasets to train classifiers to train on more specific instances of toxic language. In terms of research, Buchanan et al., Ghosh, Shen et al., Weld et al. and Blackburn among others have conducted research using language analysis algorithms to predict toxicity.

Riot Games and Blizzard have also implemented and are refining their own detection algorithms. The downside, especially for researchers, is that a lot of the data developers use is not publicly available. Privacy is incredibly important to players, especially when it comes to the content of non-public channels such as direct messages (Frommel & Mandryk, 2022). As such, there are few data sets available to test algorithms on. Shen et al. created CONDA, an annotated dataset for toxicity detection that is the first of its kind. Similar issues that pervade research on factors behind toxicity also come up when trying to predict or detect it. For one, there seems to be this idea that toxicity (usually named griefing in older research) and cyberbullying are not the same thing and should be treated as such despite some papers using the two as meaning the same thing in the context of gaming (Murnion et al., 2018). Differences in perception of what is considered to be toxic also seep into the way data are labelled, making it harder for a classifier that was trained on one dataset, to perform well on one with different labelling (Frommel & Mandryk, 2022). Such datasets will also probably not include the context of the toxic encounter (Frommel & Mandryk, 2022). To have context embedded into the dataset, you will have to take a lot of factors into account, something which will make it harder for classifiers to perform well and be accurate. Blackburn and Kwak extracted such features from League of Legends' Tribunal cases but found that overall, text chat conversations still remained the most important factor when it came to judging if something was considered toxic or not (Blackburn & Kwak, 2014). Furthermore, classifiers have to be portable. If a classifier is trained using English language content, it will be harder for that classifier to perform well with other languages (Blackburn & Kwak, 2014).

Despite solutions being put in place in games, it is hard to tell if they actually work. There has been a general lack of faith in reporting systems by players, especially when they are easily abused for malicious purposes (Flores, 2020). Furthermore, developers rarely publish content on how their systems have influenced toxicity. Since none of this data is usually public, it is up to researchers to test these things out themselves, which, considering that most systems are iterated upon with every other patch release of a game, is not always a viable option. Another issue that keeps coming back when looking into how toxicity is being tackled is that while a lot of effort is being put in place to curb toxicity and "protect players" not enough effort is being put in place to help those targeted by toxicity, despite the fact that toxicity is contagious and those previously victimised by toxicity may have a tendency to display the same behaviour. Tools that developers often give players are ways to mute chat options such as voice chat or certain text channels, and the option to report players (Reid, Mandryk, Beres, Klarkowski, & Frommel, 2022).

Chapter 3

Communication design in games

3.1. Theory

The theory behind designing communication mechanics in online games draws from research on how teams coordinate, game design itself, collaborative virtual environments, and embodied cognition. Player communication is done through both implicit and explicit means (Cheung, Chang, & Scott, 2012). Highly effective teams communicate implicitly through the creation of shared mental models (Rueben et al., 2022) and situation awareness. In order to build these mental models, players work together to work out strategies, which are then called out by certain players. How this is done varies greatly, depending on the game and players' needs. Players are often quite creative when it comes to finding tools that suit these needs, which can vary from just being able to call out strategies in one game, to socialising with players that play a totally different game (McClelland, Whitmell, & Scott, 2011). If a game does not have these tools, or if developers are slower to integrate such tools, players will often go to external platforms in addition to using the in-game tools available.

As video games are becoming more complex, so are the user interface and controls. For example, WoW offers almost complete customisation of the user interface with different add-on programs that are created by the developers as well as players that allow one to create an interface that is suitable to your needs (Turkay & Adinolf, 2010). The quality of such an interface, as well as its complexity, will influence player performance. Complex UI systems will lead to players' attention being split between different information systems. Text and voice chat are currently the most popular communication options, because of how effective it is to convey strategies to players quickly (Kaunas, 2022). As previously stated, players are not necessarily always polite to one another, and toxicity can arise quite quickly. Furthermore, challenges in the game environment might make it harder to quickly convey a message without the use of acronyms. Another downside of the use of text chat is that it takes the attention away from the game itself (Herring, Kutz, Paolillo, & Zelenkauskaitė, 2009). In games such as FFXIV, which utilises strict combo rotations or shooters, where you need to be actively paying attention to your surroundings, typing in chat can be a detriment. In games where any second counts, taking a second to type a message might lead to players dying or not properly resolving mechanics. Furthermore, text chats in games are often split up to account for the type of audience the message is meant for. In general, most games have the option for a public channel, a direct message (PM, Whisper) channel, a group/party channel, and some options for custom chat groups. Even though these options are meant to split up, a visualisation by Chen showcases how messy this can get (Chen, 2009). In the paper, he showcases how communication during a WoW raid can go. With 40 players all completing the same raid, you usually have a few people taking charge as "raid leaders", these people are responsible for calling out mechanics. Most of the in-depth mechanics, that have to be executed by a certain role or class, are discussed in a separate channel. Because the raid leader cannot see that channel, they start the raid before the players can even finish discussing the mechanic. Voice chat in many ways is the preferred option for communication but is often not utilised by players because of the sheer amount of toxicity going on, leading to developers giving the option to mute in-game voice chat altogether, or, in the case of Overwatch II, restricting new players from using in-game voice chat until they have completed the "new player experience" (Blizzard Entertainment, n.d.). (McClelland et al., 2011). This is often not expected by developers.

Figure 6.1 is used as a reference for how most players interact while playing online.

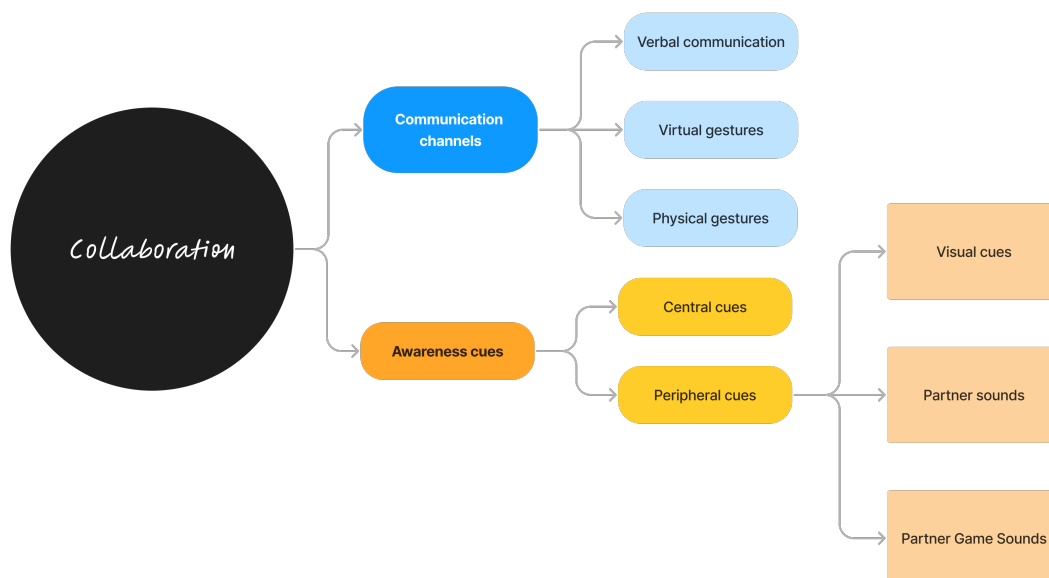


Figure 3.1: Taxonomy created by Cheung, Chang and Scott based on the in-game communication done by players during their experiment (Cheung et al., 2012).

A taxonomy made by Cheung, Chang and Scott shows how most players would communicate whilst playing (Cheung et al., 2012). The setting this research took place in was a shoulder-to-shoulder gaming session, however, this taxonomy is still quite accurate for online scenarios as well. However, since this paper was written before the global adoption of ping systems in many games, some of the descriptions might be a bit different from how things are implemented currently. Generally, you can divide communication methods into two different types: communication channels and awareness cues. Communication channels include verbal communication channels such as text or voice chat. Virtual gestures include emotes, which are expressions and gestures the player's character makes, as well as in-game actions players use to indicate something. For example, in the paper, the authors describe an instance where instead of verbally telling teammates about the location of an item, the player that was explaining something just shot at the location. Something many players in Final Fantasy XIV do, in my experience, is to jump in position to indicate that this position is a "safe spot" to resolve a certain mechanic. These are examples of using the player's character to communicate without having to say a word. Physical gestures are harder to place in the context of online gaming unless people play together in the same space or are using a webcam, which is not necessarily common online. Awareness cues are ways that the game itself, as well as players, can quickly communicate things, by using different types of cues. Central cues are those in the player's central view, such as health bars and map icons. Peripheral cues are those in the player's periphery. These include game audio coming from the other players' characters. All these cues can be visual or auditory. This paper was written before the adoption of ping systems in first-person shooters became mainstream. These pings tend to be a combination of both visual and auditory cues, that can be placed on the map or appear in the party's chatbox. These pings tend to be used in place of "normal" verbal communication because they are faster in use. However, their meaning can be misconstrued. League of Legends also introduced its ping system about ten years ago. A ping is usually a combination of a small visual and auditory cue that can be used to signal other teammates quickly. The idea behind these cues is that they signify common-but-specific messages without the need to type them out in text chat. These pings then appear on the map. Even though there is a linear relationship

between the use of these cues and player performance (Leavitt et al., 2016), these pings can also be used for toxic purposes. "Spam pinging", an action where one repeatedly presses a certain ping option to annoy players, is seen as a common toxic action in League and can hinder performance as well (Kou, 2020). Ironically, players have also found ways to attribute new meanings to pings, aside from their official meaning. The "Bait" ping, which looks like a fishhook, can also be considered to look like a rope and is sometimes used to tell players to "kill themselves" (Fischer, n.d.). Since the introduction of pinging in LoL, more games have used pinging as an alternative way of communicating, especially as an alternative to voice chat.

Toups et al. created an even more elaborate framework for cooperative communication game mechanics (Toups, Hammer, Hamilton, Jarrah, & Garretson, 2014). They used a grounded theory methodology to identify data from different games. Their framework includes three layers of how the mechanic is implemented. The primary type can be further specified with a secondary type that can then be further with a tertiary type. This framework could then be used by designers to design these mechanics in their own games.

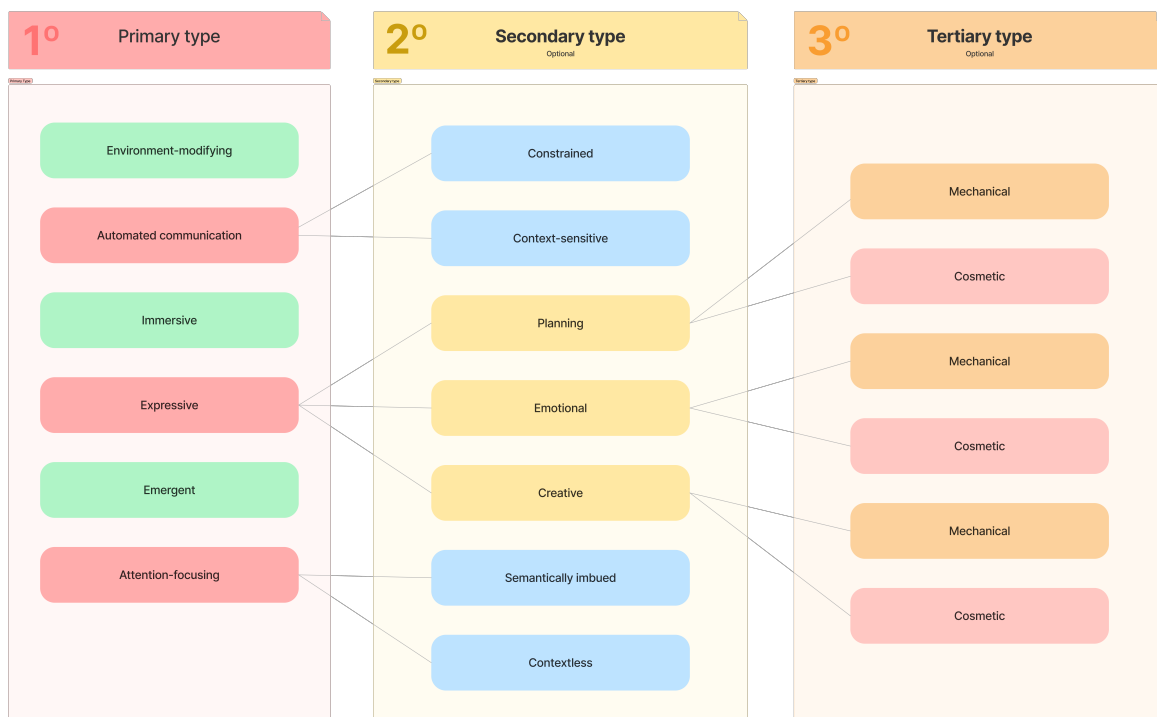


Figure 3.2: Framework by Toups et al. for cooperative communication mechanics using a grounded theory for game design. (Toups et al., 2014)

3.2. Commonly used communication mechanics

This section will contain a more general overview of the different methods of communication that are used in online gaming. I will use a selection of games to discuss the implementation of three main communication channels: voice chat, text chat and pings and how they are implemented in-game. The other two channels that are used in the survey that will be discussed in section 8.2., will not be as extensively discussed. Emotes generally speaking do not vary in terms of implementation across games. Macros are a bit too complicated to discuss with too much depth when it comes to syntax as well as which macros are legal in games and which types are not that I could spend a few pages on this. Furthermore, they are not used widely in most games in the first place.

As for how the selection of games came to be, most of these games were popular in my survey. I added a few additions, namely World of Warcraft, DOTA II, Fortnite and Overwatch II to have some more representation.

The first commonly implemented channel is voice chat. Voice chat often comes in the form of team chat through which one can talk with the entire team, party chat, which allows only those in a pre-made party to chat, and in very rare cases, proximity-based voice chat.

Game	Voice chat?	Which channels	Issues/complaints	Source(s)
Apex Legends	Yes	Squad chat	The first thing you see when you Google "Apex Legends voice chat" is many articles on how to fix Apex's voice chat not working, and people complaining that the default settings are too low. Especially cross-platform voice chat seems to be quite bad. People generally do not use voice chat in Apex, and it seems that the focus of the designers is to not encourage players to use it. When players do use voice chat, it is either out of frustration, or because something needs to be said that cannot be conveyed through pings. According to threads on social media, people would like the option for an opt-in voice chat, despite the devs not being open to it for toxicity reasons. Most players that want such a voice chat argue based on their experience in other games and how toxicity rarely occurs for them. Furthermore, voice chat would "humanise" interaction between players.	(Deets, 2021)
League of Legends	Yes, technically	All chat, Allied Chat, Whisper	I did not manage to find many complaints on the UI/UX side, just many complaints about toxicity	(Orizirguy, 2023; Tacticianz, 2023; Superkamipopo, 2020)
DOTA II	Yes	All chat, Allied chat, Spectator chat, Whisper, Party chat, Lobby, Coaches	No complaints on the UI side. Mostly complaints on the issue of children being on voice chat	
Fortnite	Yes	Game chat (team), party chat (premade)	People mostly complain that people rarely use vc anymore.	
Overwatch II	Yes	Team channel, Group channel	There was a voice chat bug that removed people from voice chat randomly as well.	(Rip-TazHimself, 2022; DekuLily, 2022; D3agf3uk, 2022)
World of Warcraft	Yes	You can use the Battle.net voice chat to create channels. There are also premade options for instance dungeons.	World of Warcraft's voice chat is rarely ever used. People prefer Discord because of quality issues in the past, and apparently, some players have just forgotten the option even exists in-game.	(Lamilambkin, 2018; MemelordPetey, 2022; Cmentis, 2018)
Final Fantasy XIV	No			
Valorant	Yes	Party voice chat and Team voice chat	Voice chat apparently randomly breaks for some players.	
CS:GO	Yes	Team chat		

Table 3.1: Which of the selected games have text chat

Then there is the option for text chat. Most games allow for this in some capacity. I was not able to find specific discussions surrounding design or implementation-related flaws when it came to text chat, so this is missing in the table.

Game	Text chat	Which channels
Apex Legends	Yes	Squad chat
League of Legends	Yes	All chat, Allied Chat, Whisper
DOTA II	Yes	All chat, Allied chat, Spectator chat, Whisper, Party chat, Lobby, Coaches
Fortnite	Restricted	Only in lobby
Overwatch II	Yes	Match, Team, Group, Whisper (Battle.net)
World of Warcraft	Yes	General, Trade, Local Defense, Looking for Group, /say, /yell, Party, Guild, Officer, Raid, /rw, Whisper
Final Fantasy XIV	Yes	Free Company (guild) chat, party chat, /say, /shout, /yell (proximity) chat, 4 Linkshells, 4 Crossworld Linkshells, /tell
Valorant	Yes	Party, Team, Whisper
CS:GO	Yes	All chat, Team chat

Table 3.2: Which of the selected games have text chat

Pings are quick ways to communicate. Generally, players are able to ping locations in-game and on the map, ping enemies or allies. Usually, this is done in combination with a voice line or small audio cue.

An investigation into the state of communication design in online video games and its relation to toxicity prevention

Utrecht University,

Game	Pings	What can you ping?	Review	Source(s)
Apex Legends	Yes	Show up on mini-map: items, weapons, enemies, abilities, in-game locations, ping wheel (enemy here, looting, attacking, going, defending, watching, someone's been here), dead player, respawn points, legend pings. Voice lines: vocal responses, thanking squadmates, requests.	The ping system in Apex was considered revolutionary on release. Even though ping systems existed at the time, the way the developers implemented and tested the ping system (by playing for a month without voice comms) allowed for a level of complexity and detail that had not been done before in shooters, or any other game for that matter. The patent for the ping system is also free to use, so other games have started to allegedly copy elements into their games.	(Ping, n.d.-a; Emissairearien, 2023; Tekin, 2021)
League of Legends	Yes, technically	Show up on mini-map: Generic, Caution, Target pings (target, defend), Smart pings (Retreat, On My Way, Assist Me, Enemy missing, Push, All-in, Hold, Bait), Vision Pings (Vision Cleared, Enemy Vision, Need Vision)	The new changes to the ping system have lead to accidental uses of pings, making people hesitant to want to use this new system	(Ping, n.d.-b; CheckAcademic, 2023)
DOTA II	Yes	Exclamation, Cross, Sword, Enemy Vision, Ally Vision, Location, Custom ping wheel	Most of Reddit about DOTA II is about toxic uses of pings. But most discussions are pretty old, it is hard to find relevant recent discussions.	(Adam, 2022)
Fortnite	Yes	Enemy pings, Weapon pings, Item pings, Ammunition pings, Building supplies	Again, very few discussions on the ping system, other than people not really using it. Issues with crosshair based targeting on pings.	(Rough-Many, 2022)
Overwatch II	Yes	Communication wheel (emotes and voice lines), Ping wheel (enemy pings, location pings)	The ping system currently has a massive bug where one pings one thing and the games does something completely different.	(Moonlight, 2022a, 2022b; WitheredBarry, 2023; An inside look at the ping system in Overwatch 2, n.d.)
World of Warcraft	Yes	Target markers, Raid world markers (implementations can vary based on the add-on you have), Chat box: Raid Warning	Nothing important to note. Some players seem to have to deal with corrupt UI due to add-ons not updating, but other than that no specific complaints.	(Raid world markers WoWWiki Fandom, n.d.; Target markers WoWWiki Fandom, n.d.)
Final Fantasy XIV	No	Waymarks, Target markers, Map location markers, Quick chat (only in Crystalline Conflict PvP)	Due to the illegality of add-ons in FF XIV, there were two instances where the developers restricting the use of waymarks. Other than that, quick chat in pop seems to be missing some things according to players.	(SQUARE ENIX, 2022; AweAce, 2020; SweetPete, 2023)
Valorant	Yes	Combat, Social, Strategic Ping wheels, Mini map pings	No real design specific discussions, but more so discussion about the usefulness of pings vs voice chat	(Amos, 2020)
CS:GO	Yes	3 customisable chat wheels: Preparation, Movement, Commands, Report, Bomb status, Responses, Grenades	There are some inconsistencies when it comes to which agent has a voice line and who does not.	(Yazar, 2023)

Table 3.3: Which games have pings

Chapter 4

Research questions and Approach

4.1. Research Questions

This thesis centers around the following research questions:

1. How is communication currently being facilitated in online video games?
2. How do players experience the use of communication mechanics in online video games?
3. How can communication features be better integrated into games?
4. How does restricting communication, or providing alternatives through the use of a ping system, impact the prevalence of toxicity in-game?

4.2. Approach

To answer RQ 1: I used the research I conducted in section 3.2. to create a more detailed framework based on the one by Cheung, Chang and Scott (Cheung et al., 2012). The end result will be discussed in section 6.1..

To answer RQ 2-4, I conducted a survey. The purpose of the survey was to find out participants' perceptions of how communication mechanics are integrated into games and how they impact toxicity.

4.2.1. The Survey

The survey is divided into 4 sections. Before starting the survey, participants had to fill in a mandatory consent form. Each section had a mix of open and closed questions. For most of the closed questions, participants had to answer according to a 7-point Likert scale, with 1 being strongly disagree, and 7 being strongly agree. For some questions, participants had to answer on a scale from 1-100.

Before I sent out the survey, I completed the ethics and privacy scan to ensure that there were no potential risks associated with my thesis. The results of this can be found in Appendix 8.1. I also tested out the survey with a fellow student to ensure that it would take participants no longer than 15 minutes to answer the questions. From participants' feedback after the fact, I learnt that it took most of them around 15-20 minutes.

The full survey can be found in the Appendix 8.2.. In the following subsections, I will go over each of the sections individually:

4.2.1.1. Section 1: General Information

The first section of the survey aimed to find general information about the participants. The purpose of this information was to find patterns among these participants and to see if there were any interesting factors I could group them on. As for which information this entailed, participants were first asked to share their age, gender and region. I made the choice to ask for the region, rather than just the country, to give those that did not want to disclose this the option to do so. I used game publishing regions for this. Lastly, participants were asked to, on a scale of 1-100 rate how much they identify as a gamer. Considering that the term gamer has multiple associations, both positive and negative, as discussed in section 2.1.1., this was not necessarily intended to be a measure to solely group on. However, this measure could be used in combination with other interesting measures.

4.2.1.2. Section 2: Information about the game

Since this thesis does not have a specific focus in terms of games or game genres. The survey had to be designed in a way such that it was applicable to most games. When starting on this section, participants are asked which game they want to answer questions about. They are then asked to disclose which server and server region they play in, how many hours they have played in total and how active they are on a weekly basis. They were then asked to rate how much they played

this game compared to other games, and how much they played the game alone compared with friends. Lastly, they were asked to describe what type of content they enjoyed. This last measure proved to be quite interesting to find patterns among the different participants. Participants were then asked to describe which input type they used to play their game. Participants could choose from the following options: controller only, keyboard and mouse only, a combination of the two, switching between input types, and any other option. These options were added because which input option uses will also factor into how they rate certain interactions. Lastly, participants were asked to name things they disliked or felt could be improved about the controls in their respective games.

4.2.1.3. Section 3: General questions around communication

In this section, participants were asked a set of quantitative questions, and two qualitative ones. When answering the quantitative questions, participants were asked to respond to a set of statements about their game, using a 1-7 Likert scale, with 1 being strongly disagree, and 7 being strongly agree. When coming up with the statements they had to rate, I was inspired by the usability/playability questions from the Game User Experience Satisfaction Scale (GUESS)(Phan, Keebler, & Chaparro, 2016). However, from my research, I was unable to find a questionnaire or evaluation method that was suitable for my research topic. As such, I had to come up with some of my own statements, based on existing research. The first statement, "I think it is easy to communicate in-game", was meant for participants to rate the ease of use of communication mechanics in their respective games. "I find that the game offers enough options to communicate with strangers" was meant to showcase if participants felt that there were elements missing in their game. "I feel like I can quickly communicate in the heat of the moment" meant that participants had to rate how quickly they felt they were able to communicate. "I know the purpose of each communication channel in-game" was meant to showcase awareness. "I have felt at a disadvantage due to a lack of appropriate communication tools in-game" had participants rate how important they think communication is when it comes to winning matches. "The game's selection of communication tools is well-used by other players" focuses on how players perceive others' usage of tools. Lastly, "The game has enough options to mute communication channels that I do not need or want to use", is an extension on if the game offers enough options to communicate, but is instead meant for participants to rate if there are enough options to restrict communication.

For the qualitative questions, participants were asked to mention if there were any possible improvements they would like to see in terms of possible improvements when it came to their game's available communication mechanics and were asked to discuss if they felt said communication mechanics had any impact on toxicity in their respective games. The former question was not mandatory. However, the question on toxicity was.

4.2.1.4. Section 4: Rating individual channels

In the fourth section participants answered questions about individual in-game communication features. I had broken these features down into five different ones, those being voice chat, text chat, pings, emotes, and (chat) macros. The reasons as to why were outlined in section 3.2.. Each feature was introduced by a brief explanation followed by the question of if the feature existed in-game. If a participant answered "yes" they would answer follow-up questions. This was also done to measure a sort of "awareness" that participants had. For example, not every game has a dedicated tutorial showcasing each communication channel and its purpose, and some games also have restrictions on which channels are used where. However, one must also note that some games also do not use the same words or definitions when it comes to visual cues. The word "ping system" is used to describe multiple different implementations of such systems, and not even every game uses this term to describe its own set of visual cues. Final Fantasy XIV, for example, uses waymarks, that show up on the in-game map during PvE content. But these are not called "pings". To avoid any confusion about such definitions I wrote these definitions to be as broad as possible.

For each channel, players were again asked to rate a set of statements on a 1-7 Likert scale. They

were also asked one qualitative question about what they disliked or would like to see improved about each channel.

Participants were asked to rate how often they used a channel while playing and how much they muted or unmuted a certain channel. Furthermore, they were asked how easy each channel was to use, how comfortable they were using a channel as well as how well each channel was implemented according to them. They were also asked how important they felt each channel was to be in-game and if they agreed a channel should be removed. Lastly, they were asked if they had ever used a channel with bad intent, or had seen a channel be used with bad intent and if they experienced toxicity. What separates the last two statements is that participants might have seen other players use a channel with bad intent, but that it was not directed at them.

At the end of the survey, participants were asked if they had any other comments.

4.2.2. Procedure

After ensuring that the survey involved no privacy risks, the survey was sent out to my potential participants. I shared the survey among my own friend groups and discord servers I was in and through LinkedIn. The criteria to be able to answer the survey were quite simple: one had to be over 18 years of age and play an online multiplayer game. As previously stated, there was no particular requirement for what constituted as such, which could have potentially been risky. However, from experience with online gaming communities, I figured that most (potential) participants held similar notions about which games were suitable in the context of my thesis. Initially, I had planned for the survey to be up for three weeks. In the end, it was up for only two weeks, since the number of participants, after a surge in the first week, did not grow much further.

There were two potential other pitfalls in the way I sourced participants. The first was the potential bias towards the game FFXIV, which is the game I am personally active in and also have the most online friends in. I encouraged those friends to potentially pick a different game to answer questions about, to potentially mend this bias. The second pitfall concerned anonymity. Since my survey was anonymous, I tried to limit interactions about my survey with potential participants, aside from the occasional question here and there. This did not prevent me from recognising certain participants' writing styles or personal characteristics that set them apart from others, or funny comments that were written at the end. Some of these friends proved particularly dedicated in their responses, so one could say that this was also an upside.

4.2.3. Participants

In total 43 participants answered the survey. Of these participants, 8 identified as female, 34 identified as male and 1 preferred not to say. The majority of participants were Dutch or living in the Netherlands, 17 participants were from other European countries, one from South America and one from South-East Asia. Most participants played on EU servers. Most participants played using a keyboard and mouse with only one participant playing with a controller. There was quite a variation in terms of games: Apex Legends (1), Brawlhalla (1), CS:GO (3), Europa Universalis IV (1), FFXIV(11), Genshin Impact(1), Granblue Fantasy(1), Hypixel Skywars(1), League of Legends(13), Old School Runescape (1), Star Wars Battlefront (1), TFU2 (1), Rainbow Six Siege (1), Valorant(6).

4.2.4. Analysis

For the majority of my results, as well as the discussion, I relied on the results of the inductive thematic analysis I did on the answers to the qualitative questions. Since I did not have a certain theory, or hypothesis I had to prove or disprove, this was the best choice. For each of the answers, per section, I first went through a process of coding, after which I structured each of the codes into their respective themes. After finding out that there were many overlapping themes I generalised them, which is how I came up with the themes that will be presented in the results.

The reason I prioritised the qualitative answers was because of some retrospective design flaws in my thesis. Because of a lack of focus on a specific game or game genre, one has to deal with different implementations of communication mechanics in games, but also a lack thereof. Some

games simply do not have voice chat or text chat implemented. What this means for statistical analysis is that there is going to be missing data for some participants, which a method like ANOVA cannot handle. When trying to find other ways to still find statistical significance in my results, I looked towards measures to group participants on. What I found, however, is that the different potential groups proved to be so small, that it was hard to find any significance. Therefore, it was decided that it was best to just use descriptive statistics for the quantitative results, and see how they reflect the qualitative answers.

Chapter 5

Results

5.1. Quantitative results: General Questions About Communication in games

Table 5.1 includes the answers to the different general questions that participants had to answer about how they experience communicating in their respective games.

Table 5.1: Descriptive Statistics for the general communication questions

	Q1	Q2	Q3	Q4	Q5	Q6	Q7
Valid	43	43	43	43	43	43	43
Mean	5.837	5.581	5.047	6.140	3.093	4.628	5.744
Std. Deviation	1.214	1.451	1.812	1.187	1.937	1.839	1.560
Minimum	3.000	2.000	2.000	2.000	1.000	1.000	1.000
Maximum	7.000	7.000	7.000	7.000	7.000	7.000	7.000

When asked if players thought it was easy to communicate in their respective games (Q1), players generally tended to agree (mean = 5.837, $SD = 1.214$).

When asked if players thought the game offers enough options to communicate with strangers (Q2), participants tended to somewhat agree (mean = 5.581, $SD = 1.451$).

When asked if players felt that they could quickly communicate in the heat of the moment (Q3), participants also tended to somewhat agree (mean=5.047 ($SD = 1.812$)).

When asked if players feel like they know the purpose of each communication channel (Q4), they agreed (mean=6.140 $SD = 1.187$). Compared to the other questions, participants' answers were more uniform, leading to a relatively lower standard deviation.

Participants did not seem to feel at a disadvantage due to a lack of appropriate communication tools (Q5). The mean for this question was 3.093 ($SD = 1.937$), which meant that they somewhat disagreed. Most of the outliers (6 and higher) came from participants playing League of Legends, which seemingly had the highest variation when it came to answers.

When it comes to other players, and how well are perceived to use communication tools (Q6), the answers were also quite mixed. The mean for this question was 4.628 ($S= 1.839$), which means that the answers trend somewhere between neutral and somewhat agree. This time around, most of the high answers came from FFXIV players, whereas most other participants had more varying answers.

When asked if their game had enough options to mute channels they did not use, participants tended to lean more towards agreeing (mean=5.744 $SD = 1.560$). There was not that much noteworthy variation between games.

5.2. Quantitative results: Different channels

Tables 5.2 - 5.11 contain the descriptive statistics for each of the questions participants were asked about the different in-game communication tools. The first row refers to how many participants answered about each different channel. Out of 43 overall participants, 20 participants answered about voice chat in their games, 42 participants answered about text chat, 34 participants answered about pings, 30 participants answered questions about emotes and 20 participants answered questions about chat macros.

When asked if participants used a communication channel often (see Table 5.2, in-game voice chat has the lowest mean reported usage rating ($M= 4.00, SD=2.513$), aside from chat macros ($M= 4.10, SD=2.315$). Pings get used the most ($M= 5.912, SD= 1.658$). Emotes scored a bit higher than text chat ($M= 5.467, SD=2.063$ vs $M= 5.238, SD=1.778$), but the standard deviation on emote usage was quite a bit higher. When looking at where this comes from, it seems that FFXIV players use emotes quite a bit more than other participants.

Table 5.2: Descriptive statistics for Q1: I often use this option while playing

	Voice chat	Text chat	Pings	Emotes	Chat macros
Valid	20	42	34	30	20
Mean	4.000	5.238	5.912	5.467	4.100
Std. Deviation	2.513	1.778	1.658	2.063	2.315
Minimum	1.000	1.000	1.000	1.000	1.000
Maximum	7.000	7.000	7.000	7.000	7.000

When asked if participants found the controls for their respective text channels easy to use (see table 5.3, participants whose games had voice chat had the highest tendency to agree ($M= 6.00$, $SD = 1.257$). This was mostly across the board. Chat macros tended to score lowest in terms of ease of use ($M= 4.30$, $SD = 1.895$), which corresponds to the UI-related complaints found during the qualitative analysis.

Table 5.3: Descriptive Statistics for Q2: The controls to use this option are easy to navigate

	Voice chat	Text chat	Ping	Emotes	Chat macros
Valid	20	42	34	30	20
Mean	6.000	5.905	5.382	5.633	4.300
Std. Deviation	1.257	1.165	1.498	1.426	1.895
Minimum	3.000	3.000	2.000	2.000	1.000
Maximum	7.000	7.000	7.000	7.000	7.000

Regarding how much participants tended to mute different channels (see table 5.4 , text chat seemed to get muted the most ($M= 4.124$, $SD = 2.159$). Pings and chat macros seemed to get muted the least. The standard deviation for most channels was quite high.

Table 5.4: Descriptive Statistics for Q3: I go between enabling and disabling (muting and unmuting) this option in game

	Voice chat	Text chat	Pings	Emotes	Chat macros
Valid	20	42	34	30	20
Mean	3.800	4.214	3.382	3.500	2.900
Minimum	1.000	1.000	1.000	1.000	1.000
Maximum	7.000	7.000	7.000	7.000	4.000

Pings and text chat were regarded as the most important options in-game. Emotes, were comparatively not as important, which corresponds to the qualitative results. Participants were comfortable using most channels. Voice chat got the lowest mean score.

Table 5.5: Descriptive Statistics for Q4: This option is important to have in game

	Voice chat	Text chat	Pings	Emotes	Chat macros
Valid	20	42	34	30	20
Mean	5.700	6.214	6.500	5.200	5.650
Std. Deviation	2.055	1.371	0.826	2.058	1.496
Minimum	1.000	1.000	4.000	1.000	2.000
Maximum	7.000	7.000	7.000	7.000	7.000

When asked how comfortable players were with using different communication channels (see table 5.6, with the exception of voice chat ($M= 4.70$, $SD = 2.003$), every channel got a relatively high score.

Table 5.6: Descriptive Statistics for Q5: I feel comfortable using this option

	Voice chat	Text chat	Pings	Emotes	Chat macros
Valid	20	42	34	30	20
Mean	4.700	6.000	6.000	6.033	5.450
Std. Deviation	2.003	1.325	1.279	1.299	1.605
Minimum	1.000	1.000	3.000	2.000	2.000
Maximum	7.000	7.000	7.000	7.000	7.000

When it comes to how well the different channels were implemented according to participants (see table 5.7, participants seemed to be quite neutral about chat macros and voice chat. Particularly in League of Legends voice chat was implemented quite poorly according to participants. Text chat and pings got quite similar mean ratings. Emotes stood out as the highest score. This looks to be because of participants playing FFXIV.

Table 5.7: Descriptive Statistics for Q6: I feel like this option is well-implemented

	Voice chat	Text chat	Pings	Emotes	Chat macros
Valid	20	42	34	30	20
Mean	4.900	5.167	5.353	5.667	4.400
Std. Deviation	1.861	1.591	1.535	1.516	1.847
Minimum	1.000	1.000	2.000	2.000	1.000
Maximum	7.000	7.000	7.000	7.000	7.000

When it comes to intent (see table 5.8, participants reported that text chat was used with bad intent most of all across the board, especially compared to chat macros.

Table 5.8: Descriptive Statistics for Q7: I have seen this option be used with bad intent

	Voice chat	Text chat	Pings	Emotes	Chat macros
Valid	20	42	34	30	20
Mean	5.150	6.143	4.176	5.433	4.000
Std. Deviation	2.323	1.507	2.611	1.813	2.026
Minimum	1.000	2.000	1.000	1.000	1.000
Maximum	7.000	7.000	7.000	7.000	7.000

Participants reported not using these options with bad intent themselves (see table 5.9.

Table 5.9: Descriptive Statistics for Q8: I have used this option with bad intent

	Voice chat	Text chat	Pings	Emotes	Chat macros
Valid	20	42	34	30	20
Mean	1.650	2.524	2.765	2.900	1.900
Std. Deviation	1.387	1.756	2.075	1.954	1.294
Minimum	1.000	1.000	1.000	1.000	1.000
Maximum	6.000	7.000	7.000	7.000	6.000

As for through which options participants experienced the most toxicity (see table 5.10, text chat had most participants reporting that they experienced toxicity.

Table 5.10: Descriptive Statistics for Q9: I have experienced toxicity using this option

	Voice chat	Text chat	Pings	Emotes	Chat macros
Valid	20	42	34	30	20
Mean	5.050	6.262	4.059	5.133	3.400
Std. Deviation	2.665	1.380	2.449	1.655	1.930
Minimum	1.000	1.000	1.000	1.000	1.000
Maximum	7.000	7.000	7.000	7.000	7.000

When asked if a certain option should be removed, the channels each got low ratings (see table 5.11. Overall, the consensus seems to be that no channel should be removed, but voice chat in League of Legends did tend to receive higher ratings compared to channels in other games.

Table 5.11: Descriptive Statistics for Q10: This option should be removed

	Voice chat	Text chat	Pings	Emotes	Chat macros
Valid	20	42	34	30	20
Mean	2.000	1.381	1.235	1.900	1.700
Std. Deviation	1.622	1.011	0.654	1.709	1.418
Minimum	1.000	1.000	1.000	1.000	1.000
Maximum	7.000	7.000	4.000	7.000	6.000

5.3. Qualitative results: Control settings

When asked what participants disliked about the controls in their game and what they would like to see improved, there were quite a few players that expressed they were content with the way things were in their respective games, but there were also some specific issues players had. These issues could be categorized within a few different themes, which will each be explained in their own subsection. These themes are Native Configurations, Ways to improve skill level, interface design and bugs.

5.3.1. Native Configurations

The first theme would be best summarized as possible improvements when it comes to the ways native controls are configured. For example, a common grievance about the game Final Fantasy XIV has been its tab-targeting system. One player compared its targeting system to that of World of Warcraft which seemed snappier and in a scenario where there are multiple targets the “tab targeting system of that game is so good you’d think that it actually knows what mob you wanna focus on with your abilities.”, whereas in FFXIV “here’s times where you wanna use the “Tab” key in order to switch to your desired target and well the game just plays a huge gamble on what mob you are gonna Solo target hit.”. This, according to another player is especially prevalent in the PvP mode, where there are so many players at the same time and not being able to target the correct one can be very detrimental. Some players also expressed grievances when it came to movement mechanics and camera controls in their respective games, such as the movement feeling less fluid or more clunky than in other games. Furthermore, keybinds as well as other keyboard-specific settings came up frequently. Players often felt that their respective game had too many keys to press or specific actions to bind to keyboard keys and that these could be reduced. The term “button bloat” was specifically mentioned. Some players reported that it was also difficult to alter control settings without the use of third-party tools or through altering config files or that standardized key binds were missing.

5.3.2. *Ways to Improve Skill level*

The second theme concerned ways in which players could improve or display their skill level. Some players suggested in-game tools that could be added, such as the addition of DPS meters, match replay features or the inclusion of certain mechanics in the tutorial. Some players advocated for the outright removal of mechanics or to have the game add new use cases for them. Lastly, the topic of game balance was touched upon.

5.3.3. *Interface Design*

The third theme regarded the overall interface design of the game. Navigating interfaces on the controller seemed to be more difficult in certain games compared to the keyboard and mouse. Players expressed that they found it hard to imagine alternatives to these issues. As one player put it: “In this case there is not a clear alternative as the mechanical complexity and uniqueness requires unintuitive interfaces.”

5.3.4. *Bugs*

The fourth theme surrounds all the little bugs and technical issues one might encounter in-game. While in some games bugs might create interesting game mechanics, or certain mechanics might have to be purposefully buggy so they are not exploited, they can also cause annoyance. One player expressed this same sentiment when talking about macros in FFXIV: “.....,only complaint would be macros and some actions not “queuing” when you press them, making you press them exactly at the right moment or lose the input. Macros have a good reason for not acting this way, but the items are very annoying sometimes.” Input lag is also a common issue when it comes to games, making the in-game feedback you get when pressing an action not seem very snappy and fluent.

5.4. **Qualitative results: Summary per channel**

- Voice chat: The overall consensus when it comes to voice chat is that it is essential to coordination and teamwork and the easiest way to communicate. However, because of how prevalent toxicity is within this channel, players do not tend to want to use it in-game and prefer to use third-party alternatives, such as Discord.
- Text chat: The consensus on text chat was that auto-translate features in games should be expanded on and optimized so it is easier to chat with people from different countries. Switching between text channels should be made easier, and it should become clearer to players which players will be able to read messages from proximity-based chat channels. Furthermore, some games have restricted text chat communication in some way, such as disabling the ability to DM players when they are in an active duty or match or do not allow any messages before after or during a game, making it hard to socialise.
- Emotes: There was not a general consensus on emotes. Some players found them useless, some people were missing some variety in different types of emotes, and some players had specific emotes they would like to be removed or fixed.
- Pings: When it comes to pings, participants generally were quite positive about their existence or would like their own game to have more such options. Although for some the question arose whether or not it should be the main form of communication or not. Players specifically reported in-game specific issues and ways that the ping and marker systems were designed, such as when and how markers can be placed and how they were integrated into the UI of the game. One main issue that should be highlighted is the fact that for some players, it felt like any changes that were made to the ping system made it difficult to work with them.
- Chat macros: When it came to chat macros, most answers fell in the category of issues with the way the UI was designed and how they had to be used.

5.5. Qualitative results: Overarching themes between communication tools

In this section, I will cover three over-arching themes found in participants' answers. These are quality control, user experience and moderation.

5.5.1. Quality control

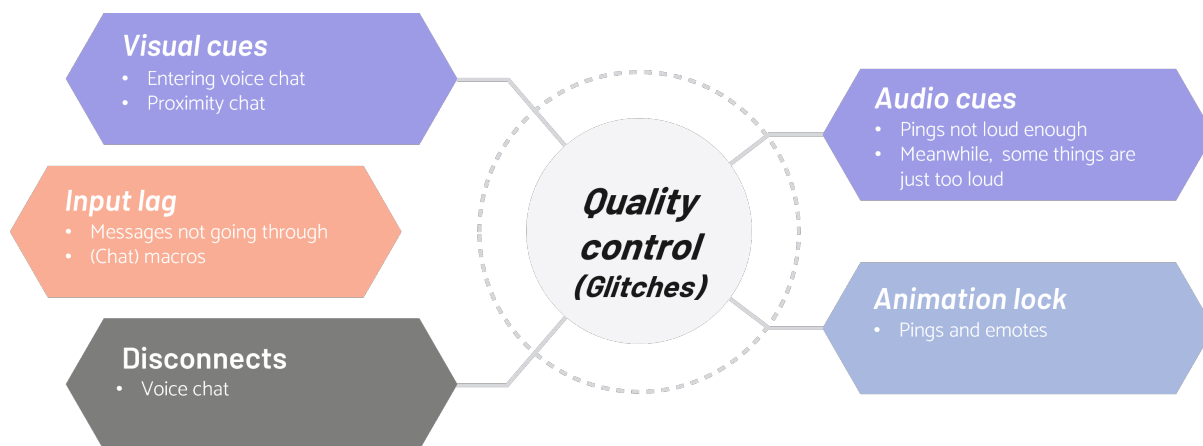


Figure 5.1: A graphic breakdown of the different sub-themes within the theme Quality Control

This theme includes the many bugs, glitches and technical issues that allow for accidental and unintentional uses of tools. I wanted to separate some of these issues from the next theme, because whilst these issues will affect the user experience, some of these issues are not necessarily by design, or have been designed to be this way. They usually come about through either issues with a player's own system or internet connection, or bugs inside code that might be patched in the next update cycle of a game. These issues include:

- Input lag between messages and messages not going through.
- Native voice chat disconnecting, which disrupts the game.
- Certain emotes/pings having an animation lock that you cannot cancel out of.
- Input lag on macros
- Lack of visual cues when entering a voice chat
- Pings not being very loud by default
- A lack of visual cue or transparency when it comes to who gets to read certain messages in public channels.

5.5.2. User Experience

User Experience: This theme is very all-encompassing, and includes the following sub-categories: The ways communication features are integrated into the game, confusing design decisions, the complexity of some of these features, and the usage of these features.

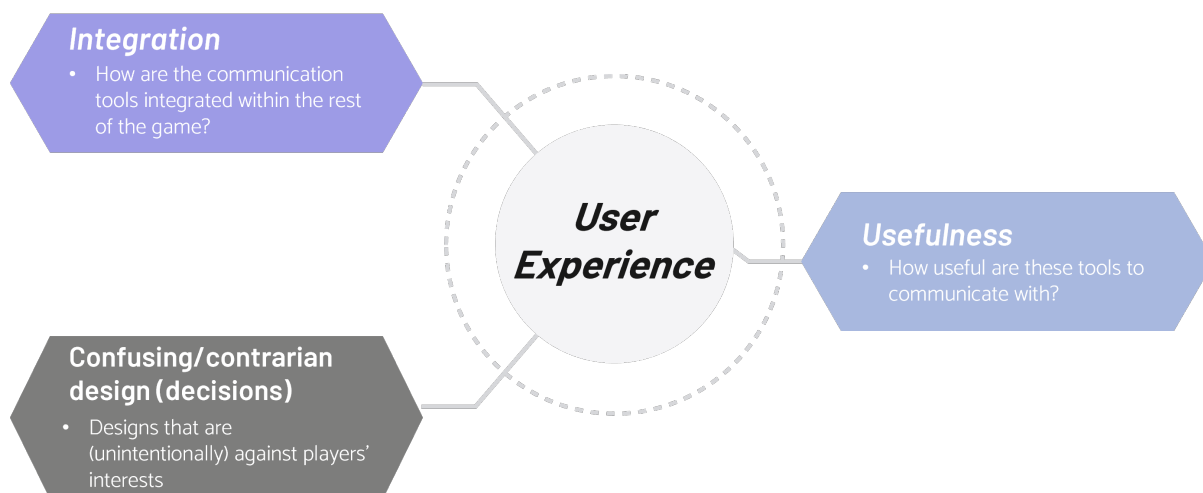


Figure 5.2: A breakdown of the different sub-themes within the theme User Experience

5.5.2.1. Integration

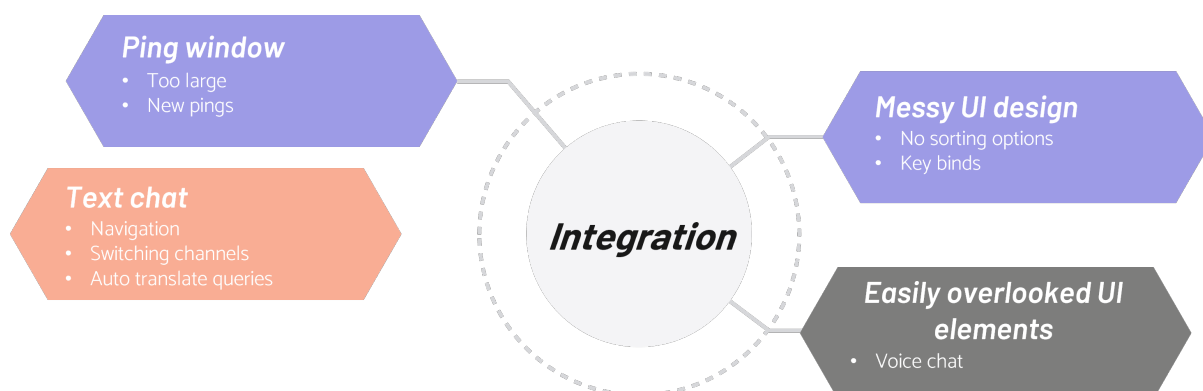


Figure 5.3: Different themes within the sub-theme Integration

This sub-theme surrounds the ways in which communication features are integrated into the overall game UI. In some games, voice chat is sometimes used accidentally. Why that is, is unclear from the answers themselves. Text chat in some games was not very visible to players and easily overlooked, just like the mute button in some games. Switching between text channels was usually quite difficult and using auto-translate dictionaries to translate spells or commonly used sentences can be challenging to players if they do not know the full query. One participant shared that his biggest issue is that he has to actively click on the text box to start typing. According to them "...it makes the path to actually talking bigger, and when the game has many things attacking you, the less time wasted the better." This navigation issue persists among multiple players.

In some games, the UI for the ping window seems to be too complicated. According to participants, in their respective games, the interface can be too large, and new pings are just added to them without it being clear to players. Furthermore, some participants reported that their respective games' ping window started becoming too cramped and they were constantly pinging the wrong thing. A solution proposed by one participant is to add a separate window for new pings so players can be acquainted with them. Otherwise, pings should be added as part of the in-game tutorial. On the other hand, some games with large international fan bases, that usually do not have international developer support (which is the case for many Japanese mobile games) use pings and auto-translate features to communicate for lack of a better alternative. The way in

which these stickers and phrases are used is very much community based, as described by the following participant: "the community has a good grasp of it but as an individual, it is up to you to catch up on the stickers and phrases the community has accepted for specific raid strategies." Messy UI design also comes up a lot when discussing chat macros. In games that have them, participants describe that the UI makes it hard to find your own macros, sort them or rearrange them. These macros can also take up key bind slots depending on the game. Other participants argued that the exact interactions they have to use to use chat macros could lead to unintended mistakes. Participants that play games where macros do not play that big of a role in gameplay argue that they would like more options for players to express themselves, but that they could not imagine a way in which that could be done comfortably.

5.5.2.2. Confusing/Contrarian design decisions

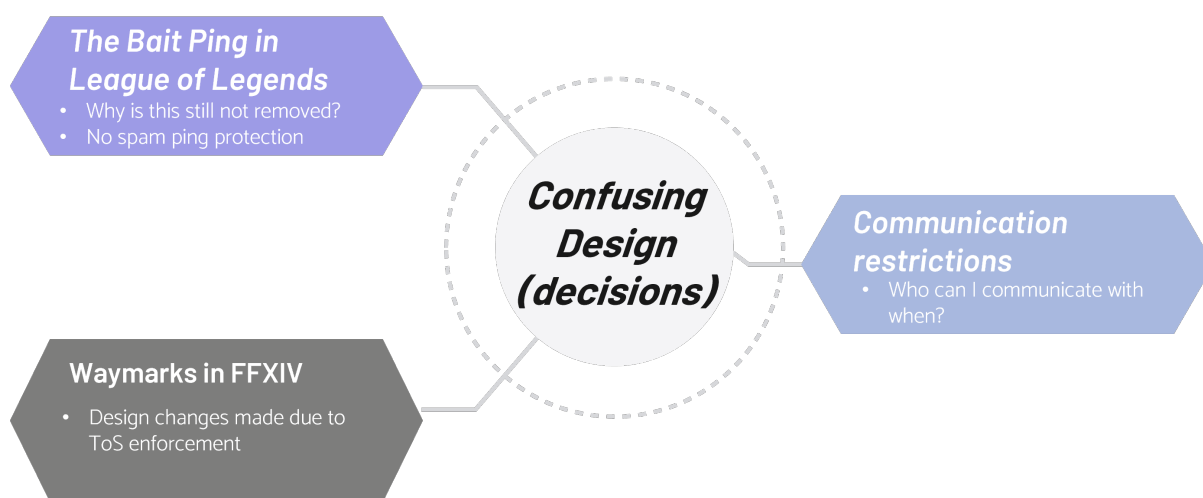


Figure 5.4: A graphic breakdown of the sub-theme

This includes any design decision by developers that are perceived to be against players' interests, has been re-attributed in a way that works against players' interests, or mechanics that do not make sense to players. Three noteworthy examples from participants were:

- The bait ping in League of Legends. This is a ping in the shape of a fish hook that was repurposed by the community to tell fellow players to "hang themselves". A similar thing occurred to the "Enemy is missing" ping, which looks like a question mark. While these uses are not intended by developers, participants would have liked to see these removed or reworked.
- Waymarks in FFXIV. In the raiding scene in FFXIV, waymarks are used to indicate safe spots on the arena for certain strategies. Square Enix has a policy against the use of third-party tools in their game, especially those with the purpose of cheating. Specific design changes to the way waymarks can be placed were made in two instances. In the first instance, "Users created macros/bots that could do mechanics by following the markers on the map. To counter that, the developers made it so that you can not change, place or remove markers once battle has been initiated." In the second instance, one user had used a third-party tool to create a set of waymarks which were placed outside the bounds of the arena. In this particular fight "There are many stages in which the shape will periodically change, meaning while the raid is active and people are resolving mechanics, the placement of the waymarkers/pings cannot be changed to a place where they could be out of bound from the previous shape." The once more dynamic waymark system became more rigid, meaning that in "fights with 7 phases, but you have to utilize one and only one set of markers on the ground.", that can also not be corrected based on changes made to the arena.

- Communication between servers, again in FFXIV. FFXIV has a system called the party finder, where players from different servers within one regional data center can group up for encounters. When a player creates a group for an encounter, players that want to enter this group can DM the creator to ask questions. However, if the creator is not on the same server as the player who sent them the direct message, the creator is unable to respond.

5.5.2.3. Usefulness



Figure 5.5: A graphic breakdown of the sub-theme Usefulness

Emotes are generally not considered useful as a tool for communication, but more a way for players to show off achievements, for aesthetic uses, or for developers to fill loot boxes or battle pass loot. On the other hand, voice chat is considered very useful, so much so that participants that play League of Legends, a game known for having a toxic community, would like the option of a native, in-game voice chat. For lack of better alternatives, many players will use third-party tools that fit within their specific use case. When it comes to pings, the question of their usefulness according to participants is pretty mixed. Some people prefer voice chat, to the point that they would like pings not to be expanded upon, since it drives people away from using their microphones since you do not have to. On the other hand, other participants would like options to be expanded upon, for those that do not, or cannot use voice chat, and because text chat is too cumbersome to use. In games that lack any sort of quick communication option, participants would like such options to exist from the developers, "since in the heat of a fight we can't really stop to type or else we get hit."

5.5.3. Moderation

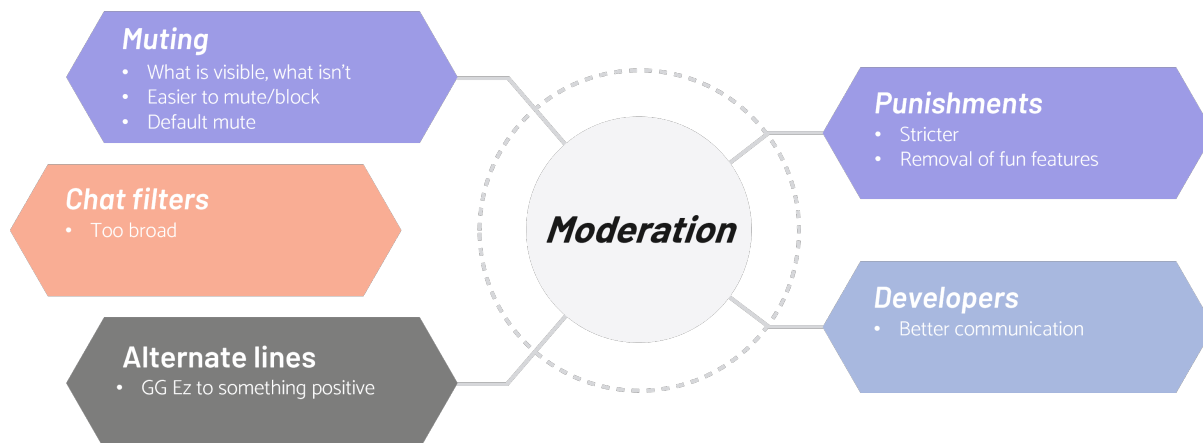


Figure 5.6: A graphic breakdown of the different sub-themes within the theme Moderation

Moderation is a commonly touched upon topic, particularly when it comes to handling the toxic use of different communication channels. For example, having the option to mute text chat is a common way in which you can avoid getting toxic messages. Multiple players found that it was odd that it was not possible to mute only one type of text channel, like say party chat, but that the entire text chat tab was not visible if you muted text chat. This usually also meant that battle logs and alerts would also be disabled. Furthermore, in some games, specific chats are muted by default, which did not make sense to some players. On the topic of muting, players do agree that it should become easier in their respective games to mute/block rude players, or even have better automated ways to do so. Furthermore, having key binds to mute specific players was considered a favourable option. Chat filters as well as AI options to listen in and filter out toxic messaging in voice chat as well as text chat were suggested as well. However, said filters are currently either too broad, or return too many false positives, since detection methods are not very good at detecting sarcasm, ironic usage of language or words that had their meaning re-attributed for the in-game setting. On the other hand, one player commented that Overwatch currently does this thing where it replaces specific commonly used toxic phrases such as "GG ez" with more pleasant and lighthearted messaging, and suggested that this could work well in their own game. Other players suggested that their game should allow the option to create their own dictionary of blacklisted words, based on which the game could auto-mute players that used them. The punishments for toxicity were discussed in the answers as well. Some players want harsher punishments, but what these looked like was unclear. Other players suggested the removal of novelty features such as emotes as a punishment since these are considered more "fun" than "useful". Furthermore, some players wanted better communication between developers and players on what happens to toxic players.

5.6. Qualitative results: Toxicity

The following results are answers to the question: "Do you feel that communication mechanics have an impact on the level of toxicity in your game?". Section discussion will have a more in-depth analysis on the answer to this question with more additional sources, this subsection will only discuss participants' answers. The answers to this question could be categorised into a few groups: "No", the context of how toxicity happens in a respective game and the way toxicity is expressed in-game.

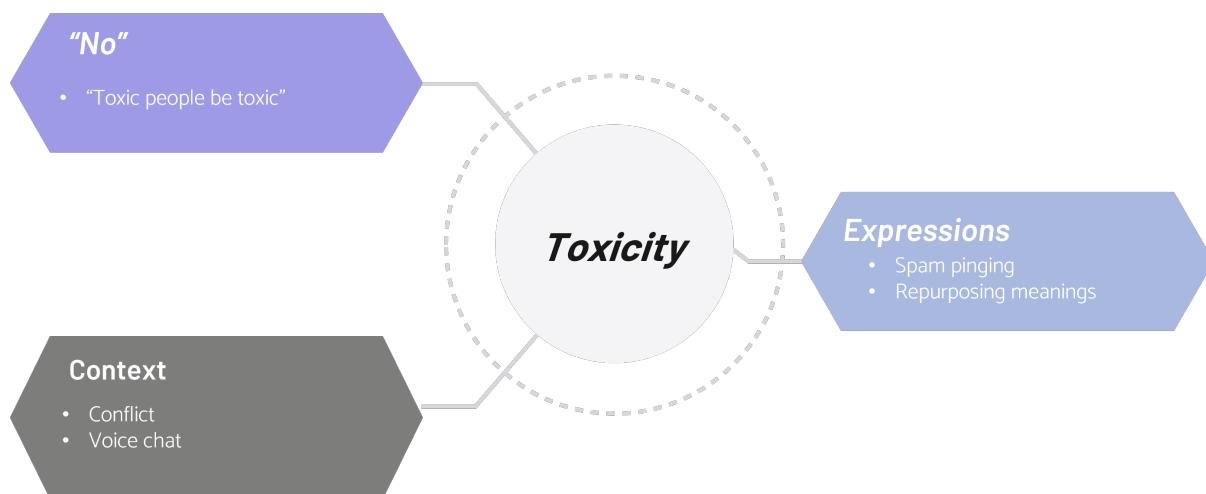


Figure 5.7: A breakdown of the different sub-themes when it comes to toxicity.

- People that answered with "No" (or something of the sort): Although most of the participants gave some form of positive affirmation to the idea that communication mechanics had some impact on toxicity in their game. I felt like for the sake of representing the nuances in this discussion, I had to highlight these answers as well. While most of the negative answers to this question did not have that much substance to them, out of 43 participants, at least 13 participants did not feel that communication mechanics or the way they are designed have any impact on toxicity. Aside from just answering straight-up "No", some answers had some nuances. For one, in games where the community is generally quite casual, toxic usage of communication tools rarely occurs in general. In games where the main form of communication is done through pings or stickers, or where communication is limited, communication also rarely occurs. Most toxicity can also happen outside of the game, and not necessarily in-game. Lastly, some of the answers expressed the sentiment of "toxic people be toxic" aka, toxic players will always find a way to be toxic, regardless of how communication is facilitated in-game and that the fact that toxic communication happens through a channel does not necessarily mean it is by design.
- The context behind toxicity in-game: The first main issue players frequently talked about across different games is the collaborative nature of online gaming. It could be best summarised by the following answer: "Toxicity especially plays up when the expectation of the cooperative experience is undermined by the personal ambitions of one or more players. This is because the cooperative experience is not guaranteed and players will turn on each other when agreement cannot be reached." This occurs in both MOBAs as well as MMOs, according to players.
- As for where toxicity occurs most, at least according to answers from participants: voice chat, while being great to communicate effectively, is where toxicity is bound to occur most. Text chat tends to be more heavily moderated but especially in higher-end content and more competitive games toxicity definitely occurs.
- How toxicity is expressed in-game: As stated previously, toxicity, according to some participants, often comes about due to a lack of team coordination and conflict. According to participants, this will lead to frustration and inevitably players will start to express toxicity through "explaining stuff in a bad attitude, giving tones to words that people do not like whatsoever. Not only that, arguments between individuals are basically.." or by "resentment that presents itself in the form of future unwillingness to cooperate or an outright dismissal of the make-believe rules through rage-quitting." These are only some examples of how toxicity is expressed. Two forms that have not been discussed yet, actually mostly occur through the use of pings. Spam pinging, or the spamming of pings, is done by toxic

players to annoy other players, making it very difficult to communicate. The meaning of different pings has also been repurposed to be more toxic (i.e. bait ping). Emotes are generally considered to be milder than verbal communication, but there are instances of emotes that were blatantly toxic to begin with according to participants, or were created to fuel the competitive spirit of players, such as the Taunt options in TF2 or the salt pouring emote in Brawlhalla.

Chapter 6

Discussion

6.1. The state of communication in online video games

To answer this question, I looked at a mix of literature research and a selection of popular games to determine how games currently facilitate communication. To showcase this, I created an updated version of the model by Cheung, Chang and Scott (Cheung et al., 2012).



Figure 6.1: Updated framework on that by Cheung, Chang and Scott.

This figure corresponds to the current state of communication design in games but does not tell the full story. Currently, mostly in competitive games, there is a transition happening between the use of voice -and text chat and pings. This is done in a few ways. Either, pings are implemented as an additional layer to these other channels, or communication is completely restricted, and pings are the only option. Many reasons from developers for these restrictions will boil down to toxicity. The complexity of a ping system varies per game. Some games, like Apex Legends, let you ping almost everything in-game. Other games, like Overwatch II and League of Legends, have more limited options. There are also examples of games where restrictions only apply to specific game modes, or where additional systems are implemented based on these game modes. It is also very rare that games have every single option outlined in the chat. Some options, particularly chat macros, are primarily used in MMOs.

6.2. Players' view on communication

Overall, players reported that games made it somewhat easy to communicate, even in the heat of the moment, and they had enough tools to do so (somewhat). However, other players did not necessarily seem to use these tools effectively. Whether or not this hinders play at all is hard to tell, as players did not necessarily feel at a disadvantage due to a lack of proper communication tools, rather, using limited communication options to avoid toxic players is more common. This does not reflect research that suggested those that use pings report to perform better (Leavitt et al., 2016). Then again, in most games at the end of the day, your skill as a player will matter most of all, at least that is the sentiment that you often get from discourse online. This also explains why there is commonly a need for things such as damage meters and other statistics. It would have been interesting to ask more in-depth questions about how players' performance is impacted by restricted communication and test this in a controlled setting, but this was not part of the thesis. The main case in which communication was slightly hampered was when dealing with players who do not speak English, particularly among EU players. For this auto-translate features in text chat should be expanded upon to bridge this barrier.

From the qualitative answers, one can conclude that voice chat is still considered a very important and efficient way to communicate. This does not correspond to the quantitative answers, where players reported not using voice chat that often, compared to other options. There are a few reasons for this: the first is that people who play with friends tend to use other applications from the in-game voice chat. The second reason could be quality issues, which used to be one of the reasons players flocked from in-game solutions to third-party programs like Skype and Teamspeak, and nowadays Discord. Another reason could be the fact that voice chat is limited to pre-made parties, such as in the case of League of Legends. Players who did not tend to play with friends also tended to use voice chat less in that game. Lastly, toxicity is probably a big reason why players do not necessarily want to use voice chat and did not feel very comfortable using it. As for why players consider voice chat most efficient, this is most likely because in the scenarios when voice chat is used well, with clean comms and very little toxicity, the fact that you can quickly speak your mind will likely be faster than trying to type or trying to find the right ping. However, this is a best-case scenario and does not take into account the many hurdles and barriers certain players have to overcome to even want to use voice chat in the first place. Voice chat seemed to not get muted that often, compared to what I expected. Voice chat in some games is muted by default, and since voice chat also reportedly was not used much compared to other channels, this also means that people do not need to go between muting and unmuting. In this case, most of the participants that answered questions about this channel played League of Legends, which only has voice chat as an option for pre-made parties, and these same participants also did not tend to use voice chat. It was mostly players from other games that used voice chat most often, but League of Legends definitely had more weight.

Pings and text chat were reportedly used most frequently. The results of this survey are most

likely skewed towards both these channels since most games have them available in some capacity. Pinging is still relatively new in most games, and this and the fact that some games have systems that are quite prone to error (see 6.3.) explains why players were less likely to agree that pings were easy to use compared to voice and text chat. Pings seem to be regarded as most important at least in the quantitative answers. However, this might also be because developers are putting more and more emphasis on the use of ping systems in competitive modes especially, and because using pings removes the need to subject oneself to voice chat. Chat macros are regarded less favourably across the board. In both League of Legends and FFXIV, where they are implemented with the most complexity, the interface for both is seemingly very clunky and the interactions were reported to be clunky, with input lag to boot. Pings and chat macros generally get their contents displayed in the text chat tab, which is part of the reason why they are reportedly muted less often. But in some games, you simply cannot mute them in the first place.

As explained in the previous section, one can definitely see that there is a transition happening between the adoption and use of voice and text chat in games and that of pings. Multiple results reflect this. Particularly table 5.5 and 5.6. Whether this means that pings will become the default way to communicate, or if this already is the case, is hard to tell. Particularly Apex Legends' ping system has opened developers' eyes to the different opportunities for how communication can be moved away from the traditional (and more likely toxic) communication channels. However, there does seem to be a sense of reluctance from players to completely adopt such systems. Most of the complaints I got from players about their respective games were from players that considered themselves "gamers" with a score of 70 and up. There was some variation in terms of what type of content one enjoyed, but what made these players similar was the number of hours they spent on their games and the fact that most of these players played other online games as well. Other than those complaints, it seems that players, from what I have been able to tell, do not necessarily think about this topic much. Rather, players seem to fill in the gaps themselves when communication is lacking, through the use of third-party apps and mods, and creative uses of already existing tools. This corresponds to the example in the research done by Chang, Cheung and Scott, where players are described to shoot to a location to signify it (Cheung et al., 2012). There is also a tendency to follow already existing in-game trends. Emotes do not seem to play a big part in this, at least not from the responses I got. It seems that emotes are more of a way to socialise outside of combat, but not necessarily a way to communicate. To other players, it seems like emotes are more of a way to create and sell monetisable assets, rather than something functional.

The most important theme among participants was not so much the design of the individual tools, but rather how other players used them and what could be done about it. This also reflects research on the toxic use of pings, among other things (Kou, 2020). Moderation, both by players as well as by developers was one of the most central themes seen in the answers from participants. This makes sense, because having the ability to mute, block and report players is one of the only ways players are being given agency over what type of interactions they want to have with players. Particularly, participants very often focused on chat filters as well as the ability to mute players. Furthermore, players mentioned specific pings and emotes that were considered overtly toxic, either by design or by the way players used them.

This theme being so prevalent also corresponds to the pillar system made by the ADL. This pillar system puts a lot of focus on the creation and implementation of report systems and community guidelines but does not address the ongoing trends and discussions discussed in this thesis. From the results, one can say that more work needs to be done to also address the role that communication design has on toxicity, and evaluate how toxic uses of pings can be curbed, and "toxic" pings can be reworked.

Overall, the results showcase that the attitude towards communication design in games is relatively neutral. There are complaints about specific issues, especially pertaining to the toxic use of tools as well as some design flaws that will be discussed in section 6.3.. Other than that, players were not incredibly enthusiastic about the way games facilitate communication, but aside from

very specific instances, were not overly negative either. This might be because communication is not necessarily regarded as an important game mechanic in some genres, or that most players just use what they have and fill in the gaps from there, but these reasons were not necessarily explored in this thesis.

6.3. Integration issues & Recommendations

As previously stated, there is very little research on the design flaws ping systems have. The qualitative results, as well as some samples of discussions on Reddit and my own experience, informed most of the recommendations in this section.

To start out, it should be established that if developers want players to not feel pressured to use voice chat or text chat, they need to include their ping system in the tutorial at the very least. Furthermore, if the ping system is not in the tutorial, at the very least add the controls on the HUD. One cannot be reliant on knowledge of previous games' systems when the implementations in these games can vary. For example, the ping systems of Apex Legends and Overwatch II have a lot in common, but there are also differences, especially when it comes to complexity. Ping wheels can also become quite crowded. The recent changes to the ping system in League of Legends changed the existing ping system that was in place for ten years, with four pings, to a more recent version with eight pings. Whilst this does not seem like a massive change, participants reported using the wrong ping. This sort of design also can lead to ghosting, where you think you selected a ping, but the game snapshots on a different one when moving the mouse, leading to accidental mistakes. That is not to say that suddenly every gaming company should now get rid of ping wheels in their current form. But the way they snapshot, or how players can confirm they have selected the right ping, should be improved upon.

To come back to Overwatch II, I would like to use a Reddit thread by user Serenus_Moonlight as an example of how ping systems can become more in-efficient to use for new players (Moonlight, 2022a). In other games, participants reported that it was sometimes unclear what a specific ping is used for. Certain pings can become quite ambiguous and lack intent, as such they can be interpreted in many ways, but there are specific design-related issues that make this even harder. As this Reddit user describes, Overwatch II uses a combination of two wheels, a ping wheel and a communication wheel. The communication wheel is a customisable wheel which includes emotes, dances, and voice lines which are either useful to communicate with your team members, or completely unrelated. The ping wheel is part of the in-world ping system and has the option to reply to team members' pings. Currently, the ping wheel cannot be customised. What is strange about the two is that the communication wheel also includes options that will create markers in-game.

Overwatch II has two different types of pings: pings that are made on the location you are looking at, and pings that will be created at your location or do not show anything in the in-game world at all. The issue with line-of-sight-based controls is that players will have very little control over where markers are placed. If you are currently looking at an enemy location, and (accidentally) press "Fall Back", it will create a ping on the enemy location. There is also not a clear indication of the distance a ping will be at when trying to create it. Overwatch II seemed to have a weird priority system when it comes to targeting enemies and objectives (Moonlight, 2022b). I personally also noticed weird snapshots when trying to ping enemies as well.

Now some of the errors players face could potentially be fixed by rebinding certain pings. However "button" bloat is an issue in quite a few games. I will use FFXIV as an example, specifically their PvP mode. Whilst participants complained about inconsistencies when enforcing the terms of service at the cost of efficient communication of strategies, as well as an inconsistent tab-targeting system that does not work, something that also bothered some participants was the sheer number of buttons one had to bind to their keyboard. Furthermore, this game (supposedly) intentionally added input lag to (chat) macros, which from an anti-cheating point of view could make sense, at least according to the participant that brought it up.

Previously, I discussed that developers should incentivise players to use communication tools effectively, as part of an in-game tutorial, or by means of offering ways to practice. But this is more of an example of a game that gives players either no direction when it comes to facilitating team coordination, or very limited tools. In the large-scale PvP mode in FFXIV, there are no options for quick chat, one can place markers, but they can be quite slow to place since they cannot be macro'd. One can create sets of markers that can be placed on a map, but these markers are tied to the specific instance you are in. This means that with at least three instances that are currently in session, players have to make three sets. If they want to place them on their hotbar, that is three additional buttons to use. Furthermore, since there is no option for quick chat, one is reliant on typing. From personal experience, the only time you will be typing anything in PvP is when you are dead, dying, or outside of combat. As such, some players have created macros to indicate positions on the map, as well as when to go to certain positions. One is often reliant on these "shot-callers" to coordinate 24 players, and this sort of coordination can be tantamount when it comes to winning or losing games. In my results, macros were not necessarily considered easy to use, which is another barrier to more people becoming such "shot-callers". However, the game itself does not incentivise or tell players to do this. This can inevitably cause communication mismatches, which, as shown by results as well as by literature, can cause toxicity to occur (Kou, 2020). Furthermore, macros can be considered disruptive by some players because of the frequent use of audio cues to direct attention towards these call-outs (JustNaes, 2019; Deadlyweapon, 2021). From personal experience, however, the macros used in PvP are different from the inherently disruptive macros used by players to "meme".

In section 3, I discussed that complex in-game UI forces players to split their attention between different information systems, and how this can take players' attention away from the game itself. On the flip side, when placing in-game systems on an action-interaction spectrum, one could argue that perceiving pings is an interaction that should not only be part of a player's focused attention, but also part of the periphery, and vice-versa (Bakker & Niemantsverdriet, 2016). Quick chat in the small-scale PvP mode uses a combination of a short audio cue and text chat cues for players to communicate. Like Hearthstone, text chat is otherwise completely restricted, even before a match. This means players are reliant on these quick chat options. These quick chat options are individual buttons that need to be placed on the players' existing hotbar setups, hence the issue with button bloat. With these restrictions in place, supposedly due to toxicity reasons, players cannot reinvent other ways to add onto these communication systems to make communication more effective according to their needs. One could argue that, unlike in a game like Overwatch II or League of Legends where team compositions are fixed in terms of which roles you are bringing to a game, the flexible nature of team compositions in FFXIV's PvP would require some additional strategising to ensure that sub-optimal team compositions at least have a chance of pulling through. For this reason, it is quite peculiar that text chat is not available before a game. Furthermore, whilst the terms of service prohibits the use of mods and add-ons, the developers have very little know-how in who uses them, and who does not, meaning that players who use these add-ons to circumvent restrictions put in place will have an advantage.

Furthermore, and this is subjective, but compared to other games, the quick chat options are quite generic (SweetPete, 2023). Aside from all quick chat options being put in the chat box, some quick chat options have a hard time properly communicating intent, or being drastically different from one another. For example, "Fall Back" is a chat cue, just like "Group Up". But where to "Fall Back" or "Group Up" is another matter altogether. This could be fixed by allowing players to place markers on the map, which is a system that exists in-game already but is not utilised here. Whilst you do not have to put every quick chat option on your hotbar, developers should look towards ways to reduce pings that call out statuses of abilities and merge them with the abilities themselves. Furthermore, one can potentially look towards other games and see that there may be some options missing, especially those that ask for help from other players.

What a game like FFXIV does well, is allow players enough customisation to choose which op-

tions to use and which options not to use. For one, one does not have to put all quick chat options on their bar. This is something that participants who play League of Legends actually would have preferred. It allows players to integrate communication options with their own play style. However, if pings are to become a main form of communication, developers should at the very least create a baseline for which pings are essential for coordination, and ensure that these pings sufficiently communicate intent, by adding the appropriate cues to do so, or by simply adding a dictionary or, as I discussed previously, making them part of the tutorial.

To conclude, ping systems are an addition to already complex in-game UI design. If the intent is that players are incentivised to use such systems as a primary form of communication, they should be integrated and introduced to players in a way that players know the intent a ping is trying to convey, as well as how to properly use them. Communication and coordination are important aspects of reducing communication mismatches, and therefore toxicity. Therefore, these should become more essential skills, and players should be able to practice these skills. Communication should become a main skill in online gaming, rather than an afterthought, the consequences of which players will have to deal with. But pinging to become a more essential skill, ping systems should become something that is essential to use.

6.3.1. Recommendations

To summarise, from the results of the survey, as well as my own experiences, I would recommend the following things when designing communication systems for games:

- In general, regardless of the available communication systems:
 - Introduce communication tools to players from the beginning. If a developer wants to incentivise players to use a ping system, players need to be shown which options are available, what they are, and what the controls are. Make them part of the tutorial, and allow players to practice and get acquainted with using these options in a scenario outside of combat.
 - Ensure that there is a proper way to confirm which ping is being used and on whom or where to avoid mistakes by accidental snapshots. This could be done in multiple ways, but what matters is that there is a sequence of interactions that shows players before they place a ping, what it is targeted on before they confirm.
- When a game allows for voice chat or text chat:
 - Be clear about proximity chat options and which players will get to read or hear which messages. Avoid using lore-specific jargon for this, such as in-game-specific distance metrics that are not necessarily clear to players.
- When a game allows for pings on top of text chat/voice chat:
 - Restricting text chat to combat toxicity is a matter in and of itself. However, one should keep in mind that games with flexible team compositions might require additional room for strategy. Allowing for the use of text chat (party chat) before a match could open up some opportunities for this.
 - Have a decent mix of visual, auditory and text chat cues. Especially when restricting chat, or having the option to mute text chat, it is important that players are not constantly required to still glance over to the chat panel or have it in their field of view. Instead, place more cues in the player's central attention.
 - Be clear about which pings are going to show a marker on the map/screen, and which options will only be heard as a voice line.
 - Allow for a clear visual indicator for where a marker is placed before placing it. Another option would be to allow for more control over where markers are placed.
 - When designing location-based pings such as "Fall Back" or "Group Up!", add a visual marker to the screen. As for how this marker should be placed, look towards the previous recommendation.

- When targeting enemies, teammates or items, have clear visual cues to show players who or what is being targeted at that moment. One could even make it so that the moment the ping wheel is opened, the target is locked so that is less margin for error.
- To reduce button bloat, think of ways ability statuses can be pinged without needing a separate button for it.
- Allow for enough customisation that players can get used to interacting with the system in a way that fits their play style. When allowing for this, make the UI clear enough so that players can easily find what they want to add or change.

6.4. Restricting communication to combat toxicity

Restricting communication as a means to curb toxicity is a trend that is quite recent, and has had its fair share of backlash. This is best illustrated by a conversation between League of Legends pro player Darshan and one of Riot's developers Joe White (Fischer, n.d.). In it, Darshan described that when playing Valorant, having the option to use voice chat in solo-queue "humanises the experience" of playing with strangers. He furthermore argues that "when we understand clearly that the other player we are talking to is a human being and not just some pixels on a screen, we can be a lot more understanding in our response". This is a stark contrast to the experience of, for example, female players, who often have to deal with toxicity despite performing well because they are women. The idea of an opt-in voice chat option in League of Legends is something quite a few of my participants also wanted, even if they are not necessarily going to use it themselves. Whilst there is an argument that voice chat is quite efficient, the idea that it "humanises" our in-game experience is a one-sided argument.

There is something to be said about restricting communication as an intervention, which is that it is merely an intervention, not a solution. The idea that through alternatives like a ping system the verbal expressions of toxicity are reduced, because players feel less pressured to use communication channels where toxicity is more prevalent is, from my results, valid. Players reported that they were less likely to experience toxicity through the use of pings (see table 5.10). With that being said, other expressions of toxicity are not being addressed with this. There are many ways in which players have created ways to use pings in a toxic way or circumvent restrictions. This means that any ways to spam pings or re-purpose their meanings in a toxic way should be mitigated. If those openings exist, then those players that are toxic will inevitably use these as opportunities to conduct themselves as such. The bait ping has been mentioned many times during this thesis, but it is a good and recent example of what exactly is meant by what I stated previously. Between the first time this ping was created and the time of finishing this thesis, Riot has tweaked the ping to have fewer resemblances to what players repurposed it as. Whether or not this means that this ping will not be used in a toxic way remains to be seen, as these changes were cosmetic in nature and potentially, one could argue the damage has already been done and a more substantial rework is in order. Another example is from a paper about Hearthstone by Turkyay and Adinolf (Turkyay & Adinolf, 2019). At the time this paper was written, Hearthstone allowed players to communicate only through the use of pings and emotes and by default has chat turned off. This restricted chat was reported to be quite positively received since players do not necessarily get to see toxicity outright. However, players reported that there were many players that tried to circumvent these restrictions, by showcasing other toxic behaviours. One example cited in the paper was "friending to flame". How this occurs is that after a match, toxic players would friend their opponents, to then berate (flame) them through friend messages. Interestingly in this paper, the authors asked a similar question to this thesis, which is if silencing players reduces toxicity in a game, as doing so reduces the socialisation aspects of a game. However, I wonder how much socialisation occurs in competitive games in the first place. Since matches can be relatively short, and most games do not offer much in the way of community building in-game, most of this socialisation happens outside of the sphere of influence of developers.

One could argue that these circumventions or repurposings are not intended by developers, and

as such the blame is not on them for these design decisions. This is not the perception participants had. Even those participants that argued that restricting communication does not solve toxicity, or that communication mechanics are not by design linked to this issue, argue that more responsibility should be placed on developers to facilitate community building. Toxicity is normalised in some gaming communities to the point that for some participants, toxic players will always find ways to be toxic. The culture surrounding the game or game company will attract certain types of players. Whether you try to restrict or optimise communication, if the culture surrounding the game is toxic in the first place, it should not matter what interventions are put in place. Then again, one could say that with that knowledge in mind, having free and open communication as an option enables toxic players even more, which is how you start getting into this constant feedback loop. When looking at *Overwatch II*, which did not have a very pleasant community in the first place, it would be interesting to see if the interventions Blizzard enacted actually reduced toxicity. When looking at Reddit posts on the topic, it does not necessarily seem to be the case and it has actually been suggested that it got worse. There are other factors as to why this could be perceived as such, but these factors are outside of the scope of this thesis.

One could also take another approach, and allow for some ways for players to vent their frustrations. Whilst participants considered emotes to be milder than voice and text chat, some games have purposefully added ones that could be considered inherently toxic, but in a more harmless way. An example of that is *Brawlhalla*. This F2P fighting game removed text chat completely after having issues with toxicity and replaced all communication with emotes (taunts) and emojis (stickers). Emotes can be used during a match, whereas emotes are shown used after. Two particular emotes, the salt pouring emote and the thumbs down emoji can be considered toxic. But in the case of especially the thumbs-down emote, it can also come off as kind of childish, which again shows the ironic nature of being toxic online. Or as one participant put it " I feel it has created an easier vent for negative emotion after a game that does not involve insults. Sure, giving the loser of the game a thumbs down is still not a nice move but it beats being spammed with colourful languages in the chat." This is not to say that developers should start intentionally creating toxic pings or emotes, but it does show that there are ways for some harmless banter that does not need to involve insults.

The answer to how restricting communication impacts the prevalence of toxicity has many factors that come into play. It is important to note that this thesis only focuses on toxicity in-game, and not on broader issues of toxicity outside of the game environment, such as via social media. This thesis also only touched on the verbal expression of toxicity, so feeding and other gameplay-related actions were not taken into account. But back to communication, firstly, it depends on whether or not communication is completely restricted to alternatives such as pings or emotes, or if these systems are just another layer on top of traditionally already existing ways. In the former case, the prevalence of toxicity will be impacted by how much freedom players have to freely communicate outside of matches, and how much freedom there is to be toxic using said pings or emotes. In this case, having options to communicate freely after a match, or in DM's will still give openings for players to flame their opponents. Restricting this will impact the ability to socialise in-game. In the latter case, where pings are another way to communicate aside from voice and text chat, the ping system has to be comprehensive to the point that there is essentially no reason to use other options in the first place since you can communicate the most important things through this channel. Furthermore, options to mute all other channels should be available. This should, however, be done in a way that if you, for example, mute text chat, battle logs and important information related to the game are still visible. Regardless of whether or not pings are another option to communicate or if they are the only way to communicate, said pings and emotes should be designed in a way that they do not become another annoying visual or audio cue to get spammed with, or have visual designs that could be interpreted in a toxic way unintentionally. The latter statement is vague, but for those that have played video games for more than half their life, I think it is easy to see how *League of Legends* players saw a fish hook or a question mark and decided their new meanings. Furthermore, I don't think there is anything wrong with harmless banter, or creating some mild ways to vent frustration. This

can also expose the irony of toxic conduct. If these things are taken into account, players do not necessarily have to deal with verbal expressions of toxicity, but whether or not other expressions of toxicity still occur is another matter in its entirety. But aside from that, ping systems and restricted forms of communication are only some interventions in the bigger picture when it comes to toxicity.

6.5. Limitations & Future Work

From the start of the thesis, I made the decision to keep the scope of this thesis as open as possible, and not limit it to a specific game, or game genre. The idea was that because many games offer some of the same communication tools, even if there might be some variety, it might be possible to create generalisable recommendations for both the design of communication tools, as well as answer each research question. In doing so, this created a few issues.

1. **Along different games, as well as different genres of games, there are varying definitions of what is considered a ping, emote, macro etc. :** This has created some confusion among some participants.
2. **There was a definite skew among participants towards certain games:** Particularly FFXIV, League of Legends and Valorant players dominated the results, and in the case of voice chat in League and emotes in FFXIV might have skewed certain values. One could, however, say that most results will be generalisable.
3. **Due to the fact that not every game offered the same communication options, as well as some players not knowing about or using certain ones, I could not statistically validate my results:** Therefore, more emphasis was put on the qualitative results, with the quantitative results mostly providing context to those. For the sake of consistency, I also only used descriptive statistics to describe the results in 5.1 since population-wise it would have been too complicated to find out if any of those results had any sort of significance. There was simply too little variance among either, how many people considered themselves games, gender, age or how many hours people played a certain game to split these up into populations to do any significance testing. If I were to split the results up based on game or even game genre, this would have created very small divisions between 43 people to have these tests be of any value, and these population sizes would have still had variance. Therefore it was hard to do any significance testing as well as correlational testing.
4. **Since I worked with self-reported data, to validate these results I was mostly left with....other self-reported data, just from other resources.** There is very little research on the issue this thesis focusses on and most of the research focuses on either one game or has never had a follow-up paper written on it. Using data from Reddit or other social media channels also tends to subject you to the vocal minority of players with heavily inflated opinions, whereas reviews from gaming media also tend to be hard to validate because of the clickbaity nature of some of these sites. Therefore, many of the conclusions drawn from this thesis are from a mix of resources, informal conversations with friends, as well as my own experience.

There were some alternative setups that could have given additional validation to the thesis results. I could have chosen to focus on one game or one game genre. This would have lessened the variation in terms of options and would have still given quite generalisable results. Which genre this could have been would be quite hard, and it would have required specific sourcing of participants. Another option would have been to design cognitive walkthrough tests to evaluate games and their communication features, either by myself or with participants. Due to the sheer volume of games that were part of the survey, this was just not feasible, even if every game was free because this would have required lots of time. This would require a different type of setup that limits itself to one game or one game (genre). Furthermore, the question remains how one objectively evaluates communication features, since a lot of their uses are very situational and what might be considered problematic for me, might not be problematic from the perspective of another player. Furthermore, issues that arise during such an evaluation might be patched or

fixed afterwards, even if these fixes are usually not large enough to account for the systematic design flaws that some systems are plagued with.

Future work could try to replicate these setups, or the one in this thesis, and specifically focus on one genre to see if there are results that might give more concrete answers to the questions outlined here. Furthermore, it could try to integrate the recommendations found in this thesis into prototypes that are similar to the games discussed in this thesis to evaluate the validity of said recommendations. There could also be room for additional setups to measure the likeliness to be toxic or be perceived as being toxic using these systems. Lastly, this thesis focused on the relationship between communication features and toxicity prevention/mitigation. This was due to the framing of ping systems in some games. However, and this is something that should be explored further, ping systems, in their many forms, could also be considered part of designing for accessibility. Whilst Apex Legends is often briefly mentioned as an example of a game that does this well, future work could evaluate other games to see how they hold up.

Chapter 7

Conclusion

In this thesis, I aimed to contribute to research on toxicity in online games by looking into how communication design in online games impacts the prevalence of toxicity. Specifically, I wanted to see what players' attitudes were regarding how communication is facilitated, as well as see if restricting communication or providing alternatives to traditional channels can be considered a way to reduce toxicity. Furthermore, I wanted to use some examples of how communication is facilitated in games to give recommendations to create better systems. To achieve this, I used a mix of literature research, a survey, as well as my own experience to paint a clearer picture. As a result of the literature research as well as some investigating into how some current titles facilitate communication, I was able to create a model to illustrate how communication is currently being facilitated. As a result of the survey, I found that players generally have quite neutral outlooks on communication in games. Where communication is lacking, players will be creative and create their own tools or use third-party ones. Most players regard moderation to be the most important issue when it comes to toxicity, not so much the design of communication tools itself. As a result of the survey, I used three games to illustrate some of the issues with communication design in games and gave recommendations on how developers could mend some of these issues or keep them in mind when designing new systems. Lastly, I used some of the survey results as well as some examples from literature and media to illustrate the ongoing discussion on whether or not restricting communication impacts toxicity or not. Since the setup of the survey caused some issues pertaining to the statistical validation of the quantitative results, future studies are needed to further validate these results with alternative setups.

References

- Achterbosch, L., Miller, C., & Vamplew, P. (2017). Participant observation of grieving in a journey through the World of Warcraft. *Loading...*, 10(17). Retrieved 2022-12-11, from <https://journals.sfu.ca/loading/index.php/loading/article/view/190> (Number: 17)
- Adam. (2022, 4). How to Use and Customize Pings in Dota 2. *Gamezo*. Retrieved from <https://gamezo.gg/how-to-use-and-customize-pings-in-dota-2/>
- Adinolf, S., & Türkyay, S. (2018, October). Toxic Behaviors in Esports Games | Proceedings of the 2018 Annual Symposium on Computer-Human Interaction in Play Companion Extended Abstracts. *CHI PLAY '18 Extended Abstracts: Proceedings of the 2018 Annual Symposium on Computer-Human Interaction in Play Companion Extended Abstracts*, 365–372. Retrieved 2022-10-03, from <https://dl-acm-org.proxy.library.uu.nl/doi/abs/10.1145/3270316.3271545?casa\textunderscoretoken=CPXoFxuhnjkAAAAA:PR42dhsotF4bZiewBdFeYs1D1VXRbWSjYi0oTOyxTDEmM8UWBiNDnQyZgfeDQHpn4xCorrEoWrU\textunderscoreIQ> doi: <https://doi.org/10.1145/3270316.3271545>
- ADL. (n.d.-a). *Disruption and Harms in Online Gaming Framework*. Retrieved 2022-09-13, from <https://www.adl.org/fpa-adl-games-framework>
- ADL. (n.d.-b). *Hate is No Game: Harassment and Positive Social Experiences in Online Games 2021*. Retrieved 2022-09-13, from <https://www.adl.org/hateisnogame>
- Amos, A. (2020, 12). How to customize new CSGO chat wheel: pings, binds, more. Retrieved from <https://www.dexerto.com/csgo/how-to-customize-new-csgo-chat-wheel-pings-binds-more-1475284/>
- AweAce. (2020). *The new waymark changes*. Retrieved from https://www.reddit.com/r/ffxiv/comments/ezraqc/the_new_waymark_changes/
- Bakker, S., & Niemantsverdriet, K. (2016). The interaction-attention continuum: Considering various levels of human attention in interaction design. *International Journal of Design*, 10(2), 1–14.
- Bankov, B. (2019, October). The Impact of Social Media on Video Game Communities and the Gaming Industry..
- Barnett, J., Coulson, M., & Foreman, N. (2010). Examining Player Anger in World of Warcraft. In W. S. Bainbridge (Ed.), *Online Worlds: Convergence of the Real and the Virtual* (pp. 147–160). London: Springer. Retrieved 2022-12-11, from <https://doi.org/10.1007/978-1-84882-825-4\textunderscore12> doi: 10.1007/978-1-84882-825-4\textunderscore12
- Beres, N. A., Frommel, J., Reid, E., Mandryk, R. L., & Klarkowski, M. (2021). Don't You Know That You're Toxic: Normalization of Toxicity in Online Gaming. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems* (pp. 1–15). New York, NY, USA: Association for Computing Machinery. Retrieved 2022-10-03, from <https://doi.org/10.1145/3411764.3445157> doi: 10.1145/3411764.3445157
- Bergstrom, K., Fisher, S., & Jenson, J. (2016, June). Disavowing 'That Guy': Identity construction and massively multiplayer online game players. *Convergence*, 22(3), 233–249. Retrieved 2022-12-11, from <https://doi.org/10.1177/1354856514560314> (Publisher: SAGE Publications Ltd) doi: 10.1177/1354856514560314
- Blackburn, J., & Kwak, H. (2014, April). STFU NOOB! predicting crowdsourced decisions on toxic behavior in online games. In *Proceedings of the 23rd international conference on World wide web* (pp. 877–888). New York, NY, USA: Association for Computing Machinery. Retrieved 2022-10-15, from <https://doi.org/10.1145/2566486.2567987> doi: 10.1145/2566486.2567987
- Blizzard Entertainment. (n.d.). *Defense Matrix activated! Fortifying gameplay integrity and positivity in Overwatch 2*. Retrieved 2022-11-28, from <https://undefined/en-us/news/23857517/defense-matrix-activated-fortifying-gameplay-integrity-and-positivity-in-overwatch-2/>
- Burger-Helmchen, T., & Cohendet, P. (2011, October). User Communities and Social Software in the Video Game Industry. *Long Range Planning*, 44(5), 317–343. Retrieved 2022-11-21, from <https://www.sciencedirect.com/science/article/pii/S0024630111000446> doi:

- 10.1016/j.lrp.2011.09.003
- CheckAcademic. (2023). *I see almost no one actively use the new ping system.* Retrieved from https://www.reddit.com/r/leagueoflegends/comments/112uxt/i_see_almost_no_one_actively_use_the_new_ping/
- Chen, M. (2009, March). Visualization of Expert Chat Development in a World of Warcraft Player Group. *E-Learning*, 6. doi: 10.2304/elea.2009.6.1.54
- Chesney, T., Coyne, I., Logan, B., & Madden, N. (2009). Griefing in virtual worlds: causes, casualties and coping strategies. *Information Systems Journal*, 19(6), 525–548. Retrieved 2022-12-11, from <http://onlinelibrary.wiley.com/doi/abs/10.1111/j.1365-2575.2009.00330.x> (textunderscore eprint: <https://onlinelibrary.wiley.com/doi/pdf/10.1111/j.1365-2575.2009.00330.x>) doi: 10.1111/j.1365-2575.2009.00330.x
- Cheung, V., Chang, Y.-L. B., & Scott, S. D. (2012, February). Communication channels and awareness cues in collocated collaborative time-critical gaming. In *Proceedings of the ACM 2012 conference on Computer Supported Cooperative Work* (pp. 569–578). New York, NY, USA: Association for Computing Machinery. Retrieved 2022-11-28, from <https://doi.org/10.1145/2145204.2145291> doi: 10.1145/2145204.2145291
- Cmentis. (2018). *Has anyone actually used the in-game WoW Voice Chat? I know it gets flak for being a 'worse version of Discord', but have you used it? Have you used it in groups, guild, PUGs, randoms? Is the quality good? The convenience of having it in game?* Retrieved from https://www.reddit.com/r/wow/comments/9c6o3w/has_anyone_actually_used_the_ingame_wow_voice/
- D3agl3uk. (2022). *Unfortunately, OW2 is better with voice and chat turned off.* Retrieved from https://www.reddit.com/r/Overwatch/comments/yje746/unfortunately_ow2_is_better_with_voice_and_chat/
- Deadlyweapon. (2021). *PSA: Spamming the chat in frontlines telling people what to do is a waste of time.* Retrieved from https://www.reddit.com/r/ffxiv/comments/q3mubi/psa_textunderscorespanning_textunderscorethe_textunderscorechat_textunderscorein_textunderscorefrontlines_textunderscoretelling/
- Deets, C. (2021, 12). *Communication in Apex Legends - Charlie Deets - Medium.* Retrieved from <https://medium.com/@charliedeets/nothing-to-say-c2edaf46fba5#:~:text=The%20makers%20of%20Apex%20Legends,automatic%20to%20game%20play%20events.>
- De Grove, F., Courtois, C., & Van Looy, J. (2015, May). How to be a gamer! Exploring personal and social indicators of gamer identity. *Journal of Computer-Mediated Communication*, 20(3), 346–361. Retrieved 2022-11-05, from <https://doi.org/10.1111/jcc4.12114> doi: 10.1111/jcc4.12114
- DekuLily. (2022). *How important is it to keep voice chat on for new players?* Retrieved from https://www.reddit.com/r/OverwatchUniversity/comments/xyl2pi/how_important_is_it_to_keep_voice_chat_on_for_new/
- Deslauriers, P., Lafrance St-Martin, L. I., & Bonenfant, M. (2020, December). Assessing Toxic Behaviour in Dead by Daylight Perceptions and Factors of Toxicity According to the Game's Official Subreddit Contributors. *Int. J. Comput. Game Res*, 20(4).
- Donaldson, S. (2017, July). Mechanics and Metagame: Exploring Binary Expertise in League of Legends. *Games and Culture*, 12(5), 426–444. Retrieved 2022-12-11, from <https://doi.org/10.1177/1555412015590063> (Publisher: SAGE Publications) doi: 10.1177/1555412015590063
- Eklund, L. (2016, March). Who are the casual gamers? Gender tropes and tokenism in game culture. In (pp. 15–30). doi: 10.5040/9781501310591.ch-002
- Emissairearien. (2023). *The reason behind Apex's popularity.* Retrieved from https://www.reddit.com/r/apexuniversity/comments/11tv392/the_reason_behind_apexs_popularity/
- Felczak, M. (2022). Systemic issues with narratives of identity: Toxicity and esports media professionals. *Convergence*. Retrieved 2022-11-21, from <https://journals-sagepub-com.proxy.library.uu.nl/doi/10.1177/13548565221138761> doi: <https://doi-org.proxy.library.uu.nl/10.1177/13548565221138761>
- Fischer, F. (n.d.). *League of Legends players are already finding ways to use new pings for toxicity.* Retrieved 2022-11-28, from <https://www.dexerto.com/league-of-legends/league-of-legends-players-are-already-finding-ways-to-use-new-pings-for-toxicity-1988330/>

- Frommel, J., & Mandryk, R. (2022). *Effective Toxicity Prediction in Online Multiplayer Gaming: Four Obstacles to Making Approaches Usable*. Retrieved 2022-11-21, from <http://dl.gi.de/handle/20.500.12116/39102> (Accepted: 2022-08-30T10:27:43Z Publisher: Gesellschaft für Informatik e.V.) doi: 10.18420/muc2022-mci-ws12-315
- Fu, D. (n.d.). *A Look at Gaming Culture and Gaming Related Problems: From a Gamer's Perspective* (Tech. Rep.). Retrieved from <http://smhp.psych.ucla.edu/pdfdocs/gaming.pdf>
- Gaming Statistics - TrueList 2022. (2022). Retrieved 2022-10-31, from <https://truelist.co/blog/gaming-statistics/>
- Ghosh, A. (2021, April). Analyzing Toxicity in Online Gaming Communities. *Turkish Journal of Computer and Mathematics Education (TURCOMAT)*, 12(10), 4448–4455. Retrieved 2022-10-03, from <https://www.turcomat.org/index.php/turkbilmac/article/view/5182> (Number: 10) doi: 10.17762/turcomat.v12i10.5182
- Herring, S., Kutz, D., Paolillo, J., & Zelenkauskaitė, A. (2009, January). Fast Talking, Fast Shooting: Text Chat in an Online First-Person Game. In *2009 42nd Hawaii International Conference on System Sciences* (pp. 1–10). (ISSN: 1530-1605) doi: 10.1109/HICSS.2009.215
- Howe, W., Livingston, D., & Lee, S. K. (2019, March). Concerning gamer identity: An examination of individual factors associated with accepting the label of gamer. Retrieved 2022-10-31, from <https://shareok.org/handle/11244/324944> (Accepted: 2020-07-06T22:24:47Z) doi: 10.5210/fm.v24i3.9443
- An inside look at the ping system in Overwatch 2*. (n.d.). Retrieved 2022-12-16, from <https://undefined/en-us/news/23785337/an-inside-look-at-the-ping-system-in-overwatch-2/>
- JustNaes. (2019). *Frontline Macro Leadership*. Retrieved from <https://forum.square-enix.com/ffxiv/threads/406161-Frontline-Macro-Leadership>
- Juvrud, J. (2020). “ROFL F*ck You”: Understanding the Current State of Toxicity in Battlefield V. Retrieved 2022-11-06, from <http://urn.kb.se/resolve?urn=urn:nbn:se:uu:diva-416942>
- Kelly, R., Watts, L., & Payne, S. J. (2016, February). Can Visualization of Contributions Support Fairness in Collaboration? Findings from Meters in an Online Game. In *Proceedings of the 19th ACM Conference on Computer-Supported Cooperative Work & Social Computing* (pp. 664–678). New York, NY, USA: Association for Computing Machinery. Retrieved 2022-12-18, from <https://doi.org/10.1145/2818048.2819977> doi: 10.1145/2818048.2819977
- Kordyaka, B., Jahn, K., & Niehaves, B. (2020, January). Towards a unified theory of toxic behavior in video games. *Internet Research*, 30(4), 1081–1102. Retrieved 2022-10-03, from <https://doi.org/10.1108/INTR-08-2019-0343> (Publisher: Emerald Publishing Limited) doi: 10.1108/INTR-08-2019-0343
- Kou, Y. (2020, November). Toxic Behaviors in Team-Based Competitive Gaming: The Case of League of Legends | Proceedings of the Annual Symposium on Computer-Human Interaction in Play. *CHI PLAY '20: Proceedings of the Annual Symposium on Computer-Human Interaction in Play*. Retrieved 2022-10-03, from <https://dl-acm-org.proxy.library.uu.nl/doi/abs/10.1145/3410404.3414243?casa\textunderscoretoken=v76oXq5z50EAAAAA:5Kts9hmGiUR36A-J9jlngEWomUD\textunderscorey3Ec8bLf2jZIQk08IGw9aYfMNs5bqGp0Iw0arqq8UEYLgRKv1g> doi: <https://doi.org/10.1145/3410404.3414243>
- Kowert, R. (2020). Dark Participation in Games. *Frontiers in Psychology*, 11. Retrieved 2022-09-13, from <https://www.frontiersin.org/articles/10.3389/fpsyg.2020.598947>
- Kowert, R., & Cook, C. (2022). *The toxicity of our (virtual) cities: Prevalence of dark participation in games and perceived effectiveness of reporting tools*. Retrieved 2022-11-06, from <http://hdl.handle.net/10125/79724>
- Kowert, R., Griffiths, M. D., & Oldmeadow, J. A. (2012, December). Geek or Chic? Emerging Stereotypes of Online Gamers. *Bulletin of Science, Technology & Society*, 32(6), 471–479. Retrieved 2022-12-11, from <https://doi.org/10.1177/0270467612469078> (Publisher: SAGE Publications Inc) doi: 10.1177/0270467612469078
- Kuittinen, J., Kultima, A., Niemelä, J., & Paavilainen, J. (2007, November). Casual games discussion. In *Proceedings of the 2007 conference on Future Play* (pp. 105–112). New York, NY, USA: Association for Computing Machinery. Retrieved 2022-12-11, from <https://doi.org/10.1145/1328202.1328221> doi: 10.1145/1328202.1328221

- Kwak, H., Blackburn, J., & Han, S. (2015, April). Exploring cyberbullying and other toxic behavior in team competition online games. *Proceedings of the 33rd Annual CHI Conference on Human Factors in Computing Systems, CHI 2015 Seoul, South Korea, April 18-23, 3739–3748*. Retrieved from <https://ink.library.smu.edu.sg/sis/textunderscoreresearch/6093> doi: 10.1145/2702123.2702529
- Köles, M., & Péter, Z. (2016, October). "Learn to play, noob!": The identification of ability profiles for different roles in an online multiplayer video game in order to improve the overall quality of the new player experience. In *2016 7th IEEE International Conference on Cognitive Infocommunications (CogInfoCom)* (pp. 000271–000276). doi: 10.1109/CogInfoCom.2016.7804560
- Lamilambkin. (2018). *Why dont people use the in-game voice chat?* Retrieved from https://www.reddit.com/r/wow/comments/9ks0mj/why_dont_people_use_the_ingame_voice_chat/
- Lapolla, M. (2020). *Tackling Toxicity: Identifying and Addressing Toxic Behavior in Online Video Games* (Doctoral dissertation, Seton Hall University). Retrieved from <https://scholarship.shu.edu/dissertations/2798>
- Laumann, W. (2021). *You cannot mute that someone walks under a turret and dies*: Exploring *League of Legends*-players' perception, definitions of toxicity and their effect on everyday life (Doctoral dissertation). Retrieved 2022-11-06, from <http://urn.kb.se/resolve?urn=urn:nbn:se:uu:diva-446116>
- Leavitt, A., Keegan, B. C., & Clark, J. (2016). Ping to Win? Non-Verbal Communication and Team Performance in Competitive Online Multiplayer Games. In *Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems* (pp. 4337–4350). New York, NY, USA: Association for Computing Machinery. Retrieved 2022-09-13, from <https://doi.org/10.1145/2858036.2858132> doi: 10.1145/2858036.2858132
- Massanari, A. (2017). #gamergate and the fapping: How reddit's algorithm, governance, and culture support toxic technocultures. *New Media & Society*, 19(3), 329–346. Retrieved from <https://doi.org/10.1177/1461444815608807> doi: 10.1177/1461444815608807
- McClelland, P., Whitmell, S. J., & Scott, S. D. (2011, May). Investigating communication and social practices in real-time strategy games: are in-game tools sufficient to support the overall gaming experience?. Retrieved 2022-12-17, from <https://www.semanticscholar.org/paper/Investigating-communication-and-social-practices-in-McClelland-Whitmell/566011b3df516b10ef8d5fb5d8526182743c39a8>
- MemelordPetey. (2022). *Why does no one use the instance voice chat?* Retrieved from https://www.reddit.com/r/wow/comments/ua9e9z/why_does_no_one_use_the_instance_voice_chat/
- Moonlight, S. (2022a). *What are we missing in Overwatch 2s Ping System*. Retrieved from https://www.reddit.com/r/Competitiveoverwatch/comments/uicpy2/what_textunderscoreare_textunderscorewe_textunderscoremissing_textunderscorein_textunderscoreoverwatch_textunderscore2s_textunderscoreping_textunderscoresystem/
- Moonlight, S. (2022b). *You should be able to consistently ping the objective/payload even when there are enemies near it*. Retrieved from https://www.reddit.com/r/Competitiveoverwatch/comments/yh48it/you_textunderscoreshould_textunderscorebe_textunderscoreable_textunderscoreto_textunderscoreconsistently_textunderscoreping_textunderscorethe/
- Murnion, S., Buchanan, W. J., Smales, A., & Russell, G. (2018, July). Machine learning and semantic analysis of in-game chat for cyberbullying. *Computers & Security*, 76, 197–213. Retrieved 2022-10-03, from <https://www.sciencedirect.com/science/article/pii/S0167404818301597> doi: 10.1016/j.cose.2018.02.016
- Orizirguy. (2023). *Darshan on twitter about adding voice chat to league*. Retrieved from https://www.reddit.com/r/leagueoflegends/comments/11ks53l/darshan_textunderscoreon_textunderscoretwitter_textunderscoreabout_textunderscoreadding_textunderscorevoice_textunderscorechat_textunderscoreto/
- Passmore, C. J., & Mandryk, R. L. (2020, September). A Taxonomy of Coping Strategies and Discriminatory Stressors in Digital Gaming. In *Frontiers in Computer Science* (Vol. 2, p. 40). Retrieved 2022-12-17, from <https://www.frontiersin.org/article/10.3389/fcomp.2020.00040/full> (ISSN: 2624-9898 Journal Abbreviation: Front. Comput. Sci.) doi: 10.3389/fcomp.2020.00040

- Paul, C. A. (2018). *The Toxic Meritocracy of Video Games: Why Gaming Culture Is the Worst*. Minneapolis, UNITED STATES: University of Minnesota Press. Retrieved 2022-09-13, from <http://ebookcentral.proquest.com/lib/uunl/detail.action?docID=5330038>
- Pham, D. T. (2021). *Investigating the Role Video Game Players' Supportive Communication Plays in Moderating the Effects of Toxicity in Online Gaming* (Doctoral dissertation, Illinois State University). Retrieved 2022-11-06, from <https://doi.org/10.30707/ETD2021.20210719070603181743.42>
- Phan, M., Keebler, J., & Chaparro, B. (2016, 09). The development and validation of the game user experience satisfaction scale (guess). *Human Factors: The Journal of the Human Factors and Ergonomics Society*, 58. doi: 10.1177/0018720816669646
- Ping. (n.d.-a). Retrieved 2022-12-16, from <https://apexlegends.fandom.com/wiki/Ping>
- Ping. (n.d.-b). Retrieved 2022-12-16, from <https://leagueoflegends.fandom.com/wiki/Ping>
- Player Dynamics Design: Looking Behind the Curtain*. (n.d.). Retrieved 2022-09-13, from <https://www.riotgames.com/en/news/player-dynamics-design-looking-behind-the-curtain>
- Poels, Y., Annema, J. H., Verstraete, M., Zaman, B., & Degroof, D. (2012, January). Are you a gamer?: A qualitative study on the parameters for categorizing casual and hardcore gamers. *IADIS International Journal on WWW/Internet*, 10, 1–16.
- Pohjanen, A. (2018). *Report please! : a survey on players' perceptions towards the tools for fighting toxic behavior in competitive online multiplayer video games*. Retrieved 2022-11-28, from <https://jyx.jyu.fi/handle/123456789/59353> (Accepted: 2018-08-29T06:37:13Z)
- Raid world markers | WoWiki | Fandom*. (n.d.). Retrieved from https://wowwiki-archive.fandom.com/wiki/Raid_world_markers
- Reid, E., Mandryk, R. L., Beres, N. A., Klarkowski, M., & Frommel, J. (2022). Feeling Good and In Control: In-game Tools to Support Targets of Toxicity. *Proc. ACM Hum.-Comput. Interact.*, 6(CHI PLAY), 235:1–235:27. Retrieved 2022-12-05, from <https://doi.org/10.1145/3549498> doi: 10.1145/3549498
- Rip-TazHimself. (2022). *No one talks in voice chat anymore*. Retrieved from https://www.reddit.com/r/Overwatch/comments/yaa4bh/no_one_talks_in_voice_chat_anymore/
- Romo Flores, A. (2020). *What makes a good loser? : An Ethnographic Study of Toxic Behaviors in Competitive Multiplayer Games*. Retrieved 2022-10-03, from <http://urn.kb.se/resolve?urn=urn:nbn:se:sh:diva-41218>
- Rough-Many. (2022). *Please stop ignoring pings*. Retrieved from https://www.reddit.com/r/FortNiteBR/comments/u09znq/please_stop_ignoring_pings/
- Rueben, M., Horrocks, M. R., Martinez, J. E., Cormier, M. V., LaLone, N., Fraune, M., & Touts Dugas, Z. (2022). “i see you!”: A design framework for interface cues about agent visual perception from a thematic analysis of videogames. In *Chi conference on human factors in computing systems* (pp. 1–22).
- Ruggles, C., Wadley, G., & Gibbs, M. R. (2005). Online Community Building Techniques Used by Video Game Developers. *Lecture Notes in Computer Science*, 114–125. Retrieved 2022-11-21, from https://www.academia.edu/12500576/Online_textunderscorecommunity_textunderscorebuilding_textunderscoretechniques_textunderscoreused_textunderscoreby_textunderscorevideo_textunderscoregame_textunderscoredevelopers
- Schütler, A., Waldkirch, M., Burmeister-Lamp, K., & Auernhammer, J. (2022). The Dark Side of Co-Creation: Origins and Effects of Toxicity in Video Game Development. *Academy of Management*. Retrieved 2022-12-11, from <https://journals-aom-org.proxy.library.uu.nl/doi/abs/10.5465/AMBPP.2022.18>
- Shaw, A. (2011). What Is Video Game Culture? Cultural Studies and Game Studies. *Games and Culture*, 5(4), 403–424. Retrieved 2022-10-31, from <https://journals-sagepub-com.proxy.library.uu.nl/doi/epdf/10.1177/1555412009360414> doi: 10.1177/1555412009360414
- Shen, C., Sun, Q., Kim, T., Wolff, G., Ratan, R., & Williams, D. (2020, July). Viral vitriol: Predictors and contagion of online toxicity in World of Tanks. *Computers in Human Behavior*, 108, 106343. Retrieved 2022-10-15, from <https://www.sciencedirect.com/science/article/pii/S0747563220300972> doi: 10.1016/j.chb.2020.106343
- SQUARE ENIX. (2022). *Regarding Illegitimate Waymarks in Abyssos: The Seventh Circle (Savage)*

- (Sep. 12) | *FINAL FANTASY XIV, The Lodestone*. Retrieved from <https://na.finalfantasyxiv.com/lodestone/news/detail/9f7fc966eaf0751728dedd909221983d9208a7c5>
- Suler, J. (2004, July). The Online Disinhibition Effect. *CyberPsychology & Behavior*, 7(3), 321–326.
- Superkamipopo. (2020). *Why doesn't league of legends have an ingame voice chat like other competitive games?* Retrieved from https://www.reddit.com/r/leagueoflegends/comments/jfnmdp/why_textunderscores_doesnt_textunderscores_league_textunderscores_of_textunderscores_legends_textunderscores_have_textunderscores_an_textunderscores_ingame_textunderscores_voice/
- SweetPete. (2023). *PvP Quick Chat*. Retrieved from <https://forum.square-enix.com/ffxiv/threads/481264-PvP-Quick-Chat?highlight=macros>
- Tacticianz. (2023). *Should Riot add Voice Chat to League of Legends?* Retrieved from https://www.reddit.com/r/leagueoflegends/comments/10gx6a9/should_textunderscores_riot_textunderscores_add_textunderscores_voice_textunderscores_chat_textunderscores_to_textunderscores_league_textunderscores_of_textunderscores_legends/
- Target markers* | *WoWWiki* | *Fandom*. (n.d.). Retrieved from https://wowwiki-archive.fandom.com/wiki/Target_markers
- Tekin, B. (2021, 7). *Apex Legends 101 Chapter 7: The great ping system of Apex Legends – Stryda*. Retrieved from <https://stryda.gg/news/apex-legends-101-chapter-7-the-great-ping-system-of-apex-legends>
- Thorne, S. L., & Fischer, I. (2012, March). Online gaming as sociable media. *Alsic. Apprentissage des Langues et Systèmes d'Information et de Communication* (Vol. 15, n°1). Retrieved 2022-11-13, from <https://journals.openedition.org/alsic/2450> (Number: Vol. 15, n°1 Publisher: Adalsic) doi: 10.4000/alsic.2450
- Toups, Z. O., Hammer, J., Hamilton, W. A., Jarrah, A., & Garretson, O. (2014). A framework for cooperative communication game mechanics from grounded theory. *Association for Computing Machinery*, 257–266. Retrieved 2022-12-10, from <https://dl.acm.org/doi/10.1145/2658537.2658681> doi: <https://doi.org/10.1145/2658537.2658681>
- Turkay, S., & Adinolf, S. (2010, January). Free to be me: a survey study on customization with World of Warcraft and City Of Heroes/Villains players. *Procedia - Social and Behavioral Sciences*, 2(2), 1840–1845. Retrieved 2022-12-17, from <https://www.sciencedirect.com/science/article/pii/S1877042810010359> doi: 10.1016/j.sbspro.2010.03.995
- Türkay, S., & Adinolf, S. (2019). Friending to Flame: How Social Features Affect Player Behaviours in an Online Collectible Card Game. In *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems* (pp. 1–12). New York, NY, USA: Association for Computing Machinery. Retrieved 2022-12-12, from <https://doi.org/10.1145/3290605.3300567> doi: 10.1145/3290605.3300567
- Türkay, S., Formosa, J., Adinolf, S., Cuthbert, R., & Altizer, R. (2020, April). See No Evil, Hear No Evil, Speak No Evil: How Collegiate Players Define, Experience and Cope with Toxicity. *CHI '20: Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems*, 1–13. Retrieved 2022-11-21, from <https://dl.acm.org/doi/10.1145/3313831.3376191>
- Ubisoft. (2022). *Ubisoft's New Fair Play Program Promotes Healthy In-Game Interactions*. Retrieved 2022-12-11, from <https://news.ubisoft.com/en-us/article/3C90GXwBOL0dIRRnP37tV4/ubisofts-new-fair-play-program-promotes-healthy-ingame-interactions>
- Valanne, V. (2020). *Cyberbullying on world of warcraft: Experiences of finnish gamers* (Unpublished master's thesis). University of Oulu.
- Vilasís-Pamos, J., & Pires, F. (2022, September). How do teens define what it means to be a gamer? Mapping teens' video game practices and cultural imaginaries from a gender and sociocultural perspective. *Information, Communication & Society*, 25(12), 1735–1751. Retrieved 2022-11-05, from <https://doi.org/10.1080/1369118X.2021.1883705> (Publisher: Routledge textunderscores eprint: <https://doi.org/10.1080/1369118X.2021.1883705>) doi: 10.1080/1369118X.2021.1883705
- WitheredBarry. (2023). *I'm tired of looking at the ground to say "Group Up". I don't want to say*

- "I'm with you". Retrieved from https://www.reddit.com/r/Overwatch/comments/1337um2/comment/jie3x9v/?utm_source=share&utm_medium=web2x&context=3
- Yazar, B. (2023, 5). How to Ping in Valorant. *Gamezo*. Retrieved from <https://gamezo.gg/how-to-ping-in-valorant/>
- Zsila, , Shabahang, R., Aruguete, M. S., & Orosz, G. (2022). Toxic behaviors in online multiplayer games: Prevalence, perception, risk factors of victimization, and psychological consequences. *Aggressive Behavior*, 48(3), 356–364. Retrieved 2022-10-03, from <http://onlinelibrary.wiley.com/doi/abs/10.1002/ab.22023> (textunderscore eprint: <https://onlinelibrary.wiley.com/doi/pdf/10.1002/ab.22023>) doi: 10.1002/ab.22023

Chapter 8

Appendix

8.1. Ethics and Privacy scan

Response Summary:

Section 1. Research projects involving human participants

P1. Does your project involve human participants? This includes for example use of observation, (online) surveys, interviews, tests, focus groups, and workshops where human participants provide information or data to inform the research. If you are only using existing data sets or publicly available data (e.g. from Twitter, Reddit) without directly recruiting participants, please answer no.

- Yes

Recruitment

P2. Does your project involve participants younger than 18 years of age?

- No

P3. Does your project involve participants with learning or communication difficulties of a severity that may impact their ability to provide informed consent?

- No

P4. Is your project likely to involve participants engaging in illegal activities?

- No

P5. Does your project involve patients?

- No

P6. Does your project involve participants belonging to a vulnerable group, other than those listed above?

- No

P8. Does your project involve participants with whom you have, or are likely to have, a working or professional relationship: for instance, staff or students of the university, professional colleagues, or clients?

- Yes

P9. Is it made clear to potential participants that not participating will in no way impact them (e.g. it will not directly impact their grade in a class)?

- Yes

Informed consent

PC1. Do you have set procedures that you will use for obtaining informed consent from all participants, including (where appropriate) parental consent for children or consent from legally authorized representatives? (See suggestions for information sheets and consent forms on [the website](#).)

- Yes

PC2. Will you tell participants that their participation is voluntary?

- Yes

PC3. Will you obtain explicit consent for participation?

- Yes

PC4. Will you obtain explicit consent for any sensor readings, eye tracking, photos, audio, and/or video recordings?

- Not applicable

PC5. Will you tell participants that they may withdraw from the research at any time and for any reason?

- Yes

PC6. Will you give potential participants time to consider participation?

- Yes

PC7. Will you provide participants with an opportunity to ask questions about the research before consenting to take part (e.g. by providing your contact details)?

- Yes

PC8. Does your project involve concealment or deliberate misleading of participants?

- No

Section 2. Data protection, handling, and storage

The General Data Protection Regulation imposes several obligations for the use of **personal data** (defined as any information relating to an identified or identifiable living person) or including the use of personal data in research.

D1. Are you gathering or using personal data (defined as any information relating to an identified or identifiable living person)?

- No

Section 3. Research that may cause harm

Research may cause harm to participants, researchers, the university, or society. This includes when technology has dual-use, and you investigate an innocent use, but your results could be used by others in a harmful way. If you are unsure regarding possible harm to the university or society, please discuss your concerns with the Research Support Office.

H1. Does your project give rise to a realistic risk to the national security of any country?

- No

H2. Does your project give rise to a realistic risk of aiding human rights abuses in any country?

- No

H3. Does your project (and its data) give rise to a realistic risk of damaging the University's reputation? (E.g., bad press coverage, public protest.)

- No

H4. Does your project (and in particular its data) give rise to an increased risk of attack (cyber- or otherwise) against the University? (E.g., from pressure groups.)

- No

H5. Is the data likely to contain material that is indecent, offensive, defamatory, threatening, discriminatory, or extremist?

- No

H6. Does your project give rise to a realistic risk of harm to the researchers?

- No

H7. Is there a realistic risk of any participant experiencing physical or psychological harm or discomfort?

- No

H8. Is there a realistic risk of any participant experiencing a detriment to their interests as a result of participation?

- No

H9. Is there a realistic risk of other types of negative externalities?

- No

Section 4. Conflicts of interest

C1. Is there any potential conflict of interest (e.g. between research funder and researchers or participants and researchers) that may potentially affect the research outcome or the dissemination of research findings?

- No

C2. Is there a direct hierarchical relationship between researchers and participants?

- No

Section 5. Your information.

This last section collects data about you and your project so that we can register that you completed the Ethics and Privacy Quick Scan, sent you (and your supervisor/course coordinator) a summary of what you filled out, and follow up where a fuller ethics review and/or privacy assessment is needed. For details of our legal basis for using personal

data and the rights you have over your data please see the [University's privacy information](#). Please see the guidance on the [ICS Ethics and Privacy website](#) on what happens on submission.

Z0. Which is your main department?

- Information and Computing Science

Z1. Your full name:

Ilham El Bouhattaoui

Z2. Your email address:

i.elbouhattaoui@students.uu.nl

Z3. In what context will you conduct this research?

- As a student for my master thesis, supervised by::

Julian Frommel

Z5. Master programme for which you are doing the thesis

- Game and Media Technology

Z6. Email of the course coordinator or supervisor (so that we can inform them that you filled this out and provide them with a summary):

j.frommel@uu.nl

Z7. Email of the moderator (as provided by the coordinator of your thesis project):

gmt-ethics@uu.nl

Z8. Title of the research project/study for which you filled out this Quick Scan:

Working title: Investigating the link between in-game chat features and toxic behaviour in video games

Z9. Summary of what you intend to investigate and how you will investigate this (200 words max):

The purpose of this survey is to answer the first two research questions of my thesis:

1. How do players currently experience communication in games?
2. How do players currently experience the use of visual and auditory cues for communication in games?

What the end goal of the survey is to get some recommendations on how to better improve these communication features in online multiplayer games. These recommendations will then be tested in a second experiment which has yet to be set up.

Z10. In case you encountered warnings in the survey, does supervisor already have ethical approval for a research line that fully covers your project?

- Not applicable

Scoring

- Privacy: 0
 - Ethics: 0
-

8.2. Survey

Informed Consent

Welcome and thank you for filling in this survey.

This survey is part of a larger study on toxicity in gaming. For this study, we are interested in understanding the relation between toxicity in video games and the available communication methods present in a game. For this study, you will be presented with information relevant to the following topics: in-game controls, communication methods and toxicity. Then, you will be asked to answer some questions about it. Your responses are anonymised, in the sense that no names shall be attached to the answers to your questions. The only personal information that will be collected are age, gender, country of residence and information related to in-game servers you play in.

The study should take you around 15 minutes to complete. Your participation in this research is voluntary. You have the right to withdraw at any point during the study. The Principal Investigator of this study can be contacted at i.elbouhattaoui@students.uu.nl for any questions concerning this research, the data collected, and the questions themselves.

That being said, please read the following statements, and confirm that you have read and understood the project:

- I confirm that I am 18 years of age or over.
- I confirm that the research project has been explained to me. I have had the opportunity to ask questions about the project and have had these answered satisfactorily. I had enough time to consider whether to participate.
- I consent to the material I contribute being used to generate insights for the research project.
- I understand that some potentially personal data will be collected from me and that this information will be held confidentially so that only Ilham El Bouhattaoui will have access to this data and is able to trace the information back to me

personally. The information will be anonymized for up to the end of this month in which period it will be anonymised. In accordance with the General Data Protection Regulation (GDPR) I can have access to my information and can request my data to be deleted at any time during this period.

- I understand that my participation in this research is voluntary and that I may withdraw from the study at any time without providing a reason, and that if I withdraw any personal data already collected from me will be erased. I
- consent to allow the fully anonymized data to be used in future publications and other scholarly means of disseminating the findings from the research project. I understand that the data acquired will be securely stored by researchers, but that appropriately anonymized data may in future be made available to others for research purposes.
- I understand that the University may publish appropriately anonymized data in appropriate data repositories for verification purposes and to make it accessible to researchers and other research users.

I confirm that I have read and understood the above statements, and agree to participate in the study

General questions

What is your age?

Gender: How do you identify?

- Man
- Woman
- Non-binary
- Prefer to self-describe
- Prefer not to say

Most games are divided in the following regions:

- **NTSC-U/C** – The Americas (North and South)
- **NTSC-J** – Japan, South Korea, Taiwan, Hong Kong, Macau, Southeast Asia
- **NTSC-C** – mainland China
- **PAL** – Europe, Australia, New Zealand, India, South Africa
- **OTHER:** Africa, Central Asia

Which of these regions do you live in and specifically which country? An example of an answer could be: PAL, Netherlands.

On a scale of 1-100, how much do you self-identify as a gamer?

1

100

1: Not at all,
100: gamer

Games

From this part of the survey onwards: you will be asked to think about one online multiplayer game you play often and you want to answer questions about during this survey. Please only use this game as an example, and not every game in a certain genre.

Which online multiplayer game that you play often do you want to answer questions about?

What server do you play in? Please include the region and server name if you can.

How many hours have you played $\{q://QID29/ChoiceTextEntryValue\}$? If your game does not have a way to display this particular statistic, please give an estimate to how long you think you have played this game in hours.

How many hours do you play $\{q://QID29/ChoiceTextEntryValue\}$ a week?

Compared to other games you might choose to play, how often do you play $\{q://QID29/ChoiceTextEntryValue\}$?

1

100

1: I only play this game, 100, I mostly play other games

Do you play $\{q://QID29/ChoiceTextEntryValue\}$ more often with friends, or alone?

1

100

1: Only alone, 100: Only with friends

Do you play other online multiplayer games like $\{q://QID29/ChoiceTextEntryValue\}$ or is this the only game in this genre you play?

- Yes - Same genre
- No - I don't play other online multiplayer games
- No - Other genres

How would you describe the in-game activities you enjoy most in $\{q://QID29/ChoiceTextEntryValue\}$? Are they more casual types of content or would they be considered more "hard-core"? Please include the types of activities in your answer.

Do you play $\{q://QID29/ChoiceTextEntryValue\}$ with a controller, or keyboard and mouse?

- Controller only
- Keyboard and mouse only
- A combination of controller and keyboard and mouse
- I switch between input types
- Other:

What are things you dislike or think $\{q://QID29/ChoiceTextEntryValue\}$ could improve when it comes to the gameplay/controls? Please explain your answer in as much detail as you can.

Communication: General questions

Please respond to the following statements about $\{q://QID29/ChoiceTextEntryValue\}$:

Strongly agree

Strongly disagree Disagree Somewhat disagree nor disagree Somewhat agree Agree Strongly agree

I think it is easy to communicate in game.

I find that the game offers enough options to communicate with strangers.

I feel like I can quickly communicate in the heat of the moment.

I know the purpose of each communication channel in game.

I have felt at a disadvantage due to a lack of appropriate communication tools in-game.

The game's selection of communication tools is well-used by other players.

The game has enough options to mute communication channels that I do not need or want to use.

Are there any things you feel could be improved about the selection of communication tools in [\\$q://QID29/ChoiceTextEntryValue?](#) If so, please explain.



Do you feel that communication mechanics have an impact on the level of toxicity in $\{\text{q://QID29/ChoiceTextEntryValue}\}$?

Game UI: Performance and communication

The following questions are specifically about communication tools in this game. This part of the survey works as follows: We will present a few types of ways that games let you communicate. For every tool you will need to answer if $\{\text{q://QID29/ChoiceTextEntryValue}\}$ has this tool or not. After these questions, you will be asked to answer specific questions about the implementation of said methods, and your opinion on them.

In-game voice chat:

Voice chat is a feature in video games that allows players to communicate with one another using their voices, typically in real-time. This feature is typically accessed through a headset or microphone and enables players to have a more natural and personal form of communication compared to text chat. Voice chat can be used for a variety of purposes, such as sharing information, making strategic decisions, or simply socializing with other players while playing the game. It is often seen as more immersive and allows for quicker and more efficient communication than text chat. Voice chat is commonly used in online multiplayer games, especially in first-person shooters and other fast-paced games where quick and effective communication is key. Some games also include the option to mute or adjust the volume of individual players' voice chats, allowing players to control the audio environment they prefer.

Question: Does $\{q://QID29/ChoiceTextEntryValue\}$ have the option for in-game voice chat?

Yes

No

Please answer the following statement on voice chat in $\{q://QID29/ChoiceTextEntryValue\}$

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
I often use this option while playing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The controls to use this option are easy to navigate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I go between enabling and disabling (muting and unmuting) this option in game	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This option is important to have in game	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel comfortable using this option	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel like this option is well-implemented	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have seen this option be used with bad intent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have used this option with bad intent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have experienced toxicity using this option	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Strongly disagree Disagree Somewhat disagree Somewhat agree Agree Strongly agree

This option should be removed

What do you feel could be improved about the implementation of voice chat in $\{q://QID29/ChoiceTextEntryValue\}$?

Text chat:

Text chat refers to a feature in video games that allows players to communicate with one another using written text messages. This communication takes place in real-time and allows players to share information, make strategic decisions, and socialize with one another while playing the game. Text chat is a common feature in many online multiplayer games and can be accessed through an in-game interface, such as a chat box or a menu. The messages are displayed on the screen in a scrolling list. Depending on the type of game, you might encounter different types of text chat channels with different purposes, such as All chat, that can be seen by all players on the in-game server, or an Allied (Party) chat, which only your team can see.

Question: Does $\{q://QID29/ChoiceTextEntryValue\}$ have the option for in-game text chat?

- Yes
- No

Please answer the following statement on text chat in $\{q://QID29/ChoiceTextEntryValue\}$

Strongly agree

Strongly disagree Disagree Somewhat disagree nor disagree Somewhat agree Agree Strongly agree

I often use this option while playing

The controls to use this option are easy to navigate

I go between enabling and disabling (muting and unmuting) this option in game

This option is important to have in game

I feel comfortable using this option

I feel like this option is well-implemented

I have seen this option be used with bad intent

I have used this option with bad intent

I have experienced toxicity using this option

This option should be removed

What do you feel could be improved about the implementation of text chat in ?

Emotes:

Emotes are gestures that the player character performs in game. These can include but

other in-game animations.

Question: Does $\{q://QID29/ChoiceTextEntryValue\}$ have the option for emotes?

- Yes
- No

Please answer the following statement on emotes in $\{q://QID29/ChoiceTextEntryValue\}$

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
I often use this option while playing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The controls to use this option are easy to navigate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I go between enabling and disabling (muting and unmuting) this option in game	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This option is important to have in game	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel comfortable using this option	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel like this option is well-implemented	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have seen this option be used with bad intent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have used this option with bad intent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have experienced toxicity using this option	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Strongly disagree Disagree Somewhat disagree Somewhat agree Agree Strongly agree

This option should be removed

What do you feel could be improved about the implementation of emotes in $\{q://QID29/ChoiceTextEntryValue\}$?

Pings:

Ping systems are relatively new to gaming. The idea of a ping system is that the game provides players with easy options to communicate very basic things, in a quick and intuitive way without using text or voice chat.

Examples of these include:

- Location markers or waymarks: These pings are placed on the in-game screen or the map. These markers might be used to indicate the location of an enemy player, or the part of the map that players need to go to in order to complete an objective. They might also be used to indicate a safespot for a mechanic, or to indicate safespots for different types of players.
- Player markers: These pings are used to mark one-self, an allied player or enemy player, depending on the objective of the marker. Players might mark themselves to indicate that they are in need of help, because they are being attacked or they died. Or, players might mark enemy players to indicate that these players need to be attacked, or be ignored, since they might be dangerous.
- Responses: Players might use pings to respond to other players, such as saying "Ok" or denying a request by saying that they are busy with something else.
- Indicating the status of an ability or spell: These pings can be used to indicate if an ability is "ready" to be cast.

Question: Does $\{q://QID29/ChoiceTextEntryValue\}$ have the option for these kinds of pings?

No

Please answer the following statement on pings in $\{\$q://QID29/ChoiceTextEntryValue\}$

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
I often use this option while playing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The controls to use this option are easy to navigate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I go between enabling and disabling (muting and unmuting) this option in game	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This option is important to have in game	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel comfortable using this option	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel like this option is well-implemented	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have seen this option be used with bad intent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have used this option with bad intent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have experienced toxicity using this option	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This option should be removed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

What do you feel could be improved about the implementation of pings in $\{\$q://QID29/ChoiceTextEntryValue\}$?

Chat macros:

Chat macros are very similar to pings in that they are ways in which players can communicate things through ready to send messages without having the need to type them. The difference between chat macros and pings in the context of this survey is that chat macros are made by players, instead of provided to players by the game. Some games allow for total freedom on what you want to do with your macro, and even allow you to include sound.

Examples of how macros are used in game are:

- Literally explain the mechanics of a fight: Macros can be used to quickly indicate which safespots how a group is to resolve a raid mechanic.
- Indicate spell status or use: Chat macros can be added to a certain ability, to indicate that you are casting a spell. In some cases where limited spells can have a long cooldown or cast time (such as spells to revive), this can be used to indicate that this spell has been used so as to tell other players not to use it.
- Silly stuff: Some players have used the freedom games have given them to create macros to replicate or create their own emojis.

Question: Does $\{q://QID29/ChoiceTextEntryValue\}$ have the option for chat macros?

Yes

No

Please respond to the following statements on chat macros in $\{q://QID29/ChoiceTextEntryValue\}$

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
I often use this option while playing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Strongly disagree Disagree Somewhat disagree nor disagree Somewhat agree Agree Strongly agree

The controls to use this option are easy to navigate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I go between enabling and disabling (muting and unmuting) this option in game	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This option is important to have in game	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel comfortable using this option	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel like this option is well-implemented	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have seen this option be used with bad intent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have used this option with bad intent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have experienced toxicity using this option	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This option should be removed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

What do you feel could be improved about the implementation of chat macros in ?

These are all the communication options we wanted to cover that are available in most games in some form. This survey is limited in the sense that we cannot cover every possible option in every game. So this question is for those that feel that something is missing or the questionnaire does not include something present

Are there any options for communication that are part of these categories that are missing in this questionnaire?

- Yes
- No

Which option is this, and could you describe how it is implemented in game?

Again, please respond to the following statements on this implementation in `QID29/ChoiceTextEntryValue`

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
I often use this option while playing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The controls to use this option are easy to navigate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I go between enabling and disabling (muting and unmuting) this option in game	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This option is important to have in game	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel comfortable using this option	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel like this option is well-implemented	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have seen this option be used with bad intent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Strongly agree

Strongly disagree Disagree Somewhat disagree nor disagree Somewhat agree Agree Strongly agree

I have used this option with bad intent

I have experienced toxicity using this option

This option should be removed

What do you feel could be improved about the implementation of this option in $\{q://QID29/ChoiceTextEntryValue\}$?

Block 5

Last question, is there anything you wanted to add or talk about related to this topic that was not covered in this survey?

Powered by Qualtrics

