



The different emotional effects of voice and text communication in a game environment

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The authors declare that they are the sole authors of this thesis and that they have not used any sources other than those listed in the bibliography and identified as references. They further declare that they have not submitted this thesis at any other institution to obtain a degree.

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ABSTRACT

Background. Communication is a large part of multiplayer games, however sometimes communication may lead to misunderstandings or undesired effects which results in hostile behaviors. Toxicity is a huge problem in the video game culture, but by knowing the different emotional effects that voice and text communication causes on a human in a game environment, might be a step towards preventing toxicity from happening.

Objectives. The objective of this thesis is to find and discover the different emotional effects that voice chat and text chat causes on a human in a game environment and figuring out which communication method causes most toxicity.

Methods. To answer the research questions a test group of ten people from ages 19-26 played two matches of the team-based game Heroes of The Storm which contains both text chat and voice chat. All the participants were familiar with Heroes of The Storm or games of similar genre. In the first match one team communicated only by using text chat and the other team communicated only by using voice chat. In the second match the communication methods were swapped, meaning that the team that used text chat the first match now communicated only by using voice chat and the other team only by using text chat. After the two matches had been played, the participants answered a questionnaire about actions/reactions as well as effects.

Results. After analyzing the questionnaire that was answered by all the participants it is possible to see that a lot of people had similar answers, most people preferred using voice chat. It can also be seen that most people felt positive emotional effects when using voice chat and negative emotional effects when using text chat. Voice chat also gave mostly positive actions/reactions while text chat gave mostly negative actions/reactions.

Conclusions. The experiment was successful and showed that voice communication is the communication method which cause most positive emotional effects as well as positive actions/reactions, while text chat causes mostly negative emotional effects and negative actions/reactions. However, 60% of the participants did not think that voice chat is necessary for a team-based game while text chat is. Yet most of the participants agrees that toxicity in video games needs to be addressed.

Keywords: Communication Methods, Toxicity, Emotional effects

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1 INTRODUCTION

Communication in games has always been a large part of the gaming experience and it is becoming even larger with plenty of new modern multiplayer games being released every year. A lot of those new multiplayer games will most likely contain some form of communication. The two most common communication methods in modern games are text chat and voice chat, with some games including both and others only including one.

Voice chat in games was first introduced in 1995 when the technology was used by the Israeli company VocalTec. That same year the technology found its way into the game sphere where Activision's MechWarrior 2: 31st Century Combat included an option for voice chat [3]. As for which game that first introduced text chat is not easy to say, however the system that first introduced text communication between people was made in 1970 at the University of Illinois and it was called Talkomatic [4]. However, including the functionality to communicate with other people also has its own consequences. Those consequences mainly being negative actions such as different forms of harassment or toxicity. Riot Games the creators of the popular MOBA game League of Legends have been combating toxicity as far back as 2013, to varying degrees of success [11]. One decision that Riot made and has been holding on to for many years was to not include voice chat in their game. The reason for this was due to a research that had been carried out by Riot Games that showed that, "voice chat with friends is a pretty awesome experience, but voice chat with strangers is a pretty negative experience." The research also noted that teams with mixed communications (some text, some voice) "the actual text chat in the game became up to 126% more toxic, and the voice chat players received up to 50% more reports even though the other players did not necessarily know the players were in voice." An independent university cited by Riot Games also found that when a male and female voice said the same phrases in voice chat, the female voice received 300% more harassment than the male voice [1]. As a result, some players choose to avoid using voice chat in fear of giving away their sex and inciting more harassment [5].

Overwatch took a step towards preventing toxicity by silencing, suspending and even in some cases banning players that continuously acted toxic [6]. This was also applied into Dota 2 when Valve had noticed that a lot of players quitting matches was due to negative communication, not the outcome of the match. After the changes had been applied, the Dota team provided statistics on the improvement. Some of the statistics showed a 35% drop in negative communication interactions as well as total reports of players dropping by 30% [2]. However, it is important for developers to design a compelling report system to increase the likelihood of players using it. Developers also needs to work towards addressing toxicity in games, since it is a problem that we constantly see show up in video games [13].

The goal of this thesis is to find the different emotional effects that voice chat and text chat causes on a human while they are playing a team-based game. Some of these effects can also be applied to not only games, but even to daily life communication where it is easy to misinterpret a person that is writing something instead of vocally saying something. This can inevitably lead to unwanted behavior from the receiving person. By the end of this thesis, some of the different emotional effects that are caused by using voice chat and/or text chat in a game environment should be clarified, as well as which communication method that causes most toxicity.

1.1 Aim and objectives

This study is aimed at finding and discovering the different emotional effects that voice chat and text chat causes on a human in a game environment.

The objectives that were planned for this project are the following:

- A multiplayer game is to be selected that contains all the required tools to conduct an experiment.
- Once a game has been selected that fits the criteria of having the necessary tools, an experiment must be designed.
- Participants who can play the selected game and that can use the communication tools needs to be recruited.
- After data has been gathered, the results will have to be analyzed and evaluated.

1.2 Research question

The goal of this thesis is to answer the following research questions:

- What are some of the different emotional effects that voice chat and text chat cause on a human in a game environment?
- Are people more toxic when using voice chat or text chat?

2 RELATED WORK

One question that is worth answering is “Why we play games?”. People play games not so much for the game itself as for the experience that the game creates: an exciting adrenaline rush, a vicarious challenge, a mental challenge; and the structure games provide for time, such as a moment of solitude or the company of friends. People play games to create moment-to-moment emotions and experiences [10]. The definition of an emotion is what researchers call “the body’s multidimensional response to any event that enhances or inhibits one’s goals.” An example could be your nervousness before the first date, has to do with possible goal interference. But an emotion should not be classified as “good” or “bad” or “positive” and “negative”. This is because emotions simply *are* and they are not something that can easily be controlled. If we call an emotion bad or negative, we get the impression that experiencing this emotion is somehow bad or negative. But all emotions are normal and natural, some are more pleasant than others [12]. Communication is vital if we are to convey our emotions to others. According to a study, the best way to know how someone is feeling is to listen. People tend to read others’ emotions more accurately when they listen and do not look. [9] Emotions also play an important role in decisions making. All decisions are made on an emotional level first. An example could be: A player that selects a chest to open does so on an unconscious level, then finalizes the decision through reasoning on a conscious level such as; “The symbols on the middle chest match those on my parchment.” [10]

Group interaction adds so many layers of emotion to the player experience that it is frequently much easier to see emotions in group gaming sessions. Players laugh and root for each other as well as trash talk. The presence of others changes how players react. Even negative events can take on a comic tone when experienced in context of group play [10]. The focus of this research lies in finding the different emotional effects that different types of communication causes on a human while they are playing a multiplayer game. With that knowledge we can then determine if communication is healthy as well as what type of communication is healthier for multiplayer games.

2.1 Toxicity

What is toxicity? An article posted by emblem explains “Toxicity, or *toxic behavior*, can be defined as actions that create a bad atmosphere for the other players in a game. This could be things such as friendly-fire, or verbal abuse. If you have played any competitive team-based game, you have probably experienced this behavior in one way or another” [7]. The article then breaks down players into three alignments, these being “Good The Optimist”, “Evil The Aggravator” and “Neutral The Majority”. The good player is a player that goes out of their way to create a positive atmosphere for the others in the game. The evil player goes out of their way to create a negative experience for others. The neutral players do not have a predetermined agenda, so their actions tend to differ from game to game. Some of these players have a low risk of toxicity while others have a high risk. Generally, for a neutral player to act out in a toxic manner, it must first be warranted. By looking into what warrants this behavior we can start to solve the problem [7]. So why exactly does someone act in a toxic manner? Someone that acts in a toxic manner is not necessarily a toxic person. Miscommunication and misinterpretation is a cause for bad things to happen. Another reason is the anonymity online factor, having no personal connection with other players makes someone likely to act hostile. The article continues with “the way players communicate to one another in a video is quite different to communicating in real life. It is generally limited by text, in-game actions, or voice chat. By looking into how players communicate we can then improve it to minimize the risk of miscommunication and misinterpretation” [7]. With text it is very easy to misinterpret something somebody says. Unlike voice chat, people cannot pick up tone of voice. On top of that, whatever is written stays on the screen for someone to read repeatedly to be re-interpreted as they please.

2.2 Background

Another question that is worth answering is “Why is this research necessary?”. Answer is simple, to combat toxicity. Toxicity is and has been a huge problem in the gaming industry for a very long time. It has in fact become such a huge problem that major game companies are teaming up to combat it together. It is no secret that online games like Overwatch, League of Legends, and many others suffer from toxic communities. From tagging over sub-optimal team compositions or under-performing teammates to slinging insults steeped in racism, sexism, and homophobia, it is a problem that has plagued gaming pretty much as long as we have been connecting our computers to play with and against each other online. The article posted by PCgamer continues to talk about how this alliance that has been named “Fair Play Alliance” goal is to share research, lessons learned, and best practices, the companies will be able to develop and better understand why toxicity happens, how to deal with toxic players, and most of all, how to stop toxicity from happening in the first place [11]. This thesis is a small step towards understanding toxicity, understanding the different emotions that a human experience when communicating with others while playing a game. This thesis does *not* try to find a solution to stopping toxicity, but rather a way of understanding it.

3 METHOD

To answer the research questions, this thesis uses an observational experimental method combined with a survey method. This required an experiment to be designed and conducted. The requirements for the experiment are: *participants* and a *game*. The participants needed to be able to perform the experiment.

A game that contained all the necessary tools to be able to conduct the experiment needed to be selected. This required the game to contain both text communication as well as voice communication.

The survey had to be designed in such a way that it would be possible to distinguish different emotional effects and a difference in behaviors. From the survey, data can be collected and analyzed to be able to draw conclusions and answer the research questions.

To be able to answer the research questions, the answers in the survey are measured in two ways. One which measures how many participants answered either “*Yes*” or “*No*”, and another way which measures how many of the answers are classified as “*Positive*” or “*Negative*”. Reason for these measurements is to be able to distinguish if the participant had a good or bad experience when using one of the communication methods. If one communication method received more negative responses, that communication method would be the method which causes more toxicity to happen. This also shows what communication method causes most positive or negative effects.

Why this chosen method is the best way to measure the different effects of voice and text communication is because it tests and shows how humans feel when playing a video game which is in line with the goal of this research.

3.1 Heroes of The Storm

Heroes of The Storm is a MOBA (Multiplayer Online Battle Arena) game which is heavily reliant on communication and team-play. It is also a free game that is easy for anybody to pick up and learn. Due to being highly competitive and strategic in nature, it is a game that can cause many different actions/reactions to occur and bring forth a lot of emotional effects. The game also contains voice and text communication although it is restricted to be within your own team and therefore the toxicity measured is only within the teams themselves.

3.2 Participants

A test group of ten people was put together due to ten being the maximum number of players that a Heroes of The Storm match can host. Larger test groups would need to consist of 20 or 30 participants. The group was then split into two teams consisting of five players in each team. The two teams then had to compete against each other with the goal of winning while communication as much as possible to reach that goal. The people that participated in the experiment were all students at ages of 19-26. Most of the participants were strangers with one another, but some of them knew each other. To prevent this from affecting the results, the participants that knew each other were placed in opposite teams. All the participants also had some familiarity of playing Heroes of The Storm or games of similar genre.

3.3 Setup of experiment

The experiment was performed at a distance, meaning that all the participants that participated in the experiment did so in their own homes on their own computers.

Before the experiment date, the participants were asked to download and install Heroes of The Storm and have it ready for when the experiment would take place. Discord was used in order to communicate with and guide the participants.

3.4 Introduction to experiment

At the start of the experiment, the participants were explained how the experiment would work as well as general rules of the experiment. The participants were then organized into two teams and were told to leave the Discord server when the experiment itself started.

3.5 Experiment

The experiment was designed and setup in such a way that the initial conditions of each match were the same. This meant that map, game mode as well as teams were the same for both matches. The only exception was that participants were free to choose whatever hero they wished to play in either match, reason for this is to mimic a normal game as much as possible.

3.6 Test Scenario

Each test scenario/match allowed only one type of communication method to be used. Communication methods swapped in the second test scenario/match. Reason for this setup is to make sure that the results are not affected by the participants feeling burnt out in the second match.

In the first match, one team was only allowed to use voice chat to communicate, while the opposing team was only allowed to use text chat to communicate. In the second match, the communication methods were swapped. This meant that the team that previously had used voice chat to communicate was now only allowed to use text chat to communicate and vice versa for the opposing team.

3.7 Questionnaire

Google Forms was used to create a questionnaire that the participants got to answer after the two matches had been played. The questionnaire contained two segments, one segment which focused around actions/reactions and one segment which focused around effects.

The actions/reactions segment questions follow the template “How did you act/react to X”, where X could be the usage of a type of communication method. Data collected from this segment shows if the participant acted/reacted more positive or negative.

The effects segment focuses on different type of emotional effects as well as effects that makes the participant feel different. An example could be “How did you feel when using X”, where X could be the usage of a type of communication method. Data collected from this segment shows if the participant experienced more positive or negative effects.

4 RESULTS

As mentioned earlier, results are split up in to two categories. One category for actions/reactions and one for effects. Some of these results are split down the middle and others are one sided, one of those with a one-sided result being the first question which goes “*Which communication method did you prefer?*” (figure 1). This result indicates that a large amount of people does prefer to use voice chat if they are given the option. The next question asked, “*Why did you prefer to the chosen communication method?*”. A summary of the answers would be that it is faster and easier to communicate through voice chat than through text chat since you cannot easily type while playing.

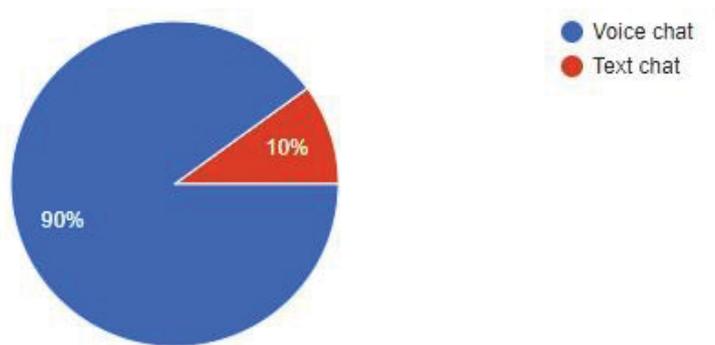


Figure 1. Result from question 1 “Which communication method did you prefer?”.

4.1 Actions/Reactions

When asking the participants if they think that they acted/reacted differently depending on the communication method, 90% of the participants answered “*Yes*” (figure 2). They then got to explain how they acted/reacted when using each of the communication methods. A lot of people acted/reacted very similarly when using the different communication methods. People acted/reacted more relaxed and cheerful and could easily chat and understand and support each other when using voice chat. As for when using text chat, people easily forgot to read, or did not have time to read or even use the text chat feature at all. People acted more on their own rather than with their team, making it more of a solo experience.

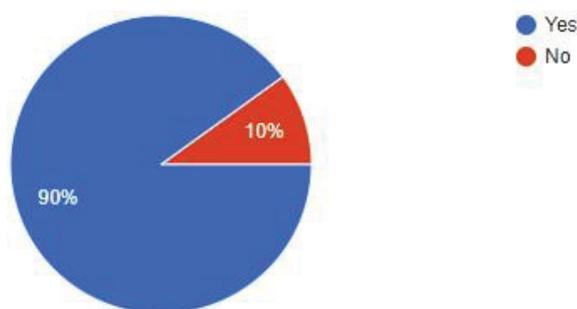


Figure 2. Results from question 3 “Do you think you acted/reacted differently depending on the communication method?”.

The participants then got a question which asked if they felt like the other participants acted/reacted differently towards *them* depending on the communication method. This was the first question that was split down the middle with 40% of the answers being “No” and 60% of the answers being “Yes” (figure 3). This is interesting because of the earlier question which asked if they felt like they acted/reacted differently depending on the communication method, which had 90% “Yes”. This would indicate that even though 30% of the people do think they act/react differently depending on the communication method, they do not think that other people do. When people then explained how they felt like the other participants acted/reacted differently depending on the communication method, some of the answers given were “During the voice test, we had a lot more communication about what to do” or “A more serious attitude was had during the Text-only game”.

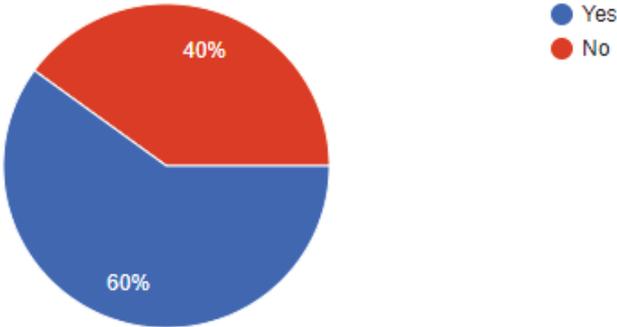


Figure 3. Results from question 6 “Do you feel that other participants acted/reacted differently towards you depending on the communication method?”.

The last question the participants got that involved actions/reactions was if they felt like the other participants acted/reacted differently towards *each other* depending on the communication method. Results were again one-sided with 90% voting “Yes” and 10% voting “No” (figure 4). This result would indicate that 30% of the participants that voted “No” on question 6 “Do you feel that other participants acted/reacted differently towards you depending on the communication method?” feels that the other participants does NOT act/react differently towards *them* but DOES act/react differently towards *others*. When asking the participants to explain how they felt like the other participants acted/reacted different, some of the answers were expectably the same as in the earlier question while some others were “With voice they reacted quickly and with text they tended to be a bit late” or “There was more help given when voice was active” or “Voice chat was more fluid”.

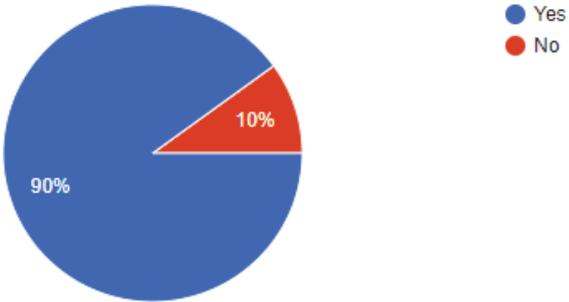


Figure 4. Results from question 8 “Do you feel that other participants acted/reacted differently towards each other depending on the communication method?”.

4.2 Emotions

The first question that the participants got on emotions was “*Did you feel different when using one of the communication methods over the other?*”. Results were once again one-sided with 90% of the answers being “*Yes*” and 10% of the answers being “*No*” (figure 5). When explaining this difference, people said they felt like they had more fun when using voice chat and less fun when using text chat others felt like voice was faster and more responsive. Some felt like with voice it was more of a team-based game and with text it was more of a solo-experience.

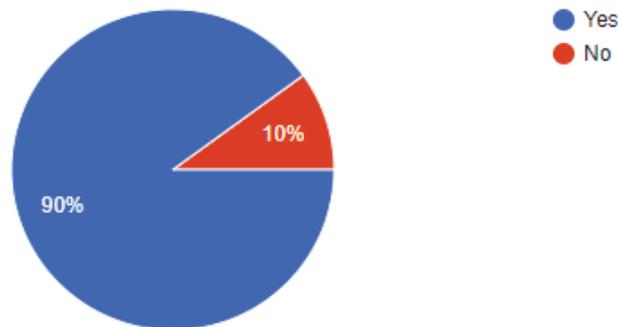


Figure 5. Results from question 10 “*Did you feel different when using one of the communication methods over the other?*”.

Next, the participants got two questions where they had to first describe the emotions they felt when using voice chat and secondly describe the emotions they felt when using text chat. They were given a few examples of emotions such as joy, anger, frustration. For voice chat a lot of the participants gave joy and happiness as an answer, some participants answered that they felt both joy and frustration and some answered that they felt joy when winning and frustration when losing. As for text chat, the answers were very mixed but mostly negative with a few exceptions. Some of the answers given were tense, frustration, annoying, relaxed, fun to a lesser extent.

The next questions the participants got asked them if they thought that voice chat and text chat is a “must have” for a multiplayer team-based game. For voice chat, 60% gave the answer “*No*”, and 40% gave the answer “*Yes*” (figure 6). As for text chat, 30% gave the answer “*No*” and 70% gave the answer “*Yes*” (figure 7). In conclusion, voice chat may not be a must in a multiplayer team-based game while text chat should most likely be included.

Finally, the participants got a question which asked, “*Do you think that toxicity in video games is something that needs to be addressed?*”. 70% gave the answer “*Yes*” and 30% gave the answer “*No*” (figure 8)

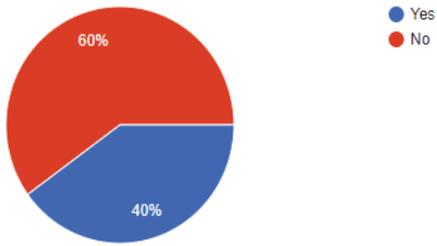


Figure 6. Results from question 14 “Do you think that voice chat is a “must have” for a multiplayer team-based game?”

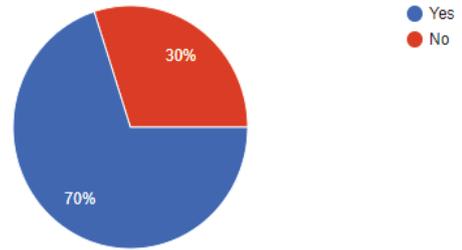


Figure 7. Results from question 15 “Do you think that text chat is a “must have” for a multiplayer team-based game?”

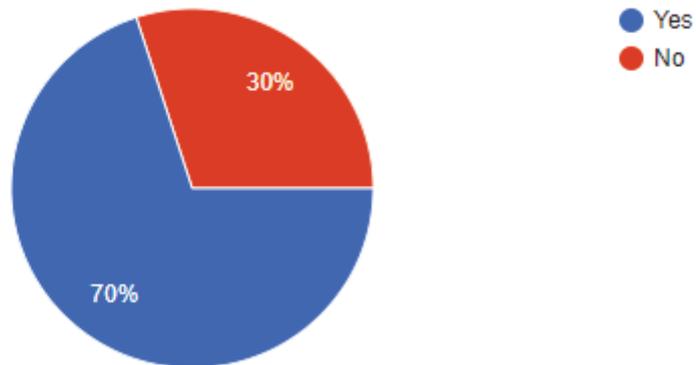


Figure 8. Results from question 16 “Do you think that toxicity in video games is something that needs to be addressed?”

5 ANALYSIS AND DISCUSSION

The results from the first question turned out as expected, most people preferred using voice chat over text chat. But taking the 10% into account, does mean that there are people that do not prefer chatting over voice. The reason why some people do not wish to use voice chat is not necessarily because they do not want to use voice chat, it has more to do with them not wanting to talk to people. According to M.Farouk Radwan [8] there are different reasons to why humans do not like to talk to people. Some of these reasons are things such as “Past experience”, “Self-deception”, “Introversion”, but the reason this research will focus on is “Shyness”. Shyness is an emotion that can cause people to not want to talk to others. Radwan continues to talk about how shyness can just be a cover for more serious problems like inferiority complex and low self-esteem [8]. Shyness was however not an emotion that people mentioned when asked in question 11 “*Describe the emotions you felt when using voice chat*”. Taking into consideration what Radwan said about how shyness can be a cover up for more serious problems like inferiority complex, a judgement can be made that these people could not possibly be a cause for toxicity when using voice chat due to the inferiority complex. However, that is not to say that these people cannot be toxic when using text chat.

Continuing with question 3,4 and 5 and analyzing the results it would seem voice chat causes more positive effects and produce more teamwork than text chat due to the nature of text chat making it more of a solo experience. It is however interesting that more people thought that the others acted/reacted differently towards each other depending on the communication method than people thought that the others acted/reacted towards themselves depending on the communication method. But again, the same results can be seen here as seen in question 3,4 and 5 where people acted/reacted more positively when using voice chat and negatively when using text chat.

Going further into the emotion section of the results, a lot of people felt joy along with some frustration, but voice chat brought more positive emotions to the game rather than negative emotions. However, as mentioned earlier in the text “emotions simply *are*” [12] and it should therefore not be said that an emotion that is deemed as negative is not necessarily what causes toxicity, but rather the effect that an emotion has on a human being and causing them to act toxic. Figuring out what emotions that cause toxicity to happen is outside the scope of this study.

All these results show clearly that voice chat is the superior communication method by causing most positive effects as well as causing less toxicity to happen, however the study made by Riot Games concluded that voice chat causes people to be more toxic, hence the reason to their decision to not include voice chat in their game. Reason for this difference in results can be due to the difference in number of participants. While this thesis only had ten participants, the study made by Riot Games may have had more than 50 participants.

Most of the participants did not think that voice chat is a “must have” for a multiplayer team-based game and that text chat is something that a multiplayer team-based game probably should have. But seeing as how a lot of people acted/reacted more positively when using voice chat and more negatively when using text chat, it could be interesting to introduce a game which only contains voice chat as a form of communication.

6 CONCLUSION

The conclusion of this thesis is that voice chat does bring a more positive experience to a game as well as makes people be less toxic due to the ability of being able to quickly and easily communicate with your team mates. However, that is not to say that text chat is obsolete since there are some people that does not prefer communication through voice chat. But giving players an option to communicate through voice chat should make the experience more enjoyable and more team focused rather than text chat where the experience became mostly like a solo experience. Overall, the effects that voice chat causes are mostly positive effects which brings emotions of joy and happiness while text chat causes mostly negative effects which brings emotions of frustration but also relaxation.

6.1 Future work

There is a lot more research which can be done within this subject. Firstly, as mentioned earlier it could be very interesting to test the effects of a game which only contains voice chat and compare the effects with a similar game which only contains text chat. Secondly, the same test should be done but with a lot more participants to have a larger variety of people for a more accurate result. Because people are all different and act/react differently to situations which would give a more varying result and could possibly show more emotional effects that the different communication methods cause. Thirdly, a third test scenario could be introduced where one team can use whatever communication method they prefer, and the other team is not allowed to use any form of communication. This would possibly show different effects and emotions and could also be a cause for toxicity to happen.

Another topic that could be future research would be the what effects and emotions causes people to act toxic. This subject was outside the scope of this research but knowing some of the different effects and emotions that are caused by using voice chat and text chat is one of the first steps to figure out what effects and emotions causes a person to act toxic. It could be a great help for game developers to know exactly what kinds of effects and emotions that causes toxicity to happen.

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