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A Data-Driven Analysis of Video Game Culture and the Role of Let's Plays in YouTube

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Abstract

Video games have become an important part of the global popular cultures that are connecting broader audiences of all ages around the world. A recent phenomenon that has lasted almost ten years is the creation and upload of gaming-related videos on YouTube, where Let's Plays have a considerable presence. Let's Plays are videos of people playing video games, usually including the game footage and narrated by the players themselves. In this work I use the metadata, of popular channels and their videos to analyze the current state of video game culture in YouTube and what is the role of Let's Plays in this ecosystem. To explore the video game culture, I focused on the main topics that the channel creators use as tags. To address the role of Let's Plays and fan production I found communities of channels which are connected through shared interests. This research will provide useful information about how video game culture in YouTube looks like and why Let's Plays carry a big role in the platform.

Keywords

Video game culture, cultural networks, Video games in YouTube, Let's Plays, user-generated content, tagging behavior.

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Ana Ruiz Segarra

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Introduction

Video games as part of global popular cultures are connecting audiences of all ages around the world. There are huge internet video game communities that are actively generating new content, what is changing the way games are experienced, developed and consumed. These changes may be understood in part through a phenomenon that has lasted almost ten years on the internet: the creation and upload of gaming-related content videos on YouTube, where the Let's Play videos have a considerable presence. Let's Plays are user-generated videos of people playing video games, usually narrated by the players themselves. Nowadays, millions of YouTube users are uploading and watching those videos daily, creating an innovative trend in video game experience. There has recently been an increase in the academic interest on Let's Plays, but there still is a lack of analyses involving the use of the data that the social network of YouTube can provide to understand this phenomenon. The latest digital tools allow us to download millions of descriptions, comments and statistics of the most popular channels. Those tools also let us study and analyze that information in a short period of time. This work will provide a data-driven analysis of the metadata of gaming channels and their videos, focusing on the creators of videos in YouTube. The analysis will explore the most recurrent topics of the most viewed channels related to the most popular games in 2016. The purpose of the study is to find out what the state of video game fan production and Let's Plays' in YouTube is, in terms of aiming audiences, community formation, languages used and explored topics.

This research is divided into three chapters. The first chapter consists of a literature review on videogames and audiences across different types of media. Next, an overview of the video gaming related channels' recurrent topics and their use in YouTube is carried out. Finally, an extensive analysis of video game communities in YouTube and their videos by year the last ten

years is presented. The purpose of the first chapter is to show how video games and their audiences have changed over the years and how those changes have affected the way user-generated content is created and distributed. This first chapter will be a historical exploration of how technology and new trends like *"casual games"* are shaping player identities in one of the biggest worldwide industries. The second chapter will explore how gaming trends such as Lets Plays appear in YouTube channels and how related these trends are. This chapter will make use of the data downloaded through YouTube API to explore how topics about video game culture are formed in YouTube.

Finally, the third chapter will provide a detailed analysis of the communities of the most viewed channels on YouTube as well as the evolution of user-generated content in the last ten years. The aim of this chapter is to find out if there are communities dedicated to specific topics and what the role of Let's Plays is in this ecosystem. It will show, in-depth, how fan production videos have spread, depending on the channel target audiences and the content similarities and differences across YouTube.

This chapter structure has been chosen to answer two main research questions:

- (a) How do video gaming related content creators in YouTube describe their channels in terms of topics and trends? (b) How are these descriptions producing a collective knowledge in the context of video game culture in YouTube?
- (a) What are the communities of channels in YouTube where video game fan production trends are more accepted? (b) What is the role of Let's Plays in this ecosystem?

Answering these questions will contribute to our understanding of a massive cultural phenomenon that comprises the participation of millions of human beings as both producers and consumers of video games and video filmmaking artefacts.

Chapter 1

1 Video Games: History, Industry and Audience

Video games[1] are relatively new, only about 60 years old, but humans have played games since the beginning of history. Even other species –mostly vertebrates and mammals– are involved in certain kinds of play (Burghardt 2005). Video games are strongly tied to predigital games and they are possibly carrying the same function in our society. For a better understanding of the role of video games in today's society, it is necessary to outline the prehistory of games and their definitions since they started to emerge.

1.1 History of Game and Video Game Studies

Games have been historically under-theorized and excluded from the "serious" activities of society, and even undervalued when compared to cultural expressions such as art and dance. The study of games and play started to be considered a serious topic among scholars and researchers during the second half of the twentieth century.

Scholars from different fields, including Psychology and Sociology, theorized games in order to establish a difference between them and other types of entertainment. For example, in 1938 Johan Huizinga, in his work *Homo Ludens*, re-evaluated the importance of games in culture. He stated that in the case of humans (Homo Sapiens), culture emanated from play, and it was through games that the human species improved their inventiveness, counteracted monotony, learned how to build order and to develop economies. Huizinga also coined the term "magic circle" to describe

[1] The term video game will be used in this work to describe all kinds of digitally generated games, including the ones played on computers, arcades, consoles and other digital mediums.

the game play experience as an activity outside of ordinary life, where the players disconnect from the rest of the world. Nowadays the term “magic circle” is broadly used to describe the experience of online game play.

Huizinga made no distinction between children, adult and even animal play, but in 1961 Roger Caillois first noted the differences between games of pretend and formal games. He argued that most games based on pretense -like children’s games- have no formal rules and are comparable to animal play. Children and young animals play, for example, by pretending that they are adults. Young mammals also play at hunting, while children often play using words, tools and symbols that emulate the ones used by adults. On the other hand, games with rule-based systems create complex fictions because “there is no activity that literally corresponds to any of these games” (Caillois 1961). Games of pretend mirror daily life, while formal games represent the culture and beliefs of a society.

Adult games were not considered just pastime activities in early human civilizations. In fact, some of the first serious games documented were board games, played by diverse cultures around the world. They became status symbols and had potent symbolism in religious spheres. Some of these adult games used dice, binary numeration, and tokens with 3D shapes such as balls or pyramids. The Egyptians played *Senet*, a game of skill and chance. In Africa, a game played with seeds in holes on the ground was very popular, and today all its variations are known by the name *Mancala*. The oriental game *Go* has been played in Asia since 200 BC. The Greeks’ Olympic games were first documented in 776 BC as sports games played under strict rules and point scores for each player (Egenfeldt-Nielsen, Smith, and Tosca 2016). Janet Murray asserted that: “Many patterns that are rigidly enforced in games are also the basis of social organization, such as turn taking, following a leader, exchanging property, team formation, conflict solving, and collective

focusing in common goals" (2006). Following this idea, the games played or created by adults in the past had the potential to show how the society worked and the rules that were important at the time.

Games as cultural artifacts can define the way a civilization grows, as Avedon and Sutton-Smith pointed out: "Games reflect the evolution of a society, the more complex the social system, the more advanced are its games" (1971). The tools used in daily life also influenced games in each epoch, one example being the creation of machines in nineteenth century that popularized the use of entertainment machines. The nineteenth century marked the birth of mechanical consumer entertainment. As machines started to fill up offices, other types of machines were created to play games. Pinballs were among the first interactive games played on machines. Card games also evolved into slot machines to play poker.

Another example is the early board game *Monopoly*, published in 1930 by the Parker Brothers. *Monopoly* was the commercial version of the popular table game *The Landlord's Game*. This game reproduced the "'function' of capitalism", showing how games can reflect the cultural values and trends of the time (Egenfeldt-Nielsen, Smith, and Tosca 2016). Some historic moments, such as World War II, can also define the narratives in games. After the war started, there was a proliferation of war games where maps and tokens were used to simulate battle and conflict. By the mid-twentieth century, games were an important part of life and culture, and the rising game industry helped establish them as a popular activity for family and friends.

The complexity of adult games became important for researchers because it is a source for understanding cultures around the globe. But what makes video games so different and complex compared to card games, coin-operated machines and board games? This question was also considered by many videogame designers and computer scientists that started to focus their

attention on video games in the early 21st century. The year 2001 "can be seen as Year One of *Computer Game Studies* as an emerging, viable, international academic field" (Aarseth 2001). The older definitions of games were used and modified for video games because of their differences from predigital games. Juul (2000), Crawford (1984) and Salen and Zimmerman (2004) re-defined games with the purpose of including the new digital ones. Their definitions of games describe video games as formal systems with defined rules in order to outline the differences from child's play or games of pretend. Some scholars' definitions mentioned before that include digital games are:

- "A game is a closed formal system that subjectively represents a subset of reality. 'Closed' means the game is a complete and self-sufficient structure. The model world created by the game is internally complete: no reference need to be made to agents outside the game. 'Formal' means only that the game has explicit rules. It is a system because the parts of it interact with each other, sometimes in complex ways. A game creates a subjectively and deliberately simplified version of the reality" (Crawford 1984).
- "A game is a ruled based system with a variable and quantifiable outcome, where different outcomes are assigned different values, the player exerts effort in order to influence the outcome, and the player feels emotionally attached to the outcome and the consequences of the activity are negotiable" (Juul 2000).
- "A game is a system in which players engage in an artificial conflict, defined by rules, that results in a quantifiable outcome" (Salen and Zimmerman 2004)

Video games could be included in game studies in general, but their main differences made scholars consider them a subject to be studied separately. Juul stated that computers and other mediums of data storage introduced three new principles only applicable to video games:

computation, state holding, and interfaces (2003). Computation is the way computers store and process the rules that a game follows. A computer can store more rules than the human brain, so the complexity of the games can be greatly increased. The state holding is how the computers save the current state, using it so that the game can be played again or saved every time and go back to the previous state. Finally, the visual interfaces opened up the possibility of representing reality in different ways or modifying the physical rules of the real world such as, for instance, a place without gravity.

The distinction of old/adult games with 'pretend play' allowed them to be treated as a formal discipline. The same happened with video games, which at first were treated as a "'children's medium' […] something that will be 'grown out of'" (Newman 2013, 5). That misconception led video games to be considered below other disciplines, such as film (6). Even after overcoming the misconceptions, video games nowadays are still seen as a part of youth culture, giving rise to concerns including those related to exposure to violence, bullying, and gender issues.

Many experts who researched child and youth issues around videogames started to focus more on fan communities, narratives, and user-generated content. One example is Henry Jenkins, who studied gender issues in 1998, and two years later wrote about the discourses around video games and how they create interactive fictions. Other scholars, such as Newman (2004) or Consalvo (2003), explored the fan communities around video games and the value of the content they created. At this point, the study of video games was taking a turn towards the understanding of human behavior in the new digital worlds. The fan participation in virtual spaces, unlike in the real word and in older games, leaves a digital trace behind, which can be followed to comprehend the rise of new cultural trends.

1.2 Videogame Technology, Industry and a Growing Audience

The video game business is currently a multimillion-dollar industry that ranges from big companies to small start-ups. However, video games were created even before a single company existed, and the creators were mostly researchers and university students. Everything started with the invention of transistor memory in 1946 which led to the development of computers. Research labs started to acquire large and extremely expensive equipment, to which only the scientific community had access. The first computers were intended for purposes of espionage and military research but were at the same time turned into tools to play digital versions of board and paper games. As explained in the previous section, when new and complex tools appear, they are converted into games.

The first video games were not so different from their older versions in appearance, but computers allowed for the gradual increase in complexity of earlier games (Raessens and Goldstein 2005). For example, in 1952, a researcher from the University of Cambridge (UK) created a version of *Noughts and Crosses* named *OXO* for the EDSAC (Electronic Delay Storage Automatic Calculator). The digital game resembled the popular *Tic Tac Toe*: a paper and pen game played for centuries in Britain. One of the main differences from the old game was that it could be played against a computer, something that was not possible before. The EDSAC was a machine not commercially available for the common user, therefore the game had no popularity.

Just 6 years later, another digital version of a popular game was created at Brooklyn National Laboratory. There, Willy Higginbotham converted an oscilloscope into a video game that moved a dot of light from side to side on the screen with the help of two boxes with a button on each; he named his creation *Tennis for Two* (Malliet and De Meyer 2005). The game was created

to test the functionality of the equipment by the lab visitors and it is considered to be the first video game intended for a common audience (24). It was a huge success among the visitors, because it looked like a digital version of *ping pong*.

Spacewar! and *OXO* are examples of what was to come in later years: the beginning of hacker culture and the commercial industry of video games. For hacker culture, a 'hack' was a technical innovation made just for pleasure and not necessarily intended to have a constructive goal (Coleman and Dyer-Witheford 2007, 936). Since the creation of the first computer, 'hackers' were trying to break into the equipment to create different applications, like what happened with the ESDAC and the oscilloscope. Because the research focused on military and espionage, the discoveries were not interesting for the local governments, but entrepreneurs found in games a productive creation. That trend started with *Spacewar!*, which was developed by Steve Russell at MIT in 1962 and consisted of two tiny spaceships that could fire torpedoes at each other in space. *Spacewar!* inspired Nolan Bushnell to popularize coin-operated arcades and the programming of the game had an enormous influence on early video game coding around the world.

One of the first entrepreneurs who tried to sell video games was Ralph Baer, an engineer employed at the electronics company Sanders Associates. In 1966, he designed a device that could be connected to a TV which included a version of *ping pong* (Kent 2001). The game looked like *Tennis for Two*, re-designed almost a decade before to include the missing rackets in the shape of two bright squares on the sides of the screen. Baer also created a *Hockey* game and several other games that did not become commercialized until 1972 due to the resistance of TV manufacturers. After playing *Spacewar!*, Nolan Bushnell was inspired to create coin-operated machine-like devices to display a version of the same video game under the name *Computer Space*. The game was intended for a specialized public and was completely ignored by general audiences because

of the complexity of the instructions. The second game played on that machine was *Pong*, another version of *Tennis for Two* with the addition of numeric scores. It was an astonishing success due to the simple rules and easy gameplay. Bushnell founded Atari, which was the first arcade video game company.

The popularity of Atari, located in Silicon Valley, attracted talented programmers and the technology and software market around it. The programmers and engineers who worked in government security or military development wanted to be part of the emerging 'creative industry', changing the way they worked before. Just like Atari, many other companies ventured into the video game market, specifically the old entertainment companies like Mattel (a toy company), Parker Brothers (a card and board game company), Coleco (a swimming pool company), and semiconductor manufacturers like Fairchild and Magnavox. The latter was the seller of the first home entertainment console: the Magnavox Odyssey – a modification of the prototype created by Baer some years ago (Kent 2001). By 1978, the video game industry became a $200 million business, just 6 years after its creation, and Atari with more than half of the revenue.

The 1970s also established video games as a cultural phenomenon, at which point the gamer subculture emerged (Egenfeldt-Nielsen, Smith, and Tosca 2016). The self-named 'gamers' met in the Arcades: rooms where coin-operated machines were sometimes placed near *Pinball*s and even gambling machines. One example was Japan, which imported United States' arcades and placed them mostly near *Pachinko* machines –a gambling game of chance popular in Japan-. The first video game imported was *Pong*, but it didn't attract the audience in Japan because of the popularity of local *Pachinkos*. In 1976, the first Japanese arcade game companies were created: Taito and Namco. Two years later, Taito released the hugely successful video game *Space Invaders*, causing the sales in local *Pachinkos* to drop. The game also had a similar effect when

exported to Western countries, and by 1981 the game earned 4 billion coins: “one coin per inhabitant of the Earth” (Raessens and Goldstein 2005). After the growth in popularity of arcades, the player audience was expanding rapidly, reaching people all over the world.

While arcade games reached all kinds of audiences, arcades themselves had a stigma of being bad places for children and women; a stigma inherited from the previous year’s coin-ops and gambling machines that used to be located alongside arcade games. That misconception led to the gender imbalance in the gamer sub-culture, which at the time consisted mostly of male teenagers (Newman 2013, 49). The first arcade game to challenge the stigma was *Pac-Man*, released by Namco in 1980 and a very huge success at the time. *Pac-Man* made use of cute characters and a user-friendly gameplay, which reached a larger audience, including children and women, who were only somewhat interested in previous games like *Pong*. Because of the astonishing increase of female gamers playing *Pac-Man*, the creators of the game designed a female character for a version of the game named *Ms. Pac-Man*. The *Pac-Man* arcade game was released just two years before its success. *Ms. Pac-Man* is claimed to be the first arcade game that drew female players’ attention (Juul 2010). Both *Pac-Man* games are among the first arcade games that were quickly accepted by almost everyone in Japan and the U.S., making video games a trend outside of the ‘gamer’ community.

The period of 1979 to 1983 saw a boom of creativity and innovation as important video game genres and styles were developed. Nintendo, a company based in Japan, started to make family-friendly games for its consoles, including *Donkey Kong* and *Mario Brothers*. Other games such as *Adventure,* released by Atari consoles, marked the beginning of the adventure (exploration) genre and introduced the use of the famous term ‘Easter eggs’ –hidden secrets in video games often difficult to reach– making *Adventure* popular among the ‘gamer’ community. The birth of

first-person perspective games appeared in Atari's *Night Driver*, which used a basic 3D simulation (Juul 2010). The popular arcades and console games of the 80s established the most prominent videogame genres of all time, including adventure (exploration & quests), action (space war, shooting), and strategy (conquest & military) games for diverse audiences. However, the violence present in arcade games like *Death Race* would contribute to the negative image of arcade games for the next years.

After the success of the commercial industry and the creative boom came the "crash" in the period from 1983 to 1985. The crash allowed for new trends to arise, like the growth of PC games, the defense of developers' rights over their creations, and a new place for companies, diversifying the market. There were three central causes of the crash. The first was the oversupply of consoles and arcades because of high user demand (Egenfeldt-Nielsen, Smith, and Tosca 2016). The second cause was the rise of the home computer, as consumers turned their attention to computers since they were more useful than consoles. This was one of the biggest moments for hacker culture because they found in computers a way to "permeate the informal and anti-commercial ethos" (Coleman and Dyer-Witheford 2007). Many gaming magazines were published to show the possibilities of computers and how to learn programming languages. The crash was also decisive for the ownership rights of video game developers who were fighting against large companies with strict copyright laws. The last factor that contributed to the crash was the independence of the developers, as they were usually underpaid by the companies and unable to claim credit for their own games, resulting in massive numbers of employees leaving the companies every year.

By the end of the crash, big video game companies had significant losses in revenue. In 1984, Mattel and Coleco had withdrawn from the business (Raessens and Goldstein 2005). Atari

managed to avoid bankruptcy but never recovered from the crash. On the other hand, Nintendo, still a small company at the time, kept consoles alive by launching the NES (Nintendo Entertainment System) and a handheld Game & Watch series. This device introduced portable device games such as *Donkey Kong* and *Pinball*. Just one year after the crash, Nintendo was leading the handheld and home console market in the United States and Japan. The largest competitor of Nintendo was Sega – another company from Japan very popular for its arcade games in both Japan and the United States.

With Japan leading the console market globally, the United States decided to turn to the personal computer (PC) game market. Mainly developed in the U.S., large companies dedicated to PC games found a way to reach forgotten audiences. For example, Electronic Arts (EA) decided to focus on sports games and used the strategy of signing licenses with popular athletes and sports teams, including NFL and NBA stars. During the 1990s, the complexity of PC games and PCs themselves were growing quickly. The screen resolution, images displayed, and genres created were attracting larger and larger audiences that would spend hours in front of the screen. Because of the nature of home computers, PC players mostly played alone, in contrast to playing consoles, which were often a way of socializing with others and spending time with friends and family around the television. However, the genres of games closely tied to PCs, such as adventure and strategy games, became more "social" due to the growth of local area networks and the World Wide Web in the early 1990s, setting the perfect conditions for online multi-player games (MMOs).

In the early 1990s, the United Kingdom joined the videogame market with Eidos as the leading company. Before the 1990s, there was a long tradition of 'bedroom coders' that appeared in the 1980s due to the rise of home computers, allowing amateur programmers to code in their

‘own bedrooms’ (Izushi and Aoyama 2006). These coders started developing clones of Atari and *Pong*, and they were always behind the big companies of Japan and the United States. Since the global success of Nintendo’s NES and Sega consoles, the interest in video games grew again and small groups of independent developers launched start-up companies. Unfortunately, they could not afford the production costs of 3D games.

The second half of the 1990s was the perfect time for PC games, with the creativity of Japanese companies overtaken by the rapid growth of U.S technology. The company NVidia, based in the United States and created in 1993, started to focus on the development of graphic cards for computers that would help in the evolution of 3D games. With Microsoft leading the PC computer market and IBM in second place, Apple Computers started to lose presence in the market. PC computers started to become the essential tool for the real ‘gamer’, dividing the video game audience in half.

Computer game companies started to make deals with the Film and Animation studios, resulting in high-budget triple A games. Sports games mostly popular in the United States also became 3D and most of the time were developed in collaboration with professional teams, like in the case of *FIFA* by EA or *Championship Manager* by Eidos. Other genres, such as RPG games and strategy games that started with the isometric view, gradually went into 3D. But because of the complexity of the rules and the gameplay, they had to wait until PCs and audiences were ready. Some of the significant 3D computer games were *Final Fantasy*, *Age of Empires* and the *Civilization* series.

During the late 1990s, games were becoming more difficult and very frustrating for the common user. This issue was first discussed at the 1998 Computer Game Developers Conference (Juul 2010). The main topics of the conference were 3D games, online gaming, and ways to

improve them –topics intended for the experienced video game developer and 'gamer'–. Scott Kim highlighted the need for "games for the rest of us". He stated that computer games at the time were only enjoyed by computer and tech specialists, with a lack of easier games available for mass consumption. The standard games for 'gamers' were not interesting for the inexperienced user and even help in game magazines was intended for computer specialists. Although games like *Pac-Man* and *Space Invaders* attracted general audiences, the computer games were still of little interest to them.

1.3 The Casual Revolution, Social Networks and the "New New Media"

Video game consumption and development in the early 2000s was still male dominated and as such, closer than ever in game history. The increasing interest in computers and the decreasing prices made them affordable and necessary for the common user. However, video games were still perceived as primarily intended for male teenagers. Scott Kim coined the term "casual games" to refer to the games for people who do not consider themselves to be gamers. Kim stated: "The point is that people play different types of games for different reasons. Expert gamers play for the longer-term rewards of competition and rankings, whereas casual gamers play for the shorter-term rewards of beauty and distraction" (Juul 2010). Kim's statement considers the concerns of the occasional users, who just played games in their spare time, while the big industry was concentrating on the 'gamer' user.

The terms 'hardcore gamers' (expert players) and 'casual gamers' emerged in an attempt to divide audiences. The first games considered to be casual were for all-ages and family friendly, while 'hardcore' games were more often related to violence. *Doom*, for example, had a "death match" mode in which players could attack each other. Similarly, Nintendo's *GoldenEye007*, for

Nintendo 64, was a first-person shooter that essentially consisted of shooting every enemy in front of the player immersed in a 3D simulation. Mass shootings in United States such as the Columbine high school shooting in 1999 led TV and newspapers to blame video games, considering that these kids spent hours playing *Doom* and other shooter games (Kent 2001). The stigma of arcade games was transferred to computer games, again causing a controversy on child and youth issues.

The 2000s underwent critical changes in the history of the video game industry. The rise of casual games, the creation of mobile devices and social networks were the main reasons for those changes. The trend of casual games also reached traditional media. In 1999, the New York Times discussed the new *Deer Hunter* game as part of a new wave of casual games. Simple in appearance and playability, it also used the terms 'boring', 'lame graphics' and 'repetitive' (Juul 2010). For the first few years, the term "casual" meant easy, because casual players were expected to fear difficulty. After that, some exceptions to that rule appeared: for example, in *The Sims* (2000) game that opened up a whole new genre. Its close simulation to real life and the fact that it does not have a specific goal, makes the gameplay open for the user and, therefore, the results of the game depend only on the player's decisions. It attracted casual players as much as hardcore players.

The media did not yet realize the degree of the change led by casual games, but everything changed after Nintendo launched the Wii console in 2007. Two years after its launch, Nintendo Wii was leading the console market with a revenue of US$30 million, followed by Microsoft's Xbox (US$20 million) and Sony's PlayStation 3 (US$15 million) (Juul 2010). The trend of games "for the rest of us" appealed to a bigger audience, including a forgotten audience that had played games since the 80s and even those who had never played before. Nintendo also stated that they were trying to reach a broader audience, but that they would be focusing on the "hardcore" gamers as well.

With the emergence of mobile devices and wireless internet came a new era of “casual gaming”. The initial cost and accessibility of the technology did not allow common users to purchase or use mobile devices, but as the costs of transistors lowered, the cellular phone started to be sold in the mass market (Veltman 2006). Not only were cellular phones popular, but also laptop computers, tablet PCs, palms or PDAs (personal desktop assistants), and small handheld devices to play videogames, such as the Sony Ps or the Nokia N-Gage. The first video game for cellular phones was Nokia’s *Snake* in 1997, which was considered a casual game because of its simple gameplay and monochromatic graphics. This game reached the huge audience of cell phone users that included not only game players, but general audiences of all ages.

Mobile devices created a new immersive game player experience, mainly because, before mobiles, videogames were played in one of two places: inside the home (on consoles) or outside the home (in arcades). With mobile devices, the two spaces became one, allowing users to play games wherever they wanted. It also appealed again to the casual audience, the ones who wanted fast fun and a small-time commitment. Jenkins used the term ‘convergence’ in 2008 to explain how technology, industry, and culture are changing. The convergence of technology can help explain why mobile devices became the key element in the trend of casual gaming. The term “convergence” refers to the joining of different technologies on the same device. For example, previously, wireless internet, communication, digital cameras, television, and global positioning systems (GPS) each had its own device, but now all of them could be found in one smartphone. Nokia was one of the first companies that joined the concepts together. The Nokia N-Gage in 2003, for instance, was a cellular phone and a game console, but the technology was not ready to be compared with PCs or consoles.

Games became simple again, and so, as in the creative boom of the 80s, start-ups and independent companies released new games available online. Pop-cap, the creator of *Bejeweled,* released more successful matching tiles and puzzle games (*Bejeweled 2, Alchemy, Plants vs. Zombies*). Some other games could be downloaded through the BigFish Games website with the option of free trials or paying before playing. After a certain amount of time played, the user had to pay to keep playing –a monetization method referred to as 'pay-to-play'. In 2006, a study revealed that 71% of the casual game audience were females over 35 years old (Juul 2010), numbers that the traditional PC or console gaming market have never reached among female audiences. The massive audience of mobile devices and cellphones became the new audience for casual games that could be downloaded by paying an affordable price. Pop-cap later collaborated with Apple, leading to the development of mobile versions of other popular casual games for PC.

Between 2001 and 2006, the casual game market seemed both simple and promising at the same time. The sales also showed a change in the "core industry" of video games, as mentioned before. The term 'casual' was often confused with 'easy', and the intended audience was mainly middle-aged women. After 2007, the market of casual games was changing to become the fastest growing segment of the video game industry, leaving no player behind. Casual games, according to the Casual Market Association report of 2007, are defined as "video games developed for the mass consumer, even those who not normally regard themselves as a 'gamer'". That definition seems simple and vague, but it precisely describes the purpose of the new games in accordance with the 2008 IGDA (International Game Developers Association) white paper.

Videogame players were divided before 2006, but every year less were identifying themselves as gamers. The stereotypes of 'hardcore' and 'casual' players were all over traditional media. Even on the internet, game review web sites warned their 'hardcore' readers to "not be

ashamed of playing casual games" (Juul 2010). However, casual games like *Puzzle Quest* demonstrated that both kinds of gamers were playing the same games.

In that case, who is a casual player? To answer that question, it is better to start with the stereotypes. Juul provides two definitions that match the main two groups, but the actual players do not completely match the descriptions, as follows:

- Casual player: "has a preference for positive and pleasant fictions, has played few video games, is willing to commit small amounts of time and resources toward playing video games, and dislikes difficult games." (2010)
- Hardcore player: "has a preference for positive and pleasant fictions like science fiction, vampires, fantasy and war, has played a large number of video games, and enjoys difficult games." (2010)

The characteristics of a casual game include: being intuitive or easy to learn, simple control, addictive gameplay, low or non-punishing for mistakes, being inclusive (all ages, genderless, no violence) and lower budgets (Rohrl and Greechan 2009). While not all the casual games fit under the previous description, the majority of the games could. One way of considering the magnitude of the casual audience is by looking at the mediums through which they access casual games: downloading them from websites or mobile applications, playing directly online and using consoles like the Wii. Usually, these would also provide mimetic interfaces or interfaces that resemble the real-life object, such as the plastic guitar controller for *Guitar Hero*.

Casual games opened up ways of reaching larger audiences through the use of the internet, as the simplicity of the first casual games allowed people to play easily within the browsers, with no installations necessary, either for low prices or even for free. This contrasted with hardcore games that were still expensive. Even the MMOs (Massive Multiplayers) required a vast knowledge of

computers and sometimes a high monthly fee to allow users to play. According to the ESA report, in 2013 the casual game popularity increased by 55% among the most frequent U.S. video game players. Additionally, 28% of those users were playing puzzle or trivia games online and 30% were playing other casual games. Just 35% of them were playing MMOs or RPG games. The most frequent users were the ones who played an average of 5 to 6 hours a week or more, and if those users were mainly playing casual games, then a significant portion of the casual audience fit outside of the player stereotype mentioned before.

As new internet digital culture and massive new media spread, the ways to play, buy, and socialize are also changing. Video games are constantly evolving. They developed with the industrialization of society and they are present alongside changing social relationships. As stated by Larissa Hjorth, games nowadays can be "vehicles for understanding new media more broadly" (2011). The casual game boom helped to de-specialize the market, previously full of teenage white male players, to become more inclusive, with current video game players including women, men, children, the elderly, and entire families.

New media is reaching all audiences across the world and is, in fact, different from traditional media. Henry Jenkins summarizes these changes in three points: 1) there are new tools and technologies that allow users to archive, annotate, appropriate, and recirculate media content 2) the subcultures that promote the Do It Yourself (DIY) trends 3) and finally, the economic trends that allow the flow of images, ideas and narratives across the globe (2008). Since the rise of internet accessibility, the user has become an active member with power over new media through two-way communication. Online newspapers and magazines encourage users to comment on stories, bloggers are creating websites just to share their own experiences about everything imaginable, and the users are started to be 'seen'.

The way that people socialize has also changed with new media. Nowadays, the internet is connecting people with those who share the same interests and forming online communities around those interests. These communities also connect with others through the use of social networks, created with the purpose of linking people, and which also have an impact on video games. The number of social network site users have tripled from 2010 to 2017, according to *statista.com*, there were 2.49 billion users of social networking sites in 2017. To clarify what would be considered a social network, the definition is as follows:

> "Social network sites are web-based services that allow individuals to (1) construct a public or semi-public profile (2) articulate a list of other users with whom they share connection, and (3) view and transverse their list of connections and those made by others within the system" (Boyd and Ellison 2007).

Some examples of the most popular social sites are: Facebook, MySpace, Bebo, LinkedIn, Flickr, YouTube and Twitter. Large casual game companies, among them Zynga and PopCap, joined social networks like Facebook to make short games for the site. Some of these games also had virtual goods to buy in the game, as in the case of *Farmville* or *Candy Crush*. Zynga reported that 90% of the revenue came from virtual purchases. The company also stated that they have 306 million players per month, representing a revenue of $332.5 million (Hinton and Hjorth 2013). The number of users involved in the phenomenon of casual gaming on social sites is also attracting massive interest.

Social media sites, blogs and other online spaces allowed more internet participation culture which as described earlier, is changing the role of the community and the industry. The change always adapts to recent technologies. While previously, big companies required big investors, nowadays independent development is launched by means of free advertising and

crowdsourcing. The free-to-play model also allowed for the large-scale growth of 'indie' companies that uploaded games mainly through Google Play, social networks, and websites which host thousands of games developed by amateurs and independent professionals rather than by big companies. Indie titles such as *Super Meat Boy* by Team Meat, 2D Boy's *World of Goo* and Mojang's *Minecraft* are available under the same platforms as mainstream titles, making them visible for everyone and competing at the same level (Keogh 2015). Just like casual games in the 2000s, the 'indie' video game companies appeared as a response to the homogenized industry that was holding all the earnings. Because of new media, small companies have the power to change the landscape of gaming.

This participation culture goes beyond new media, creating new types of users that Hjorth call 'produsers', because the content that they search for is content produced by other users. Levinson situates this phenomenon of 'produsers' within other "new new media", repositioning traditional media, bypassing gatekeepers, and transforming into innovative methods of advertising (2010). User-created content is becoming huge on the internet, along with the communities that support them, often using crowdsourcing to donate money to sponsor an idea or product. The on-line communities have the power to make ideas into a reality. Kickstarter.com, for instance, is one of the most successful crowdsourcing sites on the internet. Kickstarter works with small donations from the community, which helps launch games, technology, clothing and many other kinds of user content. One of the most popular ideas funded by Kickstarter is The Oculus Rift, the first virtual reality headset that reached $2.4 million in 2012.

As Olli Sotamaa pointed out, the analysis of cultural practices among gaming culture can uncover questions about their transition in new media (2009). He also mentions the particularity of video games. As opposed to other types of media that can be experienced by just reading or

watching them, games must be played to be experienced (2010). Video games nowadays are mostly about socializing, sharing and creating new experiences.

1.4 YouTube Gaming, Online Cultures and Let's Plays

As discussed in the previous section, the power of the internet made more room for interactive and sharing-based spaces. In these online spaces, people can engage as a real community publishing their opinions, including their feelings and emotions. Hinton and Hjorth pointed out that internet users in online communities demonstrated a power to transform as, unlike in traditional media, information comes from different perspectives and users (2013). The 'democratisation' of new media allowed access to other users' opinions, but it also made space for active participation in new ways of expression, such as 'memes' (pictures, gifs, or videos with a funny punch line) or 'fanfiction' stories (fan-created fiction histories based on original books/characters).

In addition to the active participation of video game fans the 'new new media' is popularizing the concept of 'produsers' which can become video game 'produsers'. Sites like YouTube, Facebook, Twitter and Wikipedia are some of the most popular sites where the users are the moderators and where the feedback of resources is created by them and others. In addition, some of these 'new new media' sites even provide earnings for their content or funding to create new ideas. YouTube is one example, where the 'produsers' can earn money through advertisements placed in their videos. Another example is Kickstarter[2], which is one of the most successful crowdsourcing sites on the internet. Kickstarter works through small donations of the

[2] https://www.kickstarter.com/

community which allow people to launch games, technology, clothing and many other kinds of user-created content.

The online culture around videogames is consuming them in a unique way. The communities are described as very active on the internet and have been generating new "art forms". Shaw mentioned that the videogame user-generated content like mods (video game modifications) get the player more involved than traditional media consumers, going beyond forums and opinions and changing the industry itself (2010). The game *SecondLife* for example, exists mostly due to the user-generated content. So does *Roblox*, a game created from community-developed mini games that in 2011 reached 69 million users, 2.5m of them are developers that earn $30 million every year, according to *Business Insider*. In this case, *Roblox* players are also potential 'produsers', because they are developing the games and playing them at the same time.

Before the new media even existed, many forms of video game cultural productions were documented. For example, in 1980, magazines like *Computer and Video Games* or *Commodore User* started to publish sections of written tutorials on how to use the power of computers and consoles to create new products (Kirkpatrick 2017, 21). The tutorials helped users with different creations: from music produced with computers to mini text-based adventure games. The evidence of these creations was only documented through letters sent by some users to the editorial. One of the advantages of new technologies like the internet is that the users' creations can now be more accessible, to be viewed and critiqued by millions of people worldwide.

The online gaming community cannot be defined as uniform, as it is in fact quite diverse. Navarro-Remesal stated that: "Contemporary gaming culture (and its technologies, social dynamics and design trends) favours a constant exchange, storage, discussion and manipulation of information about games past and present" (2017, 129). The video game landscape nowadays

allows for the diversity of interactions with the games (new and old) and different forms of cultural production. Some examples of this production include amateur creations like emulators for old games, fangames (games created by fans) and mods, which often require technical knowledge. Other examples of production are textual, including walkthroughs, fanart and fanfiction. Walkthroughs, for instance, have evolved from written descriptions in 1978 game magazines to recorded videos in platforms like YouTube (Nylund 2015). Fanart (art created manually or digitally by fans) and fanfiction are two examples of production which are not exclusive to video games.

The function of fan production is also diverse. Walkthroughs can be a learning experience for beginners or a helping hand for advanced players searching for 'easter eggs'. However, fanfiction and fanart function as self-expression objects, to share an opinion or just to entertain other users. Forums like *Something Awful* were the perfect spaces for posting pictures, fanart and sharing opinions about many topics, including gaming. Some of the current internet trends are considered to have been born in the forums, such as 'memes' (Pater et al. 2014) and 'Let's Plays' (Hale 2013). However, 'memes' are again not exclusive to games, and in fact they started as ways to make fun of the forum beginners using derogative words like 'noob' or 'newbie'. Let's Plays started in *Something Awful* in 2005 as written descriptions along with screenshots used to describe a part of or a complete video game. Contrary to the function of walkthroughs, Let's Plays were not intended to be learning guides but real portraits of the gameplay, including mistakes and jokes. Let's Plays became a form of entertainment where users are able to socialize the experiences of playing a video game.

Around 2007, after two years of Let's Plays' popularity in *Something Awful*, the internet phenomenon moved to YouTube in the form of videos (Newman 2013). Let's Plays or LPs videos

in YouTube are footage of gameplay along with a recording of the player commenting on the game while she plays. In Let's Plays, the commentators are not expected to be experts in the game, and some of them just want to explore the game while making mistakes, sometimes even on purpose to make the video more humorous or entertaining. LPs are similar to movies in the sense that every creator gives a different meaning to the game content, telling a different story or simply making fun of a serious game that is not intended to be funny, as often happens in horror games. The major platform of distribution of pre-recorded LPs is currently the video sharing site YouTube, while Twitch TV is the most important source of live recording videos (streaming) of Let's Plays.

Even if Let's Plays videos started to appear on YouTube in 2007, video sharing sites are as old as *Something Awful*. The first unsuccessful attempt at a video sharing site was *shareyourworld.com* that failed due to lack of technology (Soukup 2014). Two other examples were *Yahoo! Video* and *Google Video* which appeared in the same year as video search engines, allowing users to find videos in browsers, but they did not offer a way to share or to store them. In February of 2005, Steve Chen and Chad Hurley, two students of the University of Illinois registered YouTube as a trademark logo and domain, intending to create a website that offers free video storage and the ability to search for videos in one place. On April 23rd of the same year, a co-founder Jawid Larim successfully uploaded the first video on the website titled "Me at the Zoo", which was a short video about Jawid at the San Diego Zoo, talking about his experience there. In October of 2006, the company was acquired by Google for $1.65 billion, according to *The New York Times*. YouTube is the most viewed video sharing site and the second social network website with the highest number of users, just behind Facebook. In 2017, the site reached 1.5 billion

registered users who collectively uploaded 400 hours of video every minute in 76 different languages[3].

The reasons why many users turned to YouTube as the preferred place to upload their videos were the built-in social network features and the advertising/marketing element. A YouTube user can watch, comment or rate videos (on five-star scale in the beginning). The users who wanted to upload videos could also create their own channels and their channels could have followers or subscribers which become their audience who are willing to watch more videos on the same channel. From August of 2007, the YouTube channels can monetize their content, earning revenues from advertising promoted through their videos. The monetization model in YouTube was a big advantage over *Something Awful* which asked the forum users to pay a fee "to keep the environment troll free" (Pater et al. 2014, 2407). The fee caused an isolation of its users, contrary to YouTube where most of the user information and content is public.

Since the beginning of game history, games have had players, audiences and spectators. That is not a new concept. What is different now is the "new new media" which allows for a connection between the user-generated content, the audiences and the spectators. In YouTube, for example, users can watch Let's Plays with no intention of playing games in the future as the audiences broaden, connecting various communities, even from outside the groups of video game fans. Each year more users are uploading gaming-related videos to YouTube, in 2016 filling half of the spots of the top 20 most subscribed channels, according to *socialblade.com*. The channels together add 780 million subscribers from different countries. The popular YouTubers (video creators) who upload gaming videos are also from different countries: among them Sweden

[3] https://youtube.googleblog.com/2017/06/updates-from-vidcon-more-users-more.html

(Pewdiepie), Chile (JuegaGerman), the United States (Markiplier), Peru (Fernanfloo) and Canada (VanossGaming).

YouTube is an open way to broadcast videos and, because of that openness, it is raising issues about copyright, participatory culture, and the structure of the video game market (Soukup 2014). Videos like LPs and walkthroughs are distributed freely for the viewer, although the content showed could be copyrighted. Because of that, the core industry of videogames is still fighting legally to regain their rights on YouTube. Nintendo is one of the most affected in this regard, in 2013 stating that: "As part of our on-going push to ensure Nintendo content is shared across social media channels in an appropriate and safe way, we became a YouTube partner and as such in February 2013 we registered our copyright content in the YouTube database" (Matulef, 2013). For Nintendo, Let's Plays and walkthrough videos are trouble because of the free distribution of copyrighted content, but they also have indirectly helped other companies like EA. The Swedish YouTuber Felix Kjellberg (Pewdiepie), in 2017 with 57 million subscribers, indirectly rocket-launched the sales of the game *Skate 3* by EA, because of its appearance in his videos[4]. EA Skate 3 had to be reprinted in the UK due to the popularity of the game on Let's Play videos.

This phenomenon of Let's Plays has been studied recently by some scholars, among them: Smith, Obrist, and Wright in 2013, Nguyen in 2016, Kerttula in 2016, Burwell in 2016 and Hale in 2013. Smith, Obrist, and Wright are focused on three live-streaming communities of gaming videos: eSports, Let's Plays, and 'speedrunners'. The eSports community is described by the authors as the competitive and professional side of gaming videos, where players, fans and

[4] https://www.telegraph.co.uk/technology/video-games/11422943/Ten-years-of-YouTube-How-the-streaming-site-affects-the-business-of-video-games.html

spectators unite to enjoy video game tournaments online. Speedrunners are on the classic side of gaming videos, which is described as a mix of skill and competition, where the players attempt to end a game as fast as possible. These are popular on Twitch but started on *Something Awful Forums*. Let's Plays, as the authors explain, are different from those two communities, because they are not intended for competition but for entertainment. Let's Plays include a range of discourses around games, which can involve player opinions, mistakes, and game exploration. In 2013, Hale also studied Let's Plays, but he focused only on the communities around *Something Awful Forums* where he identified main categories of the LPs, depending on player intentions. Speedrunning is also studied in Hale's work, but he includes it as one of the LP categories.

LPs, as described before, have a different component than the other forms of fan production. Specifically, LPs videos include a hint of reality which is shown to the spectator through the player's commentaries and the recording of their facial and/or vocal expressions. Kerttula (2016) and Nguyen (2016) explored the role of performance in LPs. They both claimed that the player narratives are creating experiences which can be different even if two people play the same game. Kerttula stated that the story told by the player is not the video game story, but rather the story of the player and how she identifies with the video game. Nguyen, on the other hand, focused on the subversion of game meaning that can be done using Let's Plays and how fans and spectators are engaged in those performances due to internet capabilities.

Although many aspects of several Let's Plays have been studied by the scholars mentioned, there is a lack of data-driven cultural analysis, especially through YouTube. The absence of methods to analyze the data found in social media like YouTube is causing them to lose significance. The data can be a useful way to get information about videos' popularity and the written opinions of many content creators and spectators (comments). As described earlier, there

are many fan-created videos about video games nowadays and, because of that, it is important to situate the LP phenomenon within a space where the target audience can be identified. It is also important to study the diversity of Let's Plays which Hale (2013) and Kerttula (2016) described in their works, respectively. Both authors claim that there is not a fixed way to create a LP.

This work proposes the construction of a framework to identify how video game culture is perceived by content creators and to place Let's Plays in the YouTube space to recognize their role in the platform.

Chapter 2

2 Video Game Culture in YouTube

There are multiple elements in YouTube that can shed light on how the YouTube gaming culture works: the channel, the videos, and the comments. The first element is the channel, which can be attached to one or more Google accounts (emails), depending on whether it is a personal or a business/brand channel. The owner of a Google account must have a channel to be able of create content: to upload videos, post comments and create playlists[5]. Channels can be followed on YouTube by any user with a Google account, with the follow action labeled as a 'subscription'. All channels have the option of sponsoring other similar channels, which are most often smaller than them, or just secondary channels of the same user.

The second element is the video. Every video is owned by only one channel, but the reactions to the video can be created by a user with or without a channel. A video can be viewed, liked, disliked, and commented on. All users can watch videos and subscribe to channels they like, however, every user who leaves a comment on a video must be a channel owner due to YouTube restrictions explained before. This leads us to the third element: the comments, which will help us understand the opinion of other channel owners on other channels' videos. For the purposes of this study, I define as content creators only those channels which have at least one video uploaded and a minimum of one view. Therefore, not all channel owners are content creators.

The content creators were chosen to be the starting point of the study because they represent the human source of the platform content. The channel is the closest representation of a user

5 https://support.google.com

profile, which will allow us to detect the ways in which creators describe their own channels and content (videos). The popularity of the channel will be measured through the total views of its videos. A view represents one click on the video, which is not necessarily a representation of engagement but only of the level of popularity of that content.

We can study the content creator as a 'produser', because in the case of YouTube the content creators can interact with other creators' videos as well becoming users of others' contents in the process. Bruns states the 'produsage' activity returns feedback over the same community, adding extra value which comes from the dual relationship of the user-creator (2008, 6). 'Produsers' make a community stronger by reinforcing the cultural production that the majority likes, and at the same time diversifying the content based on the skills, interests, and knowledge each one of them can offer (7). Using the concept of 'produser' we can consider content creators as audiences too.

Due to YouTube restrictions, we cannot fully track subscribers or watchers, since demographic information, identity, and viewing time can only be seen by the channel owner. Because of this policy, the public channel metadata available includes: the total number of views, total number of comments, subscribers, channel name, channel description, tags, and channel creation date. The videos' public metadata include: number of views, number of likes, number of dislikes, number of comments, publication date, title of the video, description, tags and category id (under 31 categories established by YouTube). All of those fields are entered by the user, which will help us understand how the 'produsers' describe their own content. Even if creators are free to fill the metadata themselves, YouTube is constantly inspecting appropriate behaviour to reduce

the use of misleading data. A video or channel can be removed because of the misuse of metadata to get more views[6].

The privacy policy is a big limitation when it comes to tracking audiences but, in terms of importance in the platform, the content is primary. A study conducted by Wattenhofer et. al in 2012 demonstrated that YouTube, is a content driven social network which bases its relationships on the interests in the content (videos) rather than on the social relationships between users. The authors showed that the most subscribed users owe their popularity to their most viewed content, which means that many of the users subscribe to channels because they like some videos, rather than the channel brand. This fact helps us understand the difference between other kinds of social media, such as Facebook or Twitter, where the relationships represent the appeal for the person/company followed.

If we compare friendship relationships in Facebook with for example, subscription relationships in YouTube, an important difference arises in the number of reciprocal relationships, which is higher in Facebook because in YouTube the distribution of subscriptions fits at power-law (Wattenhofer et. al 2012, 356). This means that in YouTube, big channels do not subscribe as much as smaller ones, while a high number of small channels follow the top popular channels, making them even bigger. Reciprocal relations in YouTube exist, but they are often in small-scale networks within YouTube (Wattenhofer et. al, 2012). Additionally, the social relationships in YouTube could be explicit and implicit. Examples of explicit relationships are: sponsoring and following channels. The implicit relations could be inferred from the data found. For example, a comment left by a user connects the channel owner and the watcher, but this does not mean that

[6] https://support.google.com/youtube/answer/7002331?hl=en

the user is a subscriber or that the user likes the video. Other implicit social relationships are liking or disliking videos and/or comments, which is connected to the range of opinions given on videos watched.

We will start by assuming that creator/s of gaming-related videos are part of the video game fan culture, to later find out what their role is in YouTube. All creative forms which involve games, as Shaw stated, must be considered as part of the video game culture because they add value beyond the gameplay and the player itself (2010). The videos uploaded by the YouTube gaming channels are diverse: they can be as complex and highly edited as machinima movies (video game animations) or as simple as raw footage of gameplay scenes. This leads us to an important question of this research: How do these users describe their own channels and content? And what is the place of Let's Plays in this larger video game culture? To answer the first question, it is necessary to dig into the information provided about the channels: descriptions, tags and topics. The second question will be answered by comparing the metadata of the channels to show how similar/different they are compared to other channels, forming small or large communities with the most similar channels in the next chapter.

2.1 Description of the Dataset

To explore the YouTube gaming-related channels, I gathered the available metadata about channels currently active in 2016, created from 2007 to December 2016 using the YouTube API. I chose 2007 as the starting point because that was the year the when gaming videos on YouTube began to appear in large numbers. The queries used to get the data were the names of the most

widely popular games in late 2015 to early 2016, according to the official YouTube blog[7] and Forbes Magazine[8]. There are 21 different video game titles on both lists, but I chose the ones with a larger number of search results on YouTube which means they were consistently popular. The query words were: 'minecraft', 'overwatch', 'agar.io', 'league of legends ', 'call of duty black ops', 'five nights at freddy's ','pokemon go', 'roblox', 'grand theft auto v', and 'happy wheels'. All those games have been released in different dates, but the results were gathered equally to keep the number of channels balanced between games.

Due to YouTube API limitations, I collected approximately 1,500 channels' metadata per query word per year of creation of the channel, using the feature "most relevant results" to the search word (138288 unique channels in total). There are approximately 20 to 30 million channels available per search word in YouTube, therefore the most relevant channels are selected by the API using a deep learning system where the results are classified as relevant according to the watch time, the number of likes, and positive feedback from other users (Covington & Adams 2016). This allows us to find the most engaging channels and the ones which are more appealing to the gaming community.

While searching for channels through YouTube API, a total of 145,405 channels were found. Only 138,288 were unique since there were many channels duplicated, which would show up as relevant for more than one game title query search. From the 138,288 unique channels found in searches with the YouTube API, 135,179 channels were relevant just for one query (game title). The 3109 channels left appear on more than one query search on YouTube. Among those channels,

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7 http://youtube-trends.blogspot.ca/2016/10/geographic-trends-in-gaming-who-plays.html

8 https://www.forbes.com/sites/erikkain/2015/12/09/the-top-10-biggest-video-games-on-youtube-in-2015/#54f61f284e39

2559 were relevant for two query searches, leaving the remaining 550 channels found relevant in more than two query searches. The table below (Table 1) describes the number of channels which were relevant to a pair of queries, the diagonal represents the number of channels found relevant only for one game title search.

	Minecraft	**Overwatch**	**Agar.io**	**League of Legends**	**Call of Duty**	**Five Nights at Freddy's**	**Pokémon GO**	**Roblox**	**Grand Theft Auto v**	**Happy Wheels**
Minecraft	12974									
Overwatch	152	13587								
Agar.io	56	14	13349							
League of Legends	34	132	14	14439						
Call of Duty	105	143	5	26	14243					
Five Nights at Freddy's	60	34	37	11	11	12967				
Pokémon GO	123	87	68	52	56	60	12485			
Roblox	358	43	40	4	28	70	47	13429		
Grand Theft Auto v	83	75	16	21	140	10	41	28	14235	
Happy Wheels	29	18	60	10	10	57	28	35	28	13471

Table 1. Number of channels found relevant in two query searches.

The table shows the different game title preferences because most of the channels found are relevant to only one of the top game titles. The exclusivity of content could be due to YouTube itself, because the content must be well defined to succeed in the platform and some of the games could be not accepted for the same audiences. Not many channels appear to be relevant to two popular game titles. Agar.io, Happy Wheels and Five Nights at Freddy's are less likely to appear with other popular games, however they are more relevant to them than to other games. The highest number of relevant channels is for the pair of games Minecraft-Roblox, which tend to be played

by the same audience[9]. The second pair is Overwatch-Minecraft, and the third is Overwatch-Call of Duty. These two pairs of video game titles show how a limited number of channels use these games to create videos. *Minecraft* is a game made to appeal to a wide range of audiences, from casual to hardcore players, due to its different modes of play, so it can be accepted along with diverse game titles. Another cause could be the game target audience. For example: *Overwatch* and *Minecraft* creators claim that their games are appealing to all ages and to broader audiences[10]. The total number of views of channels relevant to two popular game titles tends to be higher than the others, but it decreases when they are relevant to more than two. With some exceptions (Dan TDM, Markiplier, Jackscepticeye VanossGaming and Stampylonghead), these channels have managed to successfully display several number of popular game titles in their videos.

After the review of the channels relevant to more than one game title, I kept only the 138,288 unique channels but, to retain that information, I added a property to the channel which will be called 'game_query'. In this way, we can go back and see if the channels have been found in one or more game title queries.

For the study of the channels, I will use only the channel tags, because tagging practices have been broadly studied, as, for example, by Desrochers et al. in 2016, which is a recent work where the authors compare tagging practices of the same cultural object in three different platforms: online libraries, *last.Fm* and *GoodReads*. The findings of the study showed that every platform, due to its rules of tagging, have formed different practices, developing a common

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[9] https://www.theguardian.com/games/2018/mar/25/a-quick-guide-to-roblox-for-adults-aka-the-latest-next-minecraft

[10] http://time.com/4344566/overwatch-interview/

dictionary which was unique to each one of the platforms. Other scholars who studied tags are Chao Wu and Zhou Bo in 2011, Lee et al. in 2009 and Greenaway et al. in 2009. Chao and Bo found that the tagging systems for the platforms Flickr and Del.icio.us provided enough semantic information to used as a bridge between the query terms and the topics/terminology of the resources on the platforms. Lee et al. studied bookmarks of web pages and argue that user-centered book marking performed by non-professionals is more diverse than the bookmarking performed by professionals (e.g. librarians). For them, three things arise from self-bookmarking: personal preference (self-view), repeated vocabulary among the same topics, and the recommendation algorithm influence (Lee et al. 2009). Finally, Greenaway et al. studied the YouTube tags of the most popular videos in 2008. The authors found that tags in YouTube help provide insights into the owners' preference to describe their own videos, showing that many of them tend to be more specific rather than general. Additionally, they found a high presence of foreign languages, demonstrating that those words help to connect audiences in different countries as the videos cross borders.

In summary, the aforementioned authors identify two main elements that can be found by studying tags: the owners' self-views related to the content, and insights into the community slang in each platform. Many platforms run under specific rules of tagging to facilitate search algorithms, but YouTube does not have rules nor algorithms. At this point, artificial intelligence determines the recommendations and search results, based on various properties, which include not only tags but user preferences as well. Nevertheless, YouTube strongly encourages users to write tags because they are used as a base to find query results[11]. Looking into the data, not every channel

11 https://creatoracademy.youtube.com/

has tags. In fact, from the 138,288 unique channels only 24.27% have tags. It also turns out that the most viewed channels are more likely to have tags rather than the less viewed ones. The table below shows the number of channels which have at least one tag (blue bars) and the ones with no tags at all (orange bars) vs. the number of views range (Figure 1). The channels' views appear divided in quartiles according to the frequency distribution, and the bars represent the number of channels which do or do not have tags.

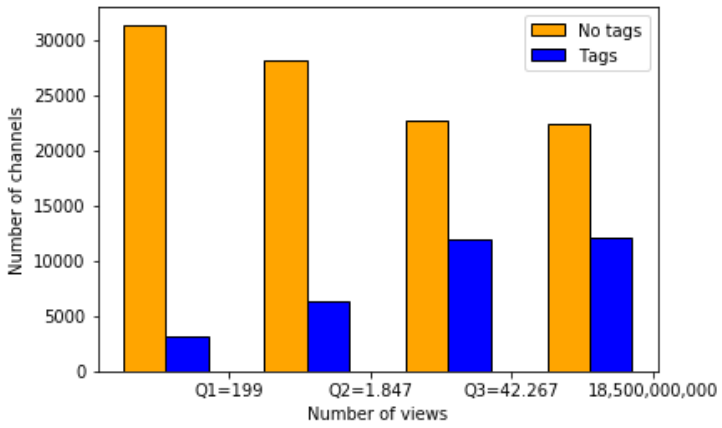

Figure 1. Number of channels using at least one tag or none vs. number of views.

The bar graph above shows that most of the channels with tags are part of the 50% with higher views, and both segments add up to exactly 71.63% of the total number of channels with tags. Because of the difference in views between the last two segments of the data, I will only use the tags from the most viewed 25% of channels (views>42,267). The tags selected from the data chosen are going to be studied in the following section.

2.2 Methodology

Due to their user-created nature, the channels' tags can include single words (unigrams), multiple words, and even whole sentences. It is important to highlight that, because tags are user-generated, they have a wide variety of different words which include synonyms, internet/gaming slang,

places, user names and misspelled words. As a starting point, I separated all the words into unigrams and deleted the repeated unigrams in the same channel, leaving each tag once per channel. The resulting unigrams had to go through a cleaning process which includes changing words into lowercase letters and getting rid of: single letters, stop words in English, word lemmas, query words (game titles), numbers and punctuation signs. The frequency distribution of the tags is shown in the figure below (Figure 2).

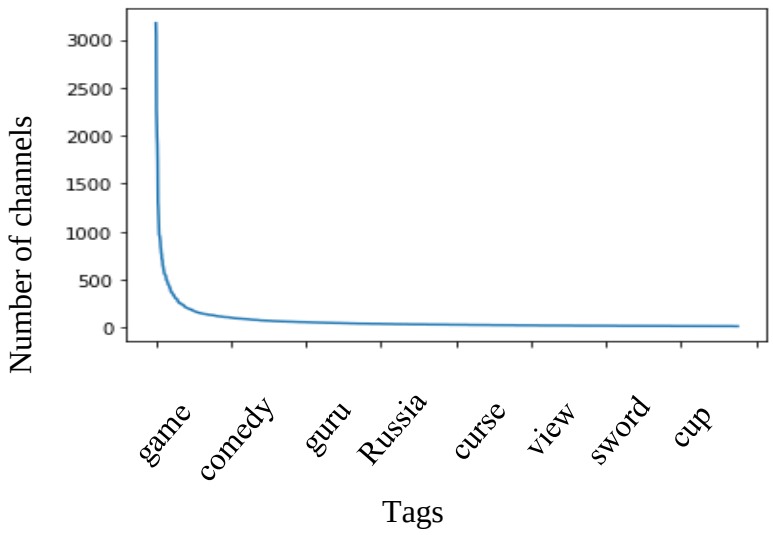

Figure 2. Tags vs the number of channels using the tag. (Because of the high number of unique words, the axis x only shows some examples).

According to the frequency distribution of the tags, there are a small number of tags used by most of the channels while there are many tags used by a few channels, which is a power law-like distribution. The number of unique unigrams found is 55,791 where 74.82% of those tags are used by only one channel. Per the literature on tagging systems and semantics of the web (Halpin, 2013), as time passes, tags start to converge into a certain number of meaningful tags which can describe the central topic, most of the time on the left side of the distribution. For power law-like distributions, Halpin recommends removing the elements on the tail, approximately 80% of the

less frequent data depending on the length of the tail in the distribution (110). Due to the amount of words with frequency one, I dropped that 74.82%, keeping all the tags that are used by at least two channels. The total number of unigrams left after the cleaning is 14,047 words.

Because of the vast amount of foreign language characters that appear, I applied a language detection algorithm provided by the Google translate cloud API[12]. The result of the language detection had a mean confidence of 0.776% and, according to Google documentation, the closer this value is to 1, the higher the confidence in language detection. This value is acceptable by itself, but it is important to point out that the language detection at the unigram level is less accurate due to the use of slang, people's names, and words shared by more than one language. The number of languages found was 86 including English. The frequency distribution of the top ten languages detected is shown as a bar graph below (Figure 3).

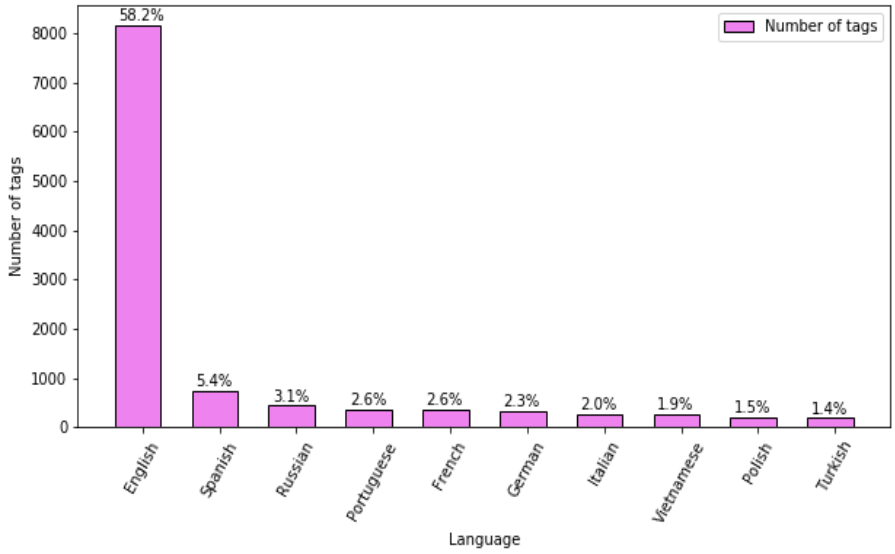

Figure 3. Tags classified by language. The percentage above each bar indicates representation within the total number of tags.

12 https://cloud.google.com/translate/

The results of the language detection showed that the most used language for tagging a gaming related channel is English, even though the remaining 85 languages represent the remaining 41.8% of the unigrams. Spanish is in fact, the second preferred language to tag popular channels in YouTube followed by Russian. Because of the language diversity found, it is important to include the top words of at least the top 5 languages to gain insight into user tagging across different languages.

The tables below show the top 15 most popular words by language, including English.

(a) TAGS IN ENGLISH	# OF CHANNELS
game	3171
gaming	3043
video	2271
gta (Grand Theft Auto)	2095
gameplay	2053
funny	1911
play	1720
let	1310
cod (Call of Duty)	1272
black	1251
ops	1159
xbox	1013
mod (game modification)	964
tutorial	961
ps (Play Station)	930

(b) TAGS IN SPANISH	# OF CHANNELS
español (Spanish)	205
juegos (games)	204
tutoriales (tutorials)	109
videojuegos (video games)	102
canal (channel)	99
vega (sony vegas video editor)	95
loquendo (computer generated voice)	86
arma (gun)	70
comedia (comedy)	66
trucos (tricks)	63
cómo (how)	61
noticias (news)	58
entretenimiento (entertainment)	52
mejores (the best ones)	41
risa (laugh)	39

(c) TAGS IN RUSSIAN	# OF CHANNELS
Игры (games)	142
Майнкрафт (minecraft)	90
прохождение (walkthrough)	83
обзор (overview)	73
видео (video)	61
летсплей (letsplay)	54
обзоры (reviews)	52
моды (mod)	51
онлайн (online)	42
канал (channel)	37
приколы (funny/amazing)	37
юмор (humor)	35
угар (gta clan)	33
как (how to)	33
игр (play)	32

(d) TAGS IN PORTUGUESE	# OF CHANNELS
jogos (games)	115
elo (link)	70
brasil (Brazil)	64
dicas (tips)	40
nova (new)	32
tecnologia (technology)	30
tutoriais (tutorials)	25
comédia (comedy)	24
comentou (commented)	19
engraçado (funny)	18
jogo (game)	15
divertimento (entertainment)	15
português (Portuguese)	12
Jogar (play)	12
fim (ending)	12

Table 2. Top fifteen tags by language, in parenthesis their translations in English.

(e) TAGS IN FRENCH	NUMBER OF CHANNELS
montage (compilation/ kind of video edition)	774
royale (royal/ related to the game Clash Royale)	164
jeux (games)	111
vidéo (video)	97
français (French)	77
humour (humor)	74
drôle (funny)	47
jeu (gaming)	34
parodie (parody)	32
tutoriel (tutorial)	31
chaine (channel)	20
délire (popular French YouTuber)	20
astuce (trick)	18
aventure (adventure)	16
musique (music)	12

Table 2 (continuation). Top fifteen tags by language, in parenthesis their translations in English.

The top tags in English (Table 2.a) show many terms related to play, such as ‘game’, ‘gaming’, ‘gameplay’, and ‘play’. In most cases where the tag ‘play’ was used, it was combined with ‘let’, forming the bigram ‘let play’. Because “let’s play” is not a single word, it appears divided into the unigrams ‘let’ and ‘play’. There’s an imbalance in number within ‘let’ (1310 channels) and ‘play’ (1720 channels), because both terms can be used in other contexts. Looking into the bigrams, the combined word ‘let play’ was used by 1239 unique channels and it was in fact the most used bigram among all channels, the second being ‘black ops’ (1132) and the third ‘video game’ (928). After deleting the video game titles used as query words, some of the acronyms related to those games remained. For example: ‘gta’ (Grand Theft Auto), ‘cod’ (Call of Duty), ‘black ops’ (refers to Call of Duty Black Ops) and a console acronym: ‘ps’ (PlayStation). Those acronyms are difficult to translate to other languages and, because of that, they are more likely to appear in English.

The word ‘tutorial’ is in the 14th place of table 2.a, which suggests that there are more channels preferring the tag ‘let play’ rather than ‘tutorial’ to describe themselves. However, that

does not mean that there are no funny tutorials or educational LPs, but just that only a lower number is confirmed by the results. The tag ‘mod’, an acronym used to describe game modification, appears in 13th place. The concept was created within the ‘hacker’ tradition of improving games/programs, popularized during the 1990s (Coleman & Dyer-Witheford, 2007). Mods are good examples of the traditional tech savvy side of video game culture mixed with fan-art. Modifications on games can be very diverse, including the creation of new characters, scenarios, and even new missions in existing games. In most cases, the modifications are done by breaking through the code of the game, or with the aid of a game engine or software. Terms like ‘tutorial’ and ‘mods’ can lead us to the most traditional ‘gamer’ side of YouTube, which appears to still be important in the platform in 2016, but to a lower extent than, for example, Let’s Plays.

Looking into the results of the top fifteen words in the other languages (Table 2. (b-e)), we can see some differences in the importance given to the words and the nature of each. The first examples are the names of the languages: ‘español’ (Spanish), ‘português’(Portuguese), and ‘français’(French), which are part of the top tags in three of the languages, with the exception of Russian. It is understandable that the English language does not need a tag word, due to its common use, and it is possibly due to the characters used in Russian that it is not as necessary to tag it. The tag ‘русский’(Russian) is used, but it occupies the 67th place in importance, which is very low compared to the other languages considered.

There are also unique words in each language: in Spanish (Table 2.b), the tag ‘loquendo’ refers to a popular computer-generated voice which was mostly used in tutorials and review videos. The most particular case is Russian (Table 2.c), where the tags related to gaming terminology are translated to Russian, creating its own gaming vocabulary. Some examples of this are the tags ‘let play’(летсплей) or mod (моды), and game titles such as Minecraft (Майнкрафт), which all appear

in Russian. In the French tags, ‘royale’ appears in the list. The word refers to a popular game Clash Royale and is not specifically for French, but the translation algorithm recognizes it as such. In Portuguese, the tags ‘brasil’(Brazil) and ‘elo’ (link) appeared only in that language table. Even though there are some differences among languages, there are many words which translate to the same words in the top tags in English, such as ‘game’, ‘funny’, ‘tutorial’ and ‘play’. In order to understand the importance of the words which agree in translation across languages, I took the 8 most common words which repeated in at least two languages and placed them in the corresponding top 15 in the bar graph below (Figure 4).

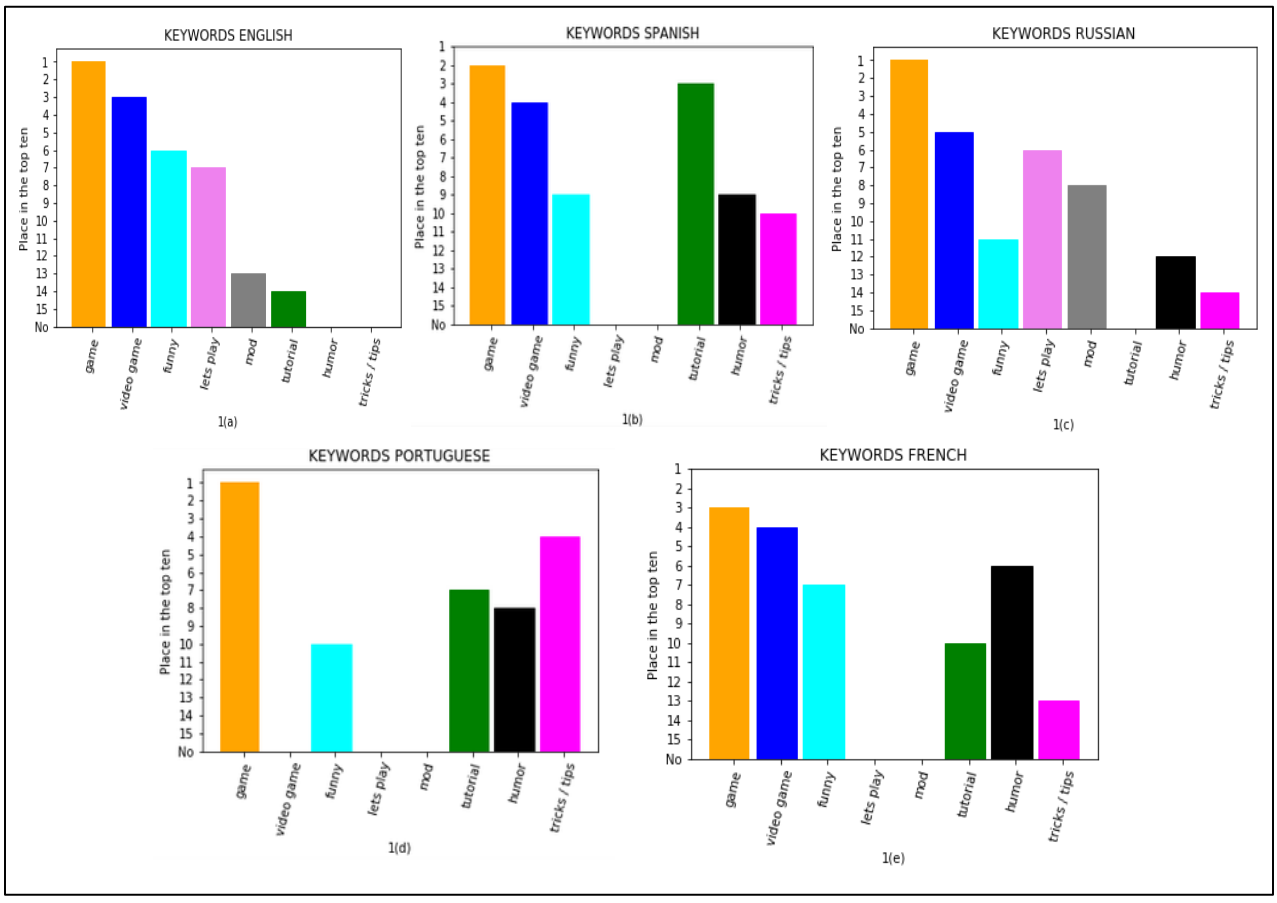

Figure 4. Distribution on the top 15 of the most common 8 tags across languages.

Figure 4 summarizes the 8 words present in most of the languages and their positions in the top fifteen words of each language. The word ‘game’ appears with almost equal importance in every language. It seems that, for the YouTube creators, ‘game’ is strongly related to ‘video game’ on the platform, even when it is not combined with ‘video’. Looking into the bigrams, the combined word ‘video game’ is used by 998 unique channels, which means that most of the time ‘video’ (2271) is used as a tag it is more related to YouTube ‘video’ than to ‘video game’. For the purpose of this project I considered joining similar meaning tags, such as ‘tips’ and ‘tricks’, as well as ‘comedy’ and ‘funny’. The tag ‘funny’ and ‘comedy’ appears at almost the same high place in French and English, while it appears to be a less important tag in Russian, Portuguese, and Spanish.

The tag ‘Let’s Play’ is not translated into any of the languages except Russian. It was surprising that the ‘Let’s Play’ tag in Russian had a higher place (6th) compared to the tag in English (7th- 8th). The tag ‘tutorial’ is one of the most important in Spanish (3rd place), but of less importance in Portuguese (7th) and French (10th), and of even lower importance in English (14th). It is significant to highlight that the tag ‘mods’ only appears in English (13th) and Russian (8th). For Russian channels, ‘mod’ made it to a higher place than in English, which probably means that ‘modding’ is most common in the Russian channels because the creators have more interest in tech related videos. Additionally, in Russian the tag ‘tutorial’ does not appear in the top 15, which supports the assumption of more specialized content tagged in Russian and less interest in ‘tutorial’ videos for a less experienced audience. The tags found in each language show us that there is a certain number of tags which are important, and that, while they repeat across languages, they do not carry the same importance in each language.

The most relevant fact about tags is that they each have a meaning in the community since they are used to attract a target audience, but they do not necessarily have the same meaning for each user. However, the tags which appear together with the most relevant tags will clarify the different connotations of each tag. To better understand the context in which the top tags are used, it is necessary to identify the other tags which appear with them. More channels use tags in English and, because of that, I will focus the co-occurrence study around the top tags in English. Although the other languages will not be ignored nor deleted, because some foreign tags could co-occur frequently with English tags.

To study the tags appearing together, I will adapt the method described by Halpin (2013) to create a tag correlation graph, in which we will explore the tags appearing often with selected top tags along with their semantic closeness. The semantic closeness or semantic similarity is a concept broadly used for tagging practices to get meaning from single words used together to describe the same kind of object. In our case, the object is the YouTube gaming related channel, because the metadata in use is the information used to describe a gaming related channel. The result of the correlation graph will lead us to find a relevant tag vocabulary and understand how the tags in it are forming vocabulary-sharing spaces (Halpin 2013). To create the graph, we need to define the actors and the relationships among them. The actors will be the tags (unigrams) and the only relationship will be co-occurrence. The co-occurrence relationship means that two tags connected were used to tag the same channel, and the strength of the relation will increase if the pair of tags is used often in more than one channel's tag list. Because the cleaning performed at the beginning, there are no repeated words per channel, leaving all co-occurrences as unique pairs. The co-occurrence is not defined here as a directed relationship, so the order of the tags is not important.

The resulting graph will be weighted, the actors represented as nodes, and the relationships represented as edges (lines) will have a weight. The weight of the node will be the total number of channels using each tag, it will be represented as the size of the tag. The weight of the relationship of co-occurrence (edges) will be measured using the cosine similarity shown in the formula below:

$$weigth(T_i, T_j) = \frac{N(T_i, T_j)}{\sqrt{N(T_i) * N(T_j)}}$$

$where$: T_i, T_j $are\ two\ co-occurrent\ tags$

$N(T_i)\ is\ the\ absolute\ frequency\ of\ a\ tag\ i$

$N(T_i, T_j)\ is\ the\ frequency\ of\ co-ocurrence\ of\ tags\ i\ and\ j$

The cosine similarity will later allow us to see the semantic distance using a force-directed algorithm to spread the nodes, and in our case, we will be using the Force Atlas algorithm. After the nodes are spread, the distance will represent how similar two tags are. If two tags are closer, they are more similar in meaning among these channels.

2.3 Results and Analysis

After the algorithm was performed over the tags, the resulting graph with all related words had many edges and nodes, which makes it difficult to analyze. For that reason, I selected for the visualization one hundred tags which are closer (higher semantic similarity) to each one of ten tags selected from the top 15 tags in English found before. The tags deleted were ‘black’, ‘ops’, ‘xbox’ and ‘ps’: the first pair because they have a similar meaning to ‘cod’, and the second pair because the consoles were not relevant in the resulting graph. The standing word was not deleted but merged, resulting in a combined tag ‘let play’, because of the frequent use of this pair. In summary, the tags used for the graph were: ‘game’, ‘video’, ‘gaming’, ‘tutorial’, ‘mod’, ‘gta’, ‘cod’, ‘funny’, and ‘let play’. For visualization purposes, I only kept the edges which are directly connected to

one or more of the ten tags selected before. Any pair of nodes in the graph which appear close are related, even if there is no edge drawn between them. The algorithm applied to the graph will spread the nodes according to the weight of the edge (cosine similarity) to see the similarity clearer. It is important to highlight that the network created is not intended to show the syntactical similarity of a group of words, but the relationship of a tag that will support its meaning and describe its nature among these gaming channels. All the top ten tags and their closer one hundred tags appear in the graph described in the Figure 5.

In the graph below (Figure 5), the size of the nodes represents the number of channels which use the tag, and the thickness of the edge represents the value of the cosine similarity, with the distance between nodes representing the similarity as well. The tags (nodes) displayed on the graph are the top 100 tags which share the highest cosine similarity with each one of the top ten tags selected. Some of the tags which appeared closer to one top ten tag are also important to another, so they appear connected to two or more top tags. All the ten tags (in dark blue) share tags with others, but they also have close unique tags which are not shared. The tags ‘gaming’, ‘gameplay’, ‘video’, ‘game’ and ‘funny’ are the ones with less unique tags, and they are also closer to each other, which represents higher similarity. Because these tags are used to describe broad topics, they are not as specific as for instance ‘mod’. Even if ‘let play’ is close to the 5 tags mentioned before, it has more unique tags compared to them. If we only focus on the top tags, we can see that ‘mod’ and ‘let play’ are far apart from each other, as well as ‘gta’ and ‘let play’. The tags ‘tutorial’ and ‘cod’ are also far from ‘let play’ but they are closer than the latter two. Additionally, ‘tutorial’ and ‘cod’ appear away from each other, although they share some tags.

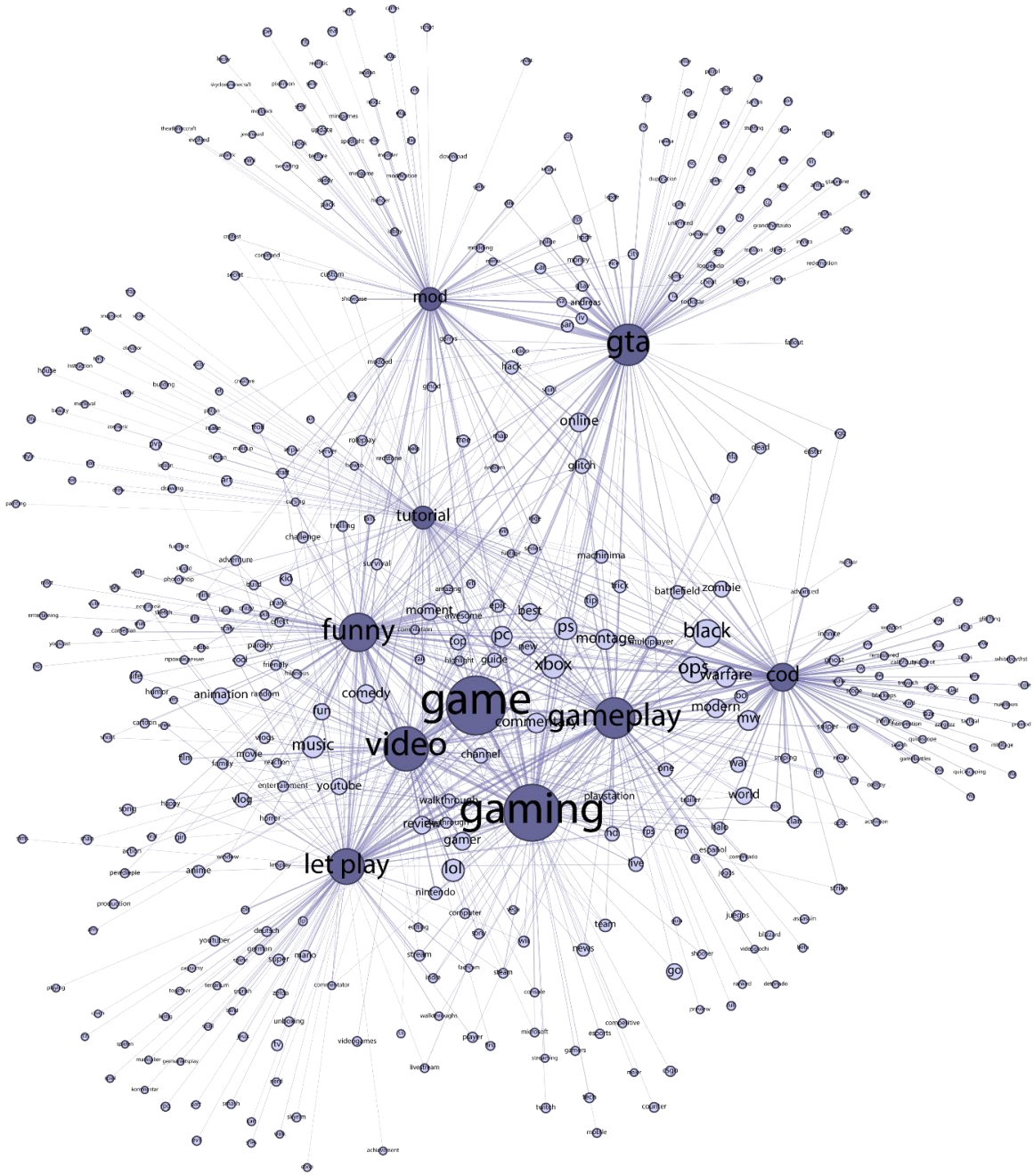

Figure 5. Top ten tags (dark blue) and their closer one hundred tags (light blue). The closest two tags are, the more similar they are among the gaming channels. The size of the node represents the number of channels using the tag.

After the brief review of the similarity between the top ten tags, I will explore the meaning of each one, which will be shown according to the tags directly connected to the specific top tag.

Starting with the tutorial network (Figure 6), the closest tags to tutorial are: ‘help’, ‘howto’, followed by ‘guide’, which appear under the central tag, and all of which are marked with red circles. Another word marked in red is ‘guía’ which means ‘guide’, which shows that, although the gaming community in YouTube is mainly dominated by English, words in other languages such as Spanish also frequently appear combined with them. All the words marked in red are close to the expected purpose of a gaming tutorial which is to guide/help the audience with a difficult part of a game.

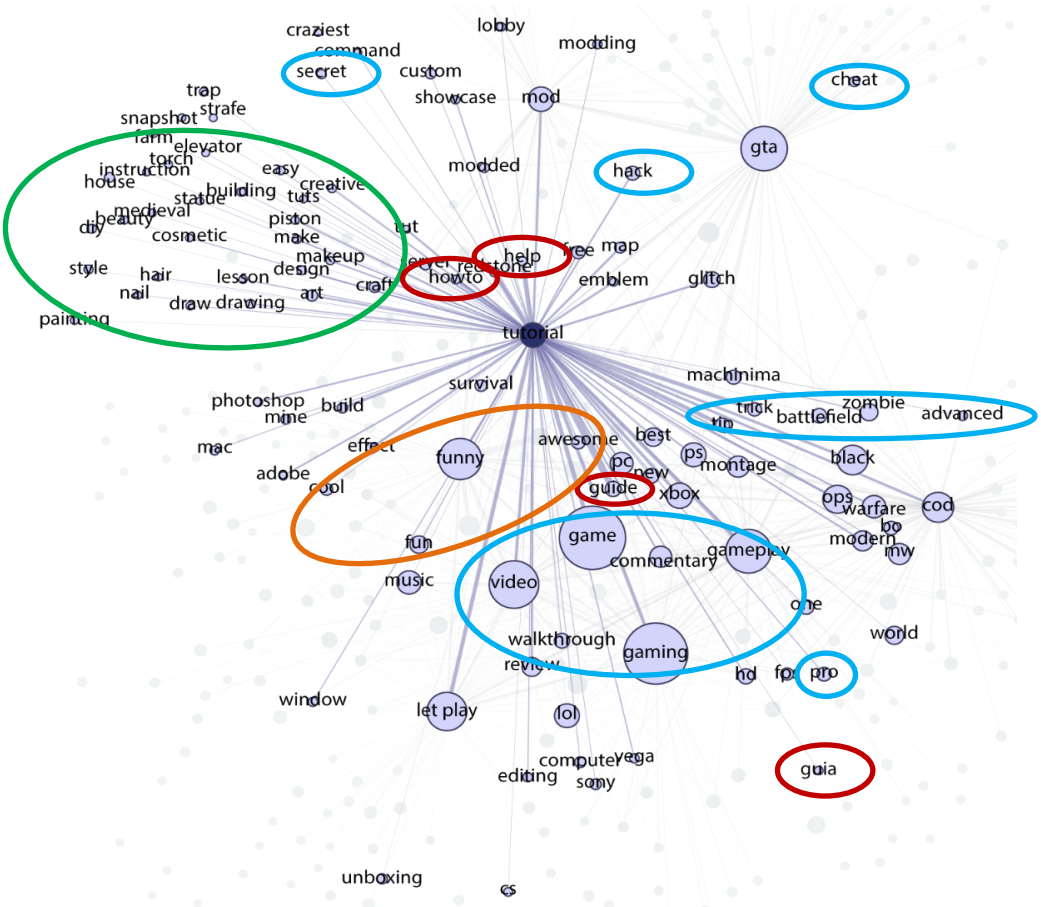

Figure 6. A closer look at the network around the tag ‘tutorial’. The size of the node represents the number of channels using the tag.

Under the central tag, marked in an orange circle, tags such as ‘cool’, ‘awesome’, ‘fun’, and ‘funny’ appear. Bathia in 2017 stated that recent technologies like YouTube erode the

expectations about traditional learning, offering an informal learning environment. According to this statement, YouTube tutorials are offering new possibilities to learn not only through conventional means but, in a cool, awesome and fun way. Different, for example, than software-related tutorials which are more formal and less funny. Even though the words around 'funny' are not related to comedy itself but to 'cool' and 'awesome' which demonstrate the need to differ from other formal or tech related tutorials.

Following the idea of new ways of training, amateur training is a broad trend in YouTube outside of the video game community. Next to the tag 'howto' (marked in red), tags related to other kinds of content appeared. These words (inside a green circle), are related to three topics: art/design ('painting', 'drawing', 'draw', 'art', 'design'), beauty/makeup in the middle ('nail', 'hair', 'style', 'diy' 'beauty', 'makeup') and, in the upper part, Minecraft-related tags ('redstone', 'craft', 'building', 'torch' 'elevator', 'farm'). The how-to videos are supposed to show step by step instructions where the audience is more inclined to watch from beginning to end. This makes sense for beauty and art how-tos because they need clearer steps and guidance to obtain a good final product. It also suits Minecraft since, because of the nature of the game and the lack of instructions provided in it, many players go to YouTube to learn how to build a house or a farm. Some of the game items, such as a diamond armor, are not easy to build and specific instructions must be followed to get the final item, for example: getting the materials (mining), using a special craft table and putting the materials in the right order[13].

While the tags associated with beauty and art reviewed earlier are probably not expected to be related to the game community, they are, in fact, related. Many gaming creators have diverse

[13] http://minecraft.wikia.com/wiki/Armor

kinds of content, such as vlogs (video blogs), beauty, art, knitting or cooking tutorials. Some famous YouTube gamers use their main gaming channels to promote makeup brands and tutorials for the interested users. The YouTuber Alia Shelesh, known as SSSniperwolf, uploads videos playing Overwatch and hair tutorials. Many other YouTube gamers have uploaded makeup videos to their main channels (KittyPlays, LdShadowLady) or have secondary channels only dedicated to beauty and vlogs (MetalAssGamer, Tara Babcock). According to *statista.com*, views of beauty videos on YouTube have increased from 55 billion in 2016 to 88 billion in 2017 and keep increasing. Content creators have a variety of videos on their channels to expand their audience, as in the example of beauty and gaming, or, in another example, Rosanna Pansino who has a second channel called Nerdy Nummies where she bakes video game themed cookies and cakes. In the end, the linking between gaming content and these YouTube trends makes audiences connect and engage.

Within the gaming channel community, "howto" appears to be closer to topics outside the gaming sphere, with only Minecraft building tutorials as an exception. In contrast, the words surrounding game titles like 'cod' or 'gta' are more related to the gaming point of view of the tutorial, including the tags 'tip', 'trick', 'advanced', 'pro', 'hack', 'cheat', 'secret' (marked in light blue circles). The tag which is more surprising is 'cheat'. According to game players' interviews within the game community, even consulting a game guide could be considered cheating for some players, and the most common reason to search for help is when players are stuck in a game (if it is too hard, has too many glitches, or the directions are unclear) (Consalvo 2015, 5). That explains why the tags closer to game titles like *Call of Duty* are 'tricks' and 'tips', or 'cheat' next to the *Grand Theft Auto* tag. Consalvo also explains that many studies found that hack and mod practices in the community are most likely to be performed by the most competitive players looking to

achieve a reputation in the game (5-6). ‘Hack’ for example, appears close to ‘mod’. The way the players use these tags along with ‘tutorial’ show which tutorials are most common in the YouTube gaming community. In particular, as it shows in the related tags, the channels are offering ways to help improve game performance, sometimes friendly as guides but more times through hacking, modding and cheating.

In the lower part of the graph, also in a blue circle, are the tags ‘game’, ‘gaming’, ‘gameplay’, ‘walkthrough’, and ‘review’. These tags are also related to games, and the last two describe how a tutorial could be shown in YouTube. For example, a game review or a walkthrough are also types of tutorials. Nylund describes walkthrough videos as attempts to describe a game world, but while they aim to be descriptive, they can also contain comments on the gameplay or context of the game (2015, 59). The words found around ‘walkthrough’ describe the closer connection with a game review, such as description, characteristics, technology requirements, and ‘commentary’, since walkthroughs can include a commentary on the gameplay. Nylund also states that the classic walkthrough is not necessarily a step by step guide on how to complete the game, but instead is a descriptive exploration that can be used, for example, to discover bonus content of the game (59-60). As the graph shows, ‘let play’ is closer to ‘walkthrough’ than to a ‘tutorial’, showing that a Let’s play video is closer in meaning to a walkthrough.

Finally, the more frequent use of the word ‘tutorial’ compared to ‘howto’, ‘guide’, and ‘walkthrough’, as indicated by the size of the node, shows that ‘tutorial’ is used to describe all those kinds of content. The purpose of tutorials differs when refers to gaming and to other kinds of help videos (‘howto’). Tutorials are mainly described by channels as guides to skip difficult moments in a game and as a review that could be used for potential purchases of the game. Tags related to fun are also related to tutorial and, even if they appear close to the tag, they are less in

number, which suggests that the relation between tutorial and fun is much smaller than the relation with training.

Figure 7 shows the semantic similarity for the tag ‘mod’, which are the 100 tags with a strongest cosine similarity with ‘mod’. As we can see, the ‘mod’ graph is divided into a larger number of tags above the center tag (60%) which are specialized tags more related to ‘mod’ itself, and a smaller number of tags (40%) below the center tag which are shared with other main tags. The tags inside the green circle are mostly fun/entertainment related tags such as: ‘fun’, ‘funny’, ‘moment’, ‘trolling’, ‘epic’, ‘adventure’, and ‘challenge’, which are shared with the tag ‘funny’.

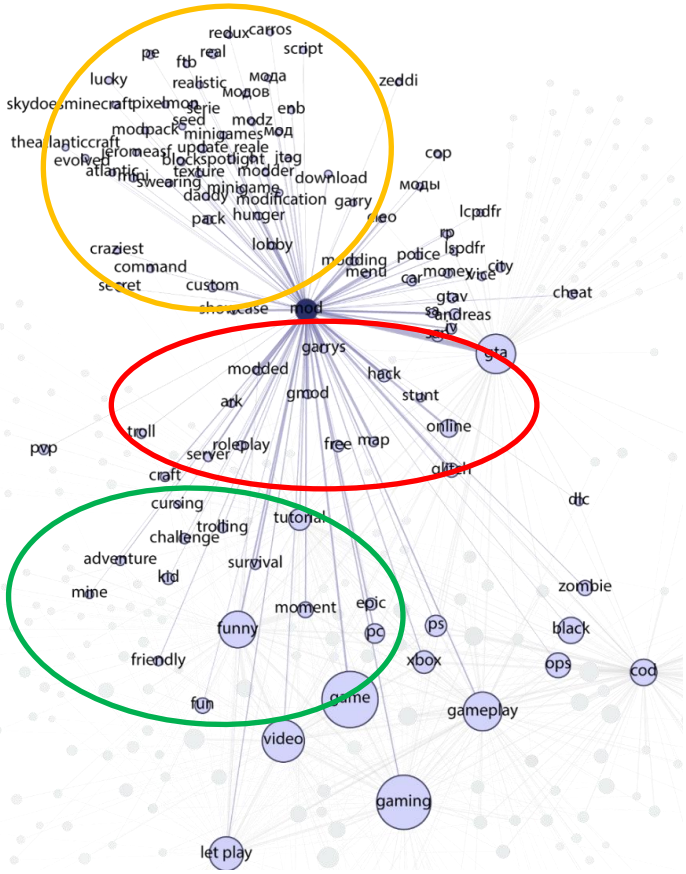

Figure 7. A closer look at the network around the tag ‘mod’. The size of the node represents the number of channels using the tag.

In the middle part of the graph (red circle), the tags are related more to gaming such as: ‘roleplay’, ‘server’, ‘online’, ‘glitch’, ‘hack’, ‘stunt’ and, as it goes up, the tags are closer in

meaning to ‘mod’, including ‘modded’, ‘gmod’, and ‘garrys’. The last two tags refer to the popular sandbox game *Garry’s Mod,* known also as gmod. It is called a sandbox game because it works as a test environment which allows the user to create their own games’ modifications using the characters, scenarios, and objects of popular game titles like *Counter-Strike, Half-Life 2* and others, according to the official website[14]. As the graph shows, *Garry’s Mod* is one of the closest words in meaning with ‘mod’, so the sandbox game is important when describing mods in YouTube.

The upper part shows less distance between words, different from the lower part where the tags are less specific and appear connected to other top ten tags. Some tags in the upper part are: ‘realistic’, ‘real’, ‘modder’, ‘update’, ‘command’, ‘modpack’, and ‘jtag’. The last term refers to an electronic device called a JTAG which hackers use to break into XBOX consoles making them able to play “homebrew” or amateur games. When mods were first created, they were seen as a “cultural manifestation of the hacker legacy”, because they started as a challenge to break the code and hack into the game consoles for fun (Sotamaa 2010). Recently, modding is getting easier due to the use of toolkit software (meta-mods) like *Garry’s Mod,* which claims to be suitable for all levels of users. Modders do not usually get paid to make game modifications, and many of them do it because of the community recognition and reputation (Scacchi 2010). YouTube is allowing modders to share their knowledge through tutorials (hardest hacks: ‘realistic’ effects, use of ‘commands’ and hardware or tech related: ‘jtag’), or just showing a gameplay of the result (‘funny moments’) probably using ‘gmod’. As the graph shows, there is a difference in terms of the tag ‘mod’: the upper part is associated more with making the mods, while the second part is related to the resulting videos which appear to be mostly for fun. Some tags around funny are considered

[14] https://gmod.facepunch.com/

funny specifically inside of the gaming community ‘trolling’, ‘cursing’, ‘challenge’, ‘epic’, while others are more friendly like ‘kid’ or ‘friendly’. This fact suggest that it could be two topics in terms of mods: friendly comedy based and gaming modding.

Some tags in the upper part which are not circled relates to the tag ‘gta’. Some tags around it are: ‘police’, ‘money’, ‘car’, and ‘cheat’. The tag ‘gta’, which refers to *Grand Theft Auto,* has a long history in the modding community. Since *GTA III* was released in 2001, many players started hacking into the code to improve the scenarios, characters, cars, and even fixing bugs[15]. Some of the gta hacks were converted into software like *OpenIV,* released by Russian developers[16]. *OpenIV* was well-known because it could break into GTA game series software to create modifications. The controversy started with the release of *GTA V,* because many players were using *OpenIV* to cheat on the online game, giving them an advantage over other players. This can explain why the tag ‘cheat’ appears related to mod and gta. The other tags are popular modifications of the gta games to, for example, get infinite money or customized cars.

Finally, the tag ‘mod’ is also used to make funny videos of modded games. It is important to point out that many words in other languages appear in the graph mainly on the upper part of the graph. Words in Spanish like “*carros*” (cars) appear next to ‘pe’ (Peru). The proximity of these tags shows the connection of Peruvian channels describing mods about cars, commonly used in the channels with tags in Spanish. Words in Russian also appear, including ‘мод’, ‘моды’ and ‘модов’ which mean “mod”, “modder”, and “mods” respectively. The tag ‘mod’ in Russian

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[15] http://gta.wikia.com/wiki/Grand_Theft_Auto_IV/Technical_Issues

[16] https://www.pcgamer.com/heres-rockstars-statement-about-take-two-shutting-down-gtas-openiv-modding-tool/

appears closer to ‘gta’. It was expected to see Russian tags next to GTA due to the software *OpenIV*, which has Russian language support and a big community in Russia.

The next graph (Figure 8) shows the 100 tags closer to ‘gta’ which, as mentioned before, stands for *Grand Theft Auto*. Let us look at the stronger connections and the tags closer to the center tag.

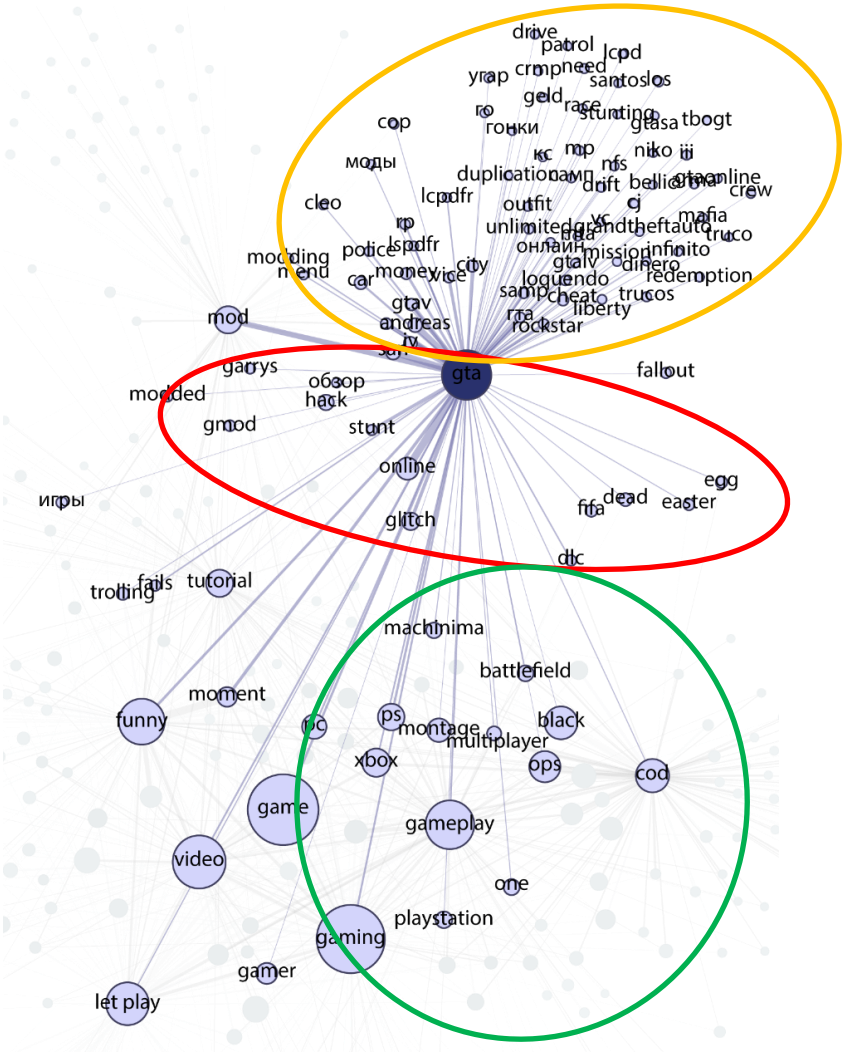

Figure 8. A closer look at the network around the tag ‘gta’. The size of the node represents the number of channels using the tag.

Figure 8 shows a division of specialized tags above and more separated shared tags below the tag ‘gta’. Starting from below in the green circle, we found tags related more to games,

gameplay, consoles and two creative practices in the game community referred to as ‘machinima’ and ‘montage’. Machinima are movies made with funny footage of a game or a modded game with audio and effects added, while montage is a videoclip with music and editing used to show the gamer skill. Montage is common to games like *Halo*, *Call of Duty* and *Gears of War*. According to the definition, Montage differs from Machinima in that montages do not make use of any kind of modding because they are put together from screen recordings of the gameplay. Montage was described by Consalvo et al. in 2010 as a display of effort of a video game player (381-382). The authors also state that montage for video games gets transferred to interactivity and forces players to work even harder to show their gaming skills (Consalvo et al. 2010, 382). Both machinima and montage appear close together, which means they are similar.

In the red circle, tags related to mod explained earlier appeared, including ‘mod’, ‘garrys’, ‘gmod’, and ‘hack’. In this case, the words related to modding are closer, probably because GTA modding videos are more popular, while mods can be about many games. The connection between ‘gta’ and ‘mod’ is one of the strongest in the graph. Other tags inside the red circle are ‘stunt’, ‘stunting’, ‘online’, ‘easter egg’, and ‘glitch’. According to GTA wiki, ‘stunt’ is a difficult feat which requires special skills and is performed for fun and artistic purposes[17], and also gives the player an extra stunting bonus (game money). Within the GTA videos, such an important feat is hard to see, so it not surprising that ‘stunt’ display videos are popular in a platform like YouTube. The other tags such as ‘glitch’ or ‘easter egg’ are gaming slang words related to errors or secrets in the game, respectively. As explained earlier, some of the players of the GTA community had enough skills to fix a glitch and discover game secrets (Easter eggs) using mods.

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[17] http://gta.wikia.com/wiki/Stunting

In the orange circle, related tags appear above the tag ‘mod’, including ‘duplication’, ‘outfit’, ‘unlimited’, ‘money’, and ‘glitch’. All of these words represent many things a player can take advantage of through modding or hacking: changing outfits, unlimited money, or duplication of items. Some of them, like ‘money’, are closer to ‘cheat’. In this part, there are also words in Spanish to represent the same game hacks, such as ‘infinito’ (infinite), ‘truco’ (trick), and ‘dinero’ (money). The tag ‘loquendo’ appears next to those tags, and it was one of the top words which appeared in Spanish tags. This tag is associated with Spanish language videos, as loquendo is a popular computer voice in Spanish. Channels like AleVeraOfficial and FedeLobo have uploaded many machinima videos using the computer voice loquendo. The most popular videos on that topic have between half a million and a million views, and from 70K to 100K likes, so it was trending among the Spanish speaking community. Words in Russian that appear in the lower part of the third circle are ‘гта’ (GTA), ‘гонки’ (race), ‘онлайн’ (online), ‘моды’ (mods), ‘кс го’ (Counter Strike Global Offensive), ‘обзор’ (review/overview), ‘игры’ (games), and ‘самп’ (San Andreas Multiplayer). It is interesting that no cheat-related words appeared in Russian as they did in English and Spanish.

The tag GTA demonstrates how channels in YouTube are selling themselves. It shows that their target audience is not as funny or friendly since in the language used there are no kid friendly or family-related words, and the funny tags are more like ‘trolling’ and ‘fails’. Other words such as ‘arma’ (gun), ‘mafia’, ‘hack’, ‘trolling’, and ‘cheat’ are the frequently-used words around the channel tags. Oullette states that, on the surface, the GTA series games look like a teenage shooting and mafia story, but that it hides a message about a Nation (the United States) where war, guns, violence and sex is not a big deal (2010, 199). The tags which are closer in meaning show the worst topics the YouTube channels are displaying of GTA, cheating being one of them. Even if

cheating is in some sense clever, considering all the modding effort involved, it is used to have an advantage over other players, which is not a positive practice. There is still controversy surrounding GTA because some of the community modifications have allowed players to jump game barriers to bully other players in the online game (‘trolling’).

The following graph (Figure 9) represents the 100 tags which share the highest cosine similarity with the word “cod” *Call of Duty*.

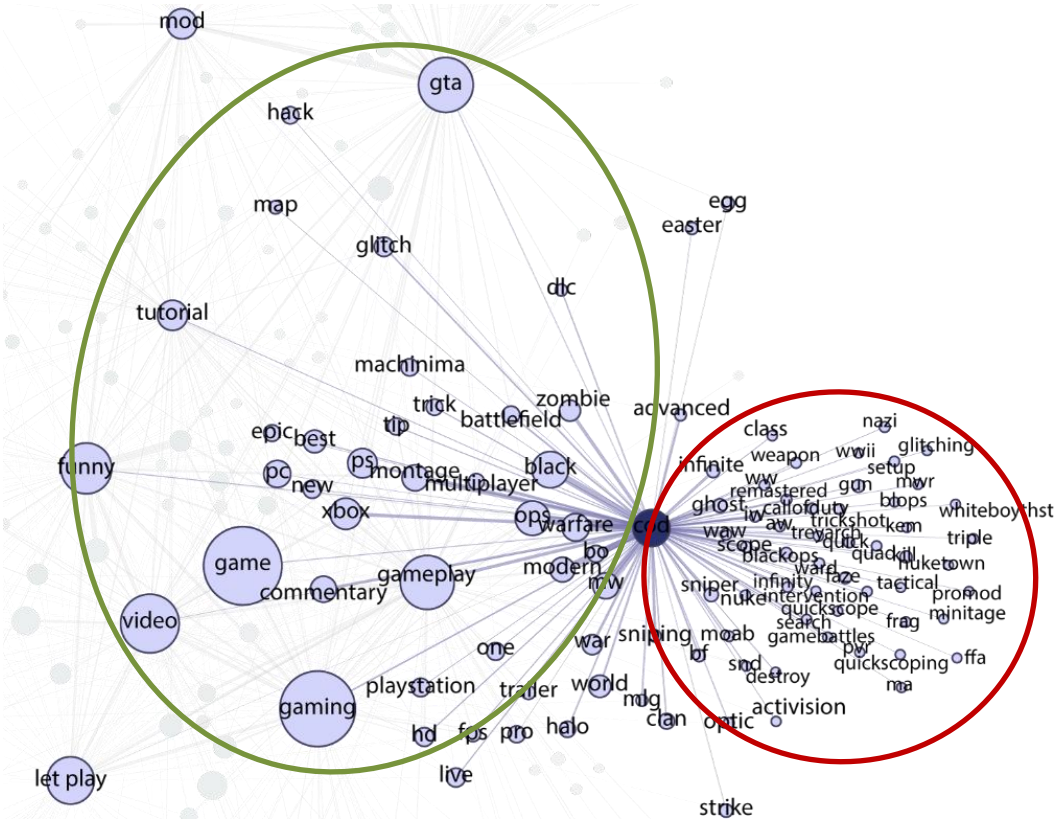

Figure 9. Semantic similarity of the tag ‘cod’. The closer two tags are, the more similar they are within gaming channels.

The graph is more uniform than the three last graphs, showing one cluster with some tags outside of it. Although I divided the cluster in two to explain the difference or similarity of both parts. Inside the green circle, the closest tags with strong connections are ‘black’, ‘ops’, ‘modern’, ‘warfare’, ‘mw’ (Modern Warfare), and ‘bo’ (Black Ops), all words which refer to the first-person

shooter series of *Call of Duty* games which are popular on YouTube. More tags in the green circle shared with 'funny' are: 'epic', 'best', and 'moment', which are the only ones related to comedy entertainment.

Names of consoles like 'playstation', 'xbox' also appear. Additionally, most of the words in the green circle are more broad descriptions shared with other top ten tags. With GTA, for example, they share 'machinima' and 'montage', but in this case they are both closer to 'cod', with montage appearing closest. As stated before, montage is more present in competitive or difficult games because it is a display of gaming skill. Because of the rise of technologies like YouTube, video game montage has become the perfect way to broadcast that success to the world. The words surrounding 'montage' confirm the statement, as 'epic' and 'best' are words supporting the need for competition.

The words in the red circle are some of the game objects and skills: 'sniping', 'sniper', 'quickscope', 'quick', 'scope', 'optic', 'trickshot'. According to Urban Dictionary, 'quickscope' is a shooting tactic used in the *COD* franchise which requires practice and repetition to perform[18]. This again reinforces the need of competition for reputation and display of skill. As in the previous graph (Figure 8), many hacking-related words appear but, in this graph, they are farther away, as seen in the tags 'hack', 'glitch', 'easter', 'egg'. The tags 'mod' and 'let play' also appear very far and almost disconnected from the graph. In the case of the tag 'let play', it appears far in all the graphs reviewed before. The tags 'tips' and 'tricks' appear instead of cheating tags, which are more helpful ways of improving in the game without breaking the rules.

[18] https://www.urbandictionary.com/define.php?term=Quick%20Scope

Digging into the tags used around ‘cod’, it is possible to see that they appear to be different from, for example GTA, where cheating was a large part of the tags. Call of Duty was developed to be as realistic and to look as serious as possible. The gaming channels selected show that this intention was successfully conveyed through gaming practices such as montages, where ‘trolling’ is almost non-existent, at least as the channel view. It is interesting to see what the reactions and comments around the montages are, to see if the audience is receptive to this professional and serious image of the game.

The graph above shows the 100 most similar tags to the word ‘gaming’ (Figure 10). Just like the last graph (Figure 9), this graph appears uniform and spreads mostly in the center, covering almost all ten tags. Some of the closer connected tags are: ‘gameplay’, ‘game’, ‘channel’, ‘playthrough’, ‘walkthrough’, ‘gamer’, ‘review’, and ‘hd’. YouTube has named the video game-related community “YouTube gaming” and it is reasonable for the tag to have spread across all areas of video games. Many of the tags mentioned are related directly to the action of playing a game (‘gameplay’, ‘playthrough’) or, in the case of ‘hd’, to a current practice of displaying high quality videos of gaming in the platform. This tag is the first case where ‘let play’ appears close and it has many shared tags with ‘gaming’. Inside of the red circle, most of the tags are shared with ‘funny’ and ‘video’.

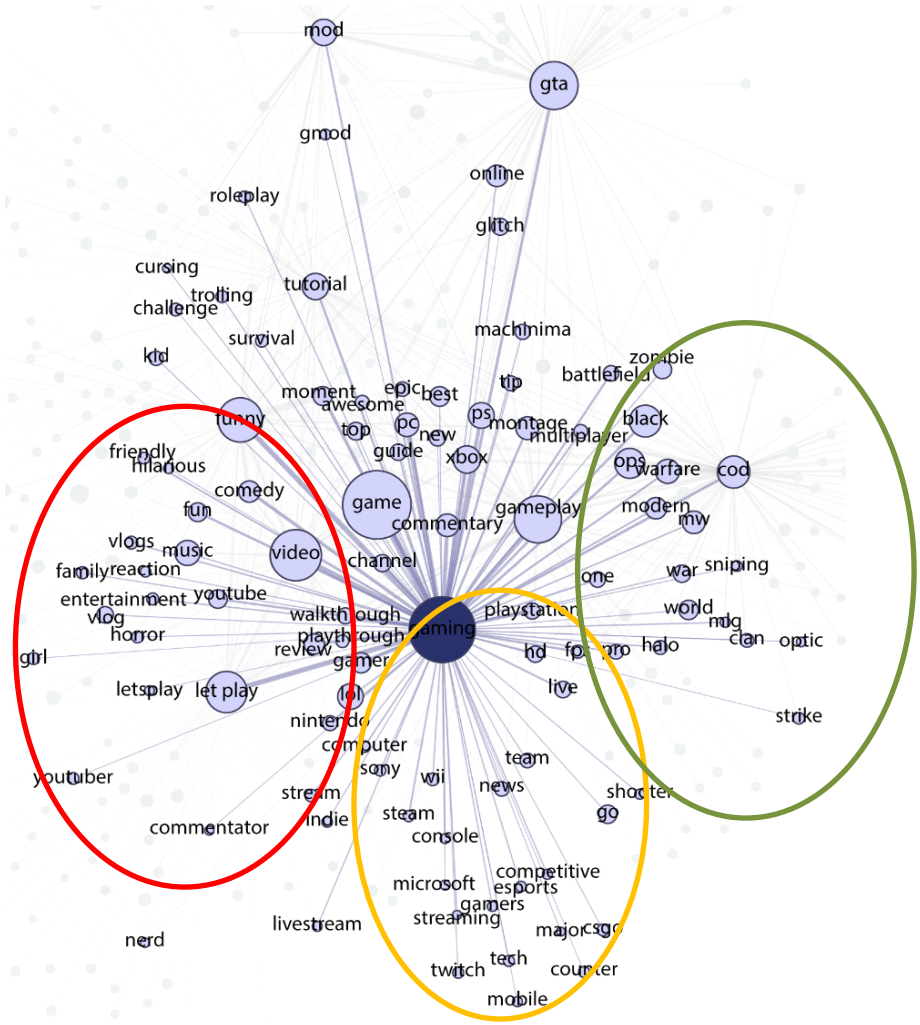

Figure 10. A closer look at the network around the tag ‘gaming’. The size of the node represents the number of channels using the tag.

Other tags close to ‘gaming’ are hardware/game consoles which appeared in the orange circle, including ‘tech’, ‘pc’, ‘playstation’, ‘nintendo’, ‘computer’, ‘sony’, ‘wii’, and ‘mobile’. From these, playstation is the closest, which could be the reason for finding ‘ps’ (Playstation) in the general top 15 tags. Also, from PS consoles, the popular one is PlayStation 1 and, as the tags show, other consoles, such as Xbox and Nintendo Wii, appear far away compared to PS. Under the hardware/technology tags, some additional tags appear related to other live video streaming, including ‘livestream’, ‘twitch’, ‘esports’, and ‘competitive’. These appear in the lower part of the

circle. Many YouTubers have additional accounts on Twitch, a platform owned by Amazon[19], which is known for offering streaming service with interactive features like live comments and availability to make donations to the creators. 'Let play' is close to livestream tags in the graph, and 'stream', 'indie' and 'commentator' are close to 'let play' as well. So are 'playthrough' and 'walkthrough', which means that all these tags are closer to 'let play' than to other gaming-related tags.

The following tags appear in the red circle: 'comedy', 'fun', 'funny', 'music', 'hilarious', 'reaction', 'trolling', 'kid', 'friendly', 'vlog', 'reaction', 'entertainment', 'awesome', 'epic', 'lol', 'youtube', and 'channel'. The meanings of these words are clear since they are not specific to the game community, as explained before. While discussions about vlogs, trolling and reaction videos may be part of some YouTube gaming channels, there are also channels dedicated solely to those topics. As in the case of beauty and gaming, these words show the diversity of the content uploaded by the game channels. All of these tags are closely related to 'let play' as well. Only the tag 'lol' has two different meanings for the gaming community. The ambivalence of the word is shown in the graph since it appears in the middle of the entertainment (red circle) and the hacking clusters (green circle), though it appears closer to 'funny', meaning that it is used more in this context.

The words on the right in the green circle, as previously discussed, are closely related to cod and hardcore gaming culture. In the lower part, the tag 'cod' appears along with its popular releases on YouTube (*Modern Warfare, Black OPS*) and, next to them, the tag 'battlefield'. Battlefield is a first-person shooter game published by EA Games, which claims to be the most

[19] https://www.amazon.com/ Twitch-Interactive-Inc/

accurate game on the topic of World War II[20]. Numerous tags appear in the lower part of the circle, many of which are related to hardcore players, including ‘pro’, ‘sniping’, ‘multiplayer’, and ‘zombie’. Most of the tags present in this cluster are first person shooters and war/gun related tags.

As in the beginning of the analysis, I found that in YouTube the word gaming is related to the activity of playing games in YouTube, but it also overlaps with the gaming community outside of YouTube. It is interesting to note that in this case ‘mod’ and ‘gta’ are far in the graph, which shows that those practices are not as common as ‘walkthroughs’, for example, which are closer to gaming.

The next graph shows the top 100 tags closest to the tag ‘funny’ (Figure 11). The tag ‘funny’ is almost equally balanced between YouTube and gaming trends. The right half of the graph shows all of the terms discussed before about gaming/hacker culture, while the left half shows more entertainment trends, which migrated from traditional media or in web forums to be popularized in YouTube. One of the words not included in the earlier analysis is ‘pewdiepie’, which is the name of the most subscribed channel on YouTube, owned by the Swedish YouTuber Felix Kjellberg. It is not surprising that the tag appears on the comedy side due to the evolution of his content from a gaming account to an entertainment one. In the following chapter, some of the content will be analyzed to find out if there are other cases in which the content changed from gaming videos to general entertainment content.

[20] https://www.battlefield.com

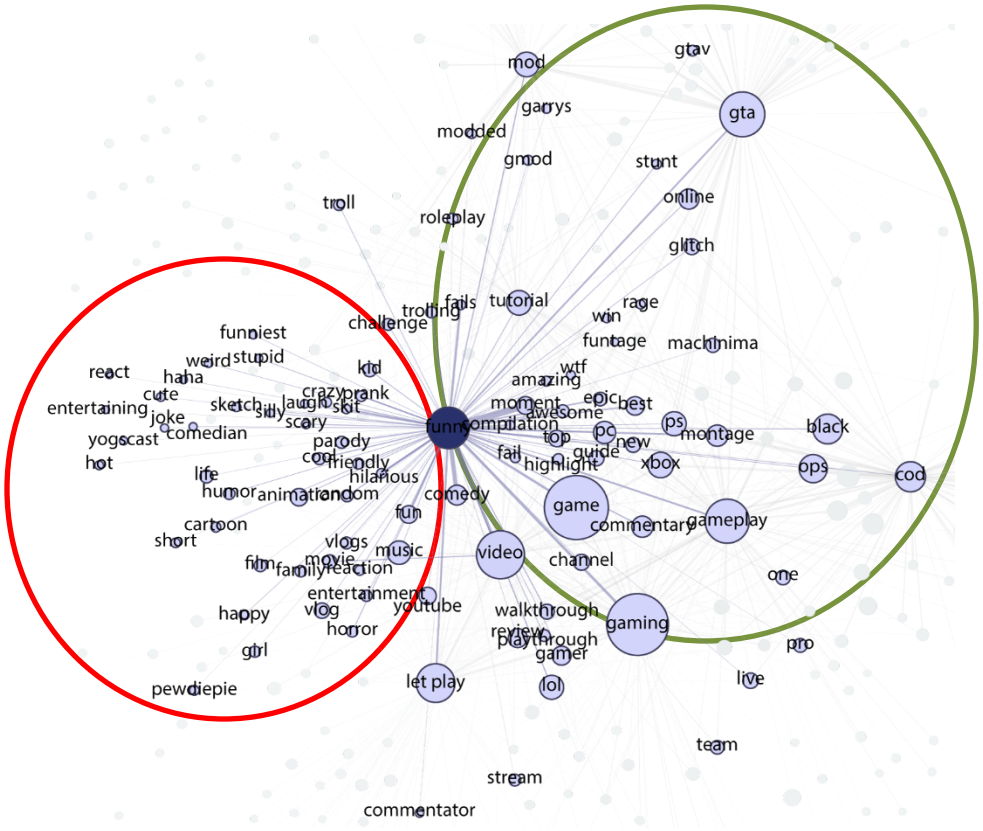

Figure 11. Semantic similarity of the tag ‘funny’. On the left side: the entertainment cluster. On the right side: the cluster related to hacker culture.

The strongest connection with ‘funny’ in this graph is with the word ‘moment’. Inside the green circle, other words that appear are: ‘trolling’, ‘tutorial’, ‘fail’, ‘walkthrough’, ‘playthrough’, ‘review’, ‘game’, ‘montage’, ‘machinima’, ‘glitch’, ‘funtage’, and ‘commentary’. These words are very representative of the game community and show which gaming trends are considered funny within this community. These combinations of fun and gaming are not surprising, considering the tradition which started in forums years before YouTube. A clear example is the *Something Awful forums*, where the game community was very active in uploading many kinds of content, among them textual let’s plays with images, memes, and trolling (Pater et al. 2014). The tag ‘comedy’ is in the middle of the entertainment side and the more gaming-related side. The same thing happens with ‘let play’, which is more oriented to the funny side but almost in the middle.

In the red circle, there are many tags which are considered funny even outside of the game community, including ‘awesome’, ‘cool’, ‘hilarious’, ‘prank’, ‘vlog’, ‘short’, ‘film’, ‘cartoon animation’, ‘sketch’, ‘movie’, ‘reaction’, ‘weird’, and ‘joke’. According to Jenkins, “YouTube is a shared space where many different cultural flows intersect and ‘diversely motivated’ media producers brush against each other” and those cultural groups “which might otherwise have had little or no contact are generating new hybrid models” (2009, 115-116). The first part of the statement is true in this community, because there are many examples where two different cultural flows collide. In this case vlogs, short films, cartoon animations, parodies and prank videos intersect with gaming. What is uncertain is which community influenced the other, considering that many of these topics belong to traditional media like TV (sketch, joke, cartoon) and film (movie). The only exception would be vlogs, which originated on the website Rocketboom in 2004[21] and reached popularity on YouTube in 2006, according to the *The Guardian*[22]. The distances between the YouTube comedy tags are smaller than in the gaming part, which is more dispersed. While gaming mixes with the other tags and gaming practices, entertainment outside of YouTube is closer in meaning.

The graph above shows the 100 most similar tags to the combined tag ‘let play’ (Figure 12). The tag was artificially merged to show the tags which are closer to the phenomenon of Let’s Plays. It is important to highlight that the graphs of the tags ‘let’, and ‘play’ overlapped in 80% of the words obtained, so for that reason I decided to analyze only the combined word. The two sides of the graph are equally balanced in number (green and red circles), but some tags which are not

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[21] https://techcrunch.com/2005/07/09/profile-rocketboom/

[22] https://www.theguardian.com/technology/2016/jun/16/lonelygirl15-bree-video-blog-youtube

shared with other top ten tags appear closer to each other. There are a few words in the orange circle which appear in the middle, all of which are related to livestream and twitch.

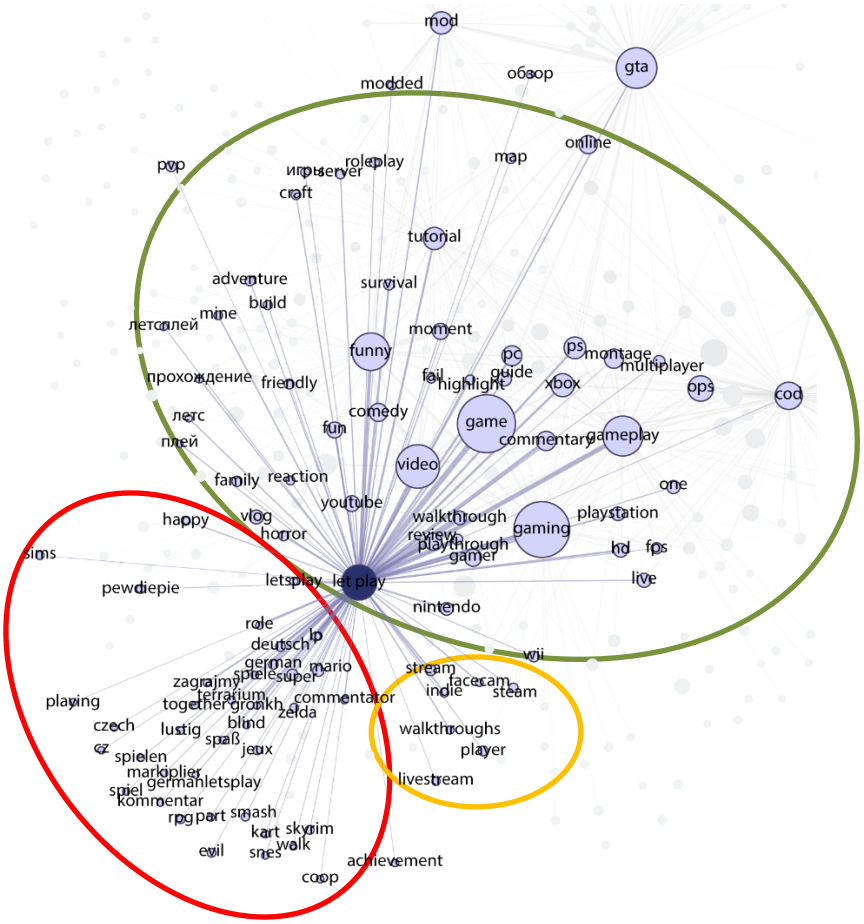

Figure 12. Semantic similarity of the tag ‘let play’. The size of the node represents the number of channels using the tag.

On the right side of the graph (green circle), many previously reviewed words appear. There is a mix of different YouTube comedy and gaming, with more tags closer to the funny side. ‘Cod’ and ‘gta’ are far when compared to the other tags mentioned before. The words which are more interesting are in the red side, including the following game names not seen before: ‘mario’, ‘zelda’, ‘smash’, ‘super’ (Super Mario), ‘kart’ (Mario Kart), ‘skyrim’, and ‘sims’. These games appeared in the first let’s plays uploaded by the community in *Something Awful forums*, and now because they are older and inaccessible, they have been praised by the Let’s players. Hale stated

that “Several LPs [Let’s Plays] use emulation to play older games, in part due to it being easier to record from a computer than it is to capture game footage ‘raw’ from a home console or arcade cabinet” (2013, 12). Hale as well as Nylund in 2015 claim that Let’s plays are unintendedly used as an archive of older games, but at the same time they trigger feelings of nostalgia in the players who played those games many years ago, connecting with them emotionally. It is a trend which has not showed up in the other top tags seen before.

The tag ‘pewdiepie’ appears again, and other popular YouTubers such as ‘Markiplier’, ‘zagrajmy’ and ‘germanletsplays’, all of which are known for uploading Let’s Play videos. The tag pewdiepie appears again closer to ‘comedy’, ‘happy’ and next to ‘horror’, which was the main trend at the beginning of his career as a YouTuber. The interesting fact is that the connection between horror, comedy and let’s plays is not exclusive to this YouTuber due to its presence in the graph. In the same cluster, many words appear in Russian, German, and Czech, all related to fun, laughs, and let’s plays. As we can see, even if the main tags around ‘let play’ are comedy and entertainment-based, there is still a presence of the traditional gamer side of the community (‘walkthrough’, ‘playthrough’, ‘montage’) which serves a double purpose to join technology with comedy and to document older and indie games. It is important to note that ‘commentary’ is more shared and disperse across all graphs, while ‘commentator’ is exclusive to let play and is closer to it in meaning.

Of all the analysis of the top ten tags in English, we see some differences between what it is a gaming channel, using ‘gaming’ traditionally conceived as a display of competition and skill, and the funny and comedy tags found. Fun and comedy trends in 7 of the ten graphs excluding ‘gaming’ and ‘let play’ and ‘funny’, are found closer to glitches, trolling, pranks and fails which were considered funny in the previous years in other online spaces outside of YouTube like in the

case of *Something Awful Forums*. In turn, fun and entertainment around the ‘let play’ tag are different because they are related to family friendly, comedy, happy, and horror themes which makes it different from the other important tags. The aim of Let’s Plays in YouTube gaming channels has made them merge better with other YouTube trends like vlogs which are highly popular in the platform. Another important thing about the analysis is the distance between some ways of fan production like mods which are still important, but they are far from others like walkthroughs and LPs. As stated before, YouTube is a space where many trends and cultures collide with each other and it will be interesting to see if these disconnected trends start to merge at some point of time or if they only disconnect completely from the platform.

Chapter 3

3 YouTube Channels' Cultural Communities

YouTube as a participatory site encourages users to share their ideas and opinions with other users. Many of its users may not upload videos in the platform, but they are still actively or passively interacting with the content that other users are uploading. Their interactions are not merely statistics for YouTube because the positive feedback is used to launch the most engaging channels' videos to broader audiences. As these engaging channels get bigger, the language they use and the popular videos they make are imitated by other channels, allowing the ideas to be transmitted while shaping a collective knowledge.

This constant exchange of ideas contributes to the creation of culture and cultural groups in YouTube. As Sperber and Hirschfeld stated: "a cultural group is held together by a constant flow of information" where "'Culture' refers to this widely distributed information, its representations in people's minds, and its expressions in their behaviors and interactions" (2004, 40). As a content driven social network, YouTube allows the interaction of users through the videos, creating a common ground of topics they are interested in and about which they can exchange information. In video game culture there is a common ground of popular game titles which users follow, but because the production of video game videos is vast, the topics around the same video game title could be diverse (mods, montages, Let's Plays). To understand the flow of the information about video games in YouTube, it is important to investigate if there are cultural communities organized around particular topics which can lead users to jump from one channel to a similar one.

The word 'community' in this sense is different from the original definition which involves a geographical location and face to face interaction. In the case of an online space, a community

is a group of people sharing common interests, whose social interactions are ruled by norms facilitated through the use of computer systems (Preece 2000). Video games have been evolving and connecting people through different interests since they were created, with fan production playing an important role.

The study of the use of descriptors/tags in the previous chapter showed that after ten years of gaming culture in YouTube there is a strong collective knowledge about game terminology in the platform. Some of it, have changed in the platform, like mods which in 2016 had a 'hacker' component (hacking into games) as well as a funny friendly component when using GMod to make funny videos for example. The co-occurrence of words in the channels' tags demonstrated the presence of topics around words which carry a meaning in gaming culture. Some of these words are used more than others, and they are not used the same way depending on the context, as seen when we explored the top ten tags one by one.

The exploration of the semantic differences and similarities in the tags found showed a separation in terms of entertainment/funny tags and training/competition ones, some of them connected to a variety of topics even outside of the gaming scope ('howto' and 'funny'). Because the channel is the closest representation of a human profile in YouTube, we can use the tags per channel to compare how similar or different they behave when describing themselves through tags. The goal of this comparison is to detect if there are shared topics and interests between these YouTube channels, and how they connect topics and target audiences. The communities formed will be useful for finding if there are preferred spaces where different forms of cultural production are well received and to better understand the role of Let's Plays in the YouTube online space.

3.1 Communities' Graph: Dataset and Methodology

As stated before, YouTube promotes the most engaging channels leading the most viewed channels to have stronger audiences and therefore more visibility than the smaller channels. For that reason, I will use the metadata of the 25% highest viewed channels which have at least one tag (22,415 channels in total). It is important to point out that the data collected was based on the tags as they were in 2016. The tags can be modified by the channel owner anytime, so the result of the comparison will represent the communities as they were in December of 2016, the date of the data collection. The comparison performed consisted of registering the number of tags shared between pairs of channels (all unique combinations of two channels possible). The methodology to detect similarity among a group of tagged elements was adapted from the study of cultural communities and flows in Hispanic Baroque art by De La Rosa, et al (2011). According to these authors, the comparison of descriptors (tags in our case) can show the role of symbols in the formation of a culture (49). In our case we are using a plain ontology where all tags are at the same level of importance to describe a cultural object: a YouTube gaming related channel.

To visualize the result, I created a network graph where the nodes are the channels and the relationships (edges) between two channels represent the tags they share with each other. The thickness of the edge between channels represents the number of tags shared, so the edge will be thicker if more tags are shared. The graph's nodes have three properties: channel title, number of views, and "game_query" (video game title/titles related to the query). The title of the channel is shown as a label over the node, the size of the node represents the number of views, and the game query will be used for later analysis. The nodes were spread using a force directed layout where the distance between nodes is inversely proportional to the weight of the edge. Because many channels shared some of the top ten tags in English such as: 'game', 'gaming', 'video', and

‘channel’, there were less clusters and they were very close to each other. The network started to form well-defined clusters when the number of tags shared was eight or more, and for that reason I decided to keep all channels that shared more than eight tags.

3.2 Communities’ Graph Results and Analysis

After the comparison of the channel’s tags, I performed a calculation of modularity in the network to find communities. The calculation of modularity gave a mean value of 0.446. This value is normally between -1 to 1. A value close to minus one means that modularity is not a property of the network. On the other hand, a mean close to positive one means unstable modularity. In this case the value shows that there are clusters and they are strongly connected to each other. The graph below (Figure 13) represents the channel communities formed as a result of the comparison and they are coloured according to the modularity calculation.

From the 22,415 channels, 2,808 had more than 8 tags shared with each other. Only the channels connected with a weight of 8 or more are displayed in the graph. A big channel like PewDiePie is not present in the graph above because most of his tags are unique. For example, he uses his own words related to his specific content, and these words are only used by a couple of channels, including the tag ‘pewdiepie’. The second reason could be that Pewdiepie’s channel has evolved in 2016 to more broad entertainment and most of his content was not gaming-related at that time. Despite the elimination of some big channels, the most important channels still show up, for example: Markiplier and Jackscepticeye which are in the center of the purple-coloured community and close to each other.

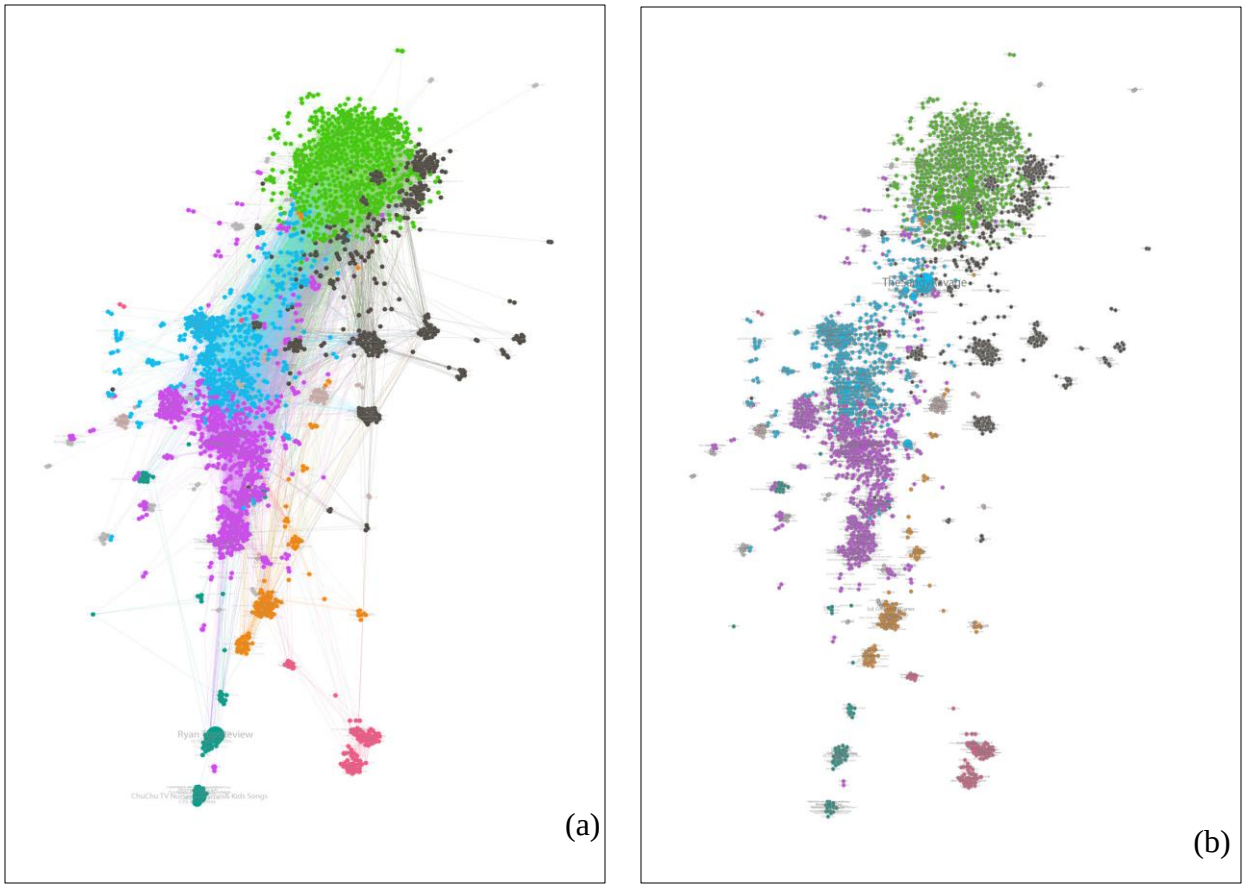

Figure 13. Channels similarity graph coloured by modularity/communities. (a) The node's size represents the number of views. (b) The nodes' size represents betweenness centrality.

Figure 13 shows three big clusters (green, purple, light blue) and four small ones (orange, black, pink, and dark blue). Part 13(a) shows the number of views as the size of the node, the highest concentration of most viewed channels appears in the purple cluster, followed by the black cluster, light blue cluster, and finally the dark blue cluster. The communities appear strongly connected internally, but they also share weaker connections with other communities joining all of them.

In Figure 13(b), the size of the node represents the betweenness centrality. I am using the concept of betweenness centrality which in this case shows which channels are possible bridges connecting to another group of channels through shared topics. As the YouTube algorithm works,

it gives value to the metadata of channels and videos. Tags, for example, are a way through which content flows in the platform. However, user preference is also important. This means that users who are interested in a specific topic such as, for instance, Let's Plays about Minecraft, are more likely to watch similar videos uploaded by other channels.

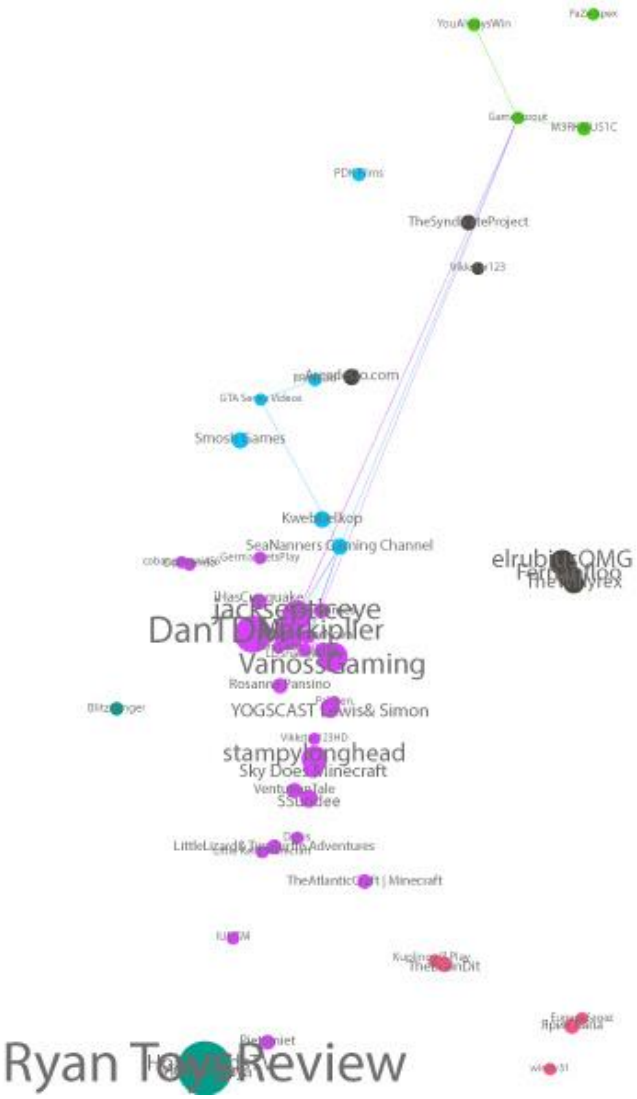

Figure 14. Similarity graph and communities of the most popular channels (500 million views and higher). The nodes' size represents the number of views.

Most of the betweenness centrality channels are in the light blue community, which means it is the most central in topics working as a bridge between communities. GameSprout in the green community is the only channel that has connections with popular channels from 4 different

communities. GameSprout's connections mean that it shares a variety of topics with the most influential YouTubers, although the channel is not as big as the others. These connections and the difference in views are evident when we keep only the channels with 500 million views and higher in the graph (Figure 13). Only a few more popular channels are connected directly to other popular channels.

The first community is the large green cluster whose tags were mostly about *Call of Duty*, shooting and war. As found in the tag analysis before, shooting/war games are related to the training side of the community where the tag 'Let's Play' is not as common or important. What was discussed around the tag 'cod' showed the propensity of channel owners to upload more specialized videos, as in the case of 'montage'. Many montages use professional software to get the best video quality, and perfection in the gameplay showed. There is also a preference for the use of tech terminology, which makes sense for the way they are describing their channels to their audience. The following list describes the ten most shared tags found within the green community:

Green community: (main topic shooting/war)

Tag	Percentage of edges
ops	83%
black	83%
warfare	80%
cod	78%
modern	76%
xbox	35%
montage	27%
commentary	21%
war	15%
world	13%

Table 3. Top ten shared tags in the green community (shooting/war).

The second cluster in size is coloured in purple, and the tags shared within this community include 'comedy', 'funny', 'family/kid-friendly', and 'let's play'. Because the nodes were spread by tag similarity, we expect that if they are similar to each other they will be closer. It works

logically here, because the top of the graph is more related to the training side of gaming and it goes down to comedy and funny videos. Some of the most influential YouTubers, such as Jackescepticeye, Markiplier, StampyLongHead, and DanTDM are part of this topic community, and they are known mainly for being let's players. The top ten most shared tags found in this community are described in the following list:

Purple community: (Main topics: fun/let play/comedy)

Tag	Percentage of edges
let play	61%
funny	55%
walkthrough	35%
moment	29%
playthrough	27%
commentary	18%
comedy	17%
mod	16%
friendly	13%
montage	11%

Table 4. Top ten shared tags in the purple community (let play/comedy).

This community is showing 5 of the most important forms of fan production in YouTube: Let's Plays, walkthroughs, playthroughs, mods, and even montages. The interest in mod and montage are low compared to the interest in LPs, which represent 61% of the edges connecting the channels of this community. The other topics around fan production indicate that the goal of the channels in this part is to entertain their audience, so we can say that they are on the comedy side of the channels.

The middle cluster (light blue) is connecting the two clusters mentioned before (war/shooting and comedy/let play). In this section, TheSandyRavage channel was found to be the node with the highest betweenness centrality, and it has 50% of its edges connected to the war community and the other half to the comedy community. Many other nodes in the light blue community are in the top ten of the highest betweenness centrality nodes which reinforces the idea of the central

community as a bridge. The top most shared tags found in this community are shown in the table below (Table 5).

Light-blue: (Main topics: consoles/let play/gta)

Tags	Percentage of edges
xbox	72%
Let play	40%
playstation	38%
one	27%
gta	24%
walkthrough	22%
nintendo	17%
review	14%
wii	12%
playthrough	12%

Table 5. Top ten shared tags in the light-blue community (consoles/let play/gta).

The most shared tags within the community are similar to the comedy side because of the use of similar terms seen before, including: waltkhtrough, playthough and Let's Plays. A game title that appears in this community is GTA. The audience of this game mostly consists of teenagers and adults because of the explicit displays of violence. There is also a presence of tags related to consoles, which appears to be a central topic in this community. According to recent studies (Klevjer and Hovden 2017), the preference for consoles is strongly connected with a more relaxed style of gaming which the authors refer to as 'partygamers'. The use of console descriptors can be attached to the intention to reach more relaxed audiences. There is also the tag 'review', which includes console reviews, game reviews, and many others with topics even outside the scope of gaming.

Next to the war community is one of the smaller communities: the black-coloured cluster. This community shares many tags with the war community. The tags used are specifically describing worlds of COD, like mods with zombies and secret maps. In this community there is a small number of highly popular channels that mainly upload videos in Spanish, Fernanfloo and

ElRubiusOMG being the most important ones. The top ten of the most shared tags within this community are described in the table below (Table 6).

Black community: (Main topics: gta/cod)

Tags	Percentage of edges
gta	45%
black	39%
ops	39%
glitch	32%
online	28%
funny	27%
zombie	27%
cod	27%
moment	22%
best	16%

Table 6. Top ten shared tags in the black coloured community (gta/cod).

The tags commonly shared within this community are mainly related to COD, GTA and gamer related comedy (glitch, best moment). There are no words related to fan production in the top ten, and the topics around funny where the ones we detected in the most competitive communities.

Moving to the lower part of the graph, we have the orange community. This community is closely related to the comedy side of the graph, and it is closer to the kid friendly side than the comedy/entertainment cluster. Its main topics are LOL (league of legends), and terminology related to LOL. At the same time, it shares tags related to fun and some competitive/training terms like ‘pro’. The most shared tags within this community are described in the table below (Table 7).

The tags used within this community describe a competitive game: League of Legends, but also include tags related to fun (best moments, funny), which is not close to the training side but to the comedy side. The only tag related to fan production is ‘montage’ with 32% of the presence in edges of the graph, which is a significant amount. Other tags used are not as friendly or fun such as, for example, ‘faker’ or ‘pro’, which are somewhat oriented to the training side. According

Klevjer and Hovden's 2017 study, e-sport gamers have their own autonomous culture and tend to have exclusive tastes, which is showing in the tags shared, specifically in the use of: 'riot', 'faker', and 'top'. This community is far from the main gaming section in YouTube, which consists of the three bigger clusters, however it is close to the comedy community, sharing some edges with it. LOL has been a game with a strong audience and it probably mixes better with the entertainment content rather than the training content in YouTube.

Orange: (Main topics: lol/fun/competitive)

Tags	Percentage of edges
lol	63%
moment	47%
best	44%
funny	41%
highlight	36%
pro	34%
montage	32%
top	30%
riot	24%
faker	21%

Table 7. Top ten shared tags in the orange community (lol/fun/competitive).

The dark blue community is a specialized one and it appears in the lower part of the graph, which means that it is not similar to the war community, for example. The tags shared are related to kid's videos, baby songs, toy reviews, superheroes, Disney games and the *Five Nights at Freddy's* game title. The top ten most shared tags found within this community are displayed on the table below (Table 8).

The tags 'kid', 'song', 'music', and 'child' indicate the target audiences that these channels are trying to reach. Some forms of fan production in this community are 'animation' and 'songs' which can be easily confused with other music videos and kid animations outside of the scope of gaming. Just three tags are directly related to video games: fnaf (Five Nights at Freddy's), Freddys and bonnie (fnaf characters). FNAF is a game that has a strong popularity among children, even if

it is not intended for a child audience. This community has some gaming descriptors but, in terms of shared topics with the main gaming channels, it is too far to be similar to most of them.

Dark Blue: (Main topics: kids/music/*Five Nights at Freddy's*)

Tags	Percentage of edges
kid	32%
freddys	28%
song	28%
fnaf	27%
animation	25%
sfm	23%
music	22%
child	21%
nursery	18%
bonnie	18%

Table 8. Top ten shared tags in the dark blue community (kids/music/fnaf).

The last one is the pink community, which mostly shows tags in Russian related to gta, mods and Let's Plays. A large number of the tags found were present in the semantic similarity graphs around the word funny as a small cluster. The top ten most shared tags are:

Pink coloured community: (Main topics: Russian language/gta/mods/let play)

Tags	Percentage of edges
gta	77%
GTA	67%
online	36%
mod	35%
review	35%
games	35%
walkthrough	29%
online	27%
samp	24%
let play	22%

Table 9. Top ten shared tags in the pink community (Russian language/gta/mod/let play).

The tags shared in this community were translated from Russian, and the cluster is far from the others mainly because of the language. Despite the differences, the channels in this community also used tags in English that were mostly related with the comedy cluster. The main tags used by

the channels were around GTA, mods, review, walkthroughs and LPs. Contrary to the other two communities, which had ‘let play’ as a tag, this community has a low priority of Let’s Plays and more interest in GTA and mods. There are also some tags related to fan production, such as ‘mods’ and ‘walkthroughs’. The tag ‘online’ happens twice, once in English and the other time in Russian, which is significant in terms of the way they play, related to the online mode of GTA.

Besides the differences in topics of all the communities, there are other differences as well. For example, the community of war/shooting is tighter than the other 6, it has more than 11,566 edges connecting all the channels of the community with each other. The war/shooting community showed a use of more specialized vocabulary, which is more related to the traditional view of the gamer. This could be the reason for why this community is so tight. The other main communities are more dispersed, particularly the light blue, which is the bridge.

The difference in central topics within each community lead us to make a distinction between the channels dedicated to war, shooting, violent games (‘gta’) and the channels dedicated to comedy/fun gaming. As we can see in the communities graph (Figure 13), the green and purple clusters are separated from each other at a considerable distance, showing that they are not described similarly. This tension between war/shooting games and comedy/entertainment video games in culture has been debated in the past by Payne in 2012 and more recently by Sparrow et al. in 2018. As both authors claim, video game companies try to separate the role of violence in war games while simulations are being used to train the military. Games such as *Call of Duty* still claim to be ‘harmless fun’, but even in YouTube the community is still distant from the entertainment for all ages. Even if the channels enjoy uploading or creating videos about war games including footage of their own gameplay, there is not the same component of fun or family

friendly comedy as in other kinds of games, even including GTA or FNAF, which are violent as well.

The state of the tensions in terms of video game title preferences in YouTube is beginning to resolve. The community of gta/fun/lets plays, shown as a light blue coloured cluster, is connecting the comedy/fun/lets play community with the war/shooting community through shared topics. One reason for this could be the tag 'Let's Play', which had its co-occurring tags around comedy and gaming according to the semantic analysis of the previous section. Both of Let's Plays' biggest communities (light-blue and purple coloured) have a different role in this gaming culture in YouTube. The comedy/fun (purple) is connecting to all the other topics outside of the gaming community (like music/kids' channels), while the other (light blue) is connecting the side of war games with fun and friendly channels.

The second possible reason for the presence of this central cluster (light-blue) is the tendency of YouTube to mix cultures and communities, as Burgess and Green stated "[in YouTube] not only [hybrid] forms co-exist through the same media platform but also the lines between them start to blur, where it becomes increasingly difficult to tell where one ends and the other starts" (2009, 115). Due to the hybridization power of YouTube and the hybrid nature of Let's Plays, the tensions in game culture are starting to merge in the platform, not only creating diverse communities, but also spreading fan production across different target audiences.

The division in the communities also explains how the YouTube gaming channels define themselves through themes that clarify what the topics are throughout the gaming phenomenon in YouTube. The communities dedicated to comedy and fun (light blue and purple) use more diverse tags about fan production, as we noticed in the tags shared in each community ('mod', 'let play', 'walkthrough', 'playthrough'). While in communities of war and shooting, the users tend to be

more focused solely on ‘montage’. The war community also mentions the tag ‘commentary’, which means that most of the channels here are using commentary to describe their videos, although they are not using tags like ‘walkthrough’ or ‘playthrough’ as much as the other two communities mentioned.

The topics as well as the tags show a division in terms of target audiences. While war and shooting games are described as harder and not as friendly, in turn the Let’s Plays comedy community use the tag ‘friendly’ among the most shared tags. The size of the clusters also shows that fan production and Let’s Plays are important trends in YouTube. A large percentage of the tags are terms related to fan production. Even if these tags are important, the number of channels dedicated to Call of Duty represent 48% of the graph in the war games cluster (green). That said, the situation changes when we focus on the views. The lower part has the largest nodes, meaning that the most viewed channels turn out to be the most family friendly ones.

The fact that there is a difference between the communities of training and entertainment does not mean that Let’s Plays are not a learning experience at all. Because there are some training tags in the community, there is also a small percentage of funny and comedy tags in the war cluster. Burwell and Miller argue that Let’s Play videos can be considered a learning experience because of the criticism implied in the game commentary: “By providing criticism, LPs and livestreams serve a similar purpose to book reviews. Interestingly, these legal arguments interpret LPs as texts that play with meaning and that review, re-interpret and re-imagine an increasingly influential media form” (2016, 112). In the context of LPs, the content is so diverse because some of the creators are professional gamers while others are completely new to videogames. This could explain the placement of them between entertainment and gamer. Some of the creators can make

family friendly videos while others can provide very insightful commentaries on games and the gaming industry. While I agree that LPs can be informative, that is not always the case.

One difference in the intended learning experience is, for example, the expectation of a video tutorial that teaches the audience how to improve their gameplay, compared with the pure comedy and entertainment of the other side of the communities. It is important to highlight that in the semantic analysis, the tag funny was present when referring to ‘cod’ or ‘gta’, but it tends to be more related to ‘glitches’, ‘pranks’ and ‘trolling’, which are considered funny practices in a more traditional hard-core gamer culture.

3.3 Tensions in Game Titles’ Audiences

As discussed in the first chapter, video game audiences have been diverse. At some points in history they were broader, as with the games of the 80s, while narrower in others, depending on the year or technology used. The stereotypes of audiences have been changing from the original definitions of hard-core and casual players. Despite the differences in playing styles, the fan production around video games is currently diverse too, especially in YouTube where we found the producers defining their channels with a range of words, from the traditional hard-core gamers to the ‘casual’ and friendly side.

In the semantic analysis of the tags, just ‘gta’ and ‘cod’ remained as representatives of two game title tags, although other acronyms such as ‘lol’ (League of Legends) and ‘fnaf’ (Five Nights at Freddy’s) were highly shared in the channels’ similarity graph. The original search in the YouTube API consisted of 10 game titles from different game types, from realistic war simulations (Call of Duty) to physics-based platformers (Happy Wheels) and even easy-to-play online games like Agar.io. All of the games selected were the top popular games in YouTube since late 2015 to early 2016.

In the channels' metadata, the relevance to the game title query was stored as another property, with the purpose of finding out later how these relevant channels are representing their games spread across target audiences. As the first part of the study showed, the big channels are mostly dedicated to one top popular game at a time or, in some cases, two popular titles. So, the search query gave as a result the most engaging YouTube channel for the query based on likes, views and viewing time[23]. The game title associated with this search was stored to later show if the game's relevance was evenly spread across communities or if there are specific communities which the channels target the most. The next graph (Figure 15) shows the communities found in the previous part, coloured according to the game title relevance in searches.

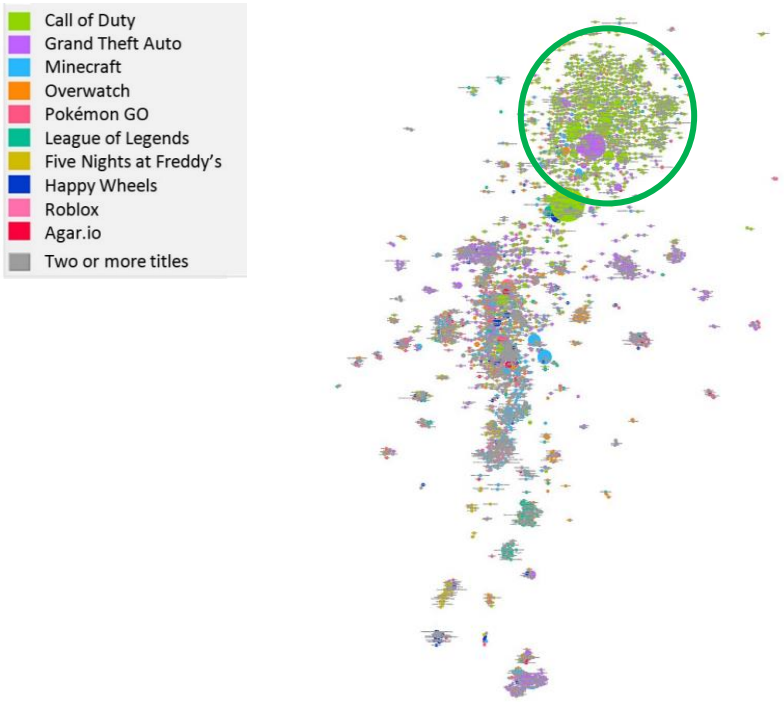

Figure 15. Similarity graph coloured by the relevance of the channel to the game title query. (The size of the node represents the betweenness centrality).

[23] https://creatoracademy.youtube.com/page/lesson/discovery

The graph above (Figure 15) shows the channel network similarity, coloured according to the relevance for the game titles used as search queries and how they spread across the communities found before. We can see some clustering in certain areas of the graph, but the only visible one is the war/shooting area, where *Call of Duty* is the most relevant game in the cluster. A small number of other relevant video games like *Minecraft* and *Grand Theft Auto* appear together in the same war cluster as well as some *Overwatch* related channels. The following part of the graph represents the two *L*et's *P*lay communities, showing different game titles, some of which represent more than one query search. The most representative games in the next two clusters are GTA and *Minecraft*. The smallest communities, especially the lol/esports ones show more *League of Legends* related channels, and the kids/music community show more channels related to *Five Nights at Freddy's*.

As the graph above shows, the relevance to one or another query does not shape the topic or the target audience around them, with the only exception of the *Call of Duty* related channels, which appear mostly together. The topics around COD are mostly tags of their several series title names, including *Black ops*: bo, *Modern warfare*: mw, which makes their community tighter. The same happens with the GTA series, which has multiple titles (GTAV: *San Andreas, Vice City*), although its tags are not shaping the second cluster nor showing all GTA related channels. In the other communities' clusters, many different game titles appear in the same community, even some *Call of Duty* channels. Since the casual revolution started, many game companies started to aim their advertisement campaigns at broader audiences. One of these cases is *Overwatch*, mentioned in the previous chapter. Other cases, like *Minecraft*, offer different modes of playing the game, which is attractive to a broader range of audiences. The controversies around war games, especially *Call of Duty*, produced a closer fan audience, which in this case could be the target audience of

these channels. Some of the important tags shared in this community, including tags such as ‘world war’, are marking the topics they use to attract possible viewers.

It is important to point out that in both *L*et’s *P*lays communities a large number of channels dedicated to more than one top game are more present than in the other communities (gray nodes). The diversity of game titles and fan production shown in these two communities allows them to target more audiences, balancing common topics like comedy with different styles to show the video game. *Call of Duty* related games start to be less present when we move to the lower end of the graph where more specific kids and family friendly channels are placed.

3.4 Ten Years of Fan Production (Training or Comedy?)

Once we detected the communities in 2016 (when the data was collected), it is important to explore the tags/descriptors used to tag the content (videos) to confirm if they match the results we find in the communities. Many YouTube trending tags are around video game fan production more than the preference for a specific game title. The fan production is adapted to the aim of the particular channel topic and audience, which belongs to a community.

Until now, all of the previous research on this was based on the properties of the channels, but as YouTube is a content driven social network, the content has a greater role. The results in the second chapter of the tags’ similarity show that the users have a shared knowledge of most concepts of fan production like mods, LPs, walkthroughs, and playthroughs. For that reason, we will track those forms of production through the tags used in these communities during the ten years of YouTube gaming.

3.4.1 Fan Production in YouTube: Dataset and Methodology

The channels initially gathered before the community analysis have a broad range of channel creation dates from 2007 to 2016. The time frame was chosen to track all the previous years of video production since they started. It is important to point out that the channels were still active and publishing videos in 2016. Because we cannot know about the channel's tags in previous years, I chose to use the metadata of all the channels' videos since their creation to reflect the main topics and target audience per year.

The channels to be studied are the same channels that appeared in the channels' similarity graph (Figure 13). From the channels selected, it is already known that they have good tagging practices and that they all have at least 40k views. We also have the information about the community to which they belong and the current tags which describe their channels in 2016. The metadata extracted from videos consist of all the videos that were not taken down and were not private in December of 2016. Most of the channels upload no more than one video per day and, because of that, the YouTube API restrictions can be avoided to get all the channels' videos' metadata per year, which means a better display of every channels' topics.

From all the channels' videos' metadata, I selected only the tags used per video. Tags are often more descriptive in terms of what the channels want their audience to find. Even if descriptions are also useful, we found that most of the descriptions are in the language of the content creator, which meant a higher use of foreign language and not many connections with English words. The tags often include versions in English of the same tags in the foreign language, which can help us connect channels through tags with channels sharing the same interests in English.

The tags of each channel's video will be filtered to reduce the number of stop words, special characters and single letters. After the basic filtering, all the unique tags per video are going to be stored along with all the tags in the channel's videos of the same year, creating a complete list of all unique tags and the number of times the channel used them in videos that year. Depending on the channel's year of creation, there will be differences in the number of videos for each year. To avoid these differences and reflect more meaningful results, the results will be presented as the percentage of uses of the tag in all of the channel's videos of the same year.

After the tags are collected and summed up per channel per year, then we will get the average use of the tag in all the channels in the same community in the same year. In the previous chapter we identified the most popular fan production activities in YouTube, and I selected the tags related to those words to see if the communities change the use of the tag during those years. The tags selected are: 'mod', 'walkthrough', 'playthrough', 'let play', 'montage' and 'tutorial'. The following charts show the comparison between those tags which have been studied in the previous sections.

3.4.2 Results: Let Play vs. Montage

The concepts of montage and Let's Plays in YouTube are placed in opposing audiences, which have been separated since the 'casual revolution': gaming for entertainment (casual players) and gaming focused on gameplay skill (hardcore gamers). As previously discussed, the montage is a way to show skill and is often preferred in training audiences. The LPs, as we have seen, has a property of merging well with different kinds of topics, game titles and audiences. The goal of this comparison is to track the growth of these two popular tags used to describe channels' videos in different communities.

The charts below (Figure 16) show the percentage of uses of two tags: montage or Let's Play each year per community. The lines represent the communities, which are colored according the previous coloring of the graph. In terms of tags, 'montage' started appearing in these communities' videos' tags since 2008, but it became established and popular around 2011. In the next year, the tag montage decreased considerably while LPs increased, reaching its higher peak, where 4 communities out of 7 had from 14% to 36% of their videos tagged as 'let play'. In 2013, the comedy community was using the tag let play in 40% of their videos, which represents approximately 17,920 videos. Around 2012, the popularity of Let's Plays was increasing and even the three training communities tried to increase the number of videos tagged as 'let play', though they never surpassed 10% of videos. Something similar happened with montage, which has been increasing and decreasing with no more than 10% of use in the 3 communities where Let's Plays are important.

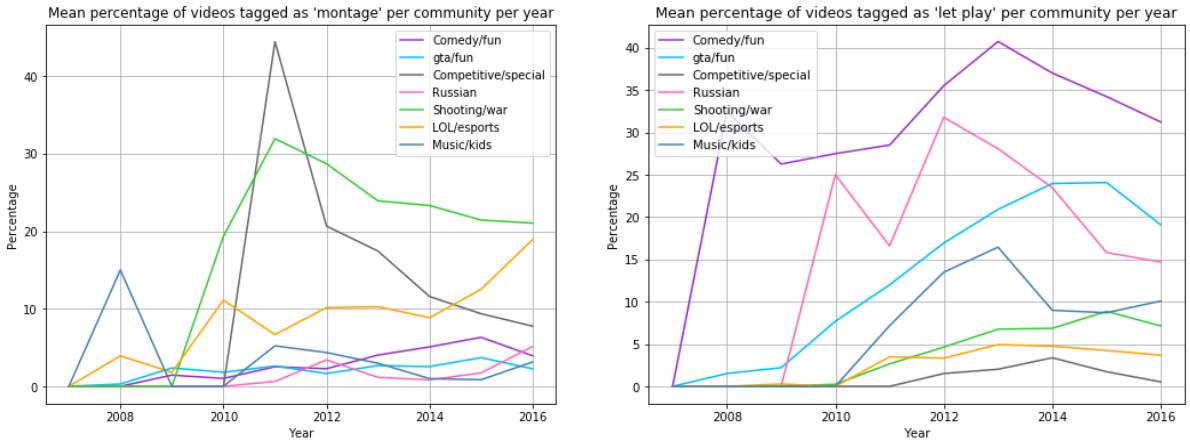

Figure 16. Mean percentage of tags' use ('montage' vs. 'let play') in videos per community per year.

After looking at the results we can see that the community that started and kept describing their videos as 'let play' is the comedy community. Three more communities describe a large proportion of their videos as LPs, which are the community related to gta/fun, the community

which uses mainly Russian and, more recently in 2010, the music/kids community. Of all the communities in this section, only the music/kids community appears to be increasing the amount of 'let play' tags in their videos, while the other communities are not using them as much as previous years. The main reason for the decrease could be the rise of the Twitch platform which in September of 2016 announced a new option to upload videos just like YouTube[24]. Since this update, many YouTubers started uploading their videos and streaming in Twitch. The case of montage is different because it has decreased since 2011, while the lol/esports community is the only one with a growing interest in montage in 2016.

3.4.3 Results: Mod vs. Tutorial

According to the most shared tags in the communities above, there was a preference for mods from the comedy and more friendly side of the communities, while tutorial is supposed to be present in the communities intended for competition and training. Because of that, I compared the two tags to see if there are differences in the use of the tags throughout the years.

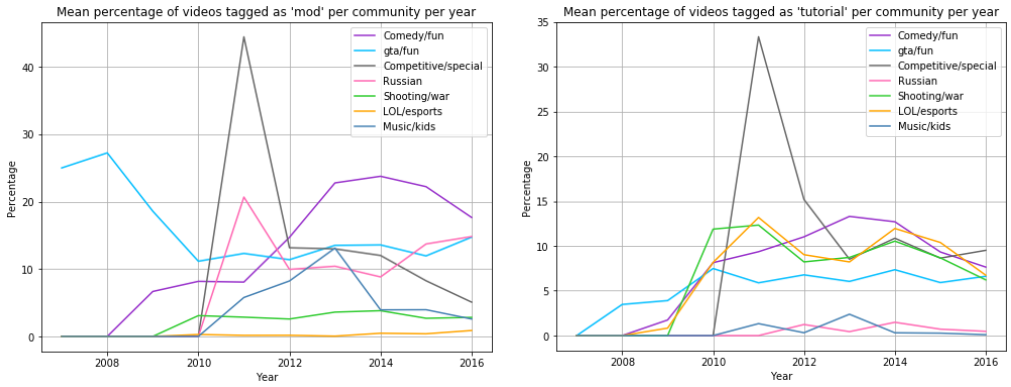

Figure 17. Mean percentage of tags' use ('mod' vs. 'tutorial') in videos per community per year.

[24] https://blog.twitch.tv/uploads-open-beta-now-live-aec0e1925989

The charts above (Figure 17) show the mean percentage of the use of the tags ‘mod’ and ‘tutorial’ in the communities per year. The tag ‘mod’, since it is older than YouTube, started to be used in 2007, while the tag tutorial started later in 2008. Both tags present a slow increase since the start date of appearance, and only tutorials kept constant at around 8% to 13% of the videos of 5 communities out of 7 since 2010. The videos selected to find these results were only the ones categorized by the content creator as gaming videos (or YouTube category 20). Because of that, we cannot say that these videos are the tutorials or ‘how tos’ about topics outside of the scope of gaming. However, the percentage of gaming videos described as tutorials is low compared to other forms of fan production.

In turn, mods were increasing and decreasing depending on the community or the year. The communities more interested in mods are the four dedicated to comedy, plus one of the competitive/gamer communities (black: competitive special). It is understandable that mod appeared in this community due to its focus on the zombie mods of *Call of Duty*, but for the two other training communities they are not tagging more than 5% of their videos as mods. Gta and mods have a stronger connection since they were used to discover secrets and to cheat in the online game, and in 2007 the gta community was the one holding the highest percentage of videos described as mods. Around 2010, the friendlier communities started to increase the number of mod videos, mostly due to the increasing popularity of sandbox games such as *Garry’s Mod*, which made it easier to perform mods in video games.

3.4.4 Results: Playthrough vs. Walkthrough

Since the tag walkthrough has been used in YouTube by the less competitive communities, the target audience for these walkthroughs has changed since the traditional way of seeing them. The walkthrough was originally created to help the readers (now watchers) find secrets of the game or

to look for help if stuck in a part of the game. The playthrough in turn is considered a kind of Let's Play, consisting of footage of the gameplay along with a commentary of the game. It is not a detailed guide, but a video to entertain. I compared these two tags to see the evolution and the use in the timeframe selected.

The behavior of the communities when using walkthrough or playthrough are very similar. The community which uses mostly tags in Russian, the comedy community, and the gta community are the main users of these tags. For the comedy community, the use of both tags has been very steady since 2010. But in the case of the Russian community, they started using both tags with the same frequency and the next year the use decreased by almost 20%, the only tag that remained after 2011 was walkthrough. The gta community has a slow increase of the use of both tags and they reached their peak use in 2014. Both tags decreased the next years in this community.

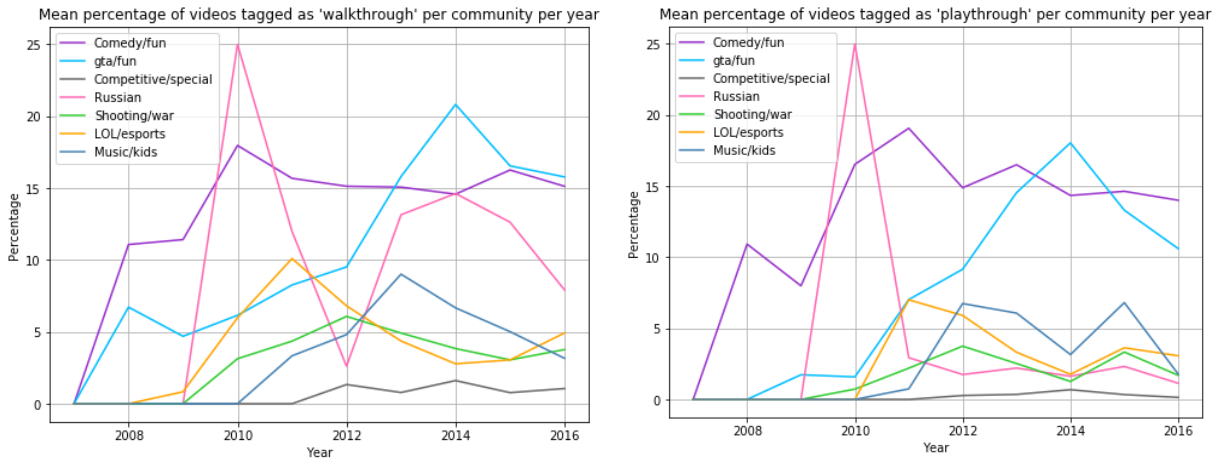

Figure 18. Mean percentage of tags' use ('walkthrough' vs. 'playthrough') in videos per community per year.

There is a slight difference between these two tags, as they appear to be used together most of the time, which means that their meanings are not completely different. According to the co-occurrent tags, playthrough and walkthrough appear together in 7552 videos (15%) in the comedy community in 2012. In the war community, the combination of playthrough and walkthrough

appear in 1201 videos (5%) in 2012. Surprisingly, the association of these two different purpose tags started in 2008 when many channels tagged their videos as “playthrough walkthrough”. The community dedicated to war used the combination of tags fewer times because the use of walkthrough or playthrough is low, at an average of 10% and 5%, respectively, of all of their videos. This community showed a preference for the tags gameplay and commentary to describe their videos instead of the two fan production tags.

According to the results in this comparison, it was demonstrated that there are preferred communities for each form of fan production, in some cases more than one. The popular channels often upload the content that has generated more positive feedback, so when the videos are well received, they continue uploading the same kind of content. When the charts show an increase of a certain tag, it means that a topic is gaining popularity and, when it becomes a trend, more channels start to copy it. In the case of Lets plays vs montage, we see a clear separation between the channels that use each one of the tags and they are not often used together to describe videos. Let’s Plays have been more consistent over the years, showing that a large number of videos are described as such over the last ten years. In turn, the tag montage has just a few peaks, which often decrease dramatically each subsequent year. In 2016 montage is decreasing in popularity.

In the case of mods vs tutorials, mods are often popular in the family friendly communities except for one: the special COD community (black), which in 2016 decreased its use in large numbers. In studies about mods (Coleman and Dyer-Witheford 2007), the interest in them was often related to the training side of video game culture. Because the tools to mod a game have become easy to use, many creators are producing them with a friendly target audience. It is true that in 2007 the mod was popular in the gta/fun community, which is not as friendly as the others, but we can see a significant decrease showing that the interest in them is also decreasing in this

community. With more friendly communities targeting ‘mods’ to family friendly audiences, mods in 2016 were often related to comedy and fun. Contrary to the case of mods, tutorials are preferred by all gaming channels except for the ‘kids’ and ‘Russian’ community. Tutorials have been constant at around 10% of the channels’ content each year since 2010.

The last case of walkthrough vs playthrough shows that the tags are often used together in more friendly communities: the same three friendly communities who describe their videos mostly as Let’s Plays. Once again, as opposed to the previous audience of walkthroughs outside of YouTube, they were often popular in more training-related communities and used to gain more skill. But as the charts show, the popularity of these topics has been drastically increasing more in the friendly communities, even those for kids. There is slight difference in the use of walkthrough and playthrough in the training communities. These communities prefer walkthroughs rather than playthroughs because playthroughs are more explorative and less training-based, even though the amount of content dedicated to the two topics is never more than 5% of every channels’ content in the training communities.

4 Conclusions and Future Research Directions

In this final section of the thesis, I will summarize the findings of the analysis and the contributions of my work to the study of video game culture online. I will also explain the impact of the thesis and the directions for future work.

4.1 Purpose and Main Findings

This thesis had the aim of exploring fan production and Let's Plays in video game culture in YouTube, in order to find what the topics and target audiences are and how they are changing in the platform. Video game fan practices are as old as video games, but the internet and specially YouTube have contributed to spreading them across the world. Let's Plays, for example, are currently a huge trend worldwide, even though there are just a few studies about them in video game culture. In my analysis, I used the descriptors or tags of the channels and their videos to map the topics around fan production, and to find the spaces where those practices are well received.

What I found in my analysis was that the tag 'let play' is always in a central position between topics of traditional gaming and all ages comedy, which makes it the bridge connecting many other topics and game titles in YouTube. Some scholars have argued about the purpose of Let's Plays in video game culture attributing them a role of pure entertainment (Hale 2013), one of criticism of the industry (Burwell and Miller 2016) and even sometimes its potential as archive tools of video game experience (Nylund 2015). My findings are consistent with that previous research as I have been able to find components of each one of the three mentioned aspects around Let's Play topics. It is important to point out that none of these authors found that the diversity in Let's Plays carries a potential to connect many topics and audiences from traditional gamer to the common user.

4.2 Research Questions

There are two main research questions that this work has addressed; both questions were solved through the analysis of metadata provided by the YouTube API.

4.2.1 Video Game Channels' Descriptions

Question 1:

- (a) How do the gaming related channels in YouTube describe themselves in terms of topics and trends? (b) How are these descriptions producing a collective knowledge in the context of game culture in YouTube?

The object of the study was the user-profile which in YouTube is represented by the channel. To answer the first question, I used the tags, as channel's tags work as a summary of the main topics of videos which the channel uploads. The tags were chosen because the tagging practices of the most popular channels are consistent and more descriptive than the channel title or the paragraph description. In terms of user tagging practices and patterns there is enough previous research done to support the analysis (Halpin 2013) (Greenaway 2009). The most important tags used by creators to describe their channels where words related to broad topics: 'game', 'gaming', 'video', 'gameplay', and 'funny' among others, but most importantly tags related to fan production such as 'mod', 'let play', 'tutorial' and two popular game titles' acronyms GTA(*Grand Theft Auto*) and COD(*Call of Duty*). There were three main findings, one for the question 1(a) and two for the question 2(b):

(a) The channels use one of both: tags only in English (58% of the tags) or another language mixed with tags in English. The tags used to describe channels are not too different comparing each language but there is a difference in the importance given to each tag. This means that the language could show preferences of topics and differences in the audiences that gaming creators

are trying to reach. Spanish appeared as the second language used to tag video game channels and some tags appeared in several cosine similarity graphs connected to important topics in English.

(b) The first finding demonstrates that the perception of comedy (tag ‘funny’) differs in terms of what is considered funny in YouTube. Out of the top ten topics just ‘mod’ and ‘let play’ were associated with ‘family’ and ‘friendly’ fun tags. The standing eight topics have tags associated with different comedy tags (‘trolling’, ‘glitches’, ‘fails’). Video game titles with a tradition in less friendly audiences like ‘gta’ or ‘cod’ were connected more with the fun of the traditional hard-core gamer. The second finding in this analysis was that the tag ‘let play’ was the closest to both ‘gaming’ topics and friendly comedy ones. This would suggest that ‘let play’ is the perfect tag to connect to tags from both sides of tags, allowing creators and the platform to sue it as a key to gather more different kinds of target audiences and, hence, potentially increase the popularity of those channels.

4.2.2 Video Game Communities in YouTube

Question 2:

- (a) Are there preferred communities of channels in YouTube where video game fan production is more accepted? (b) What is the role of Let’s Plays in this ecosystem?

Chapter 3 addressed the second research question in order to find if there are communities which group video game channels where fan production content is well received. For this part of the analysis, the same data of channels’ tags were used, but in this case the objective was to compare the tags with other channels to find connections based on the number of shared tags. After the comparison, the most important videos’ tags were analyzed to look for changes in their use each year since 2007. What I found was that communities in YouTube video game culture do exist and they relate to others who share the same target audience. Seven communities were found

showing a huge range of audiences starting from the less family friendly war and shooting games to friendly animations and reviews for kids.

(a) The main finding regarding question 2(a) demonstrated two kinds of fan production in the YouTube communities: comedy and game training. Game titles were not found important as topics which define a community, with the exception of the community about shooting and war. This specialized community have not integrated with other communities which made it one of the strongest in terms of a single shared interest among its users, although even so the higher number of views is now on the side of comedy and Let's Plays.

(b) Regarding this question, what I find was that the two communities which tagged their videos mostly as Let's Plays have the most central positions in the graph, connecting the two sides and demonstrating again the high potential of Let's Plays to mix titles and audiences from all over YouTube. Additionally, these communities have successfully integrated multiple fan production themes and game titles without decreasing their interest in Let's Plays for the last 9 years. The evidence of the use of the Let's Plays tag by year suggest that the peak in the use of this tag is starting to decrease in 2016.

4.3 Limitations of the Study

The data collection was done using the YouTube API, for that reason many restrictions were imposed by it, among the most important: the number of channels available to download per year and the privacy policy about viewers' demographic information. The first restriction implies that not all the relevant channels to each game title query were obtained, but because the study concentrated on popular channels, the most important ones remained in the data. The second restriction about the privacy of viewers' demographics limited the analysis of the audiences to the

creator side only, which does not necessary imply that their real audiences are not close to what we found. I should stress that my study has concentrated on the side of the content creators and the audience they are trying to reach.

4.4 Future Directions

Video game culture is changing year by year and it strongly depends on game titles' popularity and new trends. It is important to investigate the state of the communities nowadays, especially because of the current trend of *Fortnite*: a friendlier version of a first-person shooter. Without further research into these communities, it will not be possible to know if the tensions around first-person shooters like *Call of Duty* will start to dissolve anytime soon in YouTube.

Future research into video game user generated content might usefully focus on the viewer side through the exploration of comments placed in videos. This viewer side, even through short comments, can shed light into the audience understanding of this content and how they perceive and experience those channels' videos.

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