

The Motivations of a Video Game Streamers and their Viewers

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Abstract

With the explosion in popularity of sites like Twitch.tv, the streaming community has grown into a widespread, global phenomenon. Twitch has 2.2 million monthly broadcasters, watched by 15 million daily active users, and over 150 million monthly unique viewers – and Twitch is only one of the services available (Smith, 2019). Little is known about the communities however; this paper aims to further investigate and explain the motivations of both the content creators and the content viewers. The first study in this paper looks at the motivations and personality types of individuals who would wish to stream content on these sites by using the Big Five Personality Inventory (Rothmann and Coetzer, 2003) and Yee's Gamer Motivations (Yee, 2006). The second study aims to see if there is a connection between viewer retention and Yee's Gamer Motivations.

Keywords: Twitch TV, video games, motivation

INTRODUCTION

Watching others play video games is not an entirely new concept. In the video game arcades, the starting point of video game culture, playing a game could be a public affair. With the rise of home video game consoles, video game culture moved from arcades and into homes. Recently, gaming has again become a public affair, and watching others play games is a new form of media. popular game players can be watched performing on YouTube, and international gaming championships attract huge audiences (Vosmeer et al, 2016). The monetary potential of this media form was demonstrated recently when Amazon bought Twitch.tv for approximately a billion dollars (Smith, 2019).

Twitch.tv is in the top of the game streaming sites and is one of the top five peak Internet traffic websites (Figure 1). Over half of the users that watch the stream are shown to spend more than 20 hours per week on the website (Cook, 2014). A number of players on Twitch.tv have chosen this to be their full-time profession. Twitch.tv alone has more than 13,000 partnered casters that make a living streaming and playing video games (Eadicicco, 2014). While there have been a few studies about the viewers of Twitch.tv very little research has been done examining the motivations of the streamers.

Gandolfi (2016) describes Twitch.tv as growing quickly and representing a dynamic environment in gaming culture. The demographics of the viewers vary, but many exhibit similar gaming habits. The Twitch.tv community is described as a top down system; from the casters at the top, then the games and the viewers. The study points out that viewer immersion could be based on multiple factors including interaction with other viewers and the streamers. Research has shown that one of the main reasons that users watch these

streams is for entertainment. Gandolfi states that some viewers wish to see games that they perhaps do not own and games that they cannot play. However the majority of viewers choose to watch mainly for the streamers themselves. The study does not investigate the motivations of the streamers (Gandolfi, 2016).

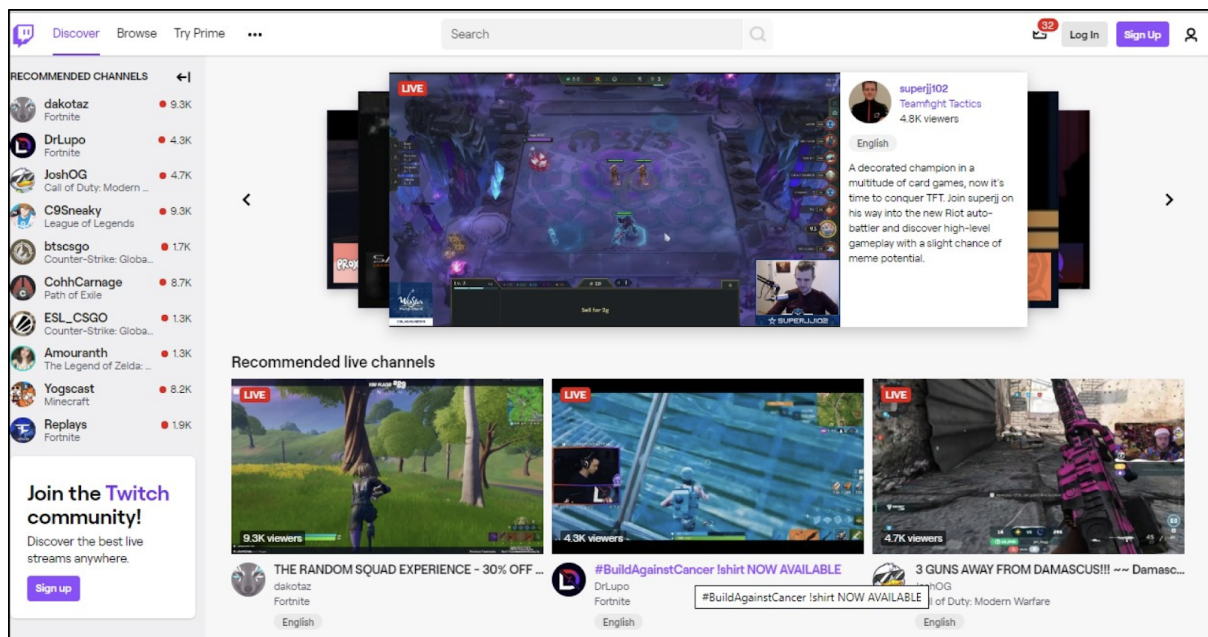


Figure 1. A Twitch.tv Screenshot

COMMUNITY

Like many media models, the viewers and spectators generate the income (by viewing advertising etc.) and hence are often considered as the most valued part of the streaming service. Past studies have shown that the viewers themselves are an important part of the experience and the viewer interaction draws in others to watch the streams. The community is constantly growing and changing, this is due, in part, to the interaction between its viewers. The viewers are also responsible for selecting which games are the most watched and who becomes a popular streamer (Edge, 2013).

Analysis of the use of other sites such as Youtube.com to upload pre-recorded videos can help to give some insight into content creators. Glas (2015) undertook a study that investigated how content creators engage their viewers even with pre-recorded videos. Those that make gaming videos for sites are doing so without knowing how their audience is going to react to the videos. It was shown that because of this, those who appear in these videos would often have to exaggerate their emotions much like actors at the advent of cinema (Nowell-Smith, 2017). While these videos are supposed to exhibit genuine reactions, it was shown that the content creators embellished theirs to help their viewers engage with them. For streamers however this is something that must be done 'on the fly' as they broadcast live rather than recording video for later viewing.

The increase in popularity of streaming services has greatly contributed to the corresponding growing popularity of eSports events. This can be seen by the increase in the size of the

prizes (many over a million dollars) as well as the growing average viewership per tournament (Casselmann, 2015 and Edge, 2013). This can also be attributed to the accessibility of viewing not from one's television but on any device through services like Twitch.tv. With competitive gaming broadcasts, a major appeal of streaming is the commentary that is added to the stream. Electronic Sports (eSports) events are often casted by a panel of ex-players who give colorful commentary to what would otherwise be a dull event (Burroughs and Rama, 2015). The advent of eSports also allows commercial partners to support teams as well as sponsoring specific game events. A plethora of technology companies, event organizers, peripheral creators and streaming sites have evolved to support this competitive activity. The eSports organizing bodies, such as ESL and DreamHack, are charged with the responsibilities of developing industry standards and setting player salaries and prize purses (Tribbey, 2016).

Several researchers have examined the viewers of Twitch.tv. One specific case study of Twitch.tv users followed exclusively the viewer's interaction with single game stream (Ramirez et al, 2014). The methodology of this study involved watching the viewers play a game, in this case Pokémon Red[1], by inputting commands into Twitch chat. At its peak over 100,000 people participated simultaneously in the study. Due to the very large number of participants there were instances during the experiment where different portions of the community were aiming for disparate goals in the game, causing groups of participants to be derailed. The researchers attempted to discover if players would be able to overcome the chaos of thousands of users playing one game and if they would be able to find order and complete the task. After many weeks, the game was completed and over a million individual users had interacted with the game. The main finding of this study demonstrated how coordinated and focused the Twitch.tv community can be, users were willing to organize themselves and collaborate to complete a task (Ramirez et al, 2014).

As those who played video games as children age, the percentage of older gamers has greatly increased (Osmanovic and Pecchioni, 2016). With the advent of eSports and other media forms which allow gamers to earn a living playing games, public awareness of professional gamers has also been growing. Research has shown that those who do consider video games as a potential career change their opinions of playing video games (Kaytoue et al, 2012). When playing video games for a career, professional gamers no longer see games as a hobby but instead they are considered an occupation. For these individuals the games are not for relaxation but instead are played to practice, improve and ultimately make a living. To do this the gamers must invest countless hours into their preferred game in the hopes of gaining an upper hand over their opponents (Faust et al, 2013). There are few studies relating to those who have chosen video games as their careers. Although there are also few studies on viewers of game streamers, there have been many studies conducted on the casual gamer and their motivations for playing games.

GAMER MOTIVATIONS

With so much money involved in the gaming industry, it is important for companies to understand the motivations their players have for playing the games that they invest so much time into. Part of the obvious reason that gamers choose particular games is for their own enjoyment, and this is usually a factor in their motivation. However, research has repeatedly shown that there is more to gamer motivation than just enjoyment. Fulfilment can be an

important factor in gamer motivation, it has been shown that when a player completes a goal in the game it gives them immense satisfaction (Ryan et al, 2006).

Possible other motivations for playing video games is to connect with other players in person or over the Internet. Adults playing games with their younger family members and children can help to foster stronger connections. Research has shown that social game playing activity can help to produce positive emotions for all involved (Osmanovic and Pecchioni, 2016). For others the allure of playing with other players is to enjoy the immersion and socialization aspects offered by many multiplayer games. Through the act of role-playing a person is able to create backstory and invest themselves in the world they are playing, often this is helped by playing with a group of individuals that are looking to participate in the same type of role-playing activity. Another reason for socializing with others is to be part of a group that helps each other to accomplish goals that would otherwise be too difficult or impossible for just a single person. This also allows for interaction on a social base for users that normally wouldn't be able to meet in person, and the building of relationships (Yee, 2006).

Other motivations for individuals to play games is for the control that they can give to the user. Several players want to be able to feel in control of the world they are interacting with. In some cases, developers use the idea of player control and make it the focus of the games by having their actions create different outcomes at the end of the game. By giving the player control over the narrative, the players are able to shape the game to how they wish to play it. This type of control also allows for players to learn from past mistakes and continually improve as they play (Sweetser and Wyeth, 2005).

While the gratification of completing a game provides high levels of satisfaction, this can be a temporary, limited experience. It has been shown that higher levels of satisfaction come from players sharing their success with friends and others in the community. By competing and succeeding the players would be able to feel gratification from superior performance (Sherry et al, 2006). Research has demonstrated that gratification is also a motivating factor for individuals to stream video games (Sweetser and Wyeth, 2005).

MOTIVATION METRICS

The Bartle's player type theory was one of the first models for gamers motivation (Bartle, 1996). Bartle created four player types; Killers, Achievers, Socialisers, and Explorers and designed a metric for use with Massively Multiplayer Online Games (MMORPG's) and Multi-User Dungeon (MUD's) Games. While this metric has been applied to other types of games it has sometimes generated strange results when applied to other game genres (Chung et al, 2013).

The Bartle player types are considered by many academics and ludologists to be outdated and based on untested assumptions. Another shortcoming of Bartle's player type metrics is that they conclude that the different player types are independent from each other (Yee, 2006). In recent years many more models have emerged, these models build upon Bartle's basic player types to include more categories that can intertwine and interact with each other. These models include subcomponents for each type that help to further define an individual's player

type. Within these sub components there are often further descriptions and categories that give a better understanding of the player.

Yee (2006) developed the most widely used model based on experimentation and empirical data which uses multiple, tiered components to allow for mainstream testing and use. Yee's model splits played motivation into six main categories, each with two subcategories covering a large number of player types (Figure 2). Within the model, gamer motivations are able to interact with each other and give a better picture of a player's motivations. The model also focused on gaming as a whole, covering all genres instead of just MMORPG's and MUD's (Yee, 2006).

 Action "Boom!"	 Social "Let's Play Together"	 Mastery "Let Me Think"	 Achievement "I Want More"	 Immersion "Once Upon a Time"	 Creativity "What If?"
Destruction Guns. Explosives. Chaos. Mayhem.	Competition Duels. Matches. High on Ranking.	Challenge Practice. High Difficulty. Challenges.	Completion Get All Collectibles. Complete All Missions.	Fantasy Being someone else, somewhere else.	Design Expression. Customization.
Excitement Fast-Paced. Action. Surprises. Thrills.	Community Being on Team. Chatting. Interacting.	Strategy Thinking Ahead. Making Decisions.	Power Powerful Character. Powerful Equipment.	Story Elaborate plots. Interesting characters.	Discovery Explore. Tinker. Experiment.

Figure 2. Yee's Gamer Motivation Model showing both categories and subcategories (Yee, 2006).

For gamers on computers and more recently gaming consoles there are options to install Modifications (Mods) to games to change them to fit the users wants and needs. Bostan and Kaplanali (2010) showed how the choice of which Mods are installed reflect the motivations of the players. Giving players lists and descriptions of such Mods and then having them select which ones that they would install can provide information about their motivations for playing the game. Bostan and Kaplanali (2010) used six gamer categories with a total of 26 subcategories to further define the players motivations. However, these categories only apply to a limited cross section of games used in this study. Therefore, these experiments potentially only attracted certain types of players who would be looking for similar experiences from a game.

Other work on gamer motivation has used popular personality models, such as the Big Five Inventory (BFI), to gain an insight into the personality types of gamers. The BFI has been shown to accurately predict what type of playing style categorizes an individual player (Bean and Groth-Marnat, 2016). With this information Ducheneaut et al (2016) were able to develop an analytic tool that uses both the BFI and other gamer type survey instruments to further examine and categorize gamers motivations. Their findings have been used to help researchers as well as developers and companies within the gaming industry to improve their products.

These previous studies have shown the breadth and variety of the gaming community and given some insight into gamer motivations. The rise of Twitch.tv, and other websites like it,

and the scale of these enterprises, mean that it is becoming important to undertake studies to understand the culture and the type of people that are a part of this streaming experience. This goes beyond investigating the motivations of those who create the content but also to understand those who are watching and consuming the content.

STUDY 1: CONTENT CREATORS

This study examined the motivations of participants who would stream video games using Twitch.tv. The aim was to discover more about the type of person, and the type of gamer, who could potentially become a content creator, or live game streamer. As discussed in the previous section, it is important to learn more about those who give their time to creating content and entertaining those who watch.

PARTICIPANTS

This study used ten participants (nine male and one female) whose age ranged from 23 to 29 with an average age of 25 years. Participants were chosen based on a screening survey, those who had previously been a content creator for Twitch.tv or a similar site were not selected. The survey collection data of the participant's game stream viewing habits and their gaming routines and preferences. The experiment participants were also selected based on the average number of hours a week that they play video games. The chosen participants played between five and twenty hours a week.

METRICS

All participants took the Big Five Personality (BFI) Inventory and Yee's Gamer Motivation test. These were administered after both play sessions were completed with Yee occurring first prior to the BFI. Participants were also given two surveys created for this study. The first survey was completed by the participants after the end of the initial play session and assessed the players enjoyment of the game play with no live stream. The second survey was completed directly after the second play session and assessed the players enjoyment of the game while live streaming the gameplay.

PROCEDURE

Participants were screened for selection, and the chosen participants were given the initial survey to gather information about their gaming habits, Twitch.tv streaming and demographic background. At the start of each experiment, the participants were given an informed consent form and an overview of the study and what will be required from them. Each participant then selected a game to play from a list of available games that covered multiple game genres. Each participant played their selected game for at least 30 minutes but could stop at any time that they choose. During each play session, Open Broadcast Software (OBS) was used to capture the gameplay from the screen. After the first game playing session,

participants were asked to fill out the first survey that collected data about their playing experience.

To start the next phase of the experiment participants were given a brief explanation of Twitch.tv and what it would mean for them to stream their gameplay. The participants were then asked to set up a Twitch.tv stream and introduce themselves by any name that they choose, either a gaming tag or their first name. This time as the participants played the game, the gameplay was streamed on Twitch.tv via OBS and the Twitch.tv interface. The participants were expected to play for at least 30 minutes (many played for longer) and the players were expected to interact with viewers and pay attention to other features and messages that were introduced from the stream. After this second game playing session, participants were again asked to fill out a survey that collected data about their playing and streaming experience.

Finally, the participants were asked to take Yee's Gamers Motivation test and the BFI to help understand their personality and player type. After a brief debriefing session, the experiment was concluded.

RESULTS

Overall, most participants seemed to enjoy the streaming experience. However, on a one to five Likert scale of likelihood, players stated that they would stream again with a mean of 3.40 and a standard deviation of 1.26. This means that on average the participants were generally unsure whether they would stream again using Twitch.tv. Also, there was no significance shown between gamer motivation and likelihood of streaming again, It was found that those with a Mastery Motivation (Figure 2) from Yee's categorization approached significance ($r = -0.558$; $p = 0.094$). No other Gamer motivations approached significance however those with a Creative Gamer Motivation (Figure 2) showed a possible correlation ($r = -0.419$; $p = 0.228$). When looking at the subcategories of Yee's metric we find that those with a Strategy Motivation show a significant negative correlation ($r = -0.664$; $p = 0.036$). The Discovery subcategory also showed a significant negative correlation ($r = -0.573$; $p = 0.083$).

When looking at participant personality types from the BFI and their correlation with future streaming none showed significance, although the Openness characteristic approaches significance ($r = 0.527$; $p = 0.145$). It should also be noted that Openness and Extraversion were the only two that showed a positive correlation with agreeableness, Conscientiousness and Neuroticism all had negative correlations. When comparing preferred game types of the participants with the desire to stream, only the adventure category approached a significant correlation with the likelihood of streaming in the future ($r = 0.583$; $p = 0.077$).

DISCUSSION

While there was little significance shown from the results of this study with content creators. This could potentially be attributed to the relatively low number of participants. Continuation

of this study with more participants could lead to more significant results. However, even with ten participants trends were noticeable.

Analysis of the results from the Big Five Inventory indicated that the majority of the participants were very similar in their personality types. It is possible that a more diverse participant group would have shown stronger correlation significance between different types. The results could indicate the possibility that gamer motivation may not be a factor in whether a person will choose to stream their gameplay; in which case then potentially a new metric is needed or perhaps the propensity to stream is reliant on other types of motivation.

STUDY 2: STREAM VIEWERS

This study examined the motivations of the viewers of Twitch.tv and attempted to determine if Yee's Gamer Motivations or BFI are predictors of continued viewing or enjoyment. The aim was to discover more about the type of person, and the type of gamer, who could potentially watch Twitch.tv. As discussed in the previous section, it is important to learn more about those who give their time to watching and consuming content.

PARTICIPANTS

For this study there were 20 participants (17 Male, 3 Female) whose ages ranged from 20 to 32 years old with a mean age of 24. 11 participants had previously streamed content on sites like Twitch.tv while 9 had never streamed. The majority of the participants had previously watched streamed content (18 having previously watched and only 2 with no previous viewing experience). Of those who had previously viewed streams, on average they would watch 1 to 5 hours per week on Twitch.tv or other similar sites. All participants also reported playing an average 5 to 10 hours of Video Games per week.

METRICS

All participants took the Big Five Personality (BFI) Inventory and Yee's Gamer Motivation test. These were administered after the viewing sessions were completed with Yee's occurring first prior to the BFI. Participants were also given a survey created for this study. The survey was completed by the participants after the end of the viewing session, it gathered demographic information as well as the participant's gaming, streaming and watching history. The survey was also used to determine the participant's enjoyment of the streamer and stream and how willing they would be to watch streams in the future.

PROCEDURE

At the start of each experiment, the participants were given an informed consent form and an overview of the study and what will be required from them. The participants then spent a few minutes browsing through the live channels and selecting a stream that interested them. During each play session, Open Broadcast Software (OBS) was used to capture the stream

from the screen. After each viewing session, participants were asked to fill out the first survey that collected data about their playing experience.

Finally, the participants were asked to take Yee's Gamers Motivation test and the BFI to help understand their personality and player type. After a brief debriefing session, the experiment was concluded.

RESULTS

Participants reported on a one to five Likert scale of likelihood that they would watch the stream again with a mean of 3.50 and a standard deviation of 1.27. It was also reported that Participants enjoyment of the stream's watched was a 3.26 mean with a Standard deviation of .933 on a Likert scale of one to five. Participants also reported on a Likert scale the likelihood of watching a different stream altogether with a mean of 4.20 and a standard deviation of 1.10.

Participants were also asked to report their reason for choosing the stream they watched. This was then broken up into three different categories; Learning, A New Game, Entertainment.

- Two participants reported they chose the stream to help themselves learn how to play the game better.
- Five participants reported they chose the stream because it showed a game they had never played before and they were interested.
- Thirteen participants reported they chose to watch the stream for entertainment purposes.

There was a significant positive correlation between the participants' desire to watch other streams on Twitch.tv and the Community gamer motivation ($r = 0.468$; $p = 0.037$).

There was also a significant positive correlation between participants who would re-watch the stream they had viewed on Twitch.tv and the Challenger gamer motivation ($r = 0.454$; $p = 0.044$).

Figure 2 provides an explanation of how the Community and Challenge gamer motivations are categorized within the Yee Gamer Motivation Model. Figure 3 provides a breakdown of the participant responses in these categories.

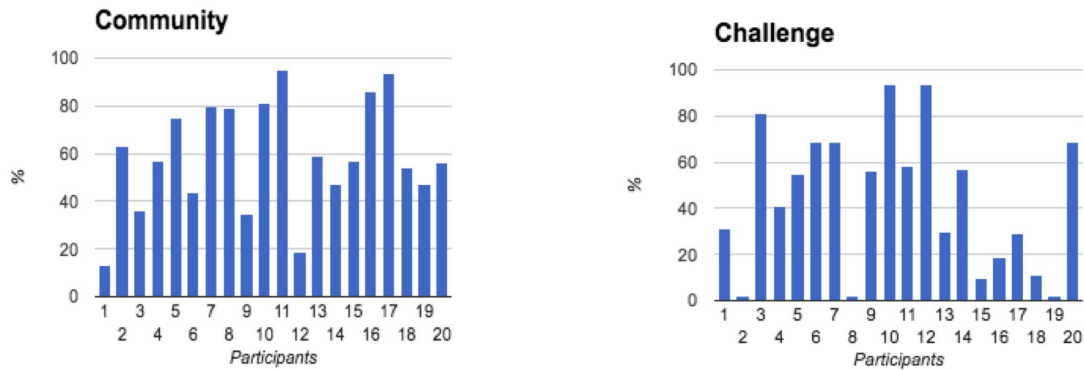


Figure 3. A breakdown of the participant responses in the Community and Challenger categories from the Yee's Gamer Motivation Model.

DISCUSSION

Looking at the first of the two significant correlations we see that those who score highly on their Community motivations are more willing to watch Twitch.tv streams in the future. This correlation could be attributed to the community that is created within the streams and the motivations of the viewers to be a part of these types of groups. Since the streams on Twitch.tv are related to video games, it would be logical that those who play multiplayer games, and enjoy interacting with other communities of players, would be interested in the streaming community.

The second correlation between viewing streams and those who are motivated by the Challenge attribute when playing games could be potentially related to the types and genres of games that the streamers were playing. The games being watched by the viewers were classified as 'challenging' for the streamers, so for those who are Challenge oriented it could cause the viewer to relate to the challenge faced by the streamer. This type of challenge focused relationship could potentially increase the enjoyment and entertainment of the viewer while watching a streamer complete a challenging aspect of the game, that is perhaps beyond the ability of the viewer.

CONCLUSIONS

While this is one of the first studies into this area the results demonstrate that there is much to do in the future. Using a different group of participants such as actual professionals that stream on Twitch.tv for a living and collecting data on their gamer motivations and personality types could be advantageous. Studies could also be done on how long professionals stay in the industry and how it has affected and changed their lives.

These two significant correlations prove the need for continued research. There is some connection between a person's motivations to view streams and their gaming motivations. Possible future studies should further look into the connection between the different motivations. Other significant correlations can be found with a higher number of participants. While there were 20 participants a larger more diverse group could yield more results.

Both of these studies have shown that there is a connection between Gaming Motivations and Watching Streams/ Streaming on sites like Twitch.tv. Understanding the motivations of those who enjoy and profit from this new type of interaction will help to learn more about people as a whole and how they interact. Like with video games these types of broadcasts are becoming more normalized in our society, with the streaming industry becoming a larger source of income. It is important to start studying this industry while it is still growing and to continue to as it matures.

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