The gamification of gaming streams

Miia Siutila
University of Turku, Finland
mimasi@utu.fi

Abstract: In recent years Twitch.tv has become the most popular streaming site in the Western world. Populated mostly by gamers streaming their own gameplay or watching others play, it is not surprising that the site and streamers have developed a number of features that gamify both the experience of watching streams and streaming itself. This study aims at exploring the gamification possibilities offered by Twitch.tv and the streaming community. The gamified features found in Twitch.tv are then compared to existing research on gamification. The activities of streaming and watching streams have been gamified to a high degree, with possibilities for customization providing further options for individualizing streams and luring in and keeping viewers entertained.

1. Introduction

The purpose of the study is to map out the gamification of Twitch.tv from the perspective of streamers and viewers, respectively. While studying the effects of said gamification would be interesting, that is out of the scope of this study. Gamification has become the new magic word for advertising professionals, education experts, and others who wish to enhance consumer engagement and loyalty or increase educational and training effectiveness. Gamification has been used to describe a variety of practices and ideas, and it has been used in several fields despite of the lack of consensus in research that would adequately describe the best practices and effectiveness of using gamification practices.

Gamification has been defined as a process of enhancing services with (motivational) affordances in order to invoke gameful experiences and further behavioral outcomes (Hamari et. al. 2014). What this actually entails is still up to debate, as some scholars focus on the importance of creating similar psychological effects that arise from playing games (Huotari, Hamari, 2012, Huotari, Hamari, 2017) while others stress that the gamifying features need to be same as those used in games (Deterding et al. 2011; cf. Hakulinen et al. 2013; Li et al. 2012; Groh, 2012). Perhaps the widest definition comes from Kevin Werbach who defines gamification as "the process of making activities more game-like" (Werbach, 2014). When academia is still somewhat confused on what exactly is a game and therefore what kind of psychological effects they are supposed to create (and which of those psychological effects are actually wanted), all three of these definitions are a bit problematic, as it is hard to draw a definite line on where gamification ends and something else begins.

After making rounds in other fields from education to advertising, gamification is coming back to its roots: video games. Service platforms such as Twitch.tv have become popular places for game enthusiasts to go and watch other people play games and stream their own gameplay. In 2016, Twitch.tv had over 2 million unique streamers and the viewers watched 292 billion minutes of content (Twitch.tv, 2017a). It might seem strange to study such phenomena as streaming from the perspective of gamification. After all, gamification is considered to involve elements of games in a non-gaming context, and streaming has been seen as very closely related to games and gaming.

However, even though streaming and gaming are closely intertwined, they are not the same thing. While most streams in Twitch.tv are still about games, Twitch.tv allows also non-gaming streams (like cooking or so-called IRL-streams were viewers can watch the streamer in their everyday activities). The act of streaming, even that of streaming gameplay, is not gaming in itself, nor is watching a gaming stream.

Gamification exists in Twitch.tv on a number of levels. Twitch.tv itself has gamified the streamers' work to a degree, while the streamers have a number of tools available to gamify their streams. Most of these tools are still made by the community and are available through chatbots, but Twitch.tv also has a few features of its own to help streamers further engage their viewers. While many streamers use these without much modification, some have decided to create their own stories and games around them. The aim of this paper is to answer the questions of how the work of playing games and watching others play games has been gamified. As most of the gamification tools available for streamers have been around in some form for a few years now, studying them can give insights on what kind of gamification elements are effective and liked. Regardless of multiple studies existing on why Twitch.tv and other gaming streams are popular and why people watch them, I could not find any that would systematically go through the gamification features that Twitch.tv and the streamers use to further engage their target audience.

2. Data and method

This paper is an exploratory qualitative study of the gamification possibilities offered by Twitch.tv and the community to the streamers by studying three popular chatbots (Streamlabs chatbot (https://streamlabs.com/chatbot), PhantomBot (https://phantombot.tv/) and DeepBot (https://deepbot.deep.sg/)) that have some sort of point or loyalty system for viewers. The three bots were chosen for their popularity (based on my personal estimation) as well as the long list of features and options they provide for streamers. The actual data comes from the documentation of the bots provided by their developers, and it consists of command lists, instructions, knowledge bases, and other documents found in the official websites where the developers explain what can be done with the bots and how they work. I also study the way in which Twitch.tv has gamified the work done by the millions of streamers that use its services by looking at the options provided for streamers and the requirements set for them to gain better possibilities to monetize their stream. In this case, the data consists of the help pages, terms of service, (community) guidelines, and other documentation provided by Twitch.tv.

The method of the study is relatively simple: the websites of Twitch.tv and the chatbots were systematically read, starting from the top left corner of the front page and reading everything there is on a page, then moving to the next page. The process was repeated link by link and page by page, while taking note and archiving anything even remotely resembling gamification. At that point, the aim was to ensure that all of the gamification elements were found and recorded, and therefore a very lax definition of gamification was used to determine if a specific feature was accepted into the data. As a general rule, the question "have I ever seen anything like this in a game?" was used to decide if borderline cases would be accepted. After gathering the data it was analyzed in more detail by comparing the features to the most common features of gamification that Hamari et al. (2014) found in their meta-review of empirical gamification studies. The data was archived in 2018 on January 22 and 23, and the study conducted over the following two months. While finding the data was easy, there were problems in organizing it, mainly the determining whether a specific feature could be called gamification or not. For example, the minigames that all three bots have are

not directly comparable to any of the gamification features found in Hamari et al's meta-review, but I would still consider them to be gamification since minigames are found in several games. This study only focused on the website version of Twitch.tv and ignored the desktop and mobile apps that the company has released

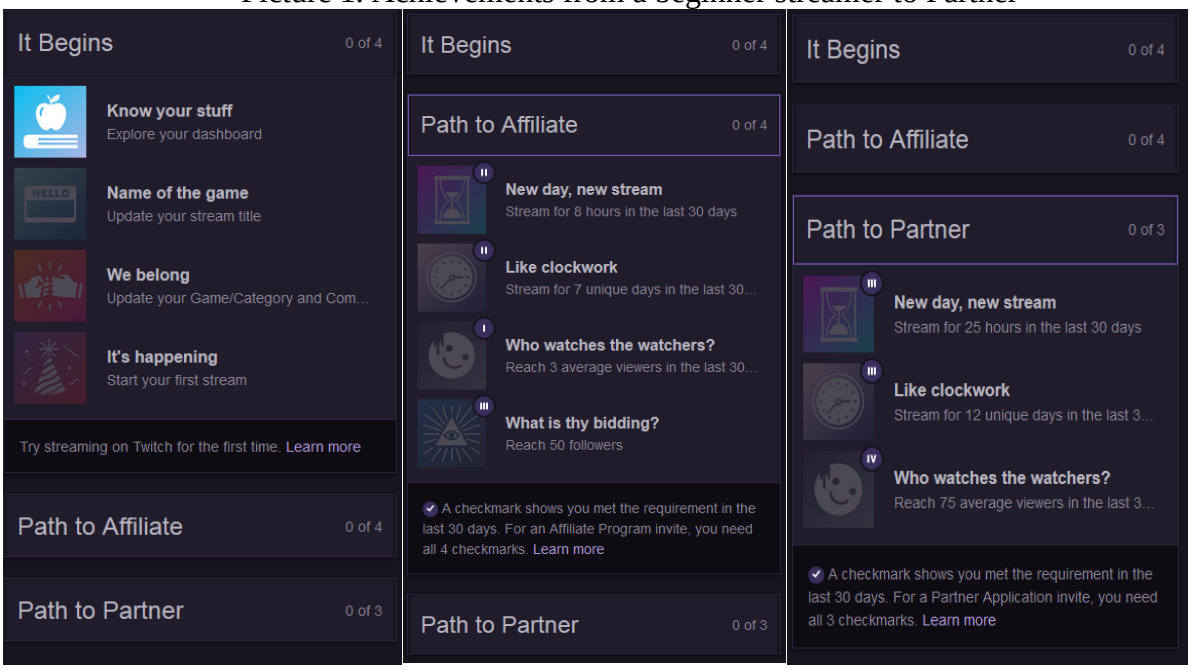
3. Gamifying streaming

Twitch.tv is a platform for streaming activities online. While most of the streams in Twitch.tv are "personal" and focus on the activities of a single streamer, there are also "impersonal" streams that focus on gaming tournaments and other events (Karhulahti, 2016). While the impersonal tournament and event streams use the same chatbots as personal streams, they are mostly used as automatic moderators for the chat. Watching streams is free and does not require creating an account, but if the user wants to participate in any other way than just watching (e.g. talk in chat) they will have to create an account. All accounts are able to start streaming immediately, but in order to get revenue one needs to become an Affiliate of Twitch.tv. Later on, after acquiring more viewers, followers, and subscribers, it is possible to apply for a Twitch.tv Partner status with even more revenue creation and channel customization options. According to Twitch.tv, of their 2 million active broadcasters over 17 000 are Partners (Twitch.tv, 2017b).

Twitch.tv has gamified the process of becoming a popular revenue generating streamer to quite a high degree. Firstly, there are three levels (from a regular streamer to Affiliate and Partner) all with increasing benefits. While a regular streamer can only stream their activities without receiving any benefits, Affiliates get revenue from viewers' cheers, subscriptions, and game-related sales on their channel. Partners can add advertising revenue on top of these. Furthermore, Twitch.tv is at the moment testing a feature where Partners will receive a personal goal on how many seconds of ads they should play per hour. Reaching this goal will give them bonus revenue from playing ads. Incentivizing their streamers to play as many ads as possible is definitely in Twitch.tv's favor, as advertising is one of the major ways they earn money. A number of popular streamers who consistently pull thousands of viewers play ads very rarely, if ever, as many of them seem to be quite happy with their earnings from just subscriptions, donations, and those few ads that Twitch.tv forces on every stream.

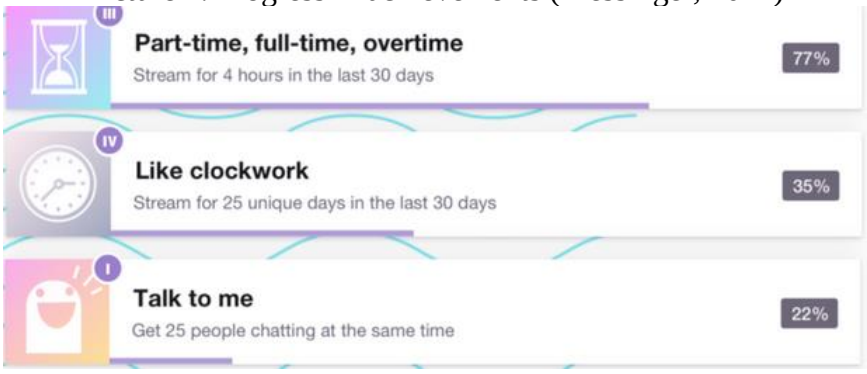
At all times the streamer is able to follow their average viewership, subscriptions, followers, etc. on a dashboard provided by Twitch.tv, and after reaching an Affiliate status different revenue statistics are added to the dashboard. Twitch.tv also has an achievement system where all but two achievements require one to stream (one requires opening the dashboard where stream statistics, configurations, and the list of achievements can be found, the other requires buying a TwitchCon ticket). Getting through certain achievements is also a requirement to becoming an Affiliate and a Partner. Interestingly there is no way to find someone else's achievements and figure out how close they are to reaching a paid streamer status. Reaching the status of an Affiliate, and especially that of a Partner, needs dedicated work and regular streaming, as well as a requirement of minimum number of average viewers. This can be daunting for a beginner streamer and the achievements can make the task more approachable.

Picture 1. Achievements from a beginner streamer to Partner



It has been noted in previous research that achievement systems should be designed to encourage and reward the desired use of the product (Montola et al. 2009). In the case of the Twitch.tv achievements, as can be seen from *Picture 1* above, this means that the streamers are encouraged to stream more often and longer periods of time and to gain more followers and viewers. Furthermore, the first set of achievements, "It Begins," gives instructions on how to make the first stream more viewer-friendly by updating the name of the game streamed, naming a community for the stream, and finally starting the stream. Next to the achievements shown above that are direct requirements of advancing to Partner status, there are numerous other achievements. Most of them are similar to these, requiring a certain number of hours streamed or a certain number of people chatting in the stream's chat. Several of the badges also have tiers or levels that increase in difficulty. As can be seen from *Picture 1* above, the level 2 "New day, new stream" badge under the Path to Affiliate requires streaming 6 hours during the last 30 days, whereas the level 3 version of the same badge under Path to Partner requires 25 hours of streaming during the last 30 days. In addition to the levels, the achievements also have progress bars and exact percentages attached to them, as can be seen from *Picture 2* below.

Picture 2. Progress in achievements (Messinger, 2017)



After reaching Partner status, it is possible for the streamer to upload their own badges and emoticons for their subscribers. The badges are meant for rewarding subscribers for continuing to support the stream and they are tiered by the number of months subscribed (1/3/9 months, 1/2 years). The streamer can only customize the outlook of the badge itself, not the subscription months needed or the number of different badges. In addition to badges, the Partners have an increasing number of customizable emoticons. Depending on how many subscriber points they have, the more emoticons they can create. At the moment, having 0 subscriber points awards the Partner two emoticon slots, 10 gives three slots, 20 four, all the way up to 50 emoticons for 7 000 subscriber points. On top of the levels, there are also other gamified elements related to the emoticons, as the partners have a progress bar that shows how close they are to the next reward tier. While the subscriber badges are only visible in the specific stream, the emoticons can be used sitewide.

Badges and achievements are some of the more common gamification elements that have been applied to non-game contexts. They are a relatively easy way to encourage certain behaviors, even though their effectiveness is not certain (cf. Montola et al. 2009, Hakulinen et al. 2013; Denny, 2013; Anderson et al. 2013). Twitch.tv has taken an interesting road by deciding to keep most of the gamification features, including badges and achievements, directed towards their streamers as private. This decision seems exceptional, as in previous studies focusing on badges, it has been noted that their effectiveness stems at least partly from the recognition they help to garner from the community (cf. Grant, Betts, 2013; Montola et al. 2009, Hakulinen et al. 2013).

4. Gamifying spectating

In contrast to the previous section, which concerned the gamification of the streaming experience, this section will explore the gamification of the stream viewing experience. Although most of the current gamifying features directed towards stream viewers are made and controlled by the community and streamers, Twitch.tv does provide a few options. In 2017, Twitch.tv launched a feature that allows viewers to earn in-game loot by watching streams. To earn loot drops, viewers must have in-game accounts linked to their Twitch.tv account and watch the specific streams that have the feature available (Twitch.tv, 2017c). The aim of this feature is to keep the viewers watching those certain streams that have drops in them; a viewer needs to be watching the stream at the specific time when the drops occur. Interestingly enough, despite this feature sounding very promising and engaging, it does not seem to be used much.

Twitch.tv has also incorporated some features that started as community initiatives. One of them is the possibility for streamers to ‘raid’ another stream with their viewers (Twitch.tv, 2017d). This means that the raiding streamer will broadcast the raided stream for 30 seconds, while the raiding viewers can participate in the raided channels chat. The idea of the initiative is to help streamers promote each other’s streams, and help viewers to find more streams to watch. Twitch.tv encourages raiding and has achievements related to it.

In addition to the features provided by Twitch.tv, there are several community-made overlays, chatbots, and other features that provide various gamification possibilities. Although these features are community-made, Twitch.tv supports them by approving their use and providing extra integration possibilities for the developers. Without the approval and support from Twitch.tv, these features would not exist. In this article I analyze three popular chatbots: Streamlabs chatbot,

PhantomBot, and DeepBot. The three bots were chosen because of their popularity, the long list of features they have, and the varied customization options they provide.

Nearly all of the motivational affordances and features Hamari et al (2014) found in their meta-analysis of gamification exists in more or less customizable form in the three bots studied. All of them have a currency or point system that allows the streamer to reward their (registered) viewers. The viewers receive points for the time they spend commenting in chat, following or subscribing to the stream, or giving donations to the streamer. The viewers can then use these points in a variety of ways in the stream (if the streamer has enabled them). They can play minigames with or against other users; for instance, in Bank Heist, which exists in all three of the bots, a user can start a heist (!heist) that other users may join by paying streamer-set amount of points, and after a period of time the bot randomly decides if the heist was successful based on streamer-set probability and the participants may get reward points. Viewers can also place bets on streamer-set things (often the outcome of the current game the streamer is playing) and participating in raffles or giveaways often costs points, as do song requests. With each three bots it is possible for the streamer to make every command the viewers can use to cost points, although this is something I have never seen happen.

Table 1. Gamification features (Hamari et al., 2014) in three popular chatbots. Some features are available by default (y), others can be created by heavy customization (*), while the empty fields are features not found in the chatbots.

	Streamlabs	**DeepBot**	**PhantomBot**
Points	y	y	y
Leaderboards	y	y	y
Achievements/Badges	*	*	*
Levels	y	y	y
Story/Theme	*	*	*
Clear goals	*	*	*
Feedback	y	y	y
Rewards	y	y	y
Progress	*	*	*
Challenge			

Beside the point/currency system, all three of the bots have a separate customizable ranking system where viewers can level up by watching the stream, commenting, donating, following, etc. The rewards that viewers receive for leveling up do not reward the viewer with any visible trophies such as badges, but most often include permissions to do actions (like use specific commands or post links) that lower ranked viewers cannot do. Some streamers also have a list of their top donators or cheerers visible on their stream page in Twitch.tv.

The chatbots provide customization options for nearly all of their features from the bot's name in the streamer's chat to probabilities of winning in the minigames. This allows the streamers to differentiate their stream from those of others, creating more unique identification possibilities for their viewers. Previous research has found that continuous watching of a certain stream is positively associated with both identifying with the streamer and the community of the particular stream (Hu, Zhang & Wang, 2017).

The chatbots also provide a way for the streamer to give sound feedback to the viewers on the form of personalized notifications. Most streamers have some kind of automatic sound and animation notification that plays whenever someone subscribes, follows, or donates in the stream. The sound notification and animations help the streamer to recognize, thank, and commend the viewer on their actions, as well as notify the other stream viewers of the exemplary actions of the specific viewer. However, the sound notifications themselves are not often very gameful. Instead of the encouraging and positive sounds that are commonly heard in games while gaining experience or accomplishing something, the notifications are mostly humorous or somehow relate to the specific stream or streamer.

There are also a number of features in Hamari et al.'s (2014) list that do not exist in Twitch.tv bots as default. The games and other features are mostly based on luck (exceptions like trivia games have their own dedicated bots that do not have any other features) and do not require any skills or pose a real challenge. Moreover, there isn't any kind of theme or story behind the features, nor are there clear goals besides collecting as many points as possible. The bots, however, do provide such ways to customize them so that creating a story with clear goals and progression is possible. One example of this is LightSpeed Industries created by Sevadus (http://lightspeed.industries/): the backstory is that Sevadus aims to be the first broadcaster in Mars, and in order to do this he needs his stream viewers to help in researching technologies needed to reach space and live in Mars. The viewers gain research points (stream currency) by commenting in his stream and can spend them on the technology of their choice. The more research one does, the higher rank they will receive, coupled with a space-fleet-sounding military rank. The different technologies and research function as achievements that Sevadus' stream community can work together to complete. There is no reason why similar achievements could not be made for individual viewers.

Previous research into why people watch streams has found that social aspects and feelings of community are very important factors in watching more streams and also perhaps the most important factors of subscribing or donating to a stream (Sjöblom & Hamari, 2017; Hamilton, Garretson & Kerne, 2014, Hilvert-Bruce et al. 2018). Therefore increasing the possibilities of social interaction between viewers and their feelings of communality are likely to increase the popularity of a particular streamer. Many of the aspects of gamification found in Twitch.tv (like rankings, badges, and minigames) can have a positive effect on these feelings. In addition, social elements have been seen as essential in creating engaging gamification services (Hamari & Koivisto, 2013).

Also seeking entertainment or information have been found to be important factors in how much time is spent on a particular stream (Hilvert-Bruce et al. 2018). The many minigames and other extra entertainment options provided by the chatbots and Twitch.tv can increase at least the entertainment received from a particular stream, if not provide particularly useful information. The trivia games (that were not present in any of the three studied chatbots) can also provide information.

The different ranking options from points and currency to viewer levels offer a relatively simple way of providing possibilities for viewers to receive personal recognition even in bigger streams. Sjöblom and Hamari argued that one of the reasons behind negative correlation between building reputation and watching streams could be that in bigger channels there is just too much noise in chat for meaningful interaction between viewers (Sjöblom & Hamari, 2017). The tools provided by Twitch.tv and the chatbots make this communication simpler, as it automates a part of it and makes it easier to recognize those viewers that spend more time on the stream (higher levels) and are more active on it (more points/currency). In addition, the chatbots provide possibilities for

streamers to give standard answers to frequently asked questions through the bots. These questions and their answers can be presented also through whispers (colored chat comments that are visible only to their target and the whisperer), which will decrease clutter and spam in the channel's chat.

There are also possible negative influences caused by using all the extra features that the chatbots provide. Firstly, many of the extra features are not in any way connected to what happens on the stream. Instead, they are discrete actions and events that happen in conjunction to the stream. They might therefore divert attention from the actual streamed content. Perhaps they could be used in conjunction to faster paced games, such as most esport games, where the streamer often cannot adequately communicate with the viewers during more hectic moments of the game. This might increase the personal integrative motivations of the viewers that have been found somewhat lacking in faster paced streams (Sjöblom et al. 2017). During the times when the streamer must fully focus on their game, the viewers could interact with each other through the minigames and other features provided by the chatbots. Secondly, as the events are triggered and happen in the chat, they might make an already-overflowing and difficult-to-follow chat even more cluttered, further decreasing the possibilities that the streamer has in engaging with their audience. However, this is not a certain necessity, as Ford et al. (2017) have argued that the massive chats of Twitch.tv have created their own communicative practices and patterns that keep the chat understandable and coherent despite of the huge number of messages and the short time they are on the stream.

5. Conclusions

The activities of streaming and watching streams have been gamified to a high degree, with several action and customization options for the streamers. Many of the options and features provided for the streamers support further integration and inclusion of the viewers into the stream, further enhancing their identification with the broadcaster and the stream community. However, not all of those features suit all streams or streamers, as with bigger streams individual chat comments and commands might get lost in a busy chat. The streamers would need to carefully choose those features that suit their individual stream and streaming community.

In comparison to earlier studies on gamification, Twitch.tv and the chat bots provide quite a variety of possibilities for the streamers to choose from. In addition to the high number of possibilities, the ability of the streamer to individualize and modify practically all of the features provided, is very valuable in distinguishing their stream of the plethora of other similar ones. Many of the gamification possibilities found in Twitch.tv seem to fit well the motivations of watching streams that Twitch.tv viewers have: they can increase interaction, feelings of community, and the level of entertainment, thus having a positive effect on time spent on stream, subscriptions, and donations.

However, in many cases the gamification elements might not be used to their full potential, as there are very few possibilities to compare oneself with others. For example, while many streamers have some sort of list for top contributors in their stream related to currency or loyalty points, these lists are not always visible. While they can be found by a command to the chatbot, the viewer needs to know what that command is to use it. In similar way, streamers do not always have tier lists for the badges or other rewards that their viewers can receive visible on their pages. As the viewers do not know what the badges attached to a Twitch.tv name mean, it is questionable if they have the effect that is expected of them.

However, it has been noted by Hamari and Koivisto (2013) that social factors are likely to have a significant effect on how users perceive (and use) gamified processes and applications. If they

consider other users to expect and support their use of a gamified service, they are likely to conform to the expectations attributed to the use of the service in question, as well as have a generally positive attitude towards the gamified features of the service (Hamari & Koivisto, 2013). With the close links and history with gaming that Twitch.tv has, it is somewhat safe to assume that the streamers and viewers that frequent the site would have a relatively positive view of the gamified elements, therefore enabling them to be effective.

However, drawing any conclusions on the usefulness or usage patterns of certain features is out of this study's scope. As the reader can note, the study is littered with speculative words such as 'could' and 'might' whenever the attention is turned onto the possible effects of the gamified features. This study can only describe the many gamification possibilities offered to streamers, and drawing any conclusions on their effectiveness would need further investigation and a more specified method, as would understanding how often they are used, how streamers customize them, and how the viewers use and view them. Furthermore, this study has focused on only one chatbot type, while there are several others with different functions and features, as well as a few that have been developed for a single streamer in particular.

A potential avenue for future research would be to study the effectiveness of the gamified features in Twitch.tv. The combination of having a community that can be assumed to have a positive attitude toward games (and therefore also gamification) and a high number of features that they have become familiar with is promising in terms of the effectiveness of different gamification strategies.

Acknowledgements
This study was supported by the Foundation for Economic Education.

Chatbots:
DeepBot, Available at: https://deepbot.deep.sg/
PhantomBot, Available at: https://phantombot.tv/
Streamlabs Chatbot, Available at: https://streamlabs.com/chatbot

References

Anderson, Ashton; Huttenlocher, Daniel; Kleinberg, Jon; Leskovec, Jure (2013) Steering User Behavior with Badges, *Proceedings of the 22nd international conference on World Wide Web*

Denny, Paul (2013) The Effect of Virtual Achievements on Student Engagement, *CHI 2013: Changing Perspectives*

Deterding, S.; Dixon, D.; Khaled, R. and Nacke, L. (2011) "From game design elements to gamefulness: defining gamification", *Proceedings of the 15th International Academic MindTrek Conference: Envisioning Future Media Environments*, Tampere, Finland, ACM, pp. 9-15

Ford, Colin; Gardner, Dan; Horgan, Leah Elaine; Liu, Calvin; Tsaasan, a. m.; Nardi, Bonnie; Rickman, Jordan (2017) Chat Speed OP : Practices of Coherence in Massive Twitch Chat, in *Proceedings of the 2017 CHI Conference Extended Abstracts on Human Factors in Computing Systems - CHI EA '17*

Grant, Scott; Betts, Buddy (2013) Encouraging User Behaviour with Achievements: An Empirical Study, *Proceedings of the 10th Working Conference on Mining Software Repositories*

Groh, F. (2012). Gamification: State of the art definition and utilization. *Institute of Media Informatics Ulm University*, *39*, 31.

Hakulinen, L; Auvinen, T.; Korhonen, A. (2013) Empirical Study on the Effect of Achievement Badges *TRAKLA2 Online Learning Environment, in Learning and Teaching in Computing and Engineering (LaTiCE)*

Hamari and Koivisto (2013) Social Motivations To Use Gamification: An Empirical Study Of Gamifying Exercise, *ECIS 2013 Proceedings*

Hamilton, William A.; Garretson, Oliver; Kerne, Andruid (2014) Streaming on Twitch: Fostering Participatory Communities of Play within Live Mixed Media, *CHI 2014*, Toronto

Hilvert-Bruce, Zorah; Neill, James T.; Sjöblom, Max; Hamari, Juho (2018) Social motivations of live-streaming viewer engagement on Twitch, *Computers in Human Behavior*, 84, 58-67

Hu, Mu; Zhang, Mingli and Wang, Yu (2017) Why do audiences choose to keep watching on live video streaming platforms? An explanation of dual identification framework, *Computers in Human Behavior*, 75

Huotari, K. and Hamari, J. (2012) "Defining gamification: a service marketing perspective", *Proceedings of the 16th International Academic MindTrek Conference*, Tampere, Finland, ACM, pp. 17-22.

Karhulahti, Veli-Matti (2016) Prank, Troll, Gross and Gore: Performance Issues in Esport Live-Streaming, *Proceedings of 1st International Joint Conference of DiGRA and FDG*

Messinger, Jessica (2017) Twitch creators, get ready for Achievements and Stream Summary, *Twitch.tv Blog*, https://blog.twitch.tv/twitch-creators-get-ready-for-achievements-and-stream-summary-a8107ff8153f, accessed 19.4.2018

Montola, Nummenmaa, Lucero, Boberg, and Korhonen (2009) "Applying game achievement systems to enhance user experience in a photo sharing service", *Proceedings of the 13th International MindTrek Conference: Everyday Life in the Ubiquitous Era*, September 30 - October 2, 2009, Tampere, Finland, ACM, pp. 94-97.

Sjöblom, M.; Hamari, J. (2017) Why do people watch others play video games? An empirical study on the motivations of Twitch users, *Computers in Human Behavior* 75, 985-996

Sjöblom, M.; Törhönen, J.; Hamari, J.; Macey, J. (2017) Content structure is king: An empirical study on gratifications, game genres and content type on Twitch, *Computers in Human Behavior*, 73, 161-171

Twitch.tv, 16.2.2017a, Presenting the Twitch 2016 Year in Review, https://blog.twitch.tv/presenting-the-twitch-2016-year-in-review-b2e0cdc72f18, accessed 19.4.2018

Twitch.tv, 2017b, FAQ, https://www.twitch.tv/p/partners/faq/, accessed 19.4.2018

Twitch.tv, 26.10.2017c, How to Earn Drops, https://help.twitch.tv/customer/en/portal/articles/2754380-how-to-earn-drops, accessed 19.4.2018

Twitch.tv, 12.12.2017d. How to Use Raids, https://help.twitch.tv/customer/en/portal/articles/2877820-how-to-use-raids, accessed 19.4.2018

Werbach K. (2014) (Re)Defining Gamification: A Process Approach. In Spagnolli A., Chittaro L., Gamberini L. (eds) *Persuasive Technology*. PERSUASIVE 2014. Lecture Notes in Computer Science, vol 8462. Springer, Cham