

Investigating the Motivation Behind Live Stream Participants Who Post Comments During Live Streams

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ABSTRACT

Live streaming has become a big part of popular communication channels and social networking sites of today. Previous research has examined the streamers' motivation for live streaming using Periscope and Meerkat and the viewers' motivation for engaging in live-streaming using Twitch. In this paper, we are exploring one of the many features of live streaming platforms, communicating via sending comments, for the platform of the participants' choice. Prior to analyzing the interview data, we hypothesize that the viewers send comments for a chance to become part of a greater community, to become one of the contributors of the stream, and to achieve a level of self-satisfaction. Our results indicate that participants interact more with the chat only if they don't perceive themselves as silent observers, and the participants' desire to become a contributor does not lead to greater interaction in all situations and contexts.

Author Keywords

Computer-mediated communication; live streaming; YouTube; Twitch; Instagram; viewer experiences.

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

INTRODUCTION

Live-streaming refers to the online streaming service that is simultaneously recorded and broadcasted in real time to the viewers. With the rise in popularity of live-streaming platforms such as Instagram Live and Periscope, more

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people especially today's millennials, are choosing to share their public and private moments with a greater audience. Despite the growing popularity, there has been little psychological research on the subject matter. Thus, this study seeks to address the gap in the live-streaming research by investigating the motivations behind live-stream participants who communicate with the streamer by sending comments.

We imagined that there are many reasons for people to engage in live-streaming as a viewer or as one of the streamers to either create or to watch digital content. For this research, we are specifically focusing on the motivations and emotions of the live-stream *viewers*.

Prior to conducting research, we came up with three hypotheses: 1) Participants post comments because they feel as if they are part of a greater community, 2) They feel like they have become one of the contributors, and 3) They just want to achieve a level of self-satisfaction.

To explore our hypotheses, we conducted several rounds of interviews with Cornell University students through the SONA system. The interview covered topics such as the live-streaming platform of their choice, duration of the streams they watch, their interaction level with the chat system, detailed experiences with communicating with the streamer or with the other viewers during streams, and their emotions of the streamer's preference of certain comments over the others. We aim to examine their experiences in order to find out the reasons of their interaction or the lack of interaction with the live streamers via comments.

We first present some of the related works prior to this research.

BACKGROUND

There have been numerous studies conducted about the types of videos streamers tend to live stream. John Tang's study "Meerkat and Periscope: I Stream, You Stream, Apps Stream for Live Streams" [3] discusses the types of lives streams found on Periscope and Meerkat and streamers' motivations for live streaming. Tang [3] found that

streamers primarily used Meerkat and Periscope to chat, show an object or place, or to show an event. Furthermore, when asked to describe the people that are the main focus in the stream, nearly 50% of participants indicated that the main people in the video were in their 20's and approximately 30% of the participants said that the people featured in the streams were in their 30's [3]. Furthermore, 40% of participants stated that streamers actively responded to incoming comments and approximately 25% of participants stated that streamers did not respond to comments [3]. Tang [3] also interviewed streamers about their motivations behind live streaming videos. Some streamers stated that live streaming was a "valuable life skill" because they have to constantly manage a diverse audience. Other streamers used live streaming as a medium for developing their personal brand.

In another study, "SocialStreamViewer: Guiding the Viewer Experience of Multiple Streams of an Event," [1] Ahmed Mostafa recruited participants to utilize a live streaming application prototype called SocialStreamViewer. Mostafa [1] found that viewers generally watched streams that received more "hearts" even if there was little no action on screen. However, some viewers thought that the visualizations on screen distracting. Furthermore, more people enjoyed the ability to rewind the streams.

Additionally, researchers have studied the motivations behind viewers' engagement on Twitch. In "Social motivations of live-streaming viewer engagement on Twitch," Zorah Hilvert-Bruce [2] found that viewers engaged in live streams on Twitch for social interactions, to find a sense of community, to seek information and to meet new people. Unsurprisingly, viewers also engage in Twitch streams for purely entertainment. Furthermore, participants tended to spend more time engaging in streams to meet their need for entertainment, information and social interaction [2]. Moreover, individuals with fewer social ties in real life are more likely to spend more time engaging in live streams [2]. Consequently, people generally engaged in live streams on Twitch in order to fulfill their desire for social interaction and a sense of belonging to an online community.

METHODS

The way in which we collected data for our study was through the interview research method. The interviews took place in Mann Library (Room 469). Our group chose this room because we felt as though it was a room that has the facilities for a one on one interview with items such as chairs and an oval shaped table. The interviews were reserved through the Cornell SONA booking system. Once both a single interviewer from our group and the interviewee arrived the interview began. The interviews took around 20-25 minutes and were made up of solely Cornell students over the age of 18.

We chose to use one-on-one, FtF interviews because we did not want any external factors affecting the responses we received and as a result possibly altering our results. This could have occurred if, for example, we sent the transcription via email or interviewed someone with their friend in the room. The person may not give all truthful answers. The interviewee's responses to each question was recorded using the iPhone's voice memos application. Whichever group member conducted the interview would then later transcribe the interview and post the transcription in our Cornell box drive. Thus, the interview equipment was only a cell phone and computer. After we collected all of the data which contained the responses, we aggregated all of them into a document on the Box drive that had the date of every interview conducted, the participant's SONA ID, and the responses. We decided to identify each participant by their ID because we wanted to keep anonymity in the results throughout the study as well as not being able to pair a specific student to their responses to remove any possible instances of bias that could occur.

Once all of the responses were combined into one document, we sat down as a group and organized what we saw from the results of the interviews. Basically, our study's measurement was aggregating the answer to each question over all interviews. The aggregation of all the answers was then broken down into specific trends or frequently seen responses. These findings were posted in a separate document in our Cornell Box drive. Furthermore, we attempted to derive conclusions based on the comparison between all of the different answers and the most common responses or trends. This, in turn, allowed us to test whether or not our hypotheses we predicted at the beginning of the study. For example, we could use the data to make a conclusion about whether or not intimacy (how well the live streamer and a viewer of the live stream know each other) affects not only the experience of the user watching the live stream, but also if it correlates with how much interaction said viewer has with the live streamer.

RESULTS

Popular platforms

Participants overall were experienced in a variety of live stream viewing platforms on the Internet. In sum, the platforms that participants were most experienced with were Instagram, YouTube, and Twitch, with Facebook Live following closely. Only a few participants were experienced with non-conventional viewing platforms such as sports live streaming websites and YouNow.

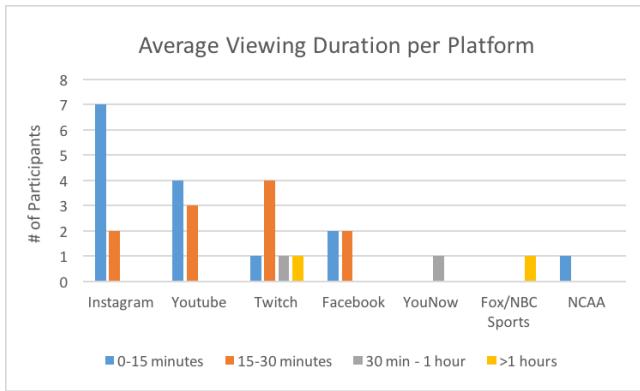


Figure 1. Average viewing duration per platform

Correlations were found between the choice of viewing platform and the average duration of viewing time per participant. Instagram was commonly associated with relatively short viewing times, with seven out of nine participants saying their average viewing time on Instagram was less than 15 minutes. At most, the longest average viewing time on Instagram was 30 minutes. This pattern is also associated with YouTube, with a more balanced distribution in average viewing time between 0-15 and 15-30 minutes among seven participants. Twitch had a more widespread distribution of average viewing times, with participants ranging between a maximum average view time of 15 minutes to greater than 1 hour. However, the dominant average viewing time on Twitch was 15-30 minutes. Among the two participants that had experience with sports-related platforms (i.e. Fox/NBC Sports and NCAA), the distribution of average times is severely pushed to the extremes, with one participant clocking in at less than 15 minutes of average viewing time while another participant clocked in at more than 1 hour.

Motivations for starting to watch live streams

Reasons and motivations for initially starting to watch live streams were varied as well. Some participants learned about live streams via self-promotion from a content creator on platforms like YouTube, while others learned about live streams via word-of-mouth from friends and associates. For example, one participant mentioned:

"I think, uh, maybe it was watching someone on YouTube and they said they have a live stream and that kind of way."

Meanwhile, another participant mentioned:

"My boyfriend and his roommate spend a lot of time watching video game streams on Twitch, primarily for fun. They convinced me to start watching with them and now we watch together a few times a week."

Overall, the general causes of participants finding live streams tended to be out of curiosity or exposure to the Internet in general:

"So like I was watching YouTube..., and they were like talking about Twitch and that there are like live streams instead of watching the videos. So that's how I got into watching Twitch. But then, for the Instagram live videos, I just found it on Instagram one day. There is a search bar in Explore tab, and I just clicked that to see live streams."

"So, I used to watch videos of just random stuff and video games. And, I learned that you can watch people live, and I thought oh this is kind of cool you get to watch people doing live."

"Friends and the general people on Twitter would mention a particular live stream and once enough people started mentioning it and retweeting links to it, I figured that it was probably time to check out some of these streams to have some knowledge about the popular demand."

Exploring the chat feature

All of the participants used the live-stream platform that had a chat feature enabled.

When the participants elaborated on their use of the chat feature, they explained that there is a chat channel that contains a mixture of viewers and moderators, but predominantly viewers. Additionally, some said that all of the viewers can comment, while some platforms require accounts and some allow guests to join. A common response was that viewers mostly interacted with each other rather than with the streamer, and that communication was often one-way. However, the participants also noted that the streamer is part of the chat and holds the power to disable the chat if it contains hateful or offensive content, block repeat offenders, and limit their viewers to their followers and subscribers only.

For other ways that viewers can interact with each other or the live stream aside from the chat system, most participants mentioned the functionality of sending hearts, making monetary donations, direct-messaging people, and inviting people to join the stream as other modes of interaction. The most common responses were sending hearts and making donations. Many participants appreciated the ability to send hearts that float to the screen as the process was intuitive and low-effort. On the other side, other participants expressed some concern and indifference for the donation function as they repeatedly said that they would never donate money to a live-stream as a sign of support or to get a simple shout-out because they don't think it's worth the money and because they think the chance of getting recognized is not all that high.

Certain users had different ideas of interaction. One user mentioned that he wished there was a functionality to like or interact with a single comment in particular, which is now almost impossible with the high speed of the comments. Another participant said that the conversations of and with other people are what is keeping him online longer. Lastly, quite a few participants that they would

participate more by commenting if their friends, not strangers, were live-streaming.

Interactivity with the chat feature

We asked participants about their interactivity with chat and comments and to elaborate their reasons for their level of interaction. Although we saw a small portion of participants confirmed that they comment in chats with different reasons, we were able to find that most people do not participate in chats actively.

Almost 65 percent of participants noted that they did not feel comfortable with participating in the discussion. Most people who do not enjoy being part of the conversation highlighted the importance of intimacy which is the main motivation for participating. Also, they explained how most chats are too fast and having too many people in the discussion prevent them from commenting. Followings are reasons that we thought they were interesting to be analyzed for finding out why people would not participate in chats.

1. It is very uncomfortable to talk with strangers
2. Comments made by people are often too immature and not worth paying attention to.
3. Users are very judgmental and hard toward opinions.
4. Participating is meaningless unless it's like a Q & A session.
5. I want to focus on main contents created by streamers

People who stated that they sometimes participate in chats argued that they, too, feel uncomfortable to talk with strangers; however, they highlighted that it is sometimes meaningful to comment if their goal is to learn something by watching informational videos. For example, a participant said that he sometimes comments when he watches streamers playing game which he wants to get better at. He looks for advice by asking questions to both the streamer and users watching it at the same time. Although they express opinions and ask questions to gather information, there is certainly an intimacy factor still affecting how people interact with chat system.

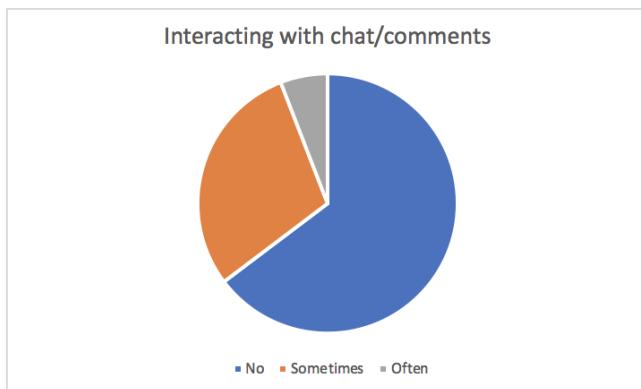


Figure 2. Interaction with chats

Positive and negative experiences

There was a mix of responses about the viewer's experience being either positive or negative and whether or not being able to contribute would foster a better experience.

For the people who generally found the viewing experience positive alluded to different reasons. Most people believed that the reason they found it to be a positive experience is because they would not continue to watch it if they felt that it started off as or experience became negative during. In addition, there also seems to be a connection between whether or not their friends are live streamers and the viewer's experience. The results point to the notion that being friends with the live streamer will heighten your interest in the stream because they care about what their friends are doing. Thus, the live streaming process becomes a positive experience. More generally, interest in the content has a very high correlation with a positive experience while watching a live stream. Interestingly, certain users who have positive experiences, do not believe that being able to make contribution to the stream would enhance their experience.

On the other hand, while a smaller number of respondents, there were some negative experiences that arose while watching live streams. This undesirable experience stemmed mostly from the chat features. People noted that the chat can cause disruptions and that the majority of conversations have no substance. In addition to the chat, some users talked about how too many strangers removes intimacy and thus creating negative experiences.

Most users said, whether the experience was positive or negative, that the option of contributing would improve the live stream experience. This sentiment comes from feeling a sense of community or happiness when receiving any type of acknowledgement from the streamer. Furthermore, one user felt that a function to send individualized messages via private channel between themselves and streamer would be a great addition.

Analyzing live streamers' behaviors

According to participants, streamers who react frequently to the chat choose certain comments to react to. Thus, we asked participants to elaborate on which types of comments streamers react to the most. The most common responses to this question were that streamers reply to funny comments or jokes and that they only reply to comments that are relevant to the topic of the stream. Other responses to this question were that streamers would react to questions that are specific, positive, highly opinionated, frequently asked or of personal interest. Furthermore, participants noted that streamers often responded to the comments of people they recognize or know and to people who donate.

Streamers who rarely react to comments generally do not read the chat. Regarding unreactive streamers, participants mentioned that the only time they respond to the chat is if the question is very compelling or if answering the question

will improve their image and brand. Participants did mention that streamers do laugh and snicker when they do look at the chat, acknowledge comments that pop up or thank people who donate. Despite the unreactiveness, some participants defended the streamers' lack of reactions because the nature of their live streams do not call for active responses to the chat. However, many participants replied that the live stream experience would likely improve, although only slightly, if the streamer reacted more to the chat.

When asked to describe their emotions when streamers react to certain comments above others, participants provided mostly indifferent, understanding responses. The most common response was that they would understand if the streamer did not respond to them because there are so many people in the chat. However, they would be upset if there were very few people in the chat and the streamer did not react to their comment. Participants also stated that it is fair for streamers to prefer comments over others and that some people have more interesting comments and questions; thus, they would not feel upset if the streamer did not recognize their comments. Furthermore, one participant enjoyed seeing which questions streamers choose to react to. However, some participants did not take a neutral stance on the question. One participant mentioned feeling ignored and likely leaving the stream if the streamer did not react to the participant's comment. Another participant stated that he or she would be happy if the streamer responded to the participant's comment. Consequently, it is evident that most people felt indifferent about streamers reacting to certain comments above others as long as there are many people in the chat.

DISCUSSION

Our main focus of the study was to learn more about the motivation behind live stream participants who post comments during live streams. After analyzing sufficient amount of data from seventeen participants, we were able to decide whether our three hypothesizes have been supported or not.

Hypothesis 1: Participants post comments because they feel as if they are part of a greater community

Hypothesis 2: They feel like they have become one of the contributors.

Hypothesis 3: They just want to achieve a level of self-satisfaction.

Hypothesis 1 was partially supported because we found that participants interact more with chat, but only if they do not perceive themselves as "silent" observers. The key finding from analyzing the first hypothesis was that intimacy affects most people when they face the chat system in live streaming. We noticed that almost everyone talking about how they often feel uncomfortable being part of the discussion because they do not know anyone who are watching at the same time. One even argued that having

conversation with other people are what is keeping him online longer; however, one must have intimate relationships with those in order to be comfortable to discuss actively. For most people, being friends with either live streamers or viewers will heighten the interest in the streaming, and this is supported because most of our participants talked about how they enjoyed commenting in Instagram when their friends were live streaming.

Hypothesis 2 was not supported because a desire to become a contributor does not lead to greater interaction in all situations and contexts. In terms of contributing to the live streaming, some participants mentioned about how sending hearts or donations are forms of contribution that they can make, but most participants did not understand the need to either donate or send reactions to the streamer and they did not mention their contribution as a motivational factor for posting comments. However, there were a few participants who used live streaming to learn about new information, and they asked questions to collect their desired information. Asking question may seem like a contribution, but we ended up linking this to self-satisfaction because these participants just had a goal of learning new things rather than describing themselves as helping out the community by contributing something.

Hypothesis 3 was also partially supported because participants may use chat feature for gaining knowledge for oneself and watch live streams mostly if they want to. As previously discussed in the second hypothesis, we spotted a few participants using chat feature to collect information by treating live streaming as informational videos, and they watch streaming to ask questions hoping to get their desired answers; however, a lot of participants mentioned that they just simply watch them for fun.

From these three hypothesizes, we were able to find a common issue that is intimacy and conclude that social norms including tendency to shy away from talking to strangers and inclination to avoid situations of judgment are projected onto new media such as live streaming.

LIMITATIONS

Key limitations to our project were the followings:

1. Sample population was limited to Cornell undergraduate who seek extra credits through SONA which introduce a perspective bias along with an age bias.
2. Questions were designed for general live streaming experiences that cannot accommodate different features of different platforms.
3. Our study required data from people who watch live streaming platforms other than Instagram or Facebook which we consider them as social platforms.

Although this research was not done to find solutions, some suggestions based on feedbacks from participants came up along our study. Due to intimacy factor, most participants could not break the barrier of strangeness in the chat

system, and some additional feature that can help forming intimate relationships inside the chat system may mitigate the intimacy problem. It is an abstract concept to think about building a tight community because it is almost impossible to make everyone to form intimate relationship with each other; however, we believe it is possible to create a function that can help viewers to make friends within the chat system. Also, a lot of people mentioned that it was understandable when streamers did not react to every comments because it is simply impossible to read when there are hundreds of people trying to post comments. However, we noticed that there were a number of participants arguing that chat system is not only for a communication between a streamer and a hundred viewers, but also a communication between just viewers. If there is a way to direct message either to a streamer or to a general audience, it could help communication to be more efficient and easy to read for everyone which can lead to creating intimate relationship.

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