Video Game Live Streaming

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Video game live streaming is a kind of real-time video social media that integrates traditional broadcasting and online gaming. Real-time, sociability and suspense are the main features of video game live streaming. Video game live streaming can meet user demands in social integration, personal integration, tension release, affection, and cognition. In order to have a more comprehensive understanding of video game live streaming, the following text summarizes the background from the live streaming industry and research status. After that, the definition, users, features and community classification of video game live streaming are introduced in detail.

Keywords: Video Game Live Streaming ; Definition ; Users ; Features ; Community Classification

1. Introduction and Background

In recent years, the online broadcast industry has developed rapidly with the emergence of various live streaming platforms, such as Twitch, YouTube, Douyu, Huya, and so on. Twitch (www.twitch.tv) and YouTube Gaming (gaming.youtube.com) had more than 470 million regular visitor members in 2016 (more than 50% of gamers in the US, Europe, and Asia Pacific) [1]. By the end of 2018, at least 1 million people were watching live streaming on Twitch at any time, and the total duration of viewing time on the platform was recorded at 434 billion minutes. In addition, the number of streamers on Twitch increased from 2 million in 2017 to 3 million in 2018, with nearly 500,000 streamers visiting this platform daily [2]. The addiction to video game live streaming has also raised concerns. In the area of mental health, Internet addiction has been described as a disorder in which individuals use the Internet excessively [3]. Addiction to online gaming has been included separately in the fifth edition of Diagnostic and Statistical Manual of Mental Disorders as a tentative disorder [4]. Problematic use of online gaming has become a popular topic of academic concern. However, the relevant research is few about video game live streaming use and various psychological variables.

Video game live streaming users can be divided into streamers and audiences. The main difference between them is that the former produce information or content, while the latter receives or consumes it [5]. The streamers display game skills through live streaming, while audiences can watch and learn the game through live streaming. The two parties can interact by communicating, rewarding, subscribing, and so on. Accordingly, studies on user behavior are summarized in three aspects: effect factor on streamer participation in live streaming, effect factors on audience watching live streaming, and effect factors on their interactive behavior (chat, reward, subscription, etc.). Zhao et al. [6]argued that performance expectation from the platform and perceived website attractiveness could significantly promote streamers' willingness to continue streaming. Based on the theory of "Use and Satisfaction", Sjöblom and Hamari [7] divided audience demands to watch live streaming into five categories: cognition, emotion, personal integration, social integration, and stress release. Gros et al. [8] found that the audience rewards intention was influenced by the number of viewers and watching duration. In addition, this article believed that the environmental factor plays an important role in the behavior of live streaming users. Therefore, the category of "platform impact" was added to the previous classification.

In summary, this article divided the main issues into four types: streamer demand, audience demand, user interaction behavior, and platform impact. This classification referred to studies by Zimmer et.al [5] and Scheibe et.al [9], who divided user behavior into three categories: streamers who produced videos; audiences that watched the videos; the chats and rewards between the two groups. This article believed that the environmental factor plays an important role in the behavior of live streaming users. Therefore, the category of "platform impact" was added to the previous classification. These four main topics would be highlighted in the following text, and on the basis of these issues the research framework of video game live streaming could be built. This is presented in Figure 1.

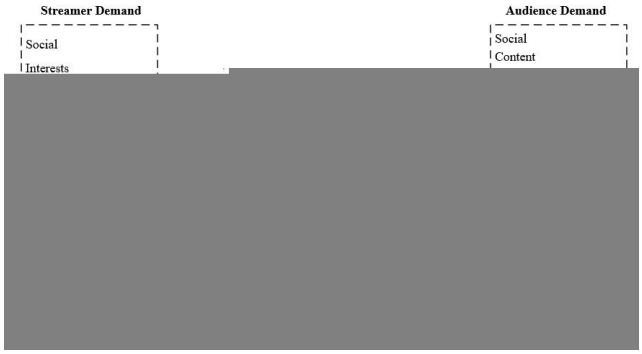

Figure 1. The research framework of video game live streaming. Source: Compiled by the authors.

2. Definition of Video Game Live Streaming

The existing literature mostly defines video game live streaming based on form and content. With regard to form, video game live streaming is described as a new media that integrates traditional broadcast and online gaming [7][10], such as Twitch, Huya, etc. As with traditional broadcasts, video game live streaming retains the form of one-way transmission. But compared with the former, the consumption experience of video game live streaming is more positive. In the online gaming environment, video game live streaming retains multi-directional interaction, which is more passive than playing online games [7]. In addition, audiences and streamers can chat in real time during video game live streaming, which would form a community around streamer [11]. Audiences in this community can interact with their favorite celebrities (streamers), and this will generate a sense of intimacy; few other media can match that [12]. Pellicone and Ahn [10]also agreed that, along with video games, “intimacy, celebrity, community, content creation, and consumption” were other elements which were interwoven in the video game live streaming. Therefore, video game live streaming is a form of media integrating the public, communities, interaction, and passivity, which bridge the gap between online games and traditional video media (such as TV).

In terms of content, video game live streaming is defined as a network broadcast with “online games” as the specific content[9][13], such as Dailymotion Games and Douyu. Pellicone and Ahn [10]considered live streaming to be a kind of performance—to spread online gaming culture. On the live streaming game platform, the behavior of streamers and audiences is based on the “online games”; that is, streamers can make and share videos in real time when they play online games, while simultaneously communicating with their game-specific audience [8]. In addition, audiences can also watch videos related to particular “online games” on the platform, search information related to those online games, learn online gaming skills, and so on.

3. Users of Video Game Live Streaming

Video game live streaming users are divided into two groups, streamer and the audience, and the differences between them are related to information production and reception [5]. Streamers are the producers of live streaming. They record and publish real-time video [9] with their own mobile devices (such as smart phones, tablets, and desktop computers) [5][13][14]. As aforementioned, streamers can display game skills, teach game strategies, and manage their self-image by chatting with audiences on the platform [15], such as expressing their interests and attitudes towards life. Audiences are consumers of live streaming and they watch the content on mobile devices or desktop computers. Live streaming platforms enable audiences to chat with streamers and other consumers, reward streamers, subscribe to the live streaming channels [5][13], as well as acquire information and learn skills related to that game [16]. Therefore, when considering users who are addicted to live game play, streamers and audiences should be considered separately.

4. Features of Video Game Live Streaming

There are three main features of video game live streaming mentioned in the existing literature:

First, live streaming is performed in real-time; that is, streamers share online videos of playing game [17] while audiences watch those same videos concurrently. In other words, production and consumption of real-time videos are completed at the same time [5]. In addition, streamers and audiences can also communicate with each other simultaneously. Generally, the platform will display the screen of the streamer playing games and chatting with the audience in real time [16]. Therefore, video game live streaming is a real-time video media.

Second, the activity is highly conducive to sociability; that is, live streaming is a type of social media [5][15][17]. Similarly, video game live streaming is also social. Hamilton et al. [17] explained that social interaction was the experience of participating in major activities. Therefore, these studies situated Twitch communities in line with McMillan and Chavis' concept of the "sense of community," which comprised the four aspects of "membership, influence, fulfillment of demands, and emotional connection" [18]. In view of this, this paper regards user interaction in live streaming as a social activity. Streamers and audiences can interact by chatting, giving rewards, subscribing, and learning online game skills from each other [19]. In addition, Fietkiewicz and Stock [13] also proposed that the design of the gamification mechanism on video game live streaming platform strengthened the interaction between streamers and audiences, such as rewards, ratings, badges, and other gamification mechanisms.

The third feature is the dissemination of suspense; that is, compared to traditional media (in which most of videos are recorded in advance, such as on iQIYI and Tencent Video), video game live streaming has the characteristics of suspense. For example, online games and other activities with a competitive nature encapsulate high moments, low moments, and a suspenseful result, whereas when watching pre-recorded media, the result is fait accompli, making content less engaging because of spoilers or a pre-determined outcome [20]. Wulf et al. [21] agreed that compared to watching pre-recorded video (such as a TV series or a movie), audiences might be affected by the excitement and suspense while hoping the streamer win the game or complete the challenge.

It has been mentioned in existing literature that there are three main features of video game live streaming: real time, social media and suspense compared to other video platforms and social platforms. Therefore, these three characteristics should be fully taken into account when investigating the factors that affect user behavior in video game live streaming.

5. Community Classification of Video Game Live Streaming

According to different types of games, communities of video game live streaming can be divided into three categories: Let's Players (self-entertainment), Speedrunner (quickly complete a game), and E-sports (professional competition) [22][23]. Among them, Smith et al. [22] held that Speedrunner communities were relatively special. In such communities, streamers not only exhibit simple game skills but also teach game strategies to the audience by taking advantage of bugs found on the game platform. In addition, among these three types of communities, E-sports communities were the most popular for audiences, while Speedrunner communities and Let's Players communities were on the rise [22]. However, Churchill and Xu [12] found that the largest number of live streamers were in Let's Players communities, and the lowest were in e-sports communities. To summarize, the audiences' favorite community of video game live streaming is different from streamers. Different community characteristics can meet the different demands of streamers and audiences.

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