The Impact of eSports Performance and Social Interaction on eSports Online Viewership and Viewer Experience

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<u>Extended Abstract</u>

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Abstract: This paper studies how an emerging online interaction feature, bullet screen comments, affects viewership and viewer experience of live streaming eSports games. And we further compare its effects on eSports live games and on other eSports videos. Our results reveal that social interaction created through bullet screen comments always improves live streaming viewership and viewer experience, with its impact on viewership being stronger. Moreover, social interaction plays a greater role in live game viewership than on other eSports videos.

Keywords: eSports, Online viewership, Social interaction, Viewer experience

1. INTRODUCTION

eSports, a type of organized video game competition, is rapidly growing. The Covid-19 pandemic disrupts the global eSports market, it has created opportunities for the development of live-streaming[1]. Indeed, a large proportion of eSports viewership is attributed to internet streaming and social media rather than stadium attendance. More recently, there is a new type of interaction feature, bullet screen comments ("DanMu" in Chinese), that has quickly risen to be one of the most popular features in online streaming and video sharing platforms in Asia, particularly in China (Fang et al., 2018). Two research questions guide our study: 1) do performance statistics and social interaction affect eSports viewership and viewer experience in the same manner as traditional sport; and 2) does social interaction have the same impact on eSports live games and on other eSports videos. Two sets of regression analyses were performed to answer our research questions.

2. THEORETICAL FOUNDATION AND HYPOTHESES

Existing studies commonly use survey data to measure viewer satisfaction[2].But survey data on viewer experience is straightforward and unambiguous. Our paper utilizes real-world data that captures viewers' actual experience and immediate response watching an eSports game or an eSports video. Specifically, we assume that when viewers decide to click the "like" button, it is an indication that viewers are satisfied with the game or the video content. Additionally, such data is usually available in large volume; thus, the use of "likes" to measure spectator satisfaction can be applied to other research studies. Moreover, we systematically compare the impact of social interaction on viewership with its impact on spectator satisfaction. The result will provide insights into understanding how social interaction through bullet screen comments draws viewership and improves viewer experience differently.

3. RESEARCH METHODOLOGY AND RESULTS

Using online web scraping, our data comprises videos from Bilibili.com of two prominent eSports games,

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League of Legends and Overwatch. Our data contained both live game broadcast, released exclusively by the official live game channels, and other game related videos, such as highlights, pre-game shows, and news, by all four official channels on Bilibili.com. We performed two sets of regression analyses to investigate the determinants of eSports viewership and viewer experience. In the first model, we tested the influence of sport performance, which has proven to be a significant factor in traditional sport on viewership and viewer satisfaction. We also examined the effect of the novel socially interacted environment on Bilibili.com, bullet screen comments. In the second model, we further investigated the impact of social interaction, focusing on the difference between live games and other official eSports videos. In both sets of regression analyses, to address the endogeneity concern of the variable that measures social interaction, two-stage least squared regression with an instrumental variable is applied as our identification strategy.

4. CONCLUSION AND DISCUSSIONS

To the best of our knowledge, this is the first empirical study that explores the impact of traditional sport demand factors, including team quality, match result, and social interaction, on eSports online viewership and viewer experience. Compared to existing studies that use survey scales to study spectator satisfaction[2], we adopt the number of "likes" on the videos to quantitatively measure viewer experience. In addition, instead of surveying specific viewer groups, such as students and eSports fans[3], we apply more inclusive real-world data from Bilibili.com that may contain spectators of different occupations with varying preference towards eSports. Moreover, we explore both the benefits and disadvantages of bullet screen comments as a mechanism to create social interaction on the internet. On one hand, bullet screen comments can improve the perceived benefits of viewers by creating a co-viewing experience. On the other hand, bullet screen comments, which may cover the screen and obstruct the view of the game, can diminish viewer experience. Therefore, our research offers important insights for the design of sport streaming and video sharing platforms.

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