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2022

ACCEPTANCE

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The Impact of the COVID-19 Pandemic on Esports Viewership Trends

by

James P. Crone

A Dissertation

Submitted to J. Mack Robinson College of Business

Georgia State University

In Partial Fulfillment of the Requirements for the

Degree of Doctor of Business Administration

April 2022

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Abstract

Multi-player gameplay competitions, live streaming of gameplay, and viewing gameplay are significant segments of esports' rapidly growing consumer online gaming community. In 2021, the esports industry was forecast to generate over \$1 billion USD worldwide in revenue (Esports Earnings, 2019). Twitch.tv, the largest esports online platform, integrates multiple user-to-player, user-to-user, and user-to-community communication tools, thus creating social interaction opportunities. This study explored online or digital esports viewership activity and the importance of community interaction opportunities on the Twitch.tv digital platform.

For the purpose of this study, a broad definition of esports viewership and community participation is used because esports roles may easily change during a single user's session on esports platforms. A competitor in a tournament may easily and quickly become a streamer of content. An esports streamer may become the viewer of a tournament, or a viewer may become a streamer. The Twitch.tv platform usage data for analysis is limited and does not distinguish between the user's role or geographic location. This is a known limitation of this research. There are few rigorous statistical examinations of English-language Twitch.tv esports platform data in the current literature beyond the presentation of histograms in trade media, especially on how esports platform viewership changed during the COVID-19 pandemic. This study seeks to inform reviewers on changes in esports viewership and participation before-, during-, and after-the unprecedented COVID-19 pandemic stay-at-home orders, public health advisory and social restrictions in 2020 using academic methods. It draws on social identity theory and habit theory to explain the motivation for changes in consumer esports viewership trends.

This mixed-methods study analyzes esports viewership on the largest platform, Twitch.tv, based on peak viewership accessed in the English language. According to Streamlabs'

Q1 2021 Report, Twitch.tv leads the global market with live stream viewers in 4Q 2020 and 1Q 2021, of 6.34 billion hours, representing 72.3% of the market share of esports hours viewed. This study defines pre-COVID as October 2019-February 2020, during- as March-July 2020, and post- as August to December 2020, see Figures 7 and 8 for additional details (CDC, 2021). This study includes a quantitative analysis of peak Twitch.tv platform viewership data and qualitative interviews with active esports viewers during the same period.

Whether you are a game designer, platform creator, marketing, or media executive, this study documents the continued growth of Twitch.tv as an important go-to platform and medium for entertainment and social interactions, as demonstrated by its popularity among people isolated during the COVID-19 pandemic in 2020.

This engaged scholarship study documents, both quantitatively and qualitatively, the change in esports content viewership resulting from the COVID-19 pandemic. This may signal a significant change in consumer media consumption behavior and media expectations where consumers seek integrated entertainment and community interactions.

Chapter 1: Introduction to Esports Viewership

According to the International Electronic Sports Federation (IESF), esports is the fastest growing sport globally, with millions of players and billions of fans (IESF, 2019). Esports is a competitive sport where gamers use their physical and mental abilities to compete in virtual, electronic, and/or multi-player environments (IDC, 2021). Esports involves individual or team competitive play and the viewing of others playing electronic games on virtual platforms but also includes social interactions via multiple communication options (voice, narration, chat, messaging...). Esports include professional play, amateur streaming, viewing, and more in the privacy of one's home or a large venue (pre-COVID), see Figure 1.

Figure 1

Prior to the 2020 COVID-19 Pandemic, Sample Esports Experiential Competition (Newzoo, 2021).

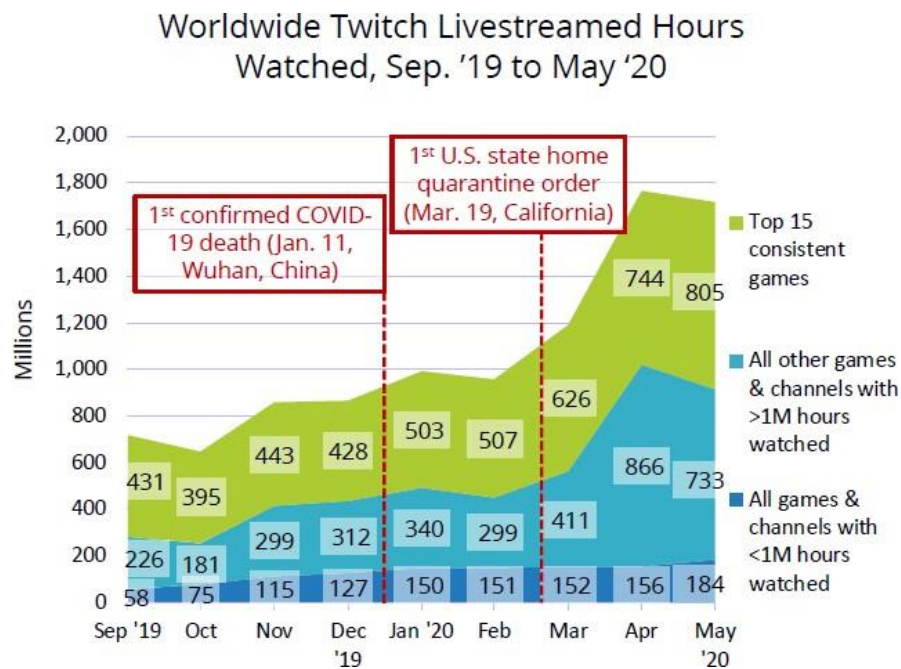


However, there is no universally accepted definition of the activities bounding esports. There are various interpretations of what the esports industry encompasses. In addition to differing opinions about the market's boundaries...(Newzoo, 2021, p. 2)

Currently, Twitch.tv, YouTube Gaming, and Facebook Gaming are the market leader in online gaming platforms (IDC, 2021). Figure 2 notes the growth of Twitch.tv viewership during 2020. The games people play on these platforms cover many categories, from traditional sports games to first-person shooter games, strategy games, fighting games, and other competitive video games (IDC, 2021). The esports industry's viewership, hours watched, and revenue growth has increased every year since 2015 (Sjöblom et al., 2020).

Figure 2

Worldwide Livestreaming Hours Watched (IDC, 2021)

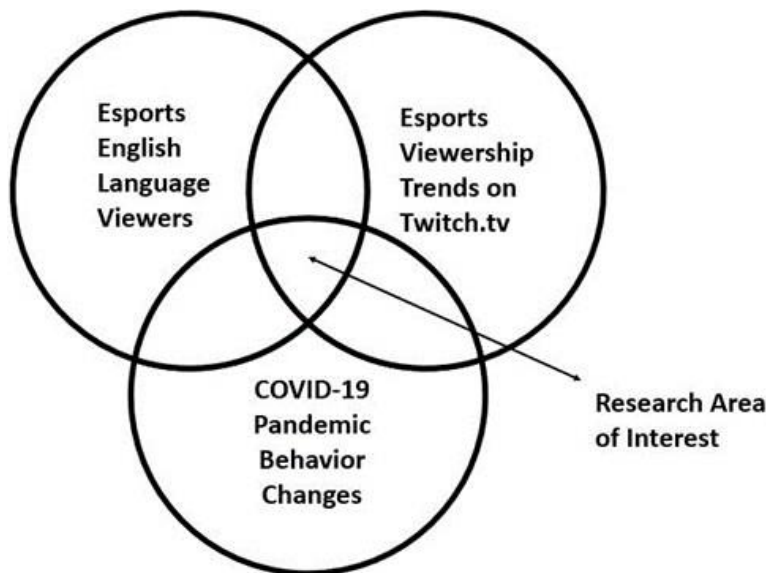


The research question for this study is, “What is the impact of the COVID-19 pandemic on esports viewership trends?” Figure 3 further defines the area of research as the intersection of these three areas of interest provides insight into English language viewers on the Twitch platform. During the COVID-19 pandemic months, increased viewership of Twitch seems attributable to both entertainment value and community affiliation (via the game-title-specific

esports online community). Further, this research will demonstrate that given the approximate five-month of the 2020 COVID-19 pandemic stay-at-home, public health advisories, and social restrictions, esports viewership habits could be formed and regularly triggered by environmental clues thus continuing elevated esports viewership patterns.

Figure 3

Research Question: What Is the Impact of the COVID-19 Pandemic on Esports Viewership Trends?



This study analyzes aggregate esports viewership data for all game categories on the Twitch.tv platform. It does so based on Twitch website usage data and users accessing it in English. This data was commissioned/sourced via Esports Charts.

According to Streamlabs and Stream Hatchet Q1 2021 Report, Twitch.tv led the market in livestream viewers worldwide in the fourth quarter of 2020 and the first quarter of 2021, with 6.34 billion hours of viewing, representing 72.3% of the market share for esports hours viewed.

According to the same report, livestream viewership hours of YouTube Gaming (Twitch.tv's closest competitor) represented 15.6%, and Facebook Gaming represented 12.1% (Influencer MarketingHub, 2021).

In addition to the quantitative analysis, this study relies on interviews with a target sample of esports users, which the researcher conducted to understand individual motivations and changes in usage behavior during the study period. The researcher completed ten interviews with screened and qualified esports viewers who used the Twitch.tv platform between October 2019 and December 2020.

Esports viewership experienced explosive growth during the 2020 COVID-19 pandemic, particularly due to the stay-at-home orders, health advisory, and major social restrictions periods (Nielsen, 2021). Esports platforms, including Twitch.tv, are defined as a form of media that integrates the public, communities, interaction, and passivity, bridging the gap between online games and traditional video media, including TV (Cabeza-Ramírez et al., 2021). Social interactions within the esports or gaming community on the Twitch.tv platform include exchanges through multiple communication channels, such as live chat, voice conversation, gameplay narration, or comments added to gameplay content (for time-shifted viewing).

Twitch.tv provides multiple opportunities for social interactions between competitors, streamers, gameplay narrators (similar to play-by-play sports announcers), and viewers (audience members) using diverse communications formats, see Figure 4 as just one example.

It seems highly unlikely that individuals within the corporate boardroom or even running marketing operations are familiar with esports gameplay, interaction opportunities, and the audience's motivations. This study documents, both quantitatively and qualitatively, the change in esports content consumption resulting from the COVID-19 pandemic, which may signal a significant change in consumer media consumption behavior where consumers seek both entertainment and opportunities for community interaction.

Esports fans are not simply interested in competing but enjoy watching broadcast competitions of expert game players and amateur players who stream their gameplay. They also value interacting socially, through chats on the Twitch.tv platforms, with others who share a common interest in gameplay. Like traditional sports, viewership and fan loyalty accrues to the top performers in streaming esports based on personal favorites, streaming styles, active narration, gameplay skill, or personality (Cushen et al., 2019). Viewers perceive platforms like Twitch.tv to provide a safer social environment in which to discuss detailed gaming-related topics without the fear of criticism on traditional social media platforms (Cabeza-Ramírez et al., 2021).

In 2021, the esports industry was forecast to generate over USD 1 billion worldwide in revenue (Esports Earnings, 2019). Given its global audience, the top esports media sponsors are primarily multinational corporations, including Apple, IBM, Microsoft, and Mercedes-Benz (Esports Earnings, 2019). Recent estimates find that 68% of esports industry revenue is derived from sponsorships, advertising, and media rights, while merchandise, ticket sales, and streaming provide the majority of the remaining 32% (Newzoo, 2020).

The massive growth and peak of esports viewership during the COVID-pandemic created a phenomenon that is worthy of exploration. The findings are of interest to media companies,

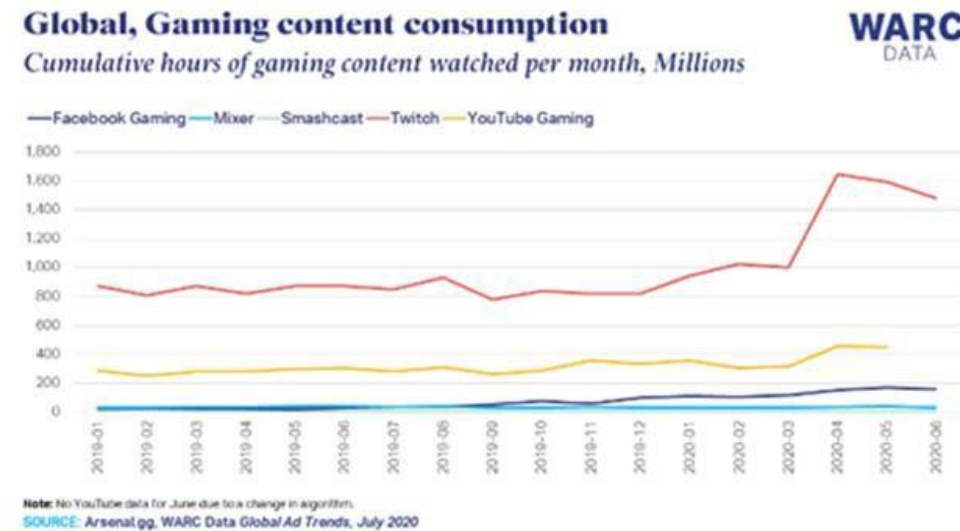
esports sponsors, and marketing practitioners who seek to understand new business opportunities and modern consumer behavior. It is essential to examine if the dramatic growth of esports continued since 2020 and to identify significant factors that influenced esports following the COVID-19 public health stay-at-home orders, health advisory period, and social restrictions.

Esports is not new. Multiplayer gaming and esports originated locally but were reborn globally via the Internet. Esports began in 1972 in Silicon Valley at LAN (Local Area Network) parties. They were popularized in the 1990s and early 2000s when computer equipment and internet connectivity became more widely available and affordable (Wagner, 2006).

Unlike classic linear television, the distribution of esports content is more YouTube-like, as both professionally produced and amateur content appears side-by-side. The amount consumed content has increased dramatically since 2018 (see Figure 5). Many qualitative respondents attribute the notable growth to a significant increase in available time and easy access to esports during the COVID stay-at-home order and social restriction period. Tang et al. (2006) defined esports viewership (or fandom) consumption as primarily constrained by time, access, and cost. Given stay-at-home orders and seemingly unlimited access to esports new usage habits emerged. Per Lally et al.'s (2010) research finds that, in response to a given situation on a daily basis, it can take anywhere from 18 to 254 days for a behavior to become a habit, with an average timeframe of 66 days. Habit formation may explain the continued higher level of esports viewership post-COVID-19 pandemic.

Figure 5

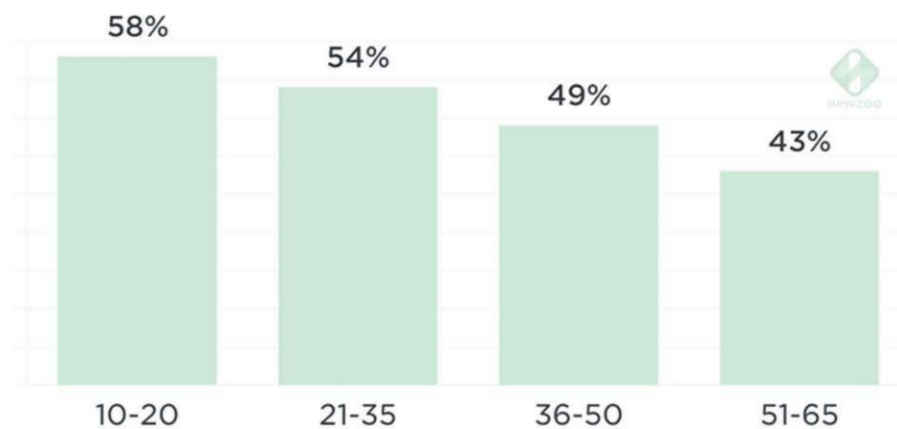
Global Gaming Content Consumption January 2019–June 2020 by Platform (WARC Data, 2021)



Demographically, North American and Western Europe esports viewers are more likely to be younger, see Figure 6.

Figure 6

Consumer Insights / Base: Gamers in Western Europe and North America (Newzoo, 2021)



In their paper titled Predicting Why Men and Women Play and Watch Esports Games, Tang, Cooperb, and Kucekc found that 85% of esports viewers were spectators or viewing gameplay. Further, their research notes that men invest significantly more time (19.91 hours per week) in esports activities than women (15.30 hours) (Tang et al., 2021).

According to WARC Data (2021), the United States is not the leader in esports viewership penetration as a percentage of the population with Internet access. Asian countries lead in esports viewership penetration worldwide, with China (40%), Vietnam (33%), the Philippines (29%), India (24%), Indonesia (20%), and the United States (17%), (WARC Data, 2021). Thus, even when combined with other English-speaking countries, esports adoption in the United States lags behind many Asian countries. To avoid a bias toward Asia in global Twitch.tv platform penetration, this study uses website data for individuals accessing the platform in English. This is a study limitation, but access to geographically or country bounded data was not available.

The esports industry is different than traditional sports. Unlike traditional sports, esports' intellectual property (IP) does not reside in the public domain. For example, the American National Football League (NFL) does not own the intellectual property rights to the traditional football game. It thus cannot restrict the play of American Football in local communities or educational institutions. However, esports publishers own the game and have absolute IP ownership. They control the who, what, when, where, why, and how esports games may be used. For example, game publishers have legally shut down game-specific tournaments and even charity fundraising events due to their ownership rights and terms of use. This ultimate power of title may result in the slower monetization of esports as commercial advertising or marketing medium and stifle innovation, given the ability of publishers to disrupt the buyer-seller

relationship. This disruption restricts the use of the games, gameplay, or title trademarks in not officially sanctioned activities.

The critical data point that informs this research is peak online esports Twitch.tv viewership during the periods pre-, during-, and after- the COVID-19 stay-at-home orders and major social activity restriction months. As Figure 5 shows, there was a significant increase in esports viewership activity during the COVID-19 restriction month, and active content streamers also increased noticeably during the pandemic months (see Figure 9).

The specific dates used to define the pre-, during-, and post-COVID-19 2020 periods requires assumptions to permit quantitative analysis. Dates for the establishment of mandatory stay-at-home-orders, health advisory orders, and lifting of such orders varied widely by U.S. State or territory, according to the CDC, see Figure 7.

Figure 8 forms the rationale for defining the pre-, during-, and the post-2020 COVID-19 periods used in this study based on National COVID-19 Activity Indicators. Increasing in National COVID-19 activity by the CDC in December 2020 is based on a new variant (CDC, 2021). The definition of the pre-COVID-19 period is from October 2019 until February 2020 was analyzed. The during-COVID-19 and post-COVID-19 periods assume March to July 2020 and August to December 2020, respectively. Figure 8 outlines the basis for this assumption and classification of the 2020 period used in this study based on CDC data (CDC, 2021).

This research further uses the theoretical foundation established by social identity theory in the case of an environmental shock on consumer behavior, such as the COVID-19 global pandemic. Social identity theory suggests that an external threat leads to a heightened psychological desire to strengthen one's group affiliations. A renewed awareness and sense of self make some individuals place a higher value on group affiliations to enhance their self-

esteem (Jetten et al., 2020). During COVID-19, unprecedented social isolation resulted in dramatic growth in esports viewership. In this case, gamers may have felt a stronger bond with the gaming community, thus fueling their desire for greater affiliation with the group. Social identity theory provides a theoretical basis to explain the dramatic increases in esports viewership during the COVID-19 restriction period. This desire for community affiliation during a time of a global health crisis, as well as the time available for such tasks, might also theoretically explain such dramatic increases in both amateur and professional content streaming on Twitch, see Figure 9.

Figure 7

2020 United States Stay-at-Home Orders by State (2021), US Centers for Disease Control and Prevention, <https://www.cdc.gov/mmwr/volumes/69/wr/mm6935a2.htm>.

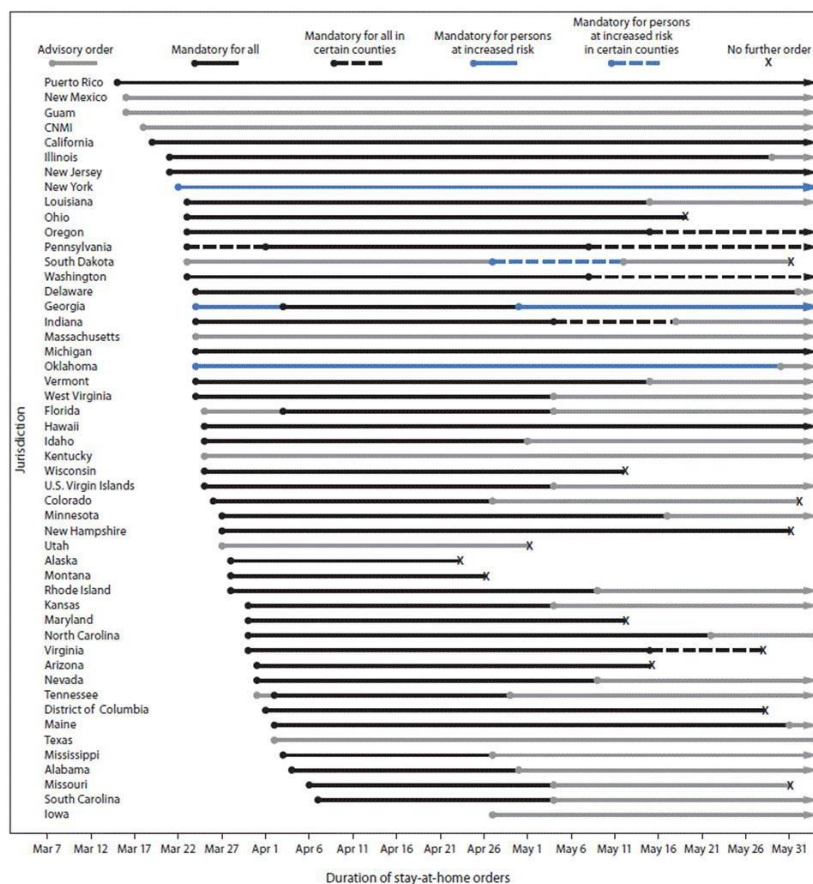
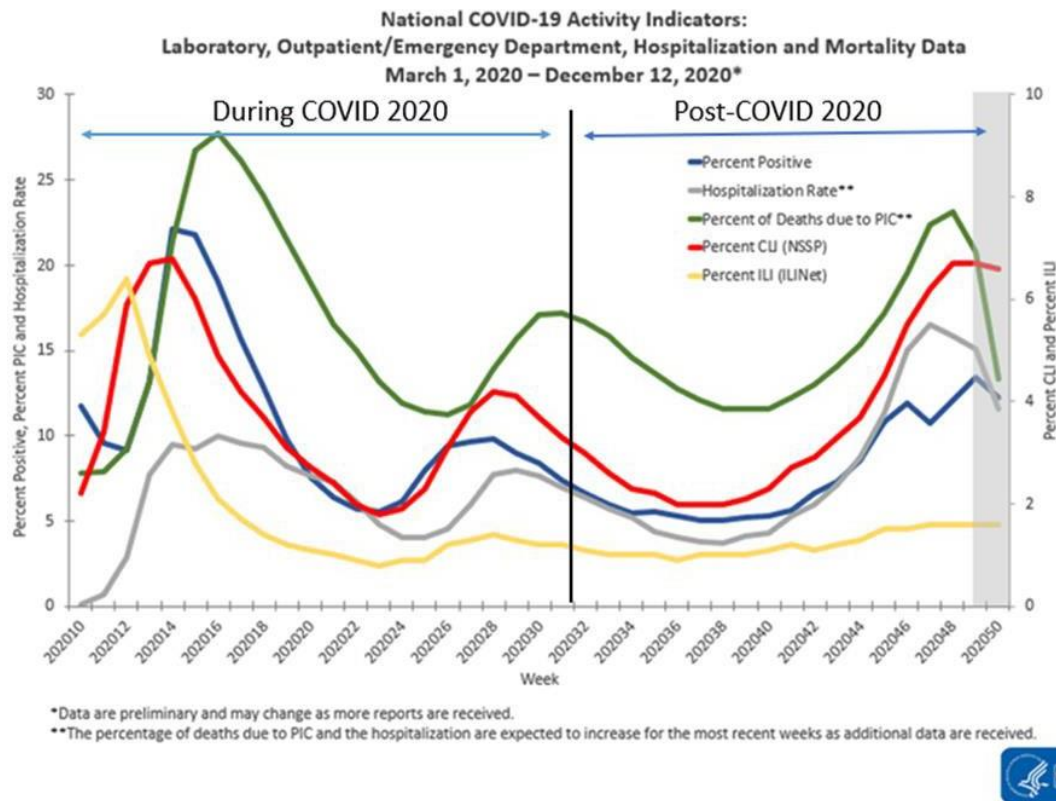


Figure 8

Weekly Surveillance Update (2021), US Centers for Disease Control and Prevention

<https://www.cdc.gov/coronavirus/2019-ncov/covid-data/covidview/past-reports/12182020.html>

accessed October 11, 2021). With additions of During- and Post- COVID 2020 assumptions used by the researcher to bound quantitative analysis.

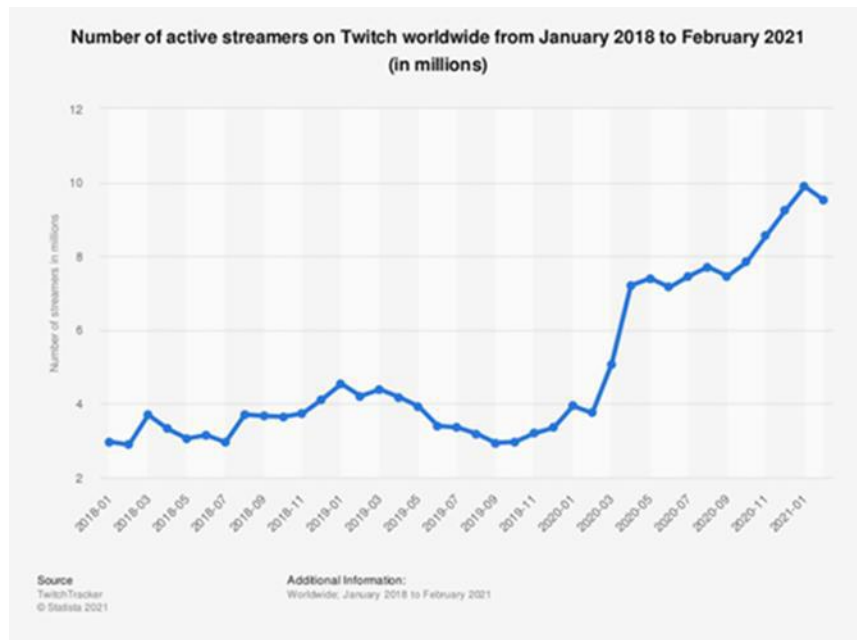


Further, theories associated with habit formation and development explain the sustained viewership of esports after the months the majority of stay-at-home and social restrictions were lifted. Habit theory notes that environmental cues and triggers are of significant importance, and stay-at-home months (almost five months) well exceed the average time for habit formation (Lally et al., 2010).

Figure 9

The Number of Active Twitch.tv Streamers Worldwide from January 2018 to February 2021

(Statista, 2021)



Habit theory informs the qualitative research on the sustained higher levels of Twitch.tv usage after the end of the stay-at-home orders and social restrictions in 2020. The quantitative analysis notes that there was not a statistically significant difference between during- and post-COVID-19 Twitch.tv site usage. However, Twitch.tv peak viewership has remained at an elevated level that is statistically significantly higher than peak viewership levels in the pre-COVID-19 period. This is a demonstration of habit formation, as described in habit theory:

Habit theory proposes that our behaviour is tied to the situational contexts in which they occur. By repeatedly executing a particular action or behaviour in a given situation, we develop an association between the two which becomes so strong that the situation alone is enough to trigger the associated action or behaviour without conscious thought. (Kim et al., 2006, p. 2)

Based on the target sample of GSU esports viewers, many interviewees noted that the COVID-19 stay-at-home period impacted the quantity of esports they viewed and their longer-term regular behavioral patterns. Research notes that habit formation is different for each person, but habits could have developed during the five-month during-COVID period:

Habit is often developed based on a situational context or location... A person may not intent to carry out their habitual behaviour, but the stimulus provided by the situational context is so strong that it removes intention out of the equation altogether and the action becomes automatic. (Lally et al., 2010, p. 9)

Lally et al.'s (2010) research further found that, in response to a given situation on a daily basis, it can take anywhere from 18 to 254 days for a behavior to become a habit, with an average timeframe of 66 days. Habit theory offers important insight into the sustained elevated use of Twitch.tv during the post-COVID period. Users were under stay-at-home orders and restricted in their social interactions for five months or approximately 150 days in 2020. Per Lally et al.'s (2010) research, this is sufficient time for the formation of habits and behavioral change. Given that most of the interviewees were at home during the COVID-19 stay-at-home and social restriction periods, habit theory notes the importance of context or location. The theory notes that a specific location or environment may trigger habitual behavior. An example used in Lally's work includes habitual smoking behavior. When individuals visited a local pub, an environment associated with smoking, their desire to smoke was enhanced. In keeping with this triggered behavior, merely returning home could provide a strong situational context or trigger for continued high levels of esports viewership behavior as part of a new normal.

Chapter 2: Literature Review

The researcher conducted digital research for academic literature on esports and the COVID-19 pandemic using the J. Mack Robinson School of Business resources at the Georgia State University library and leveraging dedicated Graduate School of Business librarians. This resulted in business data, scholarly paper searches on multiple esports topics, subscription-based esports platform viewership data, esports business practitioner publications reviews, and analyses of esports practitioner research firms. The researcher also used Google Scholar and other online search tools to learn about the topic from peer-reviewed journals and recognized esports industry research organizations, including IDC, Newzoo, ESPORTS Charts, Stratica, and WARC Data.

The researcher discovered that multiple peer-reviewed articles note a lack of scholarly examination of esports from a business perspective. Given that esports is a relatively new and rapidly evolving topic, the body of academic literature and scholarly research on this phenomenon remains sparse (Cabeza-Ramírez et al., 2021). A meta-analysis spanning from 2012 to 2020 found that 111 scholarly articles had been published on esports across all disciplines (see Appendix A; Cabeza-Ramírez et al., 2021). However, much is to be learned from scholarly work in adjoining fields of study, including behavioral studies, psychology, sports medicine, and sociology. As Cabeza-Ramírez et al. (2021) observed regarding esports, “there are hardly any studies from the field of management or business” (p. 186). Research in adjacent fields adds value to examining the esports, yet exploring the explosive growth during the unique months associated with COVID-19 is unique.

A somewhat analogous viewership example in a 1Q21 quarterly earnings report, Netflix noted a dramatic post-pandemic decline in new subscriber growth. Netflix missed its forecast by almost 1,000,0000 new subscribers (Netflix, 2021). Esports viewership is somewhat similar to

Netflix in that viewers may control when, where, and what content they watch through the on-demand model. The only major exception is that Netflix does not offer social interaction opportunities on their platform, which Twitch.tv does. An interesting element of the Twitch.tv platform is the “Just Chatting” feature, which acts as a cross-platform community interaction (social media) feature. Twitch.tv viewers may chat while viewing specific streams, while Netflix viewers must rely on general social media platforms, like Twitter, for communal viewing parties or social interaction. Esports audience measures of success include program/event live viewership numbers, hours of content consumed, subscriber growth by channel, and peak concurrent users for live or streamed activities/events (Newzoo, 2021).

The researcher has hypothesized that the dramatic increase in eSports viewership continues post-pandemic lockdown and major social restrictions, eSports established itself as a new, rapidly growing, and highly targeted advertising medium worldwide, much like the social media channels that emerged in recent years, including Facebook, Instagram, and Twitter.

Upon reviewing the current literature, there is a considerable gap in the body of knowledge concerning the overall esports marketplace, specifically regarding the impact of the COVID-19 pandemic on viewership trends. This study adds to the literature by statistically documenting the change in live esports viewership consumption during the pre-, during-, and post-COVID-19 pandemic periods. It also reinforces the relevance of social identity theory in esports communities, as demonstrated by the increase in viewership patterns during this unique time. Social identity theory notes that individuals have an increased desire to more closely associate with social communities with shared qualities and interests in times of crisis. Further, this study’s targeted qualitative research seeks insights into habit theory and specifically on esports viewership habit formation during the stay-at-home and social restriction period.

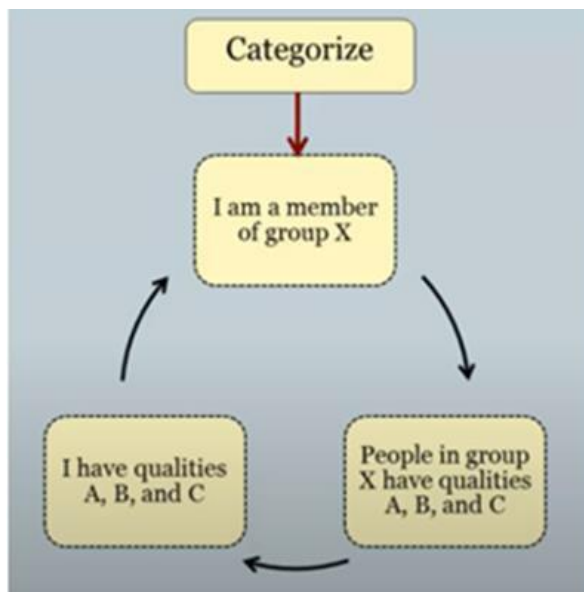
Theoretical Framing

The dramatic growth in the esports viewership trends during the COVID-19 pandemic aligns with social identity theory (Tajfel, 1978). Social identity theory suggests that external threats, similar to the COVID-19 global health crisis, result in a heightened psychological desire to strengthen one's group affiliations and thus perceived social identity. The sense of self makes some individuals place a higher value on group affiliations in order to enhance their self-esteem (Jetten et al., 2020). The researcher hypothesized that a desire for social interaction with like-minded communities during the pandemic motivated increased esports viewership in order to reinforce group alignments, enhance perceived social identities, and boost their sense of self.

The combination of social isolation and increased discretionary free time appears to have fueled esports viewership during the COVID-19 public health crisis as a social engagement opportunity. Social identity theory notes that such an external factor (or perceived threat) creates a greater individual desire for social interactions and group affiliation, see Figure 10.

Figure 10

Group-Based Social Identity (Tajfel, 1978)



The Twitch.tv platform provided both an opportunity for social interaction with a community of individuals sharing a common interest but also an on-demand and seemingly unlimited anytime-entertainment option.

As a result, consumers worldwide reached out to their esports communities during the COVID crisis to search for entertainment, strengthen their group associations, enhance their personal relationships, and build self-esteem during the 2020 stay-at-home order or social restriction periods (Turner et al., 1989). As Jetten et al. (2020) observed:

social identity refers to group membership, which serves to define a person's sense of "who they are" in a particular social context. In contrast, personal identity refers to a person's sense of their individuality (e.g., their idiosyncratic abilities and tastes).

Practically speaking, this means that when people see themselves in terms of their social identity, they self-define in terms of "we" rather than in terms of "I." It also means that when people act in terms of their social identity, they interact with others on the basis of an identity that they either share (as "us" ingroup members) or do not share (as "us" ingroup members versus "them" outgroup members). (p. 21)

Social identity theory (Tajfel, 1978; Tajfel & Turner, 1979) begins with the premise that individuals define their own identities through social group affiliations. Recent social identity theory research distinguishes between positive ingroup associations to improve self-esteem, in contrast to motivation for outgroup degradation (Reynolds et al., 2000). For example, positive ingroup associations and membership contribute to an enhanced self-relevant view, where a person defines much of their self-value through the group (see Figure 10). Because a person's social identity is based on the protection and enhancement of their self-conceptualization and

self-esteem, a threat to the individual or group often results in a stronger desire for affiliation with the group identity.

The COVID-19 pandemic resulted in an external environmental health threat. Several laboratory and field studies have empirically confirmed that when an external force poses a threat to an individual, the perceived value of group identification increases (Duckitt & Mphuthing, 1998). Research on individual and social behavior during the COVID-19 lockdown found that isolation became a part of everyday life. As Jetten et al. (2020) observed:

Google registered a global spike in searches for “isolation” and “loneliness” beginning in mid-February 2020 (Google Trends, 2020). At the same time, suicide-crisis phone lines worldwide reached their highest ever demand. In the face of COVID-19 restrictions, many people who have never experienced significant mental health difficulties before have found themselves struggling with insomnia, anxiety, and emotion dysregulation for the first time. (p. 74)

Social identity theory notes that an external threat, like COVID-19, is associated with an increasing psychological desire for group identification (Tajfel, 1979). Motivations for this behavior vary from searching for security to a desire for psychological well-being. The sense of self or perceived personal well-being is enhanced by identification as a group member.

If a person faces challenges, their response often places a higher value on group affiliations (Jetten et al., 2020). The desire for social affiliation during the COVID-19 crisis placed unique demands and extraordinary stresses on individuals. The ability of Twitch.tv to give an offering of wide interest (esports), provide fresh and or live entertainment options, real-time community interaction opportunities around the clock, and a sense of affiliation with a

community of individuals with common interests contributed to the dramatic increases in viewership during and after COVID-19.

Lally et al. (2010) noted that habits form based on situational cues and repetitive actions over time. They found that, on average, behaviors that are repeated daily in a similar environment become a habit after 66 days. This study found that in the during-COVID-19 and post-COVID-19 periods, esports viewership levels on the Twitch.tv platform remained significantly higher than in the pre-COVID-19 period. Further, the period the Centers for Disease Control and Prevention (CDC) established for stay-at-home orders and social restrictions (approximately five months or 150 days) was well over the 66 days that Lally et al. (2010) found are necessary for the formation of a habit based on situational clues. This may explain the ongoing high levels of esports viewership after the end of the 2020 restrictions. One might also conclude that, given that individuals were requested or mandated to stay-at-home during the pandemic, the situational cues at home triggered esports viewership behavior even in the post-pandemic phase.

Chapter 3: Study Design, Sampling, and Methods of Analysis

The research question presented here is: “What is the impact of the COVID-19 pandemic on esports viewership trends?” This mixed-method study seeks to answer this question using a quantitative analysis of English-language Twitch.tv peak monthly viewership data from October 2019 until December 2020, or a total of 15 months.

The Twitch platform was selected for research, given its dominant market share during this period. This study is bounded to the Twitch platform based on access to website usage data by language sourced via the Esports Charts. According to Streamlabs’ Q1 2021 Report, Twitch.tv leads the market within livestream viewers in both the fourth quarter of 2020 and the first quarter of 2021 with 6.34 billion hours of viewing, representing which represents 72.3% of the market share for esports hours watched.

Given the significantly greater propensity for Twitch.tv usage in Asia, the only way to filter the data to better isolate Western countries was to source platform access data to Twitch by language. The researcher selected the English language in order to seek a macro-understanding of primarily North American and Western-Europe user behavior during the pre-, during- and post-COVID-19 periods. Quantitative findings are supplemented with targeted qualitative interviews of Georgia State University student esports viewers during the same period to provide additional insights into consumers’ behaviors and motivations.

The primary esports quantitative data source for this analysis was Esports Charts (2020), and more specifically Streams Charts, an Esports Charts data service for platform-level data reporting based on a custom commissioned dataset of English-language only Twitch.tv viewership during the studied period. This source provides a snapshot of global viewership of

esports activities on a monthly basis and required custom data filtering for English-only users. Data was not available based on geographic filters.

The Esports Charts data gathering method is outlined in Appendix B.

The quantitative analysis leveraged multiple independent sample t -tests, as the formula is outlined in Figure 11. T-test assesses the significant or non-significant differences between the means of the two groups. T is the t -value, x_1 and x_2 are the means of the two groups to Compare, s^2 is the pooled standard error of the two groups, and n_1 and n_2 are the numbers of observations in each of the groups (Burns & Burns, 2008).

Figure 11

The Two-Sample T-Test Formula to Define the Variables

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{s^2\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

The data compared the mean over specified periods based on monthly peak esports viewer data for each segment classified as before the COVID-19 lockdowns, stay-at-home orders, and social restrictions during the COVID-19 lockdown, and after the COVID-19 lockdown.

The three-time periods are defined as follows:

- Pre-COVID months: October 2019 through February 2020
- During-COVID months: March through July 2020
- Post-COVID months: August through December 2020

The researcher used CDC data to make assumptions regarding the effective monthly start and end dates for the classification of data into the pre-COVID, during-COVID, and post-

COVID groupings. Although re-openings varied by U.S. state, the majority had eased stay-at-home orders and major social activity restrictions by July 2020 (CDC, 2021).

The analysis requires three two-sample t -tests to determine if the t -value was greater than expected:

- T-test 1: Time periods: pre-COVID; during-COVID
- T-test 2: Time periods: during-COVID; post-COVID
- T-test 3: Time periods: pre-COVID; post-COVID

The researcher analyzed the quantitative data and conducted t -tests using SPSS. The two key assumptions for these tests were the following:

1. Esports viewership was the dependent variable, as measured by peak viewers, and was normally distributed. The researcher tested this by examining skewness and kurtosis. Values between -2 and +2 are considered acceptable for asymmetry and kurtosis and values for skewness to demonstrate normal univariate distribution. The data are also considered normal if the kurtosis value is between -7 and +7 (Burns & Burns, 2008).
2. The variance between groups was the same. The researcher evaluated this with Levene's test for equality of variance. If this test showed unequal variances, the researcher ran additional t -tests for an independent sample (Burns & Burns, 2008).

In addition to a review of quantitative data, additional insights were gained qualitatively by interviewing a targeted sample of Twitch.tv esports viewers from October 2019 to December 2020. Interviews were conducted between February 21 and March 24, 2022. All but one respondent remains active Twitch.tv platform users in 2022.

Qualitative research a targeted sample of interviewees to add additional insights into the increase or decrease in Twitch.tv viewership during the study period. The sample was sourced from the Georgia State University (GSU) Creative Media Industry Institute (CMII), which oversees GSU's esports programs.

The researcher recruited 25 students engaged in esports viewership at GSU. Potential recruits or respondents were solicited via posts shared by the GSU esports program manager in GSU esports online community sites. This solicitation included a link to a seven question SurveyMonkey online questionnaire (see Attachment C) to ensure participants were qualified to contribute.

The researcher reviewed 25 completed questionnaires and determined five were not qualified to participate in the research. Applicants eliminated from interview participation were based on the respondents noting they were not an active participant in esports (n=1) or online gaming viewership activities on the Twitch.tv platform during the entire study period of interest, October 2019 – December 2020. Also, respondents not currently GSU students (n=1). Respondents responding no to the willingness to participate in an interview (n=3).

Twenty respondents were contacted by the researcher using the provided email address or phone number (initially via text message). Email contact was initiated using the researcher's GSU email address, and text messages using the researcher's mobile phone number. Both the researcher's email address and phone number were disclosed to respondents in the initial survey questionnaire.

Twelve interviews were scheduled after successful communication with the researcher. Eight qualified respondents did not respond to multiple communication attempts, and two

respondents with scheduled WebEx meeting times missed the meeting and did not respond afterward to rescheduling requests.

After the prequalification and successful engagement, ten one-on-one interviews were conducted. Each interview was approximately 20 minutes, recorded, and transcribed via WebEx. Prospective and interviewed respondents were solicited in keeping with the GSU IRB approval method (dated February 18, 2022).

Interviewed respondents included nine males and one female. All were above 18-years old, current GSU students, and were active Twitch.tv platform users between October 1, 2019, and December 31, 2020. The respondents provided and approved GSU IRB consent forms and returned them to the researcher. They were also informed that the session was being recorded, however, no comments would be individually attributed, nor would their participation in this interview be disclosed.

Chapter 4: Results

Introduction

This mixed-methods study examined the impact of COVID-19 pandemic esports viewership trends. For this aim, the researcher analyzed esports viewership on the largest platform, Twitch.tv, before-, during-, and after- the COVID-19 stay-at-home orders, and health advisories, which included restrictions on social activity. The following questions and hypotheses guided the quantitative portion of this study:

RQ1: Was there a difference in viewership between the Pre-COVID and During-COVID periods?

H1₀: There was no significant difference in Twitch.tv viewership between the Pre- and During-COVID months.

H1_A: There was a significant difference in viewership between the Pre- versus During-COVID months.

RQ2: Was there a difference in viewership between the During- and Post-COVID periods?

H2₀: There was no significant difference in viewership between the During-and Post-COVID months.

H2_A: There was a significant difference in viewership between the During- and Post-COVID months.

RQ3: Was there a difference in viewership between the Pre- and Post-COVID periods?

H3₀: There was no significant difference in viewership between the Pre- and Post-COVID months.

H3_A: There was a significant difference in viewership between the Pre- and Post-COVID months.

The researcher conducted multiple independent samples *t*-tests to evaluate these research hypotheses. They based the quantitative analysis on monthly Twitch.tv peak viewership English-language data accessed from Esports Charts.

This chapter is structured as follows. First, it considers the process of data collection, then presents the results of the statistical analyses, including the descriptive statistics and the inferential statistics, before it concludes with a summary of the results.

Data Collection

This study explored the impacts of the COVID-19 pandemic on esports viewership trends using a quantitative analysis of monthly English-language Twitch.tv data. The primary esports quantitative data source for this analysis was Esports Charts (2021) and, more specifically, Streams Charts, an Esports Charts data service for platform-level data reporting based on a custom commissioned dataset of English-language only Twitch.tv viewership during the studied period. These monthly data points reflect peak viewership across the Twitch.tv platform between October 2019 and December 2020 and were collected for three time periods, which were defined as follows:

- Pre-COVID-19 months: October 2019 to February 2020 ($n = 5$)
- During-COVID-19 months: March to July 2020 ($n = 5$)
- Post-COVID-19 months: August to December 2020 ($n = 5$)

Quantitative Analysis Results

This section discusses the descriptive statistics and inferential analyses that the researcher performed to evaluate the research hypotheses and the assumptions of the analysis.

Descriptive Statistics

Table 1 provides the descriptive statistics for viewers for all time points in this study. When looking across all time points, there was an average of 2,017,877.67 viewers per month ($SD=573,013.514$). Furthermore, the skewness and kurtosis values of viewership were 0.759 and 0.124, respectively, confirming no statistical adjustment is required.

Table 1

Descriptive Statistics for Viewership for All Time Points

Variable	<i>N</i>	Min	Max	<i>M</i>	<i>SD</i>	Skewness	Kurtosis
Viewer	15	1,301,466	3,246,819	2,017,877.67	573,013.514	0.759	0.124

Inferential Analyses

The quantitative part of the analysis employed multiple independent sample *t*-tests to evaluate the research hypotheses. The researcher used these tests to assess the significant or non-significant differences between the Pre-, During-, and Post-COVID-19 periods. In these analyses, the dependent variable was viewership, and the independent variable was the time period. The researcher included the dummy variables, representing Pre- versus During-COVID, During- versus Post-COVID, and Pre- versus Post- COVID, as the independent variables in this analysis to evaluate RQ1 through RQ3, respectively. The two main underlying assumptions for these tests were the following:

1. The dependent variable was normally distributed.
2. The variances across the groups were equal (Burns & Burns, 2008).

The researcher tested the first assumption by examining the skewness and kurtosis values of the viewership. As displayed in Table 1, the skewness value fell within the acceptable range of

-2 to +2 (Hair et al., 2010). The kurtosis also fell within the acceptable range of -7 to +7 (see Table 1). Based on these results, the researcher found no substantial violation of the normality assumption and therefore used independent sample *t*-tests to test the hypotheses. The Levene's test of equality of variance was also used to evaluate the second assumption. The results of the examination of the second assumption of the *t*-test and the results of evaluating the research hypotheses are provided below.

Hypothesis 1

Null Hypothesis 1 showed no significant difference in viewership between the Pre- versus During-COVID-19 months. In order to test this hypothesis, the researcher conducted an independent sample *t*-test with Twitch.tv viewership as the dependent variable and the COVID-19 time period (Pre- and During-COVID) as the grouping variable. Levene's test of equality of variances showed that the homogeneity of variances assumption was not violated ($F(1,8)=2.919$, $p=0.126$). Thus, the researcher did not add a correction. The results from the independent samples *t*-test indicated that viewership was significantly higher during COVID-19 ($M=2,233,046.40$, $SD=590,249.081$) compared to pre-COVID-19 ($M=1,446,898.40$, $SD=157,234.254$; $t(8)=-2.878$, $p=0.021$). Therefore, these results provided significant evidence to reject Null Hypothesis 1 (see Tables 2 and 3). The Cohen's *d* value of -1.820, as a measure of effect size, indicated that the magnitude of this difference was very large.

Hypothesis 2

Null Hypothesis 2 was that there was no significant difference in viewership between the During-and Post-COVID-19 periods. In order to test this hypothesis, the researcher conducted an independent sample *t*-test with Twitch.tv viewership as the dependent variable, and COVID-19 time period (during- and post-) as the grouping variable. The Levene's test for equality of

variances showed that the assumption of homogeneity of variances was met ($F(1,8)=0.376$, $p=0.557$). Thus, the researcher used no correction for the t -test. The results from the independent samples t -test indicated that there was no significant difference in viewership for the during-COVID-19 period ($M=2,233,046.40$, $SD=590,249.081$) compared to the post-COVID-19 period ($M=2,367,688.20$, $SD=390,440.859$; $t(8)=-0.444$, $p=0.669$). Thus, these results did not provide support to reject Null Hypothesis 2 (see Tables 4 and 5).

Table 2

Descriptive Statistics Comparing Viewership Between Pre- and During-COVID-19 Periods

Variable	Time Period	<i>N</i>	Mean	Std. Deviation	Std. Error Mean
Viewers	Pre-COVID	5	1446898.400	157234.254	70317.296
	During-COVID	5	2233046.400	590249.081	263967.414

Table 3

Results From the Independent Sample T-Test Comparing Viewership Between Pre- and During-COVID-19 Periods

<i>t</i>	<i>df</i>	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
					Lower	Upper
-2.878	8	0.021	-786148.000	273172.688	-1416085.348	-156210.651

Hypothesis 3

Null Hypothesis 3 was that there was no significant difference in viewership between the pre- versus post-COVID-19 months. In order to evaluate this hypothesis, the researcher conducted an independent sample t -test with Twitch.tv viewership as the dependent variable and

COVID-19 time period (Pre- and Post-) as the grouping variable. Levene's test of equality of variances showed that the assumption of homogeneity of variances was not violated

($F(1,8)=2.587, p=0.126$). Thus, the researcher used no correction for the t -test. The results from the independent samples t -test indicated that viewership was significantly higher in the Post-COVID-19 period ($M=2,373,688.20, SD=390,440.859$) compared to the Pre-COVID-19 period ($M=1,446,898.40, SD=157,234.254; t(8)=-4.924, p=0.001$). Therefore, these results provided sufficient evidence to reject Null Hypothesis 3. The Cohen's d value of -3.114, as a measure of effect size, indicated that the magnitude of this difference was very large (see Tables 6 to 7).

Table 4

Descriptive Statistics Comparing Viewership Between During- and Post-COVID-19 Periods

	Time Period	<i>N</i>	Mean	Std. Deviation	Std. Error Mean
Viewers	During COVID	5	2233046.400	590249.081	263967.414
	Post-COVID	5	2373688.200	390440.859	174610.460

Table 5

Results From the Independent Sample T-Test Comparing Viewership Between During- and Post-COVID-19 Periods

<i>T</i>	<i>df</i>	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
					Lower	Upper
-.444	8	.669	-140641.800	316492.667	-870475.199	589191.599

Table 6*Descriptive Statistics Comparing Viewership Between Pre- and Post-COVID-19 Periods*

	Time Period	N	Mean	Std. Deviation	Std. Error Mean
Viewers	Pre-COVID	5	1446898.400	157234.254	70317.296
	Post-COVID	5	2373688.200	390440.859	174610.460

Table 7*Results From the Independent Sample T-Test Comparing Viewership Between Pre- and Post-COVID-19 Periods*

<i>t</i>	<i>df</i>	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
					Lower	Upper
-4.924	8	.001	-926789.800	188237.443	-1360866.122	-492713.478

Table 8*Summary of the Results of Evaluating the Research Hypotheses*

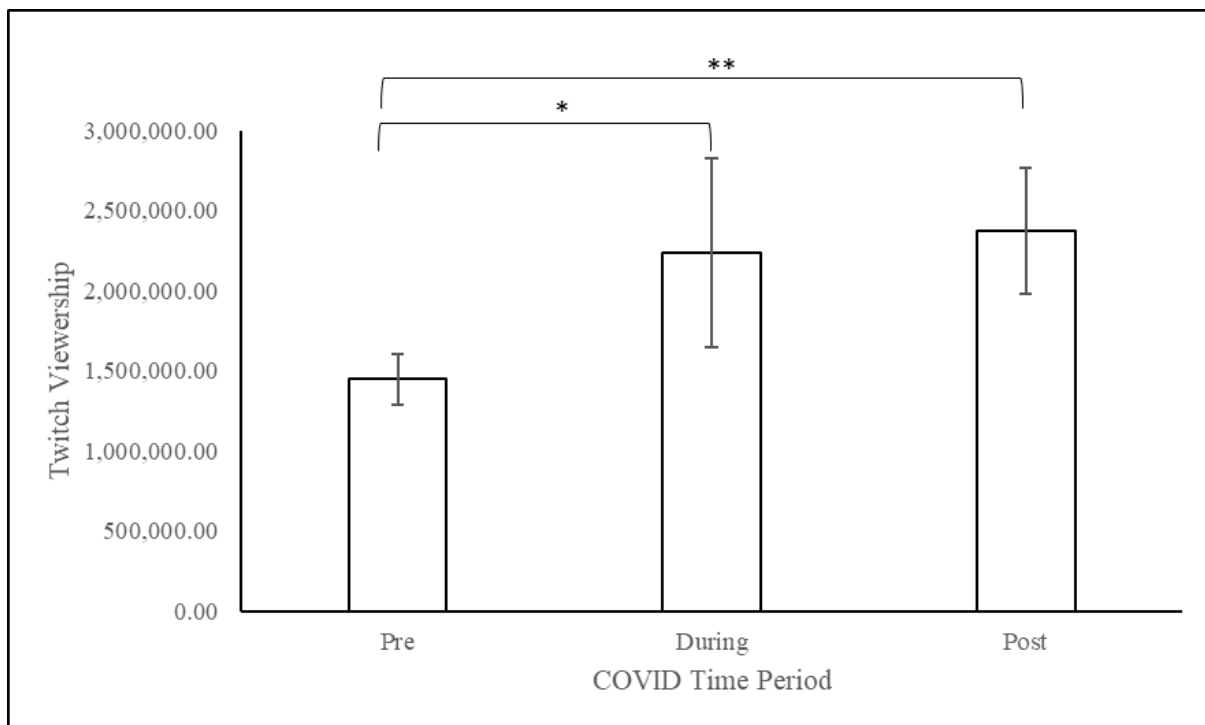
Hypothesis	Test Statistic	<i>p</i> -value	Result
<i>H1₀</i> : There is no significant difference in viewership between Pre- vs During-COVID months.	$t(8) = -2.878$.021	Rejected
<i>H2₀</i> : There is no significant difference in viewership between During-and Post- COVID months.	$t(8) = -0.444$.669	Not Rejected
<i>H3₀</i> : There is no significant difference in viewership between Pre- vs Post-COVID months.	$t(8) = -4.924$.001	Rejected

Figure 12 graphically describes the findings of the quantitative portion of this study. There are statistically significant differences in Twitch platform esports viewership levels between the pre- and during- COVID months. There are also statistically significant differences

between the pre- and post- COVID months. However, there is not a statistically significant difference between the during- and post- COVID periods. Yet higher esports viewership levels are noted. This elevated viewership level is not within the required p-value of statistical significance yet, in an absolute measure, suggests the possibility of increased esports viewership habit-forming and continuing in post- COVID months.

Figure 12

Means and Standard Deviations for Viewership for the Three COVID-19 Periods



Note: Error bars reflect standard deviations for the means. *indicates $p < 0.05$; ** indicates $p < 0.01$.

Qualitative Analysis Method

In February and March 2022, the researcher recruited 25 targeted respondents for further qualitative exploration of the impact of the COVID-19 pandemic on esports viewership trends.

The research area of interest was exploring potential esports viewership changes during and after

the COVID-19 stay-at-home orders and social restrictions. Ultimately, the researcher completed 10 one-on-one interviews with esports competitors, streamers, and viewers active on the Twitch.tv platform between October 2019 to December 2020.

The prospective and interviewed respondents consented to interviews in keeping with the GSU Internal Review Board (IRB)-approved methods for this study (IRB #H22320, Reference 368221).

The researcher solicited prospective interviewees with the assistance of the Georgia State University (GSU) esports program manager working within the Creative Media Industry Institute (CMII). They circulated requests for voluntary participation through two posts on Discord, the official GSU esports platform, that the GSU esports program manager shared on February 20 and March 1, 2022. The posts explained the research request and provided a link to a seven-question SurveyMonkey online qualification questionnaire (see Appendix C for the prequalification survey and Appendix D for survey responses). The researcher offered no compensation to the respondents.

The researcher reviewed the 25 completed questionnaires and determined that some respondents were not qualified to participate. The researcher contacted 17 respondents via text messaging through the researcher's mobile phone or email using the researcher's GSU student email address.

The researcher scheduled 12 one-on-one WebEx interviews and completed 10 interviews, as two respondents failed to attend the WebEx appointments at the schedule time. Neither of the two responded to follow-up communication seeking to reschedule the interview.

The respondents interviewed included nine males and one female. This is consistent with the reported overall esports gender balance, as reported by a McKinsey & Co. report (2020).

That report noted that, in the United States, 83% of esports fans are male and tend to be under the age of 25. All of the respondents were over 18 years old, current GSU students, and active Twitch.tv platform users between October 1, 2019, and December 31, 2020. The respondents were provided with, completed, approved, and returned the GSU IRB consent form to the researcher (see Addendum). Before the interview began, the researcher informed the respondents that they would record the interviews, and the respondents provided their verbal consent. The researcher further informed the interview participants that they would not individually attribute any of their comments or disclose their participation in the interview. The following is a profile of the respondents

Table 9

Summary of the Qualitative Interview Respondent Profiles

Respondent	Are You a Current GSU Student?	Views Esports on Twitch.tv?	Participate on Twitch Oct 2019 - Dec 2020?	Do You Continue to View Esports on Twitch?	Would You Agree to a Short Interview?	Are You 18 Years of Age or Older?	Self Identified Gender
Respondent 1	Yes	Yes	Yes	Yes	Yes	Yes	Male
Respondent 2	Yes	Yes	Yes	Yes	Yes	Yes	Male
Respondent 3	Yes	Yes	Yes	Yes	Yes	Yes	Female
Respondent 4	Yes	Yes	Yes	Yes	Yes	Yes	Male
Respondent 5	Yes	Yes	Yes	Yes	Yes	Yes	Male
Respondent 6	Yes	Yes	Yes	Yes	Yes	Yes	Male
Respondent 7	Yes	Yes	Yes	Yes	Yes	Yes	Male
Respondent 8	Yes	Yes	Yes	Yes	Yes	Yes	Male
Respondent 9	Yes	Yes	Yes	Yes	Yes	Yes	Male
Respondent 10	Yes	Yes	Yes	Yes	Yes	Yes	Male

The researcher conducted the interviews using GSU's WebEx tool to record, auto-transcribe, and content auto-code the findings using NVivo version 12.0. After NVivo auto-

coded all of the interview transcripts, the researcher reviewed the themes identified based on the discussion (see Addendum E for the interview discussion guide). The researcher reviewed and verified the major themes by conducting multiple reviews of the full audio and interview transcripts. The researcher also conducted a practice interview with the GSU esports program manager to test the discussion guide and ensure that the responses would provide the desired insight.

While exploring the research question on how the COVID-19 pandemic impacted esports viewership trends, four major themes emerged:

1. The definition of esports, competitive gameplay, streaming content, and viewership of gameplay differed widely among respondents;
2. The participants highly valued social interactions using embedded Twitch.tv platform communication features as a means of social engagement within the gaming community, especially during the stay-at-home orders and social restrictions;
3. Increases in Twitch platform viewership trends during and after the COVID-19 stay-at-home orders and social restriction periods were grounded in greater free time and ease of access to esports activities. Further, based on these targeted interviews, esports viewership remained high after the COVID-19 period because of habit formation among nine of the 10 respondents.
4. The participants' perception and usage of major gaming content platforms, including YouTube, YouTube Gaming, Facebook Gaming, and Twitch platforms, differed dramatically.

Theme 1: The Difference Between Esports and Viewership

Within the target sample, the respondents varied dramatically in their definitions of esports as active participation in competition versus casual (passive) gaming viewership. Four respondents believed that the definition of esports was limited to multi-player competitions where players competed for prizes or community stature (winning/losing). In contrast, six used a broader definition of esports for all categories of competitive, streaming, or viewing gameplay. These differences in esports category definition seem common within industry analyst reports and trade media.

Key respondent comments include:

“Esports is more competitive, while casual streaming or viewing others streaming is more a social or recreational activity.” (Respondent 6)

“It [esports] represents all of it: major events, competitions, entertainment by just watching, sharing with others... there is a lot... I can tell you, like, what esports is to me but not to everyone else.” (Respondent 2)

“Live streaming is different than esports. Esports is about competition. You win or lose, that is it. You are a player, or you are a spectator.” (Respondent 1)

Theme 2: Social Interactions via Twitch.tv Features Are Highly Valued

The respondents highly valued social interaction with people with shared interests. They perceived communications among Twitch.tv channel participants in any role as essential and as a major benefit. Access to content providers and other viewers via voice, chat, or message posts enhanced their social experience and appeared to help them reduce the perception of COVID-19 isolation.

“I was so bored when stuck at home during COVID. When I turned on my computer, the first thing I did was check out what everyone was doing on my favorite streams. Sort of like catching up with the group... If I didn’t have it on for long periods of time, I felt I am missing something.” (Respondent 9)

“I value others’ opinions relative to the game. Sometimes it is hard to listen to or read the comments made by some jerks on Twitch. Most of us are nice, but there are just some people that upset you... but it made me feel more like I was in the real world again.” (Respondent 3)

“There is a group of us that schedule a time to watch a stream or play online together... One guy, Lee, is in someplace like Hong Kong, and it is like the middle of the night there. He is cool, and it is weird to talk to someone like they are sitting on the couch next to you when they are around the world. I don't know how he does it... But I will do my best not to miss getting together with the group... Lots of trash talking, joking, sharing stupid stories... it is just fun to be doing something together, especially during COVID. It sure beats watching an old movie with the parents...” (Respondent 4)

The respondents interviewed reported little interest in Twitch’s “Just Chatting” feature, which allows platforms user to discuss a wide range of subjects unbounded by a game title or active stream in a way very similar to traditional social media. Interestingly, global usage data for the Twitch.tv platform reveals that the “Just Chatting” feature was the most widely-accessed area of the Twitch.tv platform during the periods of this study (Esports Charts, 2021). This may indicate regional differences. The study’s target sample showed little interest in the “Just

Chatting” Twitch feature. The English-language dataset secured for this October 2019–December 2020 study, however, did not include this Twitch.tv platform feature’s usage data.

The respondents also noted a difference in competitive esports communication or chat conventions and described online conversations as more “business-like” during competition gameplay. They noted trash talk as a legitimate player-to-player subject of conversation, but the spectators engaged primarily in running commentary and feedback on the competitors’ actions. Chat messages or voice conversations during more casual (non-competitive) streaming gameplay is open to a much broader range of topics that may include personal topics. The participants noted that a streamer’s recognition or response to a viewer’s chat or voice comments was a source of personal pride and a minor signal of status.

Theme 3: Esports Viewers Were Aware of Changes in Twitch.tv Viewership and Esports Participation Patterns During the COVID-19 Pandemic Period

With the exception of one interviewee, the respondents reported an increased usage of the Twitch.tv platform during the COVID-19 pandemic stay-at-home period (from March to July 2020). Nine of the 10 respondents reported multitasking while engaged in other activities, including attending classes online and working from home, and they frequently mentioned having Twitch.tv “on in the background.”

“You don’t need to pay full attention to Twitch. You just listen for when something happens, then you look.” (Respondent 1)

“Classes are boring enough, and the only real benefit to being downtown was seeing my friends. When at home on a Zoom, I could watch Twitch and interact with my other friends while in class... Who would know? We all did it.” (Respondent 9)

“After we could go out again, even now I find myself setting up my laptop and getting on Twitch the moment I arrive home... don’t really know why but it is just part of my routine now whereas before COVID... it [Twitch.tv] was more what I did during times when I was bored and alone... usually late at night. I actually get a little anxious if it is not at least on in a small window.” (Respondent 2)

“I really missed the personal interactions with my friends at League of Legends competitions. Just viewing online didn’t cut it for me. People say terrible things to women on Twitch. It really made me sad at times to watch a lot of esports during the lockdown. I cut back a good deal but still watched when super bored.” (Respondent 3)

Figure 13 show a cognitive map of individual responses by the respondents interviewed asking “What motivated any changes in your esports viewership during the stay-at-home period?”

Figure 13

Qualitative Research Cognitive Map for “What Motivated Any Changes in Your Esports Viewership During the COVID-19 Stay-at-Home Period?”



Theme 4: Differing Perceived Utility Value of Major Gaming Platforms, Including Facebook Gaming, Twitch, and YouTube Gaming

Interestingly, the respondents noted very different usage patterns between major platforms. Eight of the 10 respondents noted they did not use Facebook Gaming, which Newzoo classifies as the number two gaming platform. They also appeared to take pride in their non-use of the Facebook platform overall:

“I’ve not accessed Facebook in years... it is just so old-school.” (Respondent 8)

“Nobody wants to be seen there... who wants to talk about Facebook?... My mother and grandmother are the only ones that talk about Facebook now.” (Respondent 1)

“I deleted my Facebook account in high school.” (Respondent 10)

The respondents noted that they highly valued the Twitch.tv platform's utility. They voiced a clear preference for Twitch.tv to view competitions, casually stream gameplay, chat or comment on gameplay, and view gameplay and considered it a superior experience to other gaming platforms:

“All my friends are on Twitch... Unless they [Twitch or its parent Amazon] do something horrible or this metaverse thing turns into something, I'm just going to keep using it...” (Respondent 4)

“Twitch lets me watch things in real-time... live. I can react to what I see or hear immediately. I don't want to surf two or three different platforms and learn their interfaces to do what I want.” (Respondent 10)

“When COVID hit, I really missed my friends. We would meet up at competitions downtown and have fun. In isolation on my own, I found Twitch helped but was not a 100% replacement. I live on my own and the GSU esports community helped a bit, but it was a very weird time.” (Respondent 3)

The participants recognized YouTube primarily as a curated platform with concentrated scenes and actions important to the content creator(s). A number of respondents commented that this required full attention to the video presentation, clip, or segment. Some noted YouTube Gaming's ability to stream live content, but that was the minority of respondents (three of 10).

Most of the respondents noted that they used YouTube (not specifically YouTube Gaming) to view competition recaps or highlights. No respondent noted a use of YouTube or YouTube Gaming for extended periods.

“I watch some YouTube videos on esports but the creators work really hard to show you what matters to them. To me, that means I must pay attention. I can’t do that long while I do other things...” (Respondent 8)

“YouTube Gaming, I’ve heard of it but never really used it.” (Respondent 3)

“YouTube is great. I know nothing about what make YouTube Gaming different... I don’t think it has come up once in discussions with my friends...” (Respondent 6)

Interviews with the target sample further informed the quantitative analysis by illustrating consumer motivations and behavior during this unique time. The respondents’ explanation of ongoing usage behavior was interesting in that it noted that during the stay-at-home and social restrictions periods, they appear to have changed their fundamental behaviors and formed new habits. They increased their esports viewership and participation in all forms and generally maintained it. Although the statistical analysis noted no significant difference between the during- and post-COVID-19 periods, general Twitch.tv usage continued in the post-COVID-19 period. This reflects the formation of new usage habits based on the during-COVID-19 period. This small but targeted qualitative exploration indicated that the respondents changed their behavior and strengthened ties to the Twitch.tv esports communities of interest, supporting the social identity and habit theories.

Summary of Quantitative and Qualitative Findings

The purpose of this mixed-method study was to investigate the impact of the COVID-19 pandemic on esports viewership trends. Three questions and their corresponding hypotheses guided the quantitative part of this study. The researcher used the independent samples *t*-test method to evaluate the research hypotheses. The results from this test provided evidence to reject

two of the three null hypotheses. These results revealed that there was a significant difference in viewership between pre- and during-COVID-19 periods and between the pre- and post-COVID-19 periods. However, there was no significant difference between the during-and post-COVID periods.

A targeted sample for qualitative interviews revealed that Twitch.tv platform user behavior changed during COVID-19 and that the majority of the respondents formed new usage habits. The time at home during the stay-at-home orders and pandemic social restrictions far exceeded the average 66 days that research shows is needed to form new habits (Lally et al., 2020). Many of the respondents noted, and the quantitative data supports the finding, that dramatically elevated usage levels of the Twitch.tv platform during the COVID-19 period generally continued after the pandemic lockdowns, reinforcing the idea that the users formed new usage habits or established new behavioral norms.

Chapter 5: Discussion

This study explored how COVID-19 impacted esports viewership trends. It demonstrated the relevancy of social identity theory and habit theory in the esports domain by examining shifts in social behaviors during the COVID-19 pandemic and the growth of the virtual esports community due to social isolation. Based on these theories, the researcher hypothesized that when users were faced with a global and unprecedented health crisis, COVID-19, a significant number of Twitch.tv platform users sought entertainment but also formed new habits by enhancing their social affiliation with esports communities that lasted beyond the lockdown period. This was demonstrated by the significant increases in peak viewership during and after the COVID-19 stay-at-home order and major social restriction periods.

This study is relevant to practitioners of marketing, media, and advertising, as it may reflect a change in consumer media consumption, where users seek a combination of entertainment, community participation opportunities, and related social interaction. This is worthy of future research and comparison to other media consumption and general social media usage patterns during the same period.

In their meta-analysis of esports scholarship, Cabeza-Ramírez et al. (2021) noted that the current academic literature related to the business of esports is relatively sparse (see Appendix A). This study therefore further reinforces the theoretical foundation of social identity theory relating to the unexpected COVID-19 shocks and habit theory based on extended periods of social isolation at home.

Esports viewership can reflect new media consumption paradigms and a new focus for marketers regarding shifts in media investments and consumer outreach.

Around the globe, the 2020 COVID-19 pandemic was a catastrophe resulting in death and significant human suffering. Governments worldwide took unprecedented actions to impose “lockdowns” or stay-at-home orders for entire populations. These public health and safety orders included restrictions on social activities, the requirement to wear surgical masks, business closures, work-from-home mandates, and countless other behavioral modifications. The COVID-19 pandemic disrupted commerce and buyer-seller relationships.

This study examined a 15-month period and quantitatively reviewed Twitch.tv platform usage data focused on peak viewership using a *t*-test method to evaluate significance. For the purposes of this study, the periods were defined as:

- Pre-COVID-19 months: October 2019 to February 2020
- During-COVID-19 months: March to July 2020
- Post-COVID-19 months: August to December 2020

This study used a quantitative analysis to confirm a significant change in consumer usage of the Twitch.tv platform during and after the COVID-19 stay-at-home and social restriction months when compared to the pre-COVID period. The researcher found that the combination of the desire for entertainment and Twitch’s integrated community participation options helped enhance user self-esteem through greater social affiliation with esports groups during the public health crisis. This behavior is grounded in social identity theory.

Further, the continuation of comparatively high Twitch.tv platform usage levels after the end of the stay-at-home orders and social restrictions in 2020 likely resulted from prolonged regular esports platform interactions reinforced over months of daily interaction. This elevated level of esports viewership is reflected in the statistically significant differences between the pre-

and post-COVID-19 Twitch.tv platform usage levels, indicating that consumers formed new usage habits during the COVID-19 period.

This study further contributes to the literatures on esports. As there is relatively little scholarly investigation into the business aspects of esports (Cabeza-Ramírez et al., 2021). The documentation of changes in user engagement with the market-leading esports platform, Twitch.tv, during the COVID-19 lockdown reveals how English-language speakers sought a greater association with similarly-minded groups (social identity theory) and how, after the pandemic, they found themselves compelled to continue using Twitch.tv at elevated levels (habit theory).

Chapter 6: Conclusions, Limitations, and Opportunities for Future Research

This study explored and documented the impact of the COVID-19 pandemic on esports viewership using the lens of social identity theory and habit theory to explore the context of Twitch.tv, a rapidly developing entertainment, social media, and community-building platform. Specifically, this research analyzed and documented changes in macro-level Twitch.tv platform usage for individuals accessing it in the English language during the period from October 2019 to December 2020. The analysis revealed statistically significant differences in levels of user activity based on peak viewership in the pre-COVID-19 and during-COVID-19 periods and in the pre-COVID-19 and post-COVID-19 periods. The analysis did not find a statistically significant difference between the during-COVID-19 and post-COVID-19 levels. However, post-COVID-19 peak viewership levels remained elevated, indicating that consumers formed new usage habits during the five-month stay-at-home and social restriction periods. The researcher confirmed this via targeted qualitative interviews.

The limitations to this study include esports global consumer usage data of Twitch.tv is plentiful and includes real-time, daily, weekly, monthly, and annual media consumption statistics however it does not reflect accurately Western European or North American consumer behavior given greater esports penetration in Asian markets. However, the researcher did not have access to geographically-based or country-specific data. Statistics show that countries in Asia have, by far, the highest penetration of Internet users leveraging the Twitch.tv platform. In order to gain a Western perspective, the researcher commissioned a custom dataset from Esports Chart for users accessing Twitch.tv in English. This was a limitation of the dataset, but Twitch.tv data was not available based on geographic, demographic, or psychographic filters from this provider.

This study makes a unique engaged scholarship contribution because it focuses on usage of the Twitch.tv platform during the very recent COVID-19 pandemic with an emphasis on English-language users. It contributes to academic knowledge of the topic of esports, specifically in the area of viewership during a global public health crisis as well as on post-crisis habit formation.

Esports viewership offers fertile ground for future research. Areas of interest include:

- Longitudinal studies of esports viewership trends for age groups most impacted by COVID-19 to determine if newly formed habits continue over time
- Comparative media consumption studies on media categories that “won” or “lost” viewers during the COVID-19 period
- Further exploration of the Twitch.tv “Just Chatting” feature’s global popularity but lack of interest in the U.S.-based qualitative target sample

Esports viewership is a rich area for future research and presents many opportunities for meaningful contributions. One major limitation to academic research is the rapid pace of the esports industry change and evolution. This makes it difficult to complete a relevant but rigorous examination of any new or emerging phenomenon.

Managerial Implications

Twitch.tv is an industry leading platform that combines entertainment (esports), content sharing, and community engagement with a global audience. The growth of this Internet-based platform used to share gameplay experienced significant growth during the tragic COVID-19 pandemic. Social identity and habit theory help guide us to an enhanced understand of the major storylines or motivations for such changes in consumer media consumption behavior during a time of crisis over an extended period. As an engaged scholar, this research demonstrates the

value of integrated entertainment and social/community engagement in the context of a common interest. Research indicated both dimensions are appreciated by users of the Twitch platform and create a “sticky” product that user regularly engage with. Media and entertain,companies would be wise to consider how to integrate vs. segregate social (using separate social media channels) interactions with their content to enhance opportunity for community building.

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Appendix A

Number of Academic Articles Published on Esports (All Disciplines)

Source: Cabeza-Ramírez et al. (2021).

Int. J. Environ. Res. Public Health **2021**, *18*, 2917

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Figure 3. Number of documents and impact in terms of citation and usage.

Note: This chart was published with a misspelling.

Appendix B

ESPORTS Chart Data Collection Methodology

METHODOLOGY BASICS

The **methodology description** of collecting, processing and providing data is valid for all entities and their characteristics, which are described in the terms and definitions part of this document, incl. for match, team and/or organization, organizer, tournament, etc.

Data collection and processing

Data collection is carried out directly from the platforms and is based on the API, provided by the platforms, or by our own methods. We directly receive all relevant data without the influence of any third parties. Every minute, the Esports Charts parser checks all streams for a number of conditions on all platforms and saves the data for all online channels in the Esports Charts database.

Collected data processing is carried out automatically by our software (our own proprietary technology), which was designed, implemented, and is constantly developed by the Esports Charts technical department. All data after initial processing is stored in a convenient form for further work. All the data can be quickly exported from the database both for compiling unique analytical reports on past events and for evaluating upcoming esports activities.

Twitch stats by month ⓘ							
2021							
Month	Active Channels	Peak Viewers	Peak Channels	Avg. Conc. Viewers	Avg. Conc. Channels	Hours Watched	Games Streamed
Aug 2021	2,519,552 ↑ 30%	4,316,093 ↑ 2%	190,473 ↑ 30%	2,576,239 ↑ 2%	101,125 ↑ 1%	987,960,044 ↑ 49%	12,661 ↑ 22%
Jul 2021	3,609,343 ↑ 13%	4,414,159 ↑ 24%	146,244 ↑ 6%	2,626,124 ↑ 4%	101,645 0%	1,953,835,920 0%	16,177 ↑ 4%
Jun 2021	3,198,130 ↑ 2%	5,793,507 ↑ 1%	155,527 ↑ 15%	2,723,464 ↑ 12%	101,752 ↑ 8%	1,948,530,600 ↑ 15%	15,621 ↑ 7%
May 2021	3,272,608 ↑ 18%	5,835,026 ↑ 7%	184,034 ↑ 9%	3,100,355 0%	110,253 ↑ 5%	2,299,250,460 ↑ 3%	16,739 ↑ 1%
Apr 2021	3,989,907 ↑ 7%	6,248,256 ↑ 19%	201,703 ↑ 1%	3,099,120 ↑ 6%	115,713 ↑ 1%	2,222,643,776 ↑ 2%	16,568 ↑ 2%
Mar 2021	4,272,152 ↑ 1%	5,264,032 ↑ 1%	199,020 ↑ 1%	2,928,198 ↑ 1%	116,908 ↑ 5%	2,172,361,608 ↑ 10%	16,218 ↑ 3%
Feb 2021	4,213,517 ↑ 8%	5,300,171 ↑ 19%	200,993 ↑ 1%	2,943,053 ↑ 1%	122,656 ↑ 3%	1,971,127,076 ↑ 9%	15,700 0%
Jan 2021	4,567,384 ↑ 3%	6,577,002 ↑ 36%	199,807 ↑ 15%	2,918,051 ↑ 16%	119,232 ↑ 12%	2,162,546,512 ↑ 16%	15,694 ↑ 3%

Appendix C

Qualitative Respondent Recruiting Questionnaire

@everyone The Georgia State University Student Esports League. Request your help assisting a GSU doctoral student studying esports.

The student seeks to briefly interview ten Twitch.tv users (via Zoom) to discuss any changes in esports viewership before, during, and after the 2020 COVID-19 stay-at-home order periods.

Please take a moment to respond to this quick qualification survey. You may assist this student by volunteering to participate in a one-on-one interview taking place later this month. All responses will be confidential.

Link: [GSU ESPORTS SURVEY PARTICIPATION REQUEST](https://www.surveymonkey.com/r/RJX6QN8) Or URL:

<https://www.surveymonkey.com/r/RJX6QN8>

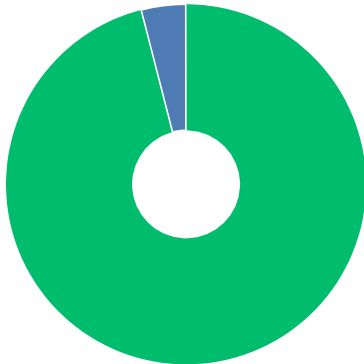


Appendix D

Qualitative Respondent Recruiting Questionnaire

Conducted using SurveyMonkey.com, 25 of 25 Responses Reported

1. Are you currently a student at Georgia State University?

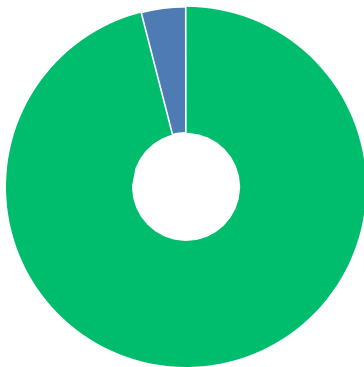


Answered: 25 Skipped: 0

Yes: 96% (24)

No: 4% (1)

2. Do you participate in, stream, or view esports using the Twitch.tv platform?

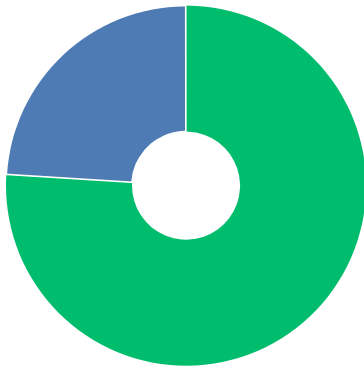


Answered: 25 Skipped: 0

Yes: 96% (24)

No: 4% (1)

3. Did you participate in or view esports on the Twitch.tv platform between October 2019 and December 2020?

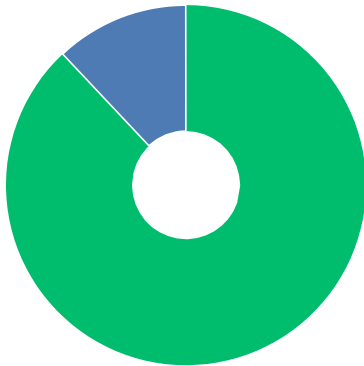


Answered: 25 Skipped: 0

Yes: 76% (19)

No: 24% (6)

4. Do you continue to participate in or view esports on the Twitch.tv platform?



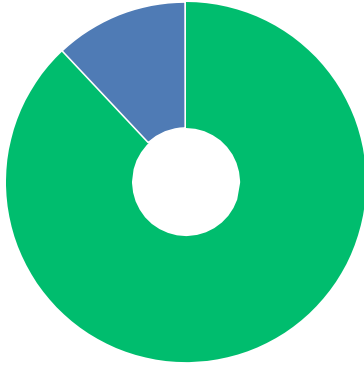
Answered: 25 Skipped: 0

Yes: 88% (22)

No: 12% (3)

5. Would you agree to a short interview to share insights on your esports viewership habits on Twitch.tv?

Your feedback helps enhance understanding of changes in usage of the Twitch platform. The interview will help a GSU Doctoral candidate complete degree requirements.



Answered: 25 Skipped: 0

Yes: 88% (22)

No: 12% (3)

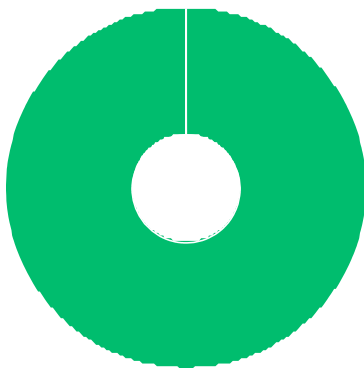
6. Please share your email address or mobile phone number to permit contact to schedule an interview. It will not be shared.

This interview will be scheduled at your convenience for mid-February 2022. It will be a 15-minute interview conducted by Jim Crone, a GSU Doctoral student Mobile 404.664.XXXX, jcroneX@student.gsu.edu

All responses will be confidential

Responses 22

7. Are you 18 years of age or older?



Answered: 25 Skipped: 0

Yes: 100% (25)

No: 0% (0)

Appendix E

Informed Consent Form

Georgia State University
Informed Consent

Title: THE IMPACT OF COVID-19 PANDEMIC ON ESPORTS VIEWERSHIP TRENDS
Principal Investigator: Dr. Danny Bellenger (Faculty Advisor)
Student Principal Investigator: James Crone, DBA Candidate

Procedures

You are being asked to participate in a research study to increase academic knowledge of esports viewership patterns during the 2022 COVID-19 Pandemic. If you decide to participate, you will be part of a one-on-one interview conducted by the Student Principal Investigator.

- The respondents will be asked to describe any changes in esports viewership habits before, during, and after the 2020 COVID-19 stay-at-home order period
- Research interviews will be completed during February 2022
- This will be a single interview
- The interview will take up to twenty minutes
- The interview will be recorded but remain confidential
- The interview computer-based video conference tool (Zoom or Microsoft Teams).

Compensation

There will be no compensation provided for participation in this study. However, your participation will assist in the enhanced recognition of the benefits and value of the rapidly growing esports community.

Voluntary Participation and Withdrawal

You do not have to be in this study. You may decline to answer questions or stop participating at any time. Your feedback will be used anonymously, and no personal attribution will be made in the final paper.

Contact Information

Contact: Jim Crone, Doctor of Business Administration Candidate, 2022
Georgia State University
Mobile: 404.664.4881 Email: jcrone2@student.gsu.edu
Primary Investigator: Dr. Danny Bellenger
Georgia State University
Mobile: 404.401.2424 Email: dbellenger@gsu.edu

Consent

If you are willing to volunteer for this research, please sign below. Thank you for your assistance

Appendix F

Qualitative Interview Discussion Guide

IRB Application Approved February 18, 2022

IRB Number: H22320

Reference Number: 368221

Method Summary: Jim Crone, a D.B.A. candidate, interviewed ten prequalified esports respondents. Interviews were conducted using the GSU WebEx video conferencing platform to permit recording and transcription. Additional details are outlined in the Methods section and comply with GSU IRB requirements.

Interview Introduction

Participants introduced to the survey objectives, advised no P.I.I. or quotes will be individually attributed and asked for permission to record the session. All questions discussed with all respondents.

Discussion Guide:

1. How long have you been using the Twitch.tv platform?
2. How do you primarily use the Twitch platform?
 - a. Compete in competitions?
 - b. Stream content?
 - c. View esports gameplay?
 - d. Chat outside of a specific game (Twitch Just Chatting feature)?
 - e. All of the Above
 - f. Other (specify)
3. Were you an active participant or viewer of esports on Twitch between October 2019 and December 2020?
4. What features of the Twitch platform do you find most helpful?
 - a. Did that change during or after the stay-at-home period?
5. How did the COVID-19 stay-at-home orders and social restriction impact your esports participation, streaming and/or viewership habits?
 - a. Decrease?
 - b. Increase?
 - c. Stay about the same?
6. What motivated any change in esports competition participation, streaming, or viewership during the stay-at-home period?

7. When the COVID-19 Pandemic orders were lifted, how did this influence or change your esports viewership habits? Why?
8. Approximately how much time did you spend viewing esports per day in 2020 before, during, and after the stay-at-home orders were issued?
 - a. Before 2020 COVID stay at home orders (March 2020)
 - b. During COVID stay at home orders (March – June 2020)
 - c. After COVID stay at home orders (June – December 2020)
9. How do you use the Twitch platform vs. other platforms to view esports?
 - a. YouTube Gaming?
 - b. Facebook Gaming
 - c. Others (specify)
10. What additional information could you share on how COVID-19 impacted your esports streaming or viewership habits?

Thank you