

# ONLINE STREAMING INSIGHTS

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JUNE 23, 2022

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**Twitch, Onramp DS Apprenticeship**  
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# Online Streaming Overview

Digital entertainment has become a large part of our society, and data about these trends can reveal patterns of consumer behavior that can guide business decisions in marketing, efficiency, and profitability.

For example:

- Music - Data from Spotify can display users' streaming volume patterns, and comparison to real-world events can help explain them, revealing majority preferences and behavior motivators.
- Video Games - Consumer behavior trends between YouTube's gaming category and online game streaming platforms such as Twitch can show which demographics spend time where, and for how long.
- Movie and TV show consumption can be seen in NetFlix viewing data, illustrating which programs reach bigger audiences.
- And much more

As shown in the graphs below, over a six-week period, videos in YouTube's music, entertainment, and gaming categories accounted for *two-thirds* of all views amongst trending videos. Clearly these categories appeal to consumers.

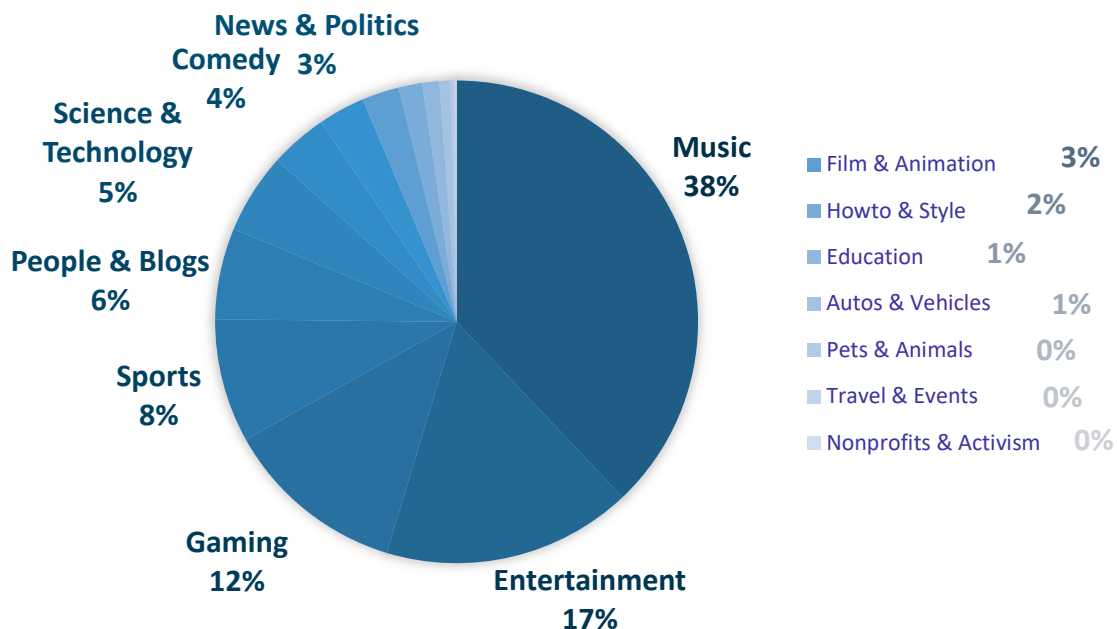
This paper will focus on Spotify, YouTube, and Twitch data.

# YouTube User Trends

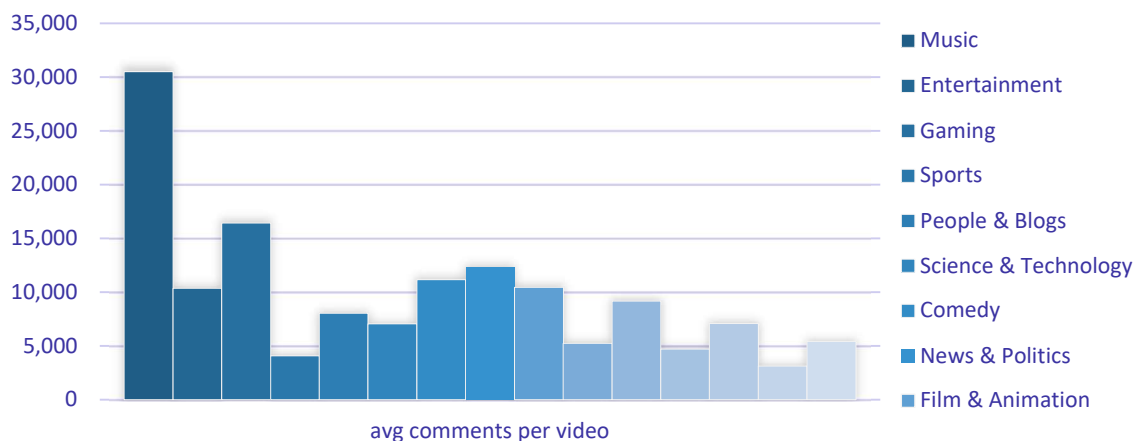
## Most Popular Categories

(Sep 24, 2020 – Nov 6, 2020)

### TOTAL YOUTUBE VIEWS BY CATEGORY



### AVERAGE COMMENT COUNT PER VIDEO



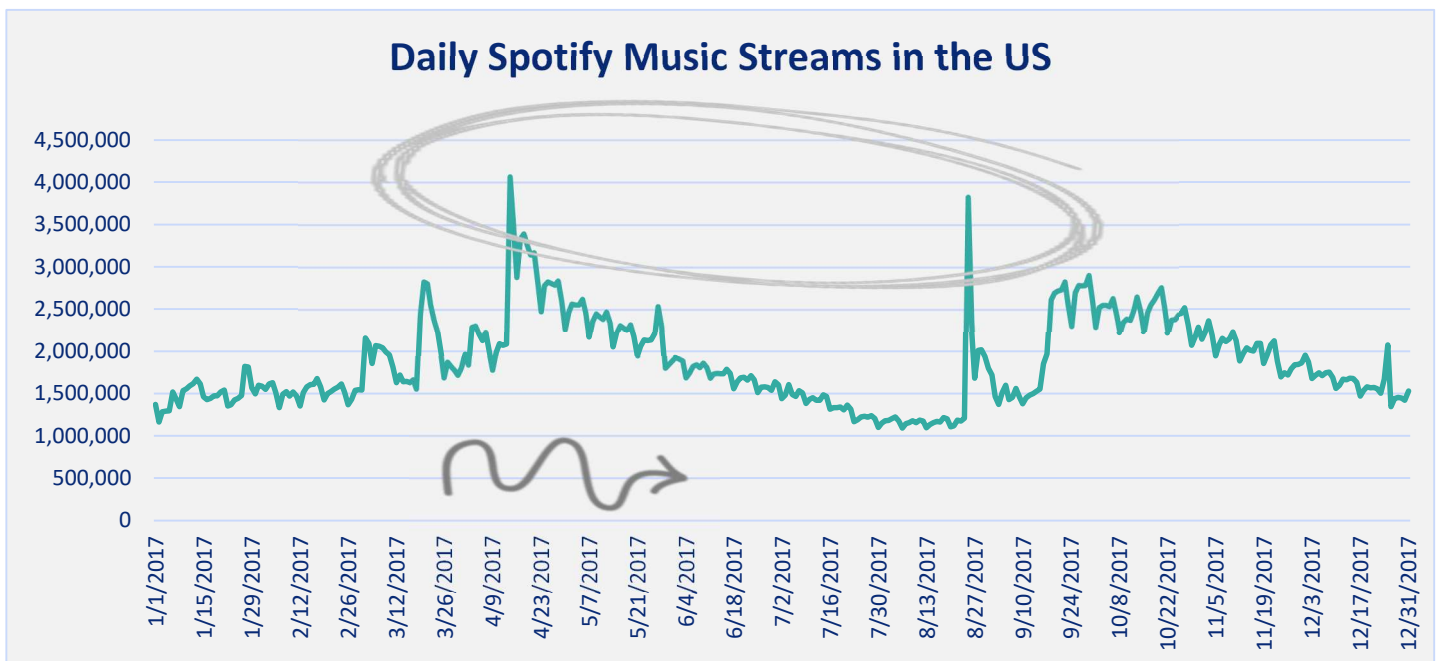
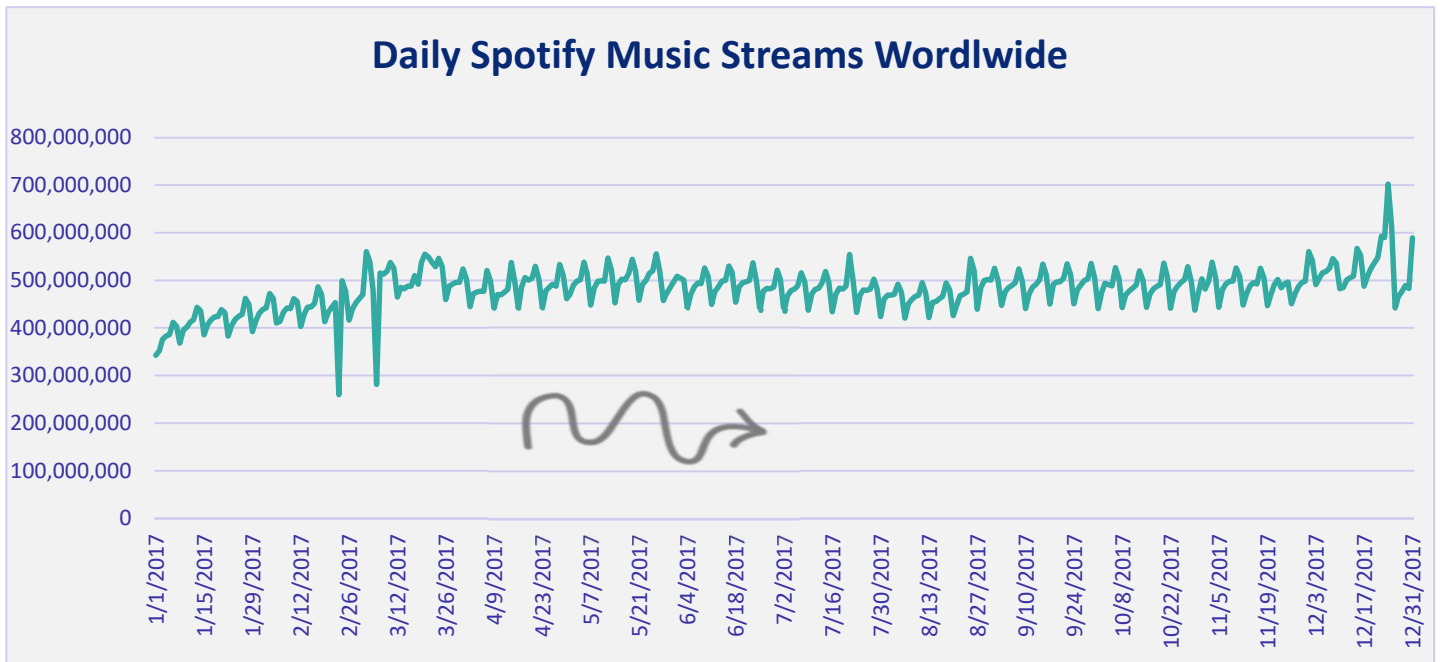
Date Range: Sep 24, 2020 – Nov 6, 2020 Data Source: Kaggle YouTube Trending Video Dataset

<https://www.kaggle.com/datasets/rsrishav/youtube-trending-video-dataset>

see Appendix A.i

# Music Streaming Trends

Spotify: Music Streaming Patterns Worldwide vs in the USA  
(Jan 1, 2020 – Dec 31, 2020)



Date Range: Jan 1, 2017 – Jan 31, 2017      Data Source: Twitch DS Pre-Interview Project database  
<https://www.kaggle.com/datasets/edumucelli/spotifyfs-worldwide-daily-song-ranking>

## Spotify: Music Streaming Patterns Worldwide vs in the USA (Jan 1, 2020 – Dec 31, 2020)

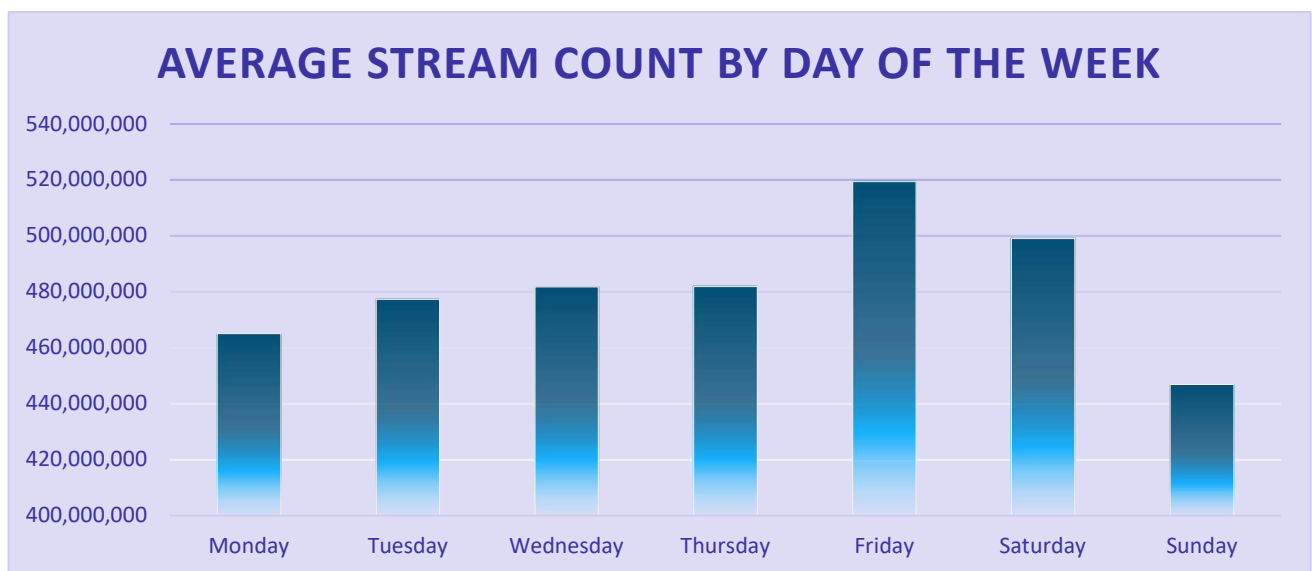
A couple of interesting things stand out here:

- A seemingly repeating, small sub-pattern within the overall pattern
  - Manifests in both worldwide and US-only data
- Substantial spikes on Apr 14 and Aug 25 within the US-only

Take a closer look:

- A seemingly repeating, small sub-pattern within the overall pattern. 

Interestingly, the pattern of steaming volume within each week holds fairly true week-to-week, throughout the year. Considering the days of the week, it is clear that Fridays are consistently the busiest day for streaming music, and Sundays are the least busy.



Date Range: Jan 1, 2017 – Jan 31, 2017    Data Source: Twitch DS Pre-Interview Project database  
<https://www.kaggle.com/datasets/edumucelli/spotify-worldwide-daily-song-ranking>

The consistent spikes on Fridays makes sense because most new songs and albums are released on Fridays.

## Spotify: Music Streaming Patterns in the USA (Jan 1, 2020 – Dec 31, 2020)

- Substantial spike on Apr 14 in US



Isolating the data from Apr 14, 2017 reveals that 14 of the top 15 songs streamed on Spotify that day were Kendrick Lamar songs. In fact, that is the day that the album 'DAMN.' was released. ***It was a highly anticipated album, and users were quick to download the songs immediately upon their release.***

position	track_name	artist	streams	date	region
1	HUMBLE.	Kendrick Lamar	4068152	2017-04-14	us
2	DNA.	Kendrick Lamar	3643231	2017-04-14	us
3	ELEMENT.	Kendrick Lamar	2804824	2017-04-14	us
4	LOYALTY. FEAT. RIHANNA.	Kendrick Lamar	2739572	2017-04-14	us
5	YAH.	Kendrick Lamar	2578950	2017-04-14	us
6	BLOOD.	Kendrick Lamar	2439181	2017-04-14	us
7	FEEL.	Kendrick Lamar	2356982	2017-04-14	us
8	PRIDE.	Kendrick Lamar	2187484	2017-04-14	us
9	XXX. FEAT. U2.	Kendrick Lamar	2158126	2017-04-14	us
10	LOVE. FEAT. ZACARI.	Kendrick Lamar	2070445	2017-04-14	us
11	LUST.	Kendrick Lamar	1996974	2017-04-14	us
12	Mask Off	Future	1734353	2017-04-14	us
13	FEAR.	Kendrick Lamar	1717540	2017-04-14	us
14	DUCKWORTH.	Kendrick Lamar	1546441	2017-04-14	us
15	GOD.	Kendrick Lamar	1529021	2017-04-14	us

### New Kendrick Lamar Album Arriving April 14

On his single "The Heart Part 4" Kendrick Lamar warned the world to be ready on April 7, but it appears that his new album will be dropping a week later on April 14.

By Jennifer Sargent  
04/17/2017



Kendrick Lamar performs during the 2016 Austin City Limits Music Festival at Zilker Park on Oct. 8, 2016 in Austin, Texas. SUZANNE CORDEIRO/GETTY IMAGES

Source: <https://www.billboard.com/music/rb-hip-hop/kendrick-lamar-album-released-april-14-itunes-7752435/>



## Spotify: Music Streaming Patterns in the USA (Jan 1, 2020 – Dec 31, 2020)

- Substantial spike on Aug 25 in US



Isolating the data from Aug 25, 2017 reveals one song with a much larger stream count than the rest: Taylor Swift's 'Look What You Made Me Do', which was released on Aug 24. Not only was it a catchy hit, it also made big splashes in news headlines the next day because the celebrity controversy between Taylor Swift and Kanye West. ***Conflict draws crowds, even virtually.***

There were also a good number of streams for songs on Lil Uzi Vert's album 'Luv Is Rage 2', which dropped the same day, adding to the day's total stream count.

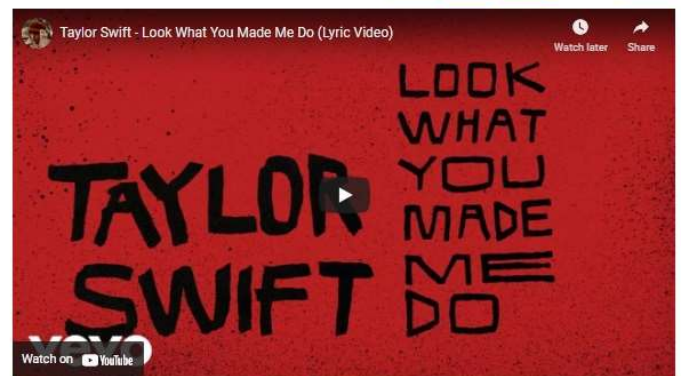
position	track_name	artist	streams	date	region
1	Look What You Made Me Do	Taylor Swift	3828478	2017-08-25	us
2	XO TOUR Llif3	Lil Uzi Vert	1560566	2017-08-25	us
3	Bank Account	21 Savage	1275077	2017-08-25	us
4	The Way Life Goes (feat. Oh Wonder)	Lil Uzi Vert	1232419	2017-08-25	us
5	Unforgettable	French Montana	1100957	2017-08-25	us
6	Sauce It Up	Lil Uzi Vert	1051878	2017-08-25	us
7	444+222	Lil Uzi Vert	1025561	2017-08-25	us
8	Bodak Yellow	Cardi B	101	2017-08-25	us
9	Two ©	Lil Uzi Vert	95	2017-08-25	us

AUGUST 25, 2017 3:42AM ET

### Taylor Swift Releases Apparent Kanye West Diss Song 'Look What You Made Me Do'

First 'Reputation' single seemingly revives dormant feud over controversial "Famous" lyric

By BRITTANY SPANOS



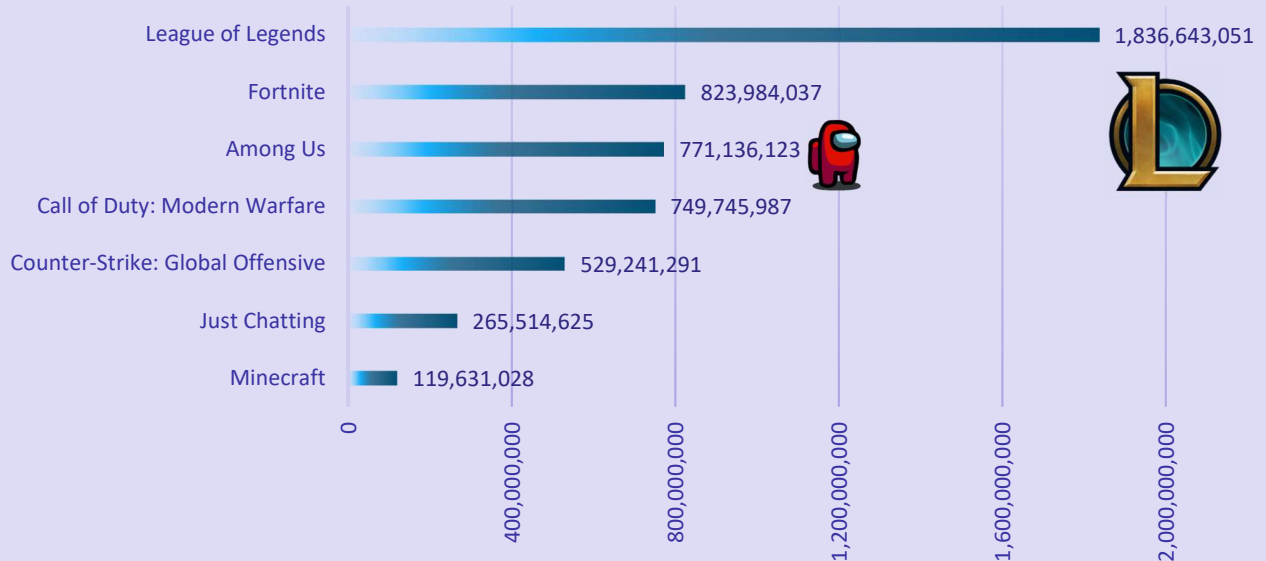
Taylor Swift is not ready to make nice on "Look What You Made Me Do," the biting lead single of her highly anticipated sixth album, *Reputation*. Jack

Source: <https://www.rollingstone.com/music/music-news/taylor-swift-releases-apparent-kanye-west-diss-song-look-what-you-made-me-do-195287/>

# Game Streaming Trends

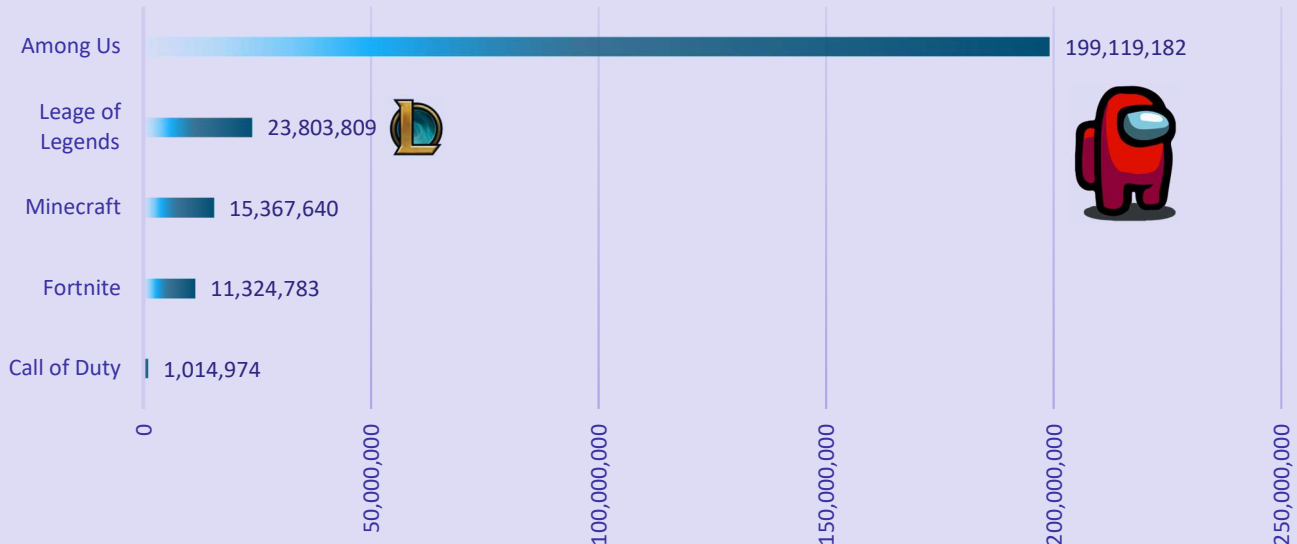
## Twitch vs YouTube: Most Popular Streaming Games (Sep 24, 2020 – Nov 6, 2020)

### TWITCH TOTAL VIEWS OF TOP STREAMERS



Date Range: Sep 24, 2020 – Nov 6, 2020    Data Source: Twitch DS Pre-Interview Project database  
<https://www.dataandsons.com/categories/machine-learning/twitch-stream-data>

### YOUTUBE NEW VIEWS OF TRENDING VIDEOS



Date Range: Sep 24, 2020 – Nov 6, 2020    Data Source: Kaggle YouTube Trending Video Dataset  
<https://www.kaggle.com/datasets/rsrishav/youtube-trending-video-dataset>

see Appendix A.ii



## Twitch vs YouTube: Most Popular Streaming Games

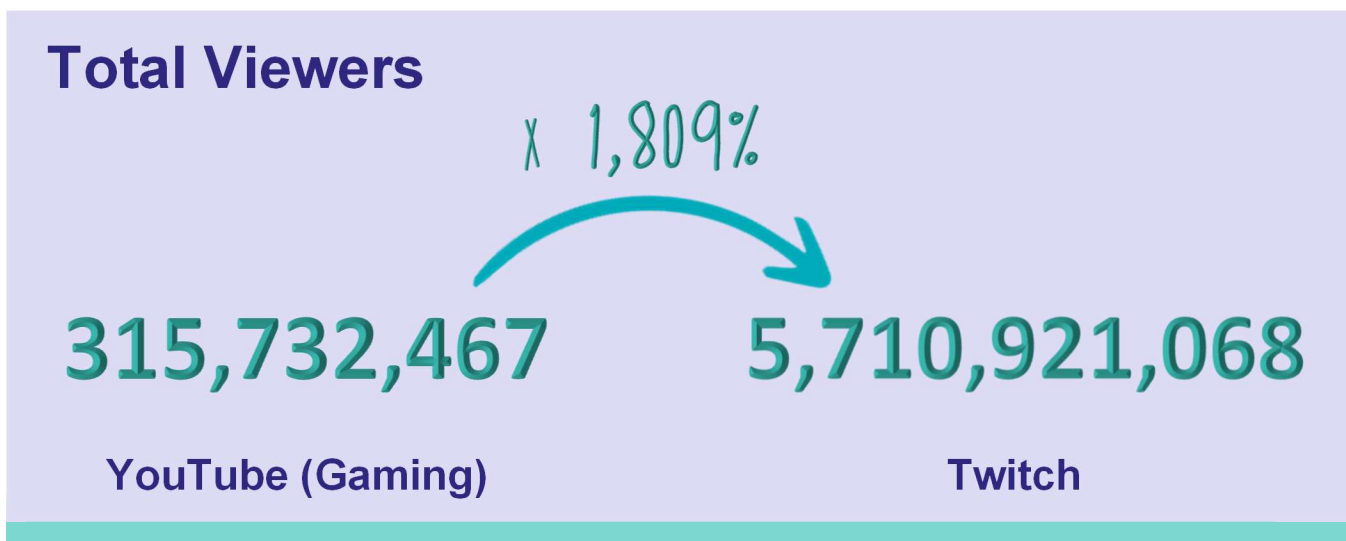
Seven games each amassed more than **a hundred million viewers** over a six-week period on Twitch live streams, amongst top streamers. The **largest audience, by far, is drawn by the game 'League of Legends'**. Its total viewer count is more than double the next most popular game, 'Fortnite'.

Given its overwhelming popularity on Twitch, one might expect 'League of Legends' to be just as popular on other streaming platforms. However, YouTube seems to attract viewers of slightly different interest groupings. Over the same time frame, YouTube videos in the gaming category were **most popular, by far, when titled or tagged with the game 'Among Us,'** as compared to other top games on the Twitch platform.

see Appendix A.iii



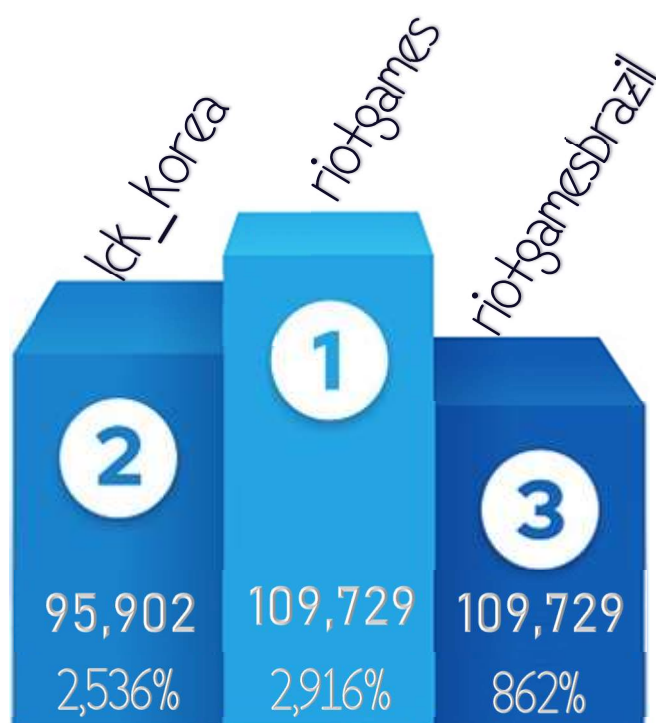
It is also noteworthy that Twitch draws far more viewers overall than YouTube's Gaming video category (its 3<sup>rd</sup> most popular category).



## Twitch: Most Popular Streamers

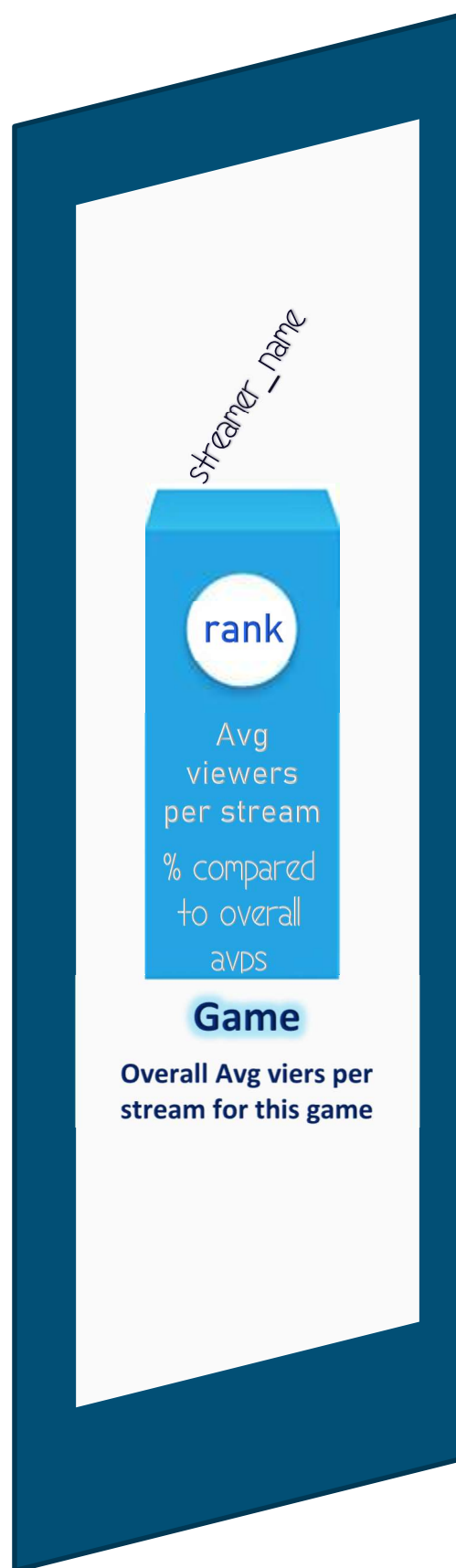
Below are the most popular streamers for the top 4 streaming games on Twitch, as measured by the average number of viewers per stream (Avps), compared to the *overall* average number of viewers per stream for that game.

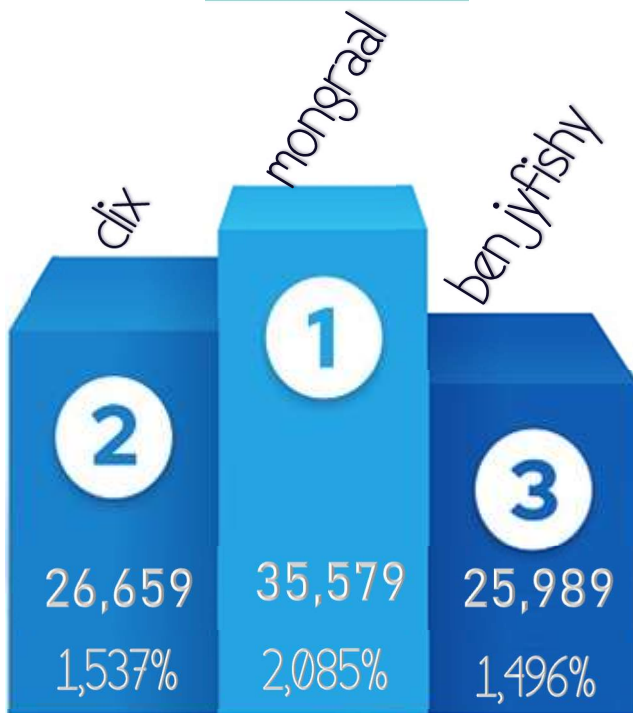
***These streamers reach large audiences—*** especially those that rank for more than one game. Knowing which streamers draw the biggest audiences per interest group can ***help businesses cater marketing efforts*** in an efficient way.



### League of Legends

Overall Avps: 3,638





## Fortnite

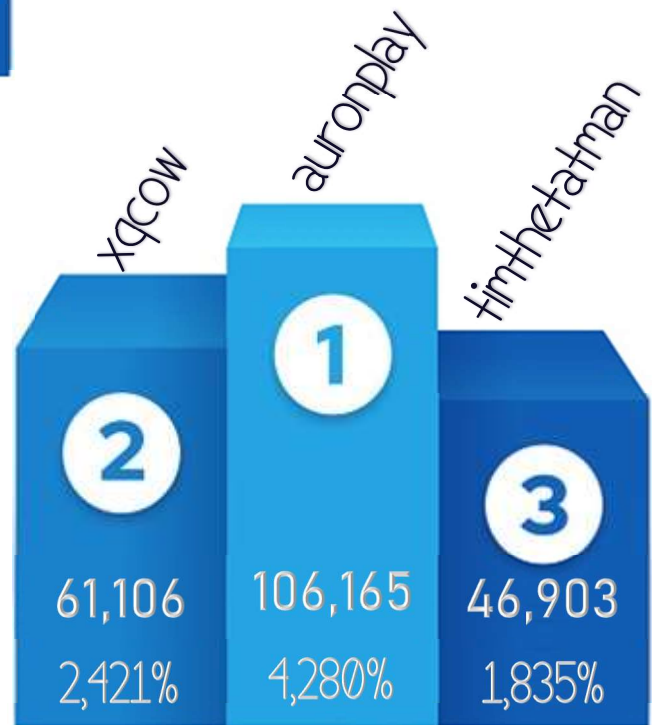
Overall Avps: 1,628



## Call of Duty: Modern

## Warfare

Overall Avps: 1,428



## Among Us

Overall Avps: 2,424

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## ***Conclusion***

To follow the money, follow the consumer behavior. Point marketing and business decisions toward the consumers that are more likely to provide the desired results by understanding their interests and what drives their behavior.

Things such as highly anticipated media releases, celebrity controversy, and popular streamers can factor into those decisions.

With more data, even more clear direction can be found.

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# Appendix

A.i. User demographic data would be interesting to see here. It would be very helpful to know who is viewing videos in each of these categories. That can determine more efficient advertising by choosing ads that appeal to the specific user groups who are more likely to be watching those ads.

A.ii. We can divide the Twitch numbers by 44 to get the average number of daily streamers as the graph shows 44 days' worth of data. However, the same cannot be done for the YouTube numbers, because of the way the data is collected. Trending YouTube videos are recorded each day, showing the total *cumulative* number of views for the video, as opposed to the number of new views that day. For this reason, the difference between view counts for each video's first and latest trending dates were used to obtain the total *new* views during this time frame.

A.iii This difference could be due a number of reasons. For example:

- Demographics: perhaps gaming YouTube users are, on average younger than those on Twitch.
- Game style: perhaps certain games are more enjoyable to watch in a live, interactive platform such as that of the Twitch, versus a pre-recorded, non-interactive platform such as YouTube. (Note: This analysis does not account for YouTube's live division.)

More data could be obtained and analyzed to identify the reason, to cater to a more precise audience.