

UNDERSTANDING THE MOTIVATORS OF TWITCH USAGE
AND THE ROLE OF DARK PERSONALITY TRAITS



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and the Role of Dark Personality Traits

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DECLARATION OF ORIGINALITY

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ABSTRACT

Understanding the Motivators of Twitch Usage and The Role of Dark Personality Traits

With the emergence of social networking platforms, video content consumption or creation has become a part of today's people's everyday lives. With the growth of the online gaming industry, Twitch has become one of the most popular live streaming platforms, where streamers share live videos and communicate with viewers through chat. Twitch brings people together as a social networking platform and provides a market for marketers, gaming companies, and developers. However, it has also created a suitable environment for trolls and toxic behaviors. Due to these opportunities and risks, this study aims to investigate the motivational drivers of Twitch usage, the personality traits of Twitch users, and how Twitch usage motivators are affected by dark personality traits. Results of this study have shown the motivators of Twitch usage, the dark personality traits of Twitch users, and how these motivations are affected by the dark personality traits. Information Seeking, Sense of Virtual Community, Evasion, Socializing and Networking, Addiction and Dependency, and Recognition are motivators of Twitch usage, and these motivations can be affected by Narcissism, Psychopathy, and Machiavellianism. While trolling is a negative motivation for Twitch users with low dark personality traits but for users with high dark personality traits Trolling is not a motivator; it is a behavior that they are not aware of doing. However, if someone uses Twitch with trolling motivations, they are less likely to donate, subscribe, and spend long hours on Twitch.

ÖZET

Twitch Kullanımının Motivasyonlarını Anlamak

ve Karanlık Kişilik Özelliklerinin Rolü

Sosyal medya platformlarının ortaya çıkması, video içeriği üretimi ve tüketimi günlük yaşamımızın bir parçası haline gelmiştir. Çevrimiçi oyun endüstrisinin büyümesiyle birlikte Twitch en popüler canlı yayın platformları arasında yerini almıştır. Twitch'te yayıncılar canlı bir video paylaşırken izleyicilerle canlı sohbet üzerinden iletişim kurarlar. Twitch, insanları bir araya getiren bir sosyal ağ platformu olarak hizmet verir ve pazarlamacılar, oyun şirketleri ve geliştiriciler için bir pazar sağlar. Ancak, aynı zamanda trollere ve toksik davranışlara uygun bir ortam da yaratmıştır. Bu fırsatlar ve riskler doğrultusunda, bu çalışma Twitch kullanıcılarını neyin motive ettiğini, Twitch kullanıcılarının kişilik özelliklerini ve Twitch kullanım motivasyonlarının karanlık kişilik özellikleri tarafından nasıl etkilendiğini araştırmayı amaçlamaktadır. Bu çalışma, Twitch kullanım motivasyonlarını, kullanıcılarının karanlık kişilik özelliklerini ve özelliklerin etkilerini araştırmıştır. Bilgi Arayışı, Sanal Topluluk Hissi, Kaçınma, Sosyalleşme, Bağımlılık ve Tanınma arayışı, Twitch kullanım motivasyonları olarak karşımıza çıkmaktadır ve bu motivasyonlar Narsisizm, Psikopati ve Makyavelizm tarafından etkilenebilir. Trolleme, düşük karanlık kişilik özelliklerine sahip Twitch kullanıcıları için negatif bir motivasyon olsa da yüksek karanlık kişilik özelliklerine sahip kullanıcılar için bir motivasyon olmayıp, yapmaktan haberdar olmadıkları bir davranış olarak karşımıza çıkmaktadır. Eğer biri Twitch'i trolleme motivasyonlarıyla kullanıyorsa, bağış yapma, abone olma ve Twitch'te uzun saatler harcama olasılıkları daha düşüktür.

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CHAPTER 1

INTRODUCTION

Video content creation or consumption is a part of today's people's everyday life.

Increasing bandwidth of networks, improved video packing and encoding technologies enabled the emergence of media platforms to share video content. One of these platforms is Twitch. Twitch is a platform where people can watch others play video games (Sjoblom & Hamari, 2017). With the growth of online gaming industry Twitch increased its popularity. Online gaming industry generated over 26 billion US dollars revenue in 2023 with 9.8% year over year growth. Globally there are 1.1 billion estimated online gamers (Online gaming - Statistics & Facts 2024 – Statista, 2024).

Twitch was launched back in 2011. It provides live and recorded videos and a space for social interactions (Gandolfi, 2016). Twitch was purchased by Amazon in 2014 for \$970 million and has become the world's most used live video streaming platform for gamers since then (Zhao et al., 2017). Other video streaming platforms have started similar services, such as "YouTube Gaming", but they could not achieve the demand rate of Twitch (Deng et al., 2017).

Media research is in a trend towards digital media channels from traditional media channels (Spilker et al., 2018). Twitch is a less known social media platform than Facebook, Instagram, and Twitter. Therefore, more research is made on other video streaming or social media platforms like YouTube and Instagram, but Twitch provides an open area for the researchers (Woodcock & Johnson, 2019). Twitch has 140 million unique visitors every month; this number was 55 million in 2015. 73% of Twitch users are men (Twitch.tv Global Visitors 2024 – Statista, 2024), 41% of users

are between the ages of 16-24 and 32% of users are between the ages of 25- 34.

Twitch generated approximately \$2.8 billion in revenue in 2022 (Twitch Revenue and Usage Statistics (2024) - Business of Apps, 2024). Twitch provides a market for brands to find social media influencers to support their marketing activities. Gamers are less likely to be subject to traditional advertisements such as television. Twitch is the platform for the companies to reach this audience (Woodcock & Johnson, 2019). Twitch has a significant impact on the gaming industry. It provides live game reviews by the broadcasters and debates with the viewers. Those reviews influence the purchasing intentions of the viewers and potential customers. Twitch can also improve the visibility and the lifespan of the game (Johnson & Woodcock, 2018).

Twitch's business model is based on the share they get from advertisement, donation and subscription revenues generated by streamers in their partner affiliate programs (Sjoblom et al., 2017). Streamers can be financially supported or rewarded by the viewers via donations or subscriptions. The streamer rewards the supporter who just spent money by mentioning their name (Gros et al., 2017).

Watching others play games is not a new activity that has entered our lives with Twitch. People used to watch their friends play at home or watch others play in arcades. Watching a skilled player play games gives similar joy as watching a skilled sportsman or a musician. Also, watching a skilled and experienced player allows the audience to learn and improve their gameplay (Woodcock & Johnson, 2019). There is an extensive selection of streamers on Twitch. Viewers may watch the streamer who is most entertaining, most communicating or has the best experience or skills to learn from (Wulf et al., 2018). Twitch has broadcasters of many different sizes. These can be new broadcasters broadcasting to a few viewers or broadcasters broadcasting to tens of thousands of people with professional equipment (Johnson &

Woodcock, 2018). There were 7.6 million Twitch accounts streaming once a month in 2022 (Twitch Revenue and Usage Statistics (2024) - Business of Apps, 2024)

A usual Twitch broadcast includes live footage and audio from the game, the face of the broadcaster with surroundings being recorded by a webcam and some additional content such as recent donations or subscriptions, sponsors logos and links to other social media platforms (Woodcock & Johnson, 2019). A large percentage of Twitch channels are gaming related (Gandolfi, 2016). Most common Twitch streams include different types of gameplay such as competitive, let us play, casual, speed runs or more audience-oriented content such as talk shows, how to play or reviews (Sjoblom et al., 2017). The broadcasters engage with their viewers while playing video games. Studies show that this engagement between the broadcasters and the viewers is one of the main reasons for using Twitch (Recktenwald, 2017) active conversation with the audience increases the success of a stream (Johnson & Woodcock, 2018).

This study aims to investigate the motivational drivers of Twitch usage, the personality traits of Twitch users and how Twitch usage motivators are affected by dark personality traits.

CHAPTER 2

LITERATURE REVIEW

2.1 Social networking platforms

Social platforms enable users to create, collaborate on, and share user-generated content both within and outside of the platform. They have become an essential part of daily life, serving as the primary channels for information and news. They have fundamentally changed the way people communicate and interact, altering how individuals connect with one another and with scientific knowledge. Users utilize social media platforms to feel acknowledged and valued (Dobbins et al., 2021).

The primary motivation behind participating in social networking sites is to build, sustain, and foster social relationships. Users predominantly express their desire to connect with new individuals, with the secondary motivation being to stay in contact with friends and engage in general social interactions (Brandtzæg & Heim, 2009).

Whiting and Williams (2013) explain ten key themes related to social media's uses and gratifications. Those themes are Social Interaction, Information Seeking, Passing Time, Entertainment, Relaxation, Expression of Opinions, Communication Utility (Using social media to discuss topics with others, sharing content and gossip from social media platforms), Convenience Utility (Using social media because of its convenience, accessibility, and lack of time constraints), Information Sharing, and Surveillance/Knowledge about Others.

Akar and Mardikyan (2015) highlight that social media platforms empower users to share diverse content, including photos, videos, music, comments, and personal experiences. The large user bases of these platforms highlight their broad

appeal. Users are more likely to engage with social media when they find it user-friendly, beneficial, and trustworthy. Social influence, enjoyment, and facilitating conditions positively impact users' perceptions of the utility of social media. This suggests that social factors, pleasure, and supportive environments play a significant role in how users view the usefulness of these platforms. Furthermore, facilitating conditions not only increase users' trust in social media but also promote a sense of enjoyment and playfulness during their interactions.

Alhabash and Ma's (2017) study examined motivations for using four major social media platforms among participants, revealing that entertainment and convenience were the primary drivers across all platforms. Contrary to common belief, the study suggests that passive uses like entertainment and convenience outweigh socialization due to the challenges of maintaining relationships in large networks. Each platform exhibited variations in other motivations; Facebook and Twitter were utilized for passing the time, medium appeal, and self-expression, while Snapchat and Instagram placed more emphasis on entertainment and convenience. Entertainment is the primary factor influencing how intensely users engage with all platforms. Other factors, such as self-documentation and convenience, affect usage on specific platforms. Notably, only Snapchat and Instagram exhibited a link between the size of a user's network and their level of engagement. This relationship is likely due to these platforms' unique interaction dynamics and novelty.

Social media is significant across various sectors, such as marketing, healthcare, and international governmental organizations. Individuals who engage actively on social media platforms often exhibit high levels of extraversion and openness, making them attractive targets for marketers. However, companies must tread carefully, considering the potential negative impacts of social media and factors

contributing to problematic usage. The study emphasizes that a deep understanding of social media usage patterns can empower marketers to tailor their campaigns effectively, thus enhancing brand awareness and engagement (Hruska & Maresova, 2020).

Social media platforms like Facebook, Instagram, LinkedIn, and Twitter have become essential parts of people's everyday lives, significantly influencing their behaviors and interactions. This widespread use underscores the growing importance of social media in various aspects of life. In recent years, social media marketing has gained substantial attention, with research focusing on topics such as promotional strategies, electronic word-of-mouth, and customer relationship management. Organizations increasingly utilize social media to reach new customers and enhance customer experiences, acknowledging its effectiveness and cost-efficiency compared to traditional marketing channels (Alalwan et al., 2017).

2.2 Twitch as a social networking platform

2.2.1 Streams on Twitch

The rise of video content, facilitated by platforms like YouTube and live streaming services such as Twitch, has become a significant part of the daily lives of digital natives. Twitch, in particular, has seen a remarkable increase in popularity, attracting millions of visitors every day and competing with major cable TV networks in terms of viewership (Sjöblom, 2018).

Spilker et al. (2018) argue that the shift from traditional broadcast media to social media and streaming platforms, with a focus on the rise of new viewing habits and audience behaviors. It particularly examines Twitch, a streaming platform that is challenging and refreshing established television audience dynamics. While

platforms like Netflix and Hulu have disrupted linear TV, Twitch represents a resurgence of live streaming, suggesting a potential evolution of linear television in different formats.

Twitch, known for its live streaming of both amateur and professional content, has gained significant popularity globally. Despite its widespread usage, Twitch receives less attention than platforms like YouTube or Netflix. The platform's rapid growth and unique interactive features have caught the attention of researchers. Initially associated with gaming, Twitch has diversified its content, prompting researchers to explore its audience practices beyond gaming. The study aims to comprehend Twitch viewing habits and the overall audience experience. It introduces the concept of "switching," which refers to users' navigation and interactions across different spaces and speeds within the platform (Spilker et al., 2018).

Scully-Blaker et al. (2017) explore the newer channels available on Twitch, categorized under the "Creative" theme, where individuals engage in various activities like digital and analog art creation, playing musical instruments, and cooking. This emerging form of "social viewing" blends entertainment with participant interaction, involving both the host and the community formed around the content.

Twitch plays a crucial role in modern gaming culture, with an increasing number of major events being streamed on the platform. The innovative gameplay practices highlighted on Twitch attract attention from the gaming industry and influence game design. E-athletes push the limits of their interactions with games and develop competitive strategies, which are showcased through live-streamed gameplay.

Deng et al. (2017) examine the rise of user-generated live streaming platforms such as Facebook Live and Periscope, which empower ordinary users to broadcast live content. It highlights two key advancements: the accessibility for anyone to create live streams, potentially reaching vast audiences, and the real-time nature of uploading, facilitating live interaction between creators and viewers.

Additionally, Twitch is portrayed as a leading example of user-generated live streaming, particularly focused on gaming. It allows users to broadcast gameplay and watch professional eSports tournaments, boasting a large and dedicated user base. While platforms like YouTube Gaming have entered this domain, none have matched the popularity and scale of Twitch.

Twitch.tv is a leading platform primarily focused on video games, offering a wide range of content from popular e-sports titles to single-player experiences. Twitchers, the streaming performers, engage with their audiences, fostering interactions and collaborations that enrich the viewing experience. This has led to the emergence of new gaming celebrities and transformed the way audiences experience games, blurring the lines between spectatorship and participation. It also provides innovative opportunities for game producers to promote their products directly through the platform, such as sharing closed beta versions of games (Gandolfi, 2016).

Gandolfi (2016) comprehensively analyzes Twitch.tv, highlighting its significance in contemporary gaming culture. Additionally, it discusses audience engagement, noting the remarkable level of engagement and expertise among spectators, particularly hardcore gamers. Spectators are drawn to Twitch.tv for specific streamers and games, with multiplayer games gaining popularity due to the added dimension of human interaction.

It continues by identifying three main streaming orientations: challenge, exhibition, and exchange, each catering to different audience preferences and showman characteristics. Additionally, it explores various types of immersion, including emergent, sensory, imaginative, and transgressive, which play a predictive role in determining the characteristics of streaming content. Overall, Twitch.tv facilitates engagement with gaming culture by offering entertainment, social interaction, and a platform for diverse audience preferences and motivations.

Hamilton et al.'s (2014) study supports the idea that live streaming has gained significant popularity, especially with streams featuring video games. The study presents an ethnographic investigation into the formation of communities within the live streaming environment, highlighting the structure of live streams where streamers share video content alongside chat channels for viewer interaction.

Two main reasons for participating in live streaming are the attraction of unique content and the desire for interaction within a specific community. Many Twitch streams foster participatory communities emphasizing sociability and shared activities related to the stream's content. While most streams primarily focus on video game content, the interactions often extend beyond gaming.

Each Twitch stream includes an associated chat channel, enabling interaction between streamers and viewers. Different types of viewers contribute to the stream community, including followers and moderators who manage chat and enforce guidelines. Twitch offers a partnership program for streamers meeting specific criteria, allowing them to earn revenue from ads and subscriptions.

These revenue streams have enabled some streamers to transition to full-time streaming, reflecting Twitch's growing popularity as a platform for monetizing content creation. Streamers describe streaming as labor requiring technical skills and

equipment for professional setups, transforming private gameplay into public entertainment (Hamilton et al., 2014).

Twitch broadcasts typically feature live gameplay alongside webcam footage showing the streamer's reactions and interactions with viewers via the "Twitch chat." This chat feature, along with various extensions, enhances the interactive experience. Both viewers and streamers value the platform's collaborative nature, emphasizing the importance of mutual influence and interaction.

Streamers employ various monetization strategies, including subscriptions, donations, advertising, sponsorships, competitions, and unpredictable rewards. Donations are influenced by surveillance, with streamers engaging in relational labor to foster a supportive environment conducive to financial support. Expressing gratitude for donations is crucial, with larger donations often eliciting extravagant celebrations.

Streamers must manage behavior to maintain their financial relationship with their audience. Viewer motivations for engaging with Twitch range from seeking entertainment to evaluating games or improving gaming skills, with the social dimension of the platform playing a significant role in its appeal (Partin, 2019).

Video games have expanded their audience beyond just young users, with platforms like Twitch allowing people to watch live gameplay and eSports competitions. Twitch's popularity stems from its features for streaming games, monitoring players, and enabling live commentary and chat interaction. Given its diverse nature, understanding what drives enjoyment on Twitch is vital.

The study delves into Twitch users' enjoyment, focusing on factors like game suspense, parasocial relationships (PSRs) with streamers, and chat interaction. While game suspense initially correlated with enjoyment, this connection weakened when

considering PSRs and chat interaction, indicating the importance of social aspects. PSRs with streamers significantly contributed to enjoyment, suggesting viewers bond with streamers like friends. Additionally, using the chat function for social interaction enhanced enjoyment, underscoring Twitch's social features. Ultimately, Twitch's success is credited to its social functionality, which brings users together and enriches the gaming experience. Leveraging these social aspects can enhance media offerings on platforms like Twitch (Wulf et al., 2018).

In their study, Wulf et al. (2021) replicated and broadened the concept of parasocial interaction in video game streaming. User interfaces allowing direct interaction with the audience and engaging with them during media consumption could strengthen parasocial interaction. This led to individuals enjoying the content more and adhering to social norms. It also emphasizes that most Twitch users are male, which can create a limitation for the research.

2.2.2 Impact of Twitch, potentials and marketing opportunities

Livestreaming platforms like Twitch and YouTube Live have surged in popularity, offering personalized experiences and interactive features not found in traditional media or other social networks. These platforms allow individuals to broadcast live video content to diverse audiences, fostering communication and socialization through synchronous chat and virtual gifts. Sports marketers have noticed that platforms like Twitch attract sports organizations keen on extending their reach. Co-streaming, where popular Twitch streamers commentate on live sports, is a growing trend, blending personalized commentary with interactive engagement among viewers (Qian, 2021).

Consalvo and Phelps's (2019) study provides an initial glimpse into how game developers utilize Twitch to stream their creative process. While it found limited evidence of game discussion, it underscores Twitch's potential as a platform for collaborative design and engagement with players and fellow developers. The findings indicate that participatory communities on Twitch extend beyond game streamers, and different types of streaming activities can impact audience size and dynamics. Developers can influence the feedback they receive by managing expectations and interacting with viewers based on their expertise and preferences. Moreover, the study suggests that Twitch serves as a valuable avenue for exploring and theorizing the creative processes of game developers, offering insights beyond traditional written accounts. Overall, this research sheds light on the role of live streaming in game development and presents a fresh perspective on the intricacies of game creation.

Johnson and Woodcock's (2018) study explores how streaming, particularly on platforms like Twitch.tv live, is significantly impacting the gaming industry and highlights three main areas: its influence on game reviews, its role in enhancing game visibility and longevity, and its contribution to expanding access to game programming knowledge. Twitch is reshaping game reviewing, offering both advantages and drawbacks compared to traditional methods. Independent games benefit significantly from streaming, extending their lifespan and attracting new audiences. Additionally, broadcasting game design and development on Twitch is seen as a significant advancement for the industry.

The emergence of platforms like Twitch has transformed digital content creation, distribution, and access, challenging the dominance of major corporations in the media landscape. This democratization of content creation has empowered

individuals and nurtured gaming communities around emerging personalities. Twitch's growth has disrupted conventional models, prompting a need for a deeper understanding of its impact on the gaming sector. Unlike many platforms moving towards monopolization, Twitch is reshaping the industry in unforeseen ways, forging novel connections between players, creators, production, consumption, and game media. The authors advocate for further investigation into live streaming to grasp the current and future direction of the increasingly democratized gaming industry (Johnson & Woodcock, 2018).

With the rise in popularity of live streaming, Twitch has become a crucial platform for brand promotion and influencer marketing. The findings of a study conducted by Pollack et al. (2020) indicate a notable increase in mentions of these products, especially energy drinks. Twitch users are exposed to extensive brand mentions and marketing of energy-dense, nutrient-poor items through streamer profiles, stream titles, and live chat rooms. These advertisements primarily target a male adolescent and young adult audience.

Pollack et al.'s (2021) research demonstrates the significant influence of food and beverage marketing on Twitch, a popular live-streaming platform. Despite differences in subscription status, users are equally exposed to product mentions, showcasing various promotional methods beyond traditional ads. While energy drinks receive the most attention, fast-food brands like Chipotle and McDonald's are highly desired. Although only a tiny percentage directly purchase after exposure, the large Twitch user base suggests a considerable impact on consumer behavior. Engagement in chat rooms, especially among paying subscribers, amplifies marketing effects, with brands steering conversations to boost product appeal. Consumption patterns, particularly food delivery and snack consumption, correlate

with viewing duration, suggesting influencer marketing's impact on purchasing behaviors. This contrasts with traditional advertising's impact on children but highlights influencer marketing's effectiveness among young adults. Twitch's live, interactive format also fosters deeper engagement than platforms like YouTube, potentially increasing brand loyalty. As other platforms embrace live streaming, further research is needed to fully understand influencer marketing's influence on consumer behavior.

Woodcock and Johnson (2019) discuss the evolving role of Twitch live streamers as social media influencers and their significance in strategic communication and highlights Twitch's transition from an experimental platform to a mainstream channel, impacting millions of users. Through interviews and observations, the study provides a detailed analysis of influencing dynamics and communication strategies on Twitch, stressing the importance of authenticity and engagement in influencer marketing. It suggests these strategies hold potential beyond Twitch, particularly when combined with data-driven sponsorship. The immediacy and exclusivity of live Twitch broadcasts offer viewers a unique and impactful experience. The research underscores the importance of understanding influence dynamics among different streamer types and developing a comprehensive understanding of Twitch's influencer landscape. As organizations explore new forms of strategic communication on Twitch, the evolving brand-streamer-platform relationship remains an intriguing area for future research.

2.2.3 Twitch usage motivators

Unlike traditional media, live-streaming allows real-time interaction between streamers and viewers, fostering community connections. Despite its popularity,

there's limited psychological research on live-streaming consumption motivations. A study by Hilvert-Bruce et al. (2018) argues why viewers engage with Twitch live-stream communities and explore the factors influencing their psychological and behavioral engagement with live-stream content, considering variations in channel size.

This study continued with explaining live-stream engagement, with factors like social interaction, community sense, meeting new people, entertainment, and Information Seeking significantly associated with engagement indicators. Emotional attachment to Twitch was strongly influenced by social dynamics, entertainment, and Information Seeking, with emotionally attached viewers more likely to watch, subscribe, and donate. Entertainment, Information Seeking, and Social Interaction notably influenced viewers' time spent on Twitch live-streams.

Gros et al.'s (2017) study examines why people use Twitch, focusing on how they invest their time and money in the platform. It categorizes motivations into Socialization, Entertainment, and Information-seeking and aims to understand their importance and relationship with time and monetary contributions. The results show that Entertainment and Information-seeking are the main reasons people use Twitch, regardless of whether they make monetary contributions. However, Socialization becomes more important when deciding to donate or subscribe, as these actions often have social benefits. As usage time increases, motivations for Socialization, Entertainment, and Information-seeking also increase. Particularly, Socialization has become more significant with the extended time spent on Twitch. The study also finds a correlation between time spent on Twitch and monetary contributions, indicating that users who spend more time on the platform are likelier to donate or subscribe.

The study by Gros et al. (2018) investigates the engagement levels and interactions of Twitch users, comparing streamers (those who both stream and watch) with viewers (those who only watch). It finds that streamers generally show a higher desire for involvement than viewers. Factors such as age, education level, and time spent on Twitch, and donation or subscription activity influence viewers' engagement levels. Interestingly, socio-demographic factors and Twitch activity did not significantly affect streamers' involvement. However, lower educational attainment among streamers was linked to a greater desire for engagement, possibly due to their experience in building an audience. Viewers feel more engaged when using the chat during live streams, while streamers feel more involved when actively playing games and interacting with the chat. Interactions like donations and subscriptions allow viewers to financially support streamers, with subscriptions offering perks such as custom emoticons and exclusive chat modes.

Sjöblom and Hamari's (2016) study aimed to identify why people watch others play video games online and how these motivations influence their viewing behavior. It discovered that various gratifications, including cognitive, affective, social, tension release, and personal integrative, significantly influenced how many hours viewers watched and the number of streamers they followed, watched and subscribed to. However, personal integrative gratifications had a negative association with these outcomes. When it came to streamer subscriptions, where costs were involved, the influence of these gratifications was lower, with only social integrative motivations showing a significant association with subscribing behavior.

Sjöblom et al. (2017) investigate how different video game genres and stream types impact the gratifications viewers derive from spectating and find that stream

types have a more significant influence on affective gratifications than specific game genres.

Additionally, the study explores tension-release motivations, finding positive associations across all stream types, especially in casual and competitive streams. Casual streams offer distraction and companionship, while competitive streams provide escapism through intense viewing experiences. The lack of connection between genre and tension release suggests that the distraction element is linked to the stream format, while escapism relates to the specific games played.

Moreover, the study reveals insights into information-seeking and learning motivations. It shows positive information-seeking tendencies, particularly in streams focused on conveying cognitive information like “let's play” and review streams. Casual streams provide a relaxed setting conducive to learning game strategies, while competitive streams facilitate learning advanced gameplay strategies, especially for popular eSports genres.

2.3 Introduction to toxic behavior and internet trolling

2.3.1 Toxic behavior on social networking platforms

Sheth et al. (2022) discuss the growing issue of toxic communication on online platforms and the difficulties in detecting it. Despite the advantages of broader content dissemination, harmful behaviors like cyberbullying and harassment have risen over the past decade. Detecting online toxicity is challenging due to its multifaceted and context-dependent nature. Given the severe social implications of exposure to toxic content, there is a need for dependable models and algorithms to identify and analyze such communication across different social media platforms.

According to Soares et al. (2023), trolling and bullying can severely impact victims' well-being and exacerbate their sense of isolation. Recreation, reward, and cognitive empathy were linked to perpetrating anti-social behavior online. Recreation and reward were identified as driving factors, suggesting individuals may engage in such behavior for entertainment or social validation. Conversely, cognitive empathy showed a negative correlation with perpetration, implying that perpetrators may struggle to understand others' emotions, potentially fueling their anti-social actions.

Tsantarliotis et al. (2017) discuss trolling, a behavior aimed at disrupting online social networks and media, and propose a proactive approach: assessing the vulnerability of posts to trolling before it happens. It introduces the concept of "troll vulnerability" to gauge the likelihood of a post attracting trolling activity. This approach allows for developing methods to predict post-vulnerability, enabling proactive measures to prevent trolling.

Social media websites have emerged as prevalent channels for self-expression and socializing. However, there's rising worry that these platforms could amplify darker personality traits like Narcissism, Machiavellianism, and Psychopathy, collectively known as the dark triad. Traits such as Narcissism might lead to self-promotion, Psychopathy to impulsive and anti-social behavior, and Machiavellianism to manipulative language, all commonly observed behaviors on social media platforms (Preotiuc-Pietro et al., 2016).

Tang et al.'s (2022) study explores how dark personality traits (Narcissism, Machiavellianism, and Psychopathy) relate to social media motivations and social media disorder and finds that these traits are linked to social media disorder both directly and indirectly, with motivations like entertainment, communication, and

self-expression playing a mediating role. Surprisingly, the indirect effects vary for each trait concerning relationship maintenance motivation.

Internet trolling poses a significant challenge in online communities, potentially leading to severe harm for victims, including heightened suicidal thoughts and self-harm. It is imperative to comprehend the factors contributing to trolling behavior to effectively address and prevent it. Individuals with high levels of Dark Tetrad traits, especially psychopathy and sadism, are more inclined to participate in trolling activities. Furthermore, the desire to cause social disruption emerges as a key predictor of trolling behavior, irrespective of individual personality traits (March, 2019).

Masui's (2019) results support this by showing that Machiavellianism, psychopathy, and sadism are all associated with increased trolling behavior, and loneliness is also associated with trolling.

However, narcissism did not emerge as a significant predictor of trolling behavior, and no significant interaction between narcissism and loneliness was observed. These results highlight the individual impact of each Dark Triad trait on trolling behavior and underscore the impracticality of combining them into a unified measure.

Lopes and Yu's (2017) Findings revealed a positive association between psychopathy and trolling behaviors on Facebook, while narcissism correlated with perceiving oneself as superior to others. People with higher psychopathy personality traits were more prone to trolling the popular profile. Conversely, those with higher narcissism traits tended to see themselves as superior to the popular profile.

2.3.2 Online gaming and toxic behavior

Komac and Cagiltay (2019) indicate that some studies link trolling, cyberbullying, and toxic behavior. Trolling can be considered cyberbullying when it involves harmful threats, and it is often anonymous. While bullies usually know their victims, trolls typically act without a clear purpose. Some researchers view trolling and cyberbullying as separate phenomena, with trolling often seen as impolite or antisocial behavior. Toxic behavior is generally defined as actions that cause harm, evoke negative emotions, and have lasting effects, including examples like 'griefing', 'cyberbullying', 'mischief', and 'cheating'.

Kwak et al. (2015) support that by claiming that online gaming has evolved from console games to massive multiplayer online role-playing games (MMORPGs), creating a space for social interaction. However, negative behaviors like cyberbullying, griefing, and cheating, collectively called "toxic behavior," are common. This is particularly concerning as online gaming is popular among younger generations, and cyberbullying can lead to serious issues such as depression, anxiety, and even suicide in extreme cases. Given the time players invest, these emotional effects often extend into real life.

Hilvert-Bruce and Neill (2019) add that gamers often see toxic behavior, like trash talk, as a normal part of online gaming. Some defend trash talking as harmless and essential to the gaming culture, but it can take harmful forms, including racism, sexism, and homophobia. This is particularly troubling for women, as rape-related language is common in gaming. Many online gamers stay silent to these toxic behaviors and normalize them.

2.3.3 Toxic behavior on Twitch

The emergence of live video casting platforms like Twitch has revolutionized online entertainment, drawing in a primarily youthful demographic. These platforms provide uncensored content and immediate interactions through features like public chat, which presents difficulties in supervision and control (Kim et al., 2022).

While Twitch enables online spectatorship and interaction, it also presents the risk of toxicity, including negative comments, insults, ambiguous negativity, and interactions like spamming and swearing. Toxicity online includes behaviors that create a hostile atmosphere, such as flaming with offensive language and trolling, done provocatively or for amusement. Flaming typically responds to a perceived threat, while trolling aims to provoke or amuse (Mihailova, 2020).

Toxic chat, marked by hateful or offensive language, can disrupt communication and emotions. Twitch channels use a combination of human moderators and AI algorithms to address toxicity. Human moderators offer nuanced assistance but face challenges handling the vast chat volume. AI algorithms, while scalable, have limitations in identifying subtle language nuances and evasive tactics (Kim et al., 2022).

Analysis of millions of messages in Twitch chatrooms reveals the spectrum of atmospheres, from supportive to hostile. Users mimic behaviors of high-status individuals, making proactive moderation tools, like content-restricting chat modes, effective against spam. Reactive measures, such as bans, also effectively deter negative behaviors (Seering et al., 2017).

Many streamers living with chronic conditions highlight the significant advantages they experience through live streaming. They find platforms like Twitch invaluable for funding treatments, seeking community support, and feeling

empowered by available tools. Even those without chronic conditions recognize the platform's value for this demographic. However, streamers with chronic conditions face unique obstacles, such as handling trolls, managing viewer engagement, and coping with social anxiety. Despite the empowering nature of live streaming for individuals with disabilities, inherent inequalities and structural barriers persist, requiring attention and action (Johnson, 2018).

A qualitative study by Obreja (2021) aimed to identify common themes across two League of Legends channels on Twitch. It uncovered several dimensions, including the creation of a supportive environment for both streamers and viewers, where mutual encouragement is desired but challenging to establish. Gender inequalities emerged as another recurring theme, evidenced by discrimination within Twitch platform regulations and frustrations over gender representation disparities in streaming. Additionally, the study found ambiguous collective written expressions like spamming and trolling, sometimes used interchangeably and sometimes separately, with the context being pivotal in distinguishing them. Lastly, the research noted a one-way feedback relationship from viewers to streamers, where feedback depended on the streamer's activity.

CHAPTER 3

THEORETICAL FRAMEWORK

In this section, we will outline the research questions and the theoretical framework used in the study. The process starts with determining the research questions. Then, a theoretical framework is formed to answer those questions. Our research questions are as follows:

1. What are the motivators of Twitch usage?
2. What are the personality traits of Twitch users?
3. How do the personality traits impact toxic and troll behavior?

3.1 Theoretical framework

As the first step of the study, previous studies in the literature about Twitch and motivational drivers of Twitch usage are searched. From 6 different studies, a total of 12 constructs are selected as the independent variables in the Theoretical Framework, and they are the motivational drivers of Twitch usage. Emotional connectedness which is previously used by Hilvert-Bruce et al. (2018), Intention to Watch and Intention to Stream constructs were used to measure actual behavior were used as dependent variables. Machiavellianism, Narcissism, and Psychopathy, also named Dark Triad constructs, are used to measure dark personality traits with a total of 12 items which are adapted from Jonason and Webster (2010). Theoretical framework which is shaped after our research is shown in the Figure 1 and the constructs used in this study are given in the Appendix A.

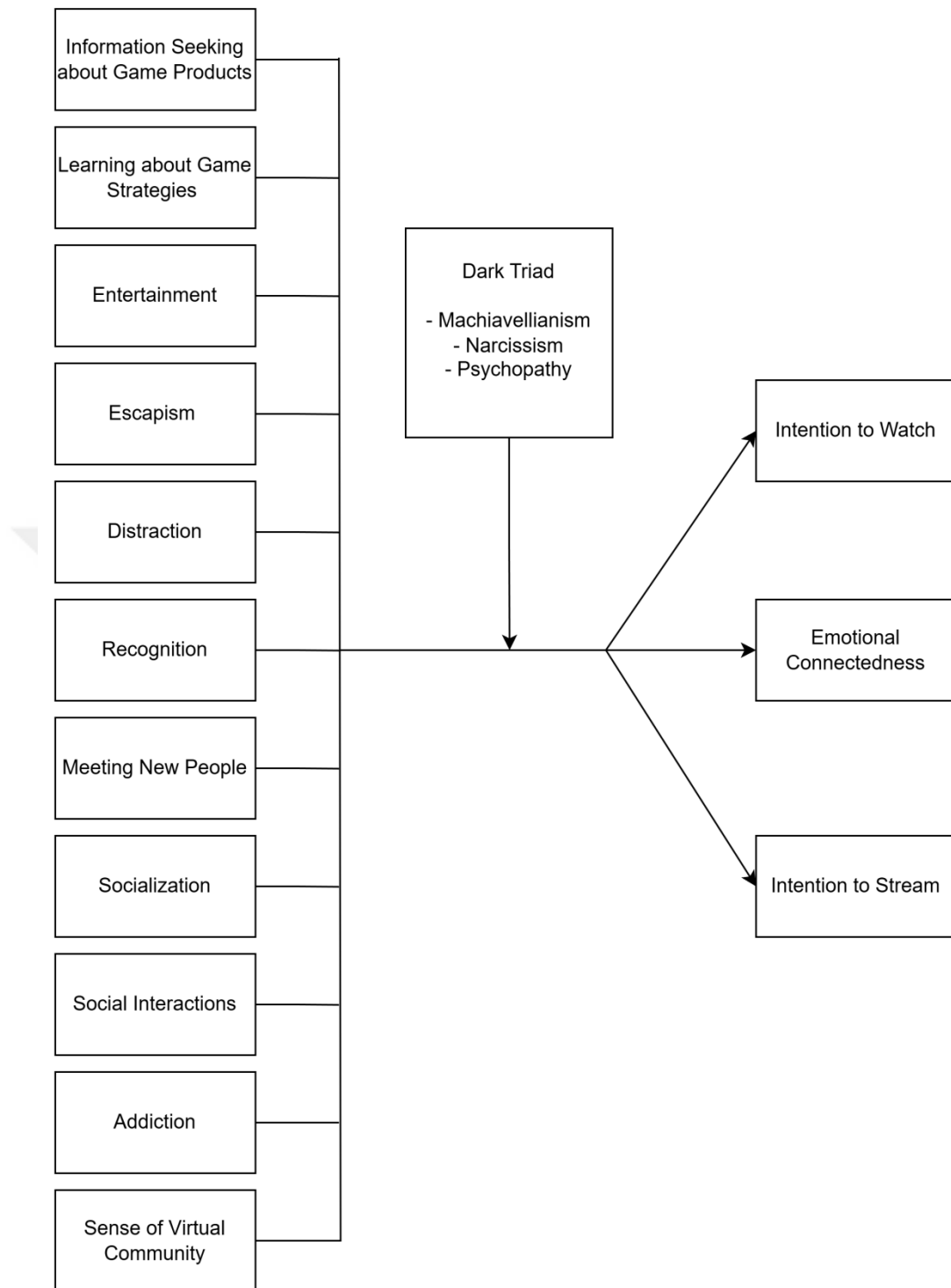


Figure 1. Theoretical framework

3.1.1 Independent variables

Hilvert-Bruce et al.'s (2018) study examined social motivators under eight constructs: Entertainment, Information Seeking, Meeting New People, Social Interactions, Sense of Community, Social Interactions, Sense of Community, Social Support, External Support and Social Anxiety. Hilvert-Bruce et al. (2018) show that Social Support, External Support, and Social Anxiety have the lowest or no effects on the actual behavior of Twitch usage. So, those constructs were not used in this study. Meeting New People and Social Interactions were adapted from this study. Entertainment, Information Seeking, Meeting New People, Social Interactions, Sense of Community, Social Interactions, and Sense of Community were adapted from similar studies.

From Sjöblom and Hamari's (2016) study, six different constructs are selected. They are Information Seeking about Game Products, Learning about Game Strategies, Escapism, Distraction and Recognition. Information Seeking about Game Products and Learning about Game Strategies divide information into two. Escapism, Distraction, and Recognition are additions to Hilvert-Bruce et al.'s (2018) study.

From Gros et al.'s (2017) study Entertainment and Socialization constructs are selected. In this study, motivations to use Twitch were explored under three constructs. They were Entertainment, Socialization and Information. Since the Information construct was already adapted from Sjöblom and Hamari's (2016) study. Entertainment and Socialization were selected as additional constructs for the framework.

Those three studies focused on the motivational drivers for Twitch usage. The following scales were obtained from studies focusing on different streaming services or social networking platforms. Items from those studies were adapted for Twitch.

From Koh and Kim's (2003) study, which focuses on virtual communities, Sense of Virtual Community – Membership and Sense of Virtual Community – Influence constructs were adapted.

Singh et al. (2021) discuss the growing concern about addictive behavior associated with streaming services. From this study, the Addiction construct was adapted for Twitch.

From Lee et al.'s (2015) study, additional items for the Escapism construct have been adapted for Twitch.

3.1.1.1 Information Seeking about Game Products

Viewers may watch the games they would like to buy before they buy them via Twitch streams. This helps them to make their decisions before buying one of the game options. Viewers may ask streamers about this decision, too (Hilvert-Bruce et al., 2018). Four items are used to measure this construct. This construct measures if the correspondents use Twitch to learn about both new and old games in the industry. This helps them to decide which games to purchase and gain more knowledge about the industry.

3.1.1.2 Learning about Game Strategies

Viewers watch the streamers to learn about new strategies to improve their own gameplays to overcome challenges in games or achieve higher ranks in competitive games. Viewers prefer to watch and ask questions to streamers who have high knowledge about the game, or eSports players who are professional players of that game are reaching the highest possible ranks (Payne et al., 2017). Four items are used to measure this construct. This construct measures if the correspondents use

Twitch to learn game strategies and enhance their skills in games. This helps them to pass some game levels they could not pass before or become better at the games they play, especially the competitive ones.

3.1.1.3 Entertainment

Entertainment is the media's need for joy and fulfillment. People may fulfill this need by playing games and even watching others play the game. eSports tournaments are one of the forms of media Twitch provides. Trolling is also accepted as a kind of entertainment (Gros et al., 2017). Three items are used to measure this construct. This construct includes statements about seeing the Twitch as an entertainment platform, a new entertainment medium to replace old ones like television.

3.1.1.4 Escapism

Escapism is the concept of distancing yourself from seriousness, such as work, school, or other ordinary daily activities (Calleja, 2010). Playing games is a source of escapism, and similar to entertainment, people can watch others play for escapism. Six items are used to measure this construct. This constructs items are statements about using Twitch to run away or forget about daily troubles and responsibilities like chores, school or work.

3.1.1.5 Distraction

Distraction is a method for relaxation and decreasing anxiety or stress. Playing games is a way of distraction (Patel et al., 2006). Similar to entertainment or escapism, watching others play may replace playing by yourself. Three items are used to measure this construct. Three items are used to measure this construct. This

construct measures users' motivation to use Twitch as a way to pass the time, especially when they are bored or have nothing else to do, making it a habitual activity.

3.1.1.6 Recognition

Demonstrating an understanding of the game or subject through chat is crucial for gaining recognition from both streamers and viewers (Sjöblom & Hamari, 2016). Four items are used to measure this construct. This construct measures users' motivation to engage with others on Twitch by having their comments and suggestions acknowledged, showcasing their knowledge, and enhancing their reputation among the Twitch community.

3.1.1.7 Meeting New People

Live-streams serve as digital spaces, nurturing communities through interactive chat rooms where viewers engage in conversation, laughter, and humor related to the content. Regular viewers and moderators actively welcome and involve newcomers, enhancing the social atmosphere. This setup fosters opportunities for meeting new people, a key driver for participating in online communities (Hilvert-Bruce et al., 2018). Three items are used to measure this construct. The statements used in this construct focus on finding new people to communicate with, making new friends, and expanding one's network.

3.1.1.8 Socialization

Twitch is a platform for viewers to engage with the streamers and other viewers. This can satisfy the desire for socialization by connecting users who share common

interests. Despite being online, friendships can form among viewers based on shared opinions and preferences (Gros et al., 2017). Six items are used to measure this construct. This constructs items are statements which focus on being a part of a community and socializing in this community which includes communications with other users or playing games together.

3.1.1.9 Social Interactions

Twitch chat enables users to contact other users, and this can form friendships and communities, which leads to close relationships and frequent communication (Hilvert-Bruce et al., 2018). Four items are used to measure this construct. Different from Socialization construct, this construct includes items focus on bilateral communication instead of communication in a community.

3.1.1.10 Addiction

Addiction is an impulse-control disorder where someone uses a thing problematically without experiencing the negative outcomes. Internet and gaming addictions have emerged in recent years (Chen & Chang, 2019). Using Twitch problematically is a part of both internet and gaming addiction. Five items are used to measure this construct. Those items are measuring if the users are addicted to Twitch usage.

3.1.1.11 Sense of Virtual Community

Virtual communities are contemporary platforms for communication, enabling members to collaborate by exchanging information and knowledge to foster mutual learning and problem-solving. The sense of community in these digital environments encompasses an individual's emotional bond with the community. Channels on

Twitch also have communities built around streamers (Seering & Kairam, 2022). Channels of different sizes may have different acting communities (Hilvert-Bruce et al., 2018). Membership in a community suggests that individuals feel a sense of belonging to it. Influence within the community indicates that individuals believe they have the power to make a difference (Koh & Kim, 2003).

Seven items are used to measure this construct. Four of them are under membership and three of them are under influence. A total of 49 items under 13 constructs was used to measure Twitch usage motives, shown in Table 1.

3.1.2 Dependent variables

3.1.2.1 Emotional Connectedness

Emotional connectedness pertains to the degree of psychological attachment the viewer feels towards both the live-stream platform and particular live-stream communities (Hilvert-Bruce et al., 2018). This construct is adapted from Hilvert-Bruce et al.'s (2018) study. With 3 items it measures emotional attachment to Twitch, reflecting their pride in using the platform, their sense of disconnection when not using it for a while, and their regret if Twitch were to shut down.

3.1.2.2 Intention to Watch

Intention to Watch measures the actual behavior of the users by asking if the users are willing to continue watching in the future, subscribing to a channel or preferring Twitch to other similar platforms.

3.1.2.3 Intention to Stream

Intention to Stream measures the actual behavior of the users by asking if the users are planning to start streaming in the near future or if the streamers are going to keep streaming in the future.

3.1.3 Dark Triad

Dark Triad is the total name for the three constructs of Machiavellianism, Narcissism, and Psychopathy, which are socially undesirable personality traits (Paulhus & Williams, 2002).

3.1.3.1 Machiavellianism

Machiavellianism describes a personality trait marked by cleverness, manipulation, and a calculated approach to social interactions. Those with high levels of Machiavellianism are typically astute, practical, and ready to manipulate others to attain their objectives. They often place their own interests ahead of ethical concerns (Christie & Geis, 1970). Four items are used to measure this construct. This construct measures users' tendencies towards manipulative behaviors, including using deceit, manipulation, flattery, and exploitation to achieve personal goals.

3.1.3.2 Narcissism

Narcissism is a personality trait defines self-centered personality and an insatiable desire for admiration. People with high levels of narcissism typically are indecent, overestimate their own abilities and accomplishments, constantly crave validation and admiration from others (Miller et al., 2017). Four items are used to measure this

construct. This construct measures users' tendencies towards seeking admiration, attention, special treatment, and a desire for prestige or status from others.

3.1.3.3 Psychopathy

Psychopathy is a personality disorder marked by a consistent display of antisocial tendencies, including a deficiency in empathy, anxiety and remorse. Those with psychopathy commonly demonstrate impulsivity, a lack of responsibility, and a blatant disregard for both societal rules and the rights of others (Lynam & Gudonis, 2005). Four items are used to measure this construct. This construct measures users' tendencies toward emotional detachment, lack of remorse, insensitivity, disregard for morality, and cynicism.

3.2 Tested framework

After a factor analysis seven motivational driver factors were emerged from 12 independent variables. This factor analysis is explained in the section 5.2.

Factors emerged after the factor analysis is as follows:

- F1. Information Seeking about Games and Playing Tactics
- F2. Sense of Virtual Community
- F3. Evasion
- F4. Socialization and Networking
- F5. Addiction and Dependency
- F6. Recognition
- F7. Trolling

After these factors, theoretical framework is reshaped and a new framework is tested in this study. Dark Triad and Independent Variable constructs have been

kept same but seven motivational driver factors have replaced the independent variables. Tested framework is given in the Figure 2.

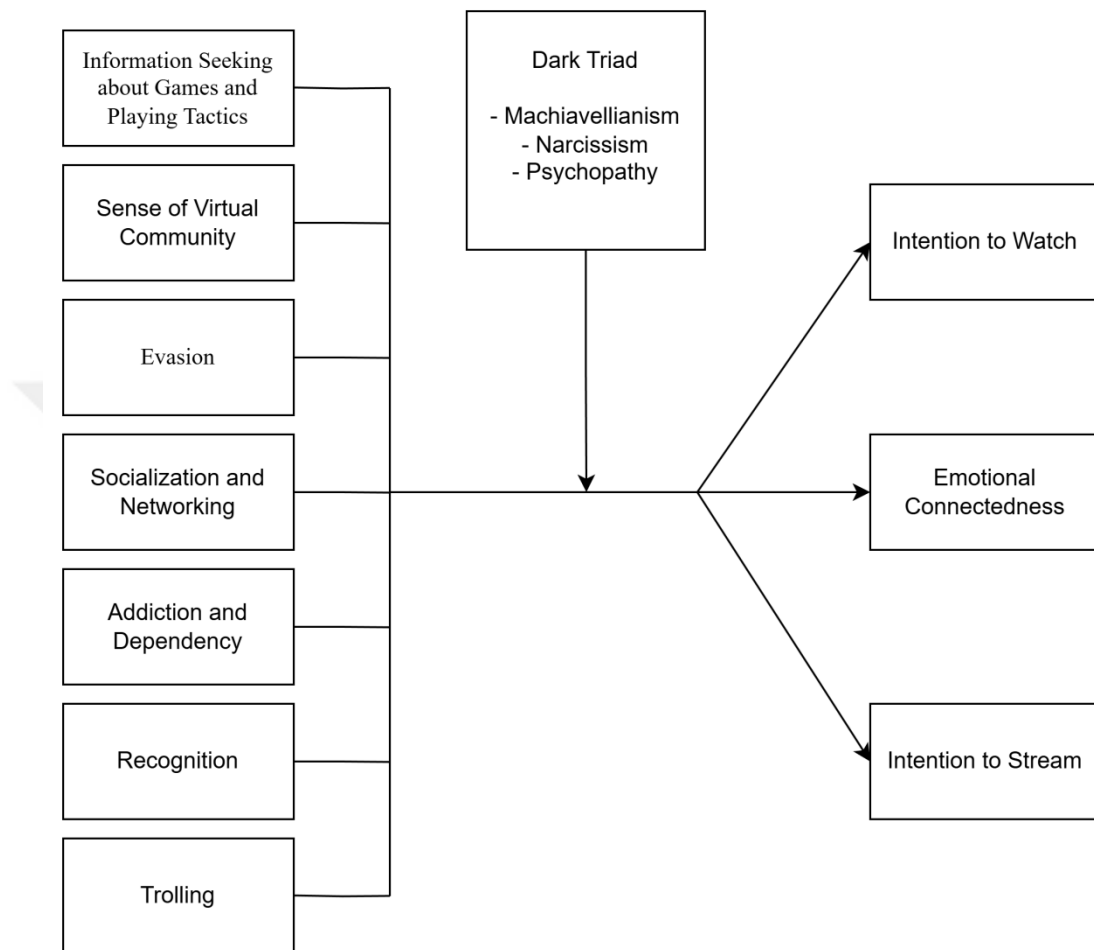


Figure 2. Tested framework

First motivational driver factor “Information Seeking about Games and Playing Tactics” includes items measure using Twitch with the motivation of learning about new and old games in the industry and improving their skills on those games. Second factor “Sense of Virtual Community” measures motivation of being a part of a community on Twitch. Third factor “Evasion” measures the motivation of using Twitch to run away, avoid and forget about daily troubles and responsibilities.

Forth factor “Socialization and Networking” measures motivation of using Twitch for finding new friends and socializing with them and socializing in communities. Fifth factor “Addiction and Dependency” measures if the Twitch users use it due to an addiction or lack of regular communication. Sixth factor “Recognition” measures the motivation of using Twitch to be recognized and lastly seventh factor “Trolling”, measures the trolling or toxic behavior motivation for Twitch usage. These seven motivational driver factors’ relationships with Twitch usage intentions and behaviors and effect of the dark personality traits are examined in the following chapters.



CHAPTER 4

RESEARCH METHODOLOGY

In this section, we will outline the methodology employed in our research. After determining the research questions and forming a theoretical framework to answer those questions. A survey was conducted to collect the data. This data is entered into the IBM SPSS software tool, and analysis was performed on this data. Factor analysis, Cluster Analysis, Multiple Linear Regression, Logistic Regression and Correlation Analysis were done on SPSS software.

4.1 Data collection

A survey has been conducted with 412 participants who are Twitch users. Survey is given in the Appendix B. Five point Likert scale (Strongly Disagree, Disagree, Undecided, Agree, Strongly Agree) is used to measure the constructs mentioned in the previous sections. Five point Likert scale measures how much do the participants agree or disagree the statements in the constructs (Croasmun & Ostrom, 2011). All the answers from the survey are entered into the IBM SPSS software tool to create the dataset.

4.2 Factor analysis

As the next step of the study, Factor Analysis is used. Factor analysis is a discipline that delves into the examination of order and organization within multivariate data. This field encompasses both theoretical investigations into the fundamental constructs and dynamics responsible for observed data. Factor analysis is used to identify underlying factors or latent variables that explain patterns of correlations

among a set of observed variables (Fabrigar & Wegener, 2011). In our study, 12 constructs measuring motivations are used to create seven factors, while discarding seven latent items. The following analysis was conducted with those seven factors.

4.3 Cluster analysis

Cluster analysis, utilized across diverse fields, categorizes objects or data points into clusters based on their resemblance. The primary goal is to discern inherent structures within the data by grouping similar observations. This indispensable tool organizes numerical data by employing objective methods and algorithms, simplifying its description by grouping data into clusters according to similarities (Cubes, 1999). In this study, three clusters are created to divide the sample into groups with low, moderate, and high dark personality traits. Those clusters were used in the following analysis. Additionally crosstab analysis was conducted on those clusters to examine their demographic profiles.

4.4 Correlation analysis

Correlation analysis is employed to investigate the extent of the relationship between two variables. The correlation coefficient quantifies this relationship, offering a numerical value. It ranges from -1 to 1, where -1 indicates a strong negative correlation, 1 is a strong positive correlation, and 0 signifies no correlation (Senthilnathan, 2019). Cohen (1988) suggests that the r score lower than 0.3 shows a weak, and relationship scores between 0.3-0.5 show a medium relationship. In this study, this analysis is used to observe correlations between dark personality traits and motivational drivers of Twitch usage.

4.5 Logistic regression analysis

Logistic regression analysis is a statistical method used to examine the relationship between an independent variable and a dependent variable that has only two possible outcomes, such as "yes or no," "success or failure," or "0 or 1." (Tripepi et al., 2008). The Cox & Snell R^2 and Nagelkerke R^2 are statistics that aim to quantify the proportion of "variation" explained by the logistic regression model. Cox & Snell R^2 gives the ratio of the variation in the outcome variable is explained by the model. However, it is important to note that this measure has a limitation in that it cannot reach a maximum value of 1. Similarly, the Nagelkerke R^2 indicates the ratio of the variation in the outcome variable is explained by the model (Suthar et al., 2010). The Nagelkerke modification, which ranges from 0 to 1, provides a more reliable measure of the relationship. Nagelkerke's R^2 is generally higher than Cox and Snell's R^2 (Nagelkerke, 1991). Classification of cases is used to evaluate the accuracy of a model by assessing its ability to correctly predict the outcome category for cases.

In this study, three logistic regression analyses were conducted to examine the effect of seven motivational factors of Twitch usage on actual Twitch usage behaviors. In this study this method was selected because dependent variables, actual behaviors, were examined under two possible outcomes. Where:

β_1 represents the effect of Information Seeking about Games and Playing Tactics,

β_2 represents the effect of Sense of Virtual Community,

β_3 represents the effect of Evasion,

β_4 represents the effect of Socialization and Networking,

β_5 represents the effect of Addiction and Dependency,

β_6 represents the effect of Recognition,

β_7 represents the effect of Trolling.

Our hypothesis for logistic regression analysis for emotional connectedness is as follows:

Null Hypothesis (H_{01}): There is no significant relationship between the motivational factors and heavy Twitch usage.

$$H_{01}: \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = \beta_7 = 0$$

Alternative Hypothesis (H_{11}): Each of the motivational factors significantly influences heavy Twitch usage.

$$H_{11}: \beta_1 \neq 0, \beta_2 \neq 0, \beta_3 \neq 0, \beta_4 \neq 0, \beta_5 \neq 0, \beta_6 \neq 0, \beta_7 \neq 0$$

Our hypothesis for logistic regression analysis for emotional connectedness is as follows:

Null Hypothesis (H_{02}): There is no significant relationship between the motivational factors and subscription behavior on Twitch.

$$H_{02}: \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = \beta_7 = 0$$

Alternative Hypothesis (H_{12}): Each of the motivational factors significantly influences subscription behavior on Twitch.

$$H_{12}: \beta_1 \neq 0, \beta_2 \neq 0, \beta_3 \neq 0, \beta_4 \neq 0, \beta_5 \neq 0, \beta_6 \neq 0, \beta_7 \neq 0$$

Our hypothesis for logistic regression analysis for emotional connectedness is as follows:

Null Hypothesis (H_{03}): There is no significant relationship between the motivational factors and donation behavior on Twitch.

$$H_{03}: \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = \beta_7 = 0$$

Alternative Hypothesis (H_{13}): Each of the motivational factors significantly influences donation behavior on Twitch.

$$H_{13}: \beta_1 \neq 0, \beta_2 \neq 0, \beta_3 \neq 0, \beta_4 \neq 0, \beta_5 \neq 0, \beta_6 \neq 0, \beta_7 \neq 0$$

4.6 Multiple linear regression analysis

Multiple linear regression is a statistical method that is used to analyze the relationship between multiple independent variables and a single dependent variable (Eberly, 2007).

In this study Multiple Linear Regression is used to search for relationships between seven Factors of Twitch usage drivers (independent variables) and actual behaviors (dependent variables), and the differences of those relationships on participants with low, medium and high dark personality trait scores.

Where:

β_1 represents the effect of Information Seeking about Games and Playing Tactics,

β_2 represents the effect of Sense of Virtual Community,

β_3 represents the effect of Evasion,

β_4 represents the effect of Socialization and Networking,

β_5 represents the effect of Addiction and Dependency,

β_6 represents the effect of Recognition,

β_7 represents the effect of Trolling.

Our hypothesis for multiple linear regression analysis for emotional connectedness is as follows:

Null Hypothesis (H_{04}): There is no significant relationship between the motivational factors and emotional connectedness.

$$H_{04}: \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = \beta_7 = 0$$

Alternative Hypothesis (H_{14}): Each of the motivational factors significantly influences emotional connectedness.

$$H_{14}: \beta_1 \neq 0, \beta_2 \neq 0, \beta_3 \neq 0, \beta_4 \neq 0, \beta_5 \neq 0, \beta_6 \neq 0, \beta_7 \neq 0$$

Our hypothesis for multiple linear regression analysis for Intention to Watch is as follows:

Null Hypothesis (H_{05}): There is no significant relationship between the motivational factors and the Intention to Watch.

$$H_{05}: \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = \beta_7 = 0$$

Alternative Hypothesis (H_{15}): Each of the motivational factors significantly influences the Intention to Watch.

$$H_{15}: \beta_1 \neq 0, \beta_2 \neq 0, \beta_3 \neq 0, \beta_4 \neq 0, \beta_5 \neq 0, \beta_6 \neq 0, \beta_7 \neq 0$$

Our hypothesis for multiple linear regression analysis for Intention to Stream is as follows:

Null Hypothesis (H_{06}): There is no significant relationship between the motivational factors and the Intention to Stream.

$$H_{06}: \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = \beta_7 = 0$$

Alternative Hypothesis (H_{16}): Each of the motivational factors significantly influences the Intention to Stream.

$$H_{16}: \beta_1 \neq 0, \beta_2 \neq 0, \beta_3 \neq 0, \beta_4 \neq 0, \beta_5 \neq 0, \beta_6 \neq 0, \beta_7 \neq 0$$

CHAPTER 5

RESULTS AND FINDINGS

In this section we are going to explore the results of the survey and analysis.

5.1 Profile of respondents

The overall sample consisted of 18% respondents under 18, 37% between 18-24, 31% between 25-30, 9% between 31-40, and 4% aged 41 or older. In terms of gender, 23% were female and 75% were male. Regarding educational background, 23% had some high school education, 40% were undergraduate students, 27% held a bachelor's degree, 6% were MA/MBA/PhD students, and 6% had an MA/MBA/PhD.

Statista (2024) data shows that 73% of Twitch users are male. This aligns with our sample, which has a 75% male ratio. This shows that our sample may reflect the Twitch user population, but since there are a small number of female participants, gender-based comparisons may not have significant results.

Statista (2024) data shows that 52% of Twitch users are between 25-34 years old. 22% of the users are between 35-44 years old, 15% of users are between 16-24 years old and 11% of them are over 44 years old. These studies respondents are 18.2% under 18, 37.4% between 18-24, 30.8% between 25-30, 9.2% between 31-40 and 4.4% over 40 years old. This study has similar results to Statista's (2024) data, but it has a higher ratio of under 18 years old and less of 41 and above. But since both researches have the highest ratio of young adults between 18-30 years old, we can say that this sample may reflect the overall Twitch user population. Profile of respondents is given in the Table 1.

Table 1. Profile of Respondents

Profile of Respondents					
Demographics					
Age	Under 18	18-24	25-30	31-40	41 and above
	75 (18.2%)	154 (37.4%)	127 (30.8%)	38 (9.2%)	18 (4.4%)
Gender	Female	Male	Prefer not to say		
	95 (23.1%)	310 (75.2%)	7 (1.7%)		
Education	Somewhat high school	Undergraduate student	Bachelor's degree	MA/MBA/PhD student	MA/MBA/PhD degree
	93 (22.6%)	163 (39.6%)	110 (26.7%)	23 (5.6%)	23 (5.6%)
Twitch Usage					
Twitch streamer	Yes	No			
	39 (9.5%)	373 (90.5%)			
Total Months of Subscription to Twitch Channels	Never Subscribed	1-3 months	4-6 months	7-12 months	> 1 Year
	163 (39.6%)	64 (15.5%)	50 (12.1%)	26 (6.3%)	109 (26.5%)
Daily Time Spent on Twitch	< 1 Hour	1-3 hours	4-6 hours	> 6 Hours	
	184 (44.7%)	172 (41.7%)	45 (10.9%)	11 (2.7%)	
Total Donation to Streamers	Never Donated	Less than 5\$	6-20\$	21-50\$	> 50\$
	278 (67.5%)	12 (2.9%)	30 (7.3%)	39 (9.5%)	53 (12.9%)

Twitch streamer ratio in the whole sample is only 9.5%. This result may affect the results of Intention to Stream construct, but this construct contains statements about starting to stream. This can reflect the streaming intentions of current non-streamers. 39.6% of the respondents have never subscribed to any channel, but 26.5% of the respondents have subscribed more than a year, and 15.5% have subscribed between one and three months. 67.5% of respondents have never donated to any streamer. 13% of respondents donated more than 50\$. Those results show that most Twitch users do not prefer to spend any money on Twitch, and the

people who spend money with the highest number of donations have higher ratios. Lastly 44.7% of the participants spend less than an hour daily on Twitch, 41.7% spend between one and three hours and only 2.7% spend more than six hours. Only a tiny percentage of the participants are heavy users.

5.2 Factor analysis for motivators of Twitch usage

An Exploratory Factor Analysis was conducted with the extraction method of the Principal Component and the rotation method of Varimax with Kaiser Normalization. Seven out of 49 items were eliminated during this analysis due to cross-loadings. Kaiser-Meyer-Olkin measure of sampling adequacy was 0.926, above the commonly recommended value of 0.6. This means that the sample size is eligible for the Factor Analysis. Additionally, Bartlett's test of sphericity was significant with the results of $\chi^2(861) = 17757.862$ and $p < 0.05$. This indicates that inter-correlations between items are adequate for Factor Analysis.

With this analysis seven factors emerged while explaining the 75.926% of the total variance. 42 items were distributed into those seven factors and all those items have higher than 0.5 loading scores. This result demonstrates the contribution of each item to the factors. Distribution of items by Factors is given in the Table 2.

F1. Information Seeking about Games and Playing Tactics

F2. Sense of Virtual Community

F3. Evasion

F4. Socialization and Networking

F5. Addiction and Dependency

F6. Recognition

F7. Trolling

Table 2. Factors of Motivational Drivers of Twitch Usage

Motives		Loadings
F1: Information Seeking about Games and Playing Tactics (Eigenvalue: 13.96) (Cronbach's Alpha: 0.953) (Mean: 4.36)	Using Twitch, I am better informed about new games I consider playing	.883
	Using Twitch, I am better informed about new game strategies	.871
	Using Twitch helps me see what game tactics are out there	.866
	Using Twitch helps me look for information on game tricks	.861
	Using Twitch, I can better decide whether I want to play a particular game or not	.856
	Using Twitch helps me get information on learning to play games	.855
	Using Twitch, I can better decide which game I want to play than in the past	.827
	Using Twitch, I find games I would not otherwise have found.	.764
F2: Sense of Virtual Community (Eigenvalue: 7.41) (Cronbach's Alpha: 0.960) (Mean: 2.70)	I feel that I control (my) Twitch community.	.904
	I am well known as a member of (my) Twitch community.	.898
	I feel as if (my) Twitch community members are my close friends.	.889
	I feel membership in Twitch community.	.850
	I like (my) Twitch community members.	.837
	I feel as if I belong to (my) Twitch community.	.836
	Other Twitch members reply to my posts on Twitch chat frequently.	.811
F3: Evasion (Eigenvalue: 3.48) (Cronbach's Alpha: 0.918) (Mean: 3.60)	Using Twitch I can Forget about troubles	.825
	Using Twitch I can escape from reality	.809
	Using Twitch, I can get away from the rest of my family or others	.794
	Using Twitch I can Avoid loneliness	.785
	Using Twitch I can Relax	.721
	Using Twitch is a habit, just something I do.	.693
	When I have nothing better to do, I use Twitch.	.686
	Using Twitch, I can forget about school, work, or other things	.624
F4: Socialization and Networking (Eigenvalue: 2.93) (Cronbach's Alpha: 0.946) (Mean: 2.84)	Using Twitch passes the time away, particularly when I'm bored	.620
	Using Twitch helps me to meet new friends.	.820
	Using Twitch helps me to find new people with the same interests.	.805
	Using Twitch helps me to increase my social networks.	.761
	I use Twitch to play with other users.	.744
	I use Twitch to be part of a community.	.723
	I use Twitch to communicate with other viewers through the chat.	.659
F5: Addiction and Dependency (Eigenvalue: 1.63) (Cronbach's Alpha: 0.921) (Mean: 2.78)	Twitch take up almost all of my leisure time.	.776
	I am bothered when people interrupt me while I am using Twitch.	.754
	Much of my time I spend using Twitch.	.744
	I would rather spend time using Twitch than do things around the house.	.680
	I find myself using Twitch longer than I planned to.	.663
	I have frequent communication with some other Twitch users	.649
F6: Recognition (Eigenvalue: 1.35) (Cronbach's Alpha: 0.913) (Mean: 3.76)	I know some Twitch users on a personal level.	.642
	I like when other Twitch users take my comments into account	.697
	I like when streamers on Twitch take my suggestions into consideration.	.692
F7: Trolling (Eigenvalue: 1.13) (Cronbach's Alpha: 0.782) (Mean: 1.76)	I feel good when my comments prove to other Twitch users that I have knowledge about the game being played.	.604
	I use Twitch to criticize a streamer in a negative way.	.854
	I use Twitch to troll/annoy other users.	.805
Total Variance Explained	75.926%	

Information Seeking about Games and Playing Tactics Factor contains eight total items from previous constructs of Information seeking about game products and Learning about game strategies, measuring the Twitch users demand for the information.

Second factor named Sense of Virtual Community contains all seven items from the constructs of Sense of Virtual Community – Membership and Sense of Virtual Community – Influence.

The third factor, Evasion, contains all nine items from Escapism and Distraction constructs. “Evasion means deliberately avoiding something that you are supposed to do or deal with.” (Collins COBUILD Advanced Learner’s Dictionary, 2014)

Forth factor Socialization and Networking includes total six items. All three items from Meeting New People and first three items from Socialization construct.

The fifth factor, Addiction and Dependency, includes total of seven items. Those are all five items from Addiction construct and two items from social interaction construct. Those social interaction items are about the dependency for frequent communication.

The sixth factor, Recognition, includes three items. Original Recognition construct included four items but one of them is eliminated during the analysis.

Seventh and last factor is Trolling. This factor includes two items, one from entertainment and one from social interactions. Both items are about criticizing in a negative way, annoying or trolling.

Additionally internal reliability of each factor was investigated using Cronbach’s Alpha analysis. Cronbach’s alpha scores for each factor is as follows: Information Seeking about Games and Playing Tactics $\alpha = .953$, Sense of Virtual

Community $\alpha = .960$, Evasion $\alpha = .918$, Socialization and Networking $\alpha = .946$, Addiction and Dependency $\alpha = .921$, Recognition $\alpha = .913$, Trolling $\alpha = .78$. Each of those Cronbach's Alpha scores are over the minimally acceptable score of 0.7. These results indicate the reliability of the factors as measurement scales.

5.3 Dark personality traits results

Dark Personality Traits Results are given in the Table 3.

Table 3. Dark Triad Results

Construct	Item
Machiavellianism (Cronbach's Alpha: 0.882) (Mean: 2.09)	I have used deceit or lied to get my way
	I tend to manipulate others to get my way.
	I have used flattery to get my way.
	I tend to exploit others towards my own end.
Narcissism (Cronbach's Alpha: 0.876) (Mean: 2.87)	I tend to want others to admire me.
	I tend to want others to pay attention to me.
	I tend to expect special favors from others.
	I tend to seek prestige or status.
Psychopathy (Cronbach's Alpha: 0.878) (Mean: 1.89)	I tend to lack remorse.
	I tend to be callous or insensitive.
	I tend to not be too concerned with morality or the morality of my actions.
	I tend to be cynical.

The internal reliability of each dark personality trait construct was investigated using Cronbach's Alpha analysis. Cronbach's alpha scores for each factor are above the minimally acceptable score of 0.7. These results indicate the reliability of the constructs as measurement scales. Cronbach's alpha score and means of the constructs are given in the table 4.

Only "I tend to want others admire me" and "I tend to want others to pay attention to me" items have means higher than 3, with 3.28 and 3.50 means. But all other items have means less than 2.50. Most of the respondents may have low scores, which may lower the means. Therefore, we conduct a cluster analysis to create clusters with low, moderate, and high dark personality traits.

5.4 Cluster analysis results

As the next step of the study, a cluster analysis has been conducted. The aim of this analysis was to divide the sample into clusters with different dark personality trait scores. Means of Psychopathy, Narcissism and Machiavellianism constructs were entered into quick cluster method. Three clusters were created after this analysis. The first cluster is low on dark personality traits, the second is moderate on dark personality traits, and the third is high on dark personality traits. The final cluster centers are given in Table 4.

Table 4. Final Cluster Centers

Final Cluster Centers			
	Cluster 1 Low on Dark Personality Traits n: 189	Cluster 2 Moderate on Dark Personality Traits n: 136	Cluster 3 High on Dark Personality Traits n: 87
Psychopathy	1.11	2.42	3.71
Narcissism	1.85	3.36	4.32
Machiavellianism	1.22	1.81	3.47

First cluster includes 189 participants and all with lower scores in all three dark personality traits. Second cluster includes 136 participants and all with higher scores in all three dark personality traits when compared with the first and the third cluster includes 87 participants with highest scores in all three dark personality traits.

As the next step, profiles of cluster are examined with a crosstab analysis.

Results are given in the table 5.

Table 5. Profile of Clusters

Profile of Clusters			
	Cluster 1 Low on Dark Personality Traits n: 189	Cluster 2 Moderate on Dark Personality Traits n: 136	Cluster 3 High on Dark Personality Traits n: 87
Age			
Under 18	21 (11%)	17 (13%)	37 (43%)
18-24	78 (41%)	51 (38%)	25 (29%)
25-30	55 (29%)	51 (38%)	21 (24%)
31-40	23 (12%)	12 (9%)	3 (3%)
41 and above	12 (6%)	5 (4%)	1 (1%)
Gender			
Female	47 (25%)	38 (28%)	10 (11%)
Male	138 (73%)	95 (70%)	77 (89%)
Prefer not to say	4 (2%)	3 (2%)	0 (0%)
Education			
Somewhat high school	28 (15%)	26 (19%)	39 (45%)
Undergraduate student	89 (47%)	49 (36%)	25 (29%)
Bachelor's degree	51 (27%)	44 (32%)	15 (17%)
MA/MBA/PhD student	11 (6%)	5 (4%)	7 (8%)
MA/MBA/PhD degree	10 (5%)	12 (9%)	1 (1%)

The overall sample consisted of respondents with the following age distribution: 18% were under 18, 37% were between 18-24, 31% were between 25-30, 9% were between 31-40, and 4% were 41 or older. When analyzing the clusters, Cluster 1 had an age distribution of 11% under 18, 41% between 18-24, 29%

between 25-30, 12% between 31-40, and 6% 41 or older. Cluster 2's age distribution was 13% under 18, 38% between 18-24, 38% between 25-30, 9% between 31-40, and 4% 41 or older. Finally, Cluster 3 had 43% under 18, 29% between 18-24, 24% between 25-30, 3% between 31-40, and 1% 41 or older.

In terms of gender distribution, the whole sample comprised 23% female and 75% male respondents. Cluster 1 showed a gender distribution of 25% female and 73% male, while Cluster 2 had 28% female and 70% male. Cluster 3, however, had a significantly skewed distribution with only 11% female and 89% male respondents.

Regarding education level, the overall sample had 23% with some high school education, 40% were undergraduate students, 27% held a bachelor's degree, 6% were MA/MBA/PhD students, and 6% had an MA/MBA/PhD. Cluster one was composed of 14% with some high school education, 47% undergraduate students, 27% with a bachelor's degree, 6% MA/MBA/PhD students, and 5% with an MA/MBA/PhD. Cluster two included 19% with some high school education, 36% undergraduate students, 32% with a bachelor's degree, 4% MA/MBA/PhD students, and 9% with an MA/MBA/PhD. Lastly, Cluster three had a larger proportion of respondents with 45% having some high school education, 29% were undergraduate students, 17% held a bachelor's degree, 8% were MA/MBA/PhD students, and only 1% had an MA/MBA/PhD.

5.5 Correlation analysis results

To understand the relationship between motivational drivers of Twitch usage and dark personality traits a Correlation Analysis has been conducted. Findings are shown in Table 6.

Table 6. Correlations between Dark Personality Traits and Motivational Drivers

Correlations between Dark Personality Traits and Motivational Drivers			
	Psychopathy	Narcissism	Machiavellianism
Information Seeking	,100*	,147**	
Sense of Virtual Community	,210**	,173**	,163**
Evasion	,163**	,225**	,170**
Socializing and Networking	,184**	,196**	,137**
Addiction and Dependency	,284**	,297**	,262**
Recognition	,161**	,299**	,149**
Trolling	,333**		,201**

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Information Seeking about Games and Playing Tactics has weak and significant positive relationship with Psychopathy ($r = 0.100$, $p < 0.05$) and Narcissism ($r = 0.147$, $p < 0.01$).

Sense of Virtual Community has weak and significant positive relationship with Psychopathy ($r = 0.210$, $p < 0.01$), Narcissism ($r = 0.173$, $p < 0.01$) and Machiavellianism ($r = 0.163$, $p < 0.01$).

Evasion has weak and significant positive relationship with Psychopathy ($r = 0.163$, $p < 0.01$), Narcissism ($r = 0.225$, $p < 0.01$) and Machiavellianism ($r = 0.170$, $p < 0.01$).

Socializing and Networking has weak and significant positive relationship with Psychopathy ($r = 0.184$, $p < 0.01$), Narcissism ($r = 0.196$, $p < 0.01$) and Machiavellianism ($r = 0.137$, $p < 0.01$).

Addiction and Dependency has medium/weak (because r scores are so close to 0.3) and significant positive relationship with Psychopathy ($r = 0.284$, $p < 0.01$), Narcissism ($r = 0.297$, $p < 0.01$) and Machiavellianism ($r = 0.262$, $p < 0.01$).

Recognition has weak and significant positive relationship with Psychopathy ($r=0.161$, $p<0.01$) and Machiavellianism ($r=0.149$, $p<0.01$) and medium significant positive relationship with Narcissism ($r=0.299$, $p<0.01$).

Trolling has medium and significant positive relationship with Psychopathy ($r=0.333$, $p<0.01$) and weak significant positive relationship with Machiavellianism ($r=0.201$, $p<0.01$).

5.6 Logistic regression analysis results

Three logistic regression analyses were conducted to examine the effect of seven motivational factors of Twitch usage on actual Twitch usage behaviors.

To analyze the data using logistic regression and simplify the response categories, each actual behavior (time spent, subscription and donation) responses were grouped into two categories: "Donors" ($n=134$) and "Non-Donors." ($n=278$), "Subscribers" ($n=249$) and "Non-Subscribers" ($n=163$) and "Heavy users" ($n=228$) and "Non-Heavy users" ($n=184$). Individuals who reported making any contribution, regardless of amount, were categorized as donors, while those who reported not contributing were categorized as non-donors. Same logic is applied to subscribers. For time spent, a big portion of the participants was using Twitch less than an hour daily. So, this group is taken as non-heavy users and the rest are collected into a group as heavy users. This grouping was necessary because logistic regression requires a binary outcome variable, and the original responses included multiple ranges of donation amounts, subscription durations and hours of twitch usage. Results of the logistic regressions analysis is given in the table 7.

Table 7. Logistic Regressions Analysis Results

Logistic Regression Analysis Results						
	Heavy User ($\chi^2= 163.687$)		Subscriber ($\chi^2= 68.670$)		Donor ($\chi^2= 88.567$)	
	Yes (n:228)	No (n:184)	Yes (n:249)	No (n:163)	Yes (n:134)	No n:278)
Classified Cases	78%		68%		72%	
Cox & Snell R ²	0.33		0.15		0.19	
Nagelkerke R ²	0.44		0.21		0.27	
Information Seeking			-0.34*			
Sense of Virtual Community						
Evasion					-0.36*	
Socializing and Networking			0.42**			
Addiction and Dependency	0.56**				0.73**	
Recognition	0.77**		0.31*			
Trolling	-0.36**		-0.45**		-0.30*	

* β value for the significant relations at the 0.05 level.

** β value for the significant relations at the 0.01 level.

First logistic regression was performed to examine the effects of seven motivational factors of Twitch usage on participants being a heavy Twitch user, which means that the participant uses Twitch longer than an hour per day. Hosmer-Lemeshow test results ($\chi^2= 163.687$, $p < .001$) indicates that the logistic regression model was statistically significant.

Dependent variables explain 43.9% of the variance in independent variable according to Nagelkerke R² and dependent variables explain 32.8% of the variance in independent variable according to Cox & Snell R². The model correctly classified 77.7% of cases, which is increased from 55.3% with the second model.

Results Show that Addiction and Dependency ($\beta = 0.56$, $p < .001$) and Recognition ($\beta = 0.77$, $p < .001$) have positive effect on heavy Twitch usage. On the other hand Trolling ($\beta = -0.36$, $p=0.004$) has negative effect on heavy Twitch usage.

Other motivational factors do not have a significant effect on heavy Twitch usage because of having a p score higher than 0.05. With these results we can partially accept hypothesis H₁₁ (Each of the motivational factors significantly influences heavy Twitch usage.)

Second logistic regression was performed to examine the effects of seven motivational factors of Twitch usage on subscription behavior of participants. Hosmer-Lemeshow test results ($\chi^2 = 68.670$, $p < .001$) indicates that the logistic regression model was statistically significant. Dependent variables explain 20.8% of the variance in independent variable according to Nagelkerke R² and dependent variables explain 15.4% of the variance in independent variable according to Cox & Snell R². The model correctly classified 68.2% of cases, which is increased from 60.4% with the second model.

Results Show that Socializing and Networking ($\beta = 0.42$, $p = 0.003$) and Recognition ($\beta = 0.31$, $p = 0.024$) have positive effect on subscription behavior. Information Seeking about Games and Playing Tactics ($\beta = -0.34$, $p = 0.039$) and Trolling ($\beta = -0.45$, $p < .001$) have negative effect. Other motivational factors do not have a significant effect on behavior of subscription because of having a p score higher than 0.05. With these results we can partially accept hypothesis H₁₂ (Each of the motivational factors significantly influences subscription behavior on Twitch.)

Third and last logistic regression was performed to examine the effects of seven motivational factors of Twitch usage on donation behavior of participants. Hosmer-Lemeshow test results ($\chi^2 = 88.567$, $p < .001$) indicates that the logistic regression model was statistically significant. Dependent variables explain 27% of the variance in independent variable according to Nagelkerke R² and dependent variables explain 19.3% of the variance in independent variable according to Cox &

Snell R^2 . The model correctly classified 71.6% of cases, which is increased from 67.5% with the second model.

Results Show that Addiction and Dependency ($\beta = 0.73$, $p < .001$) has positive effect on donation behavior, Evasion ($\beta = -0.36$, $p=0.026$) and Trolling ($\beta = -0.30$, $p=0.011$) have negative effect. Other motivational factors do not have a significant effect on behavior of donation because of having a p score higher than 0.05. With these results we can partially accept hypothesis H_{13} (Each of the motivational factors significantly influences donation behavior on Twitch.)

5.7 Multiple linear regression analysis results

To examine the relationship between dependent variables (Emotional Connectedness, Intention to Watch, and Intention to Stream) and independent variables (Seven factors of Twitch usage motivations), multiple linear regression analyses were conducted. Additionally, to examine the effect of dark personality traits on these relationships, each regression analysis was made with a whole sample: low on dark personality traits cluster, moderate dark personality traits cluster, and high on dark personality traits.

First Multiple Linear Regression Analysis was made with total sample for Emotional Connectedness. The results of the multiple linear regression analysis for emotional connectedness are given in Table 8.

Table 8. Multiple Linear Regression Analysis Results - Emotional Connectedness

Multiple Linear Regression Analysis Results - Emotional Connectedness				
	All	LD	MD	HD
n	412	189	136	87
R	0.65	0.62	0.58	0.83
R Square	42%	39%	33%	69%
Information Seeking about Games and Playing Tactics				
Sense of Virtual Community	0.21**	0.24**	0.15*	
Evasion				
Socializing and Networking	0.24**		0.21*	0.71**
Addiction and Dependency	0.23**	0.30**	0.22*	
Recognition				
Trolling	-0.18**	-0.26**	-0.18**	

*Notes: LD is abbreviation for Cluster: Low on Dark Personality Traits, MD for the Cluster: Moderate Dark Personality Traits and HD for the Cluster: High on Dark Personality Traits

* β value for the significant relations at the 0.05 level.

** β value for the significant relations at the 0.01 level.

The ANOVA table shows that, with an F value of 42.082 having a significance level of 0.001, this is a significant regression output. So, we can analyze the model summary and coefficients. R square is 42%, this means that 42% of variance in the dependent variable is explained by the independent variables in the model.

The Coefficient table shows us that Factors one, three and six do not contribute significantly to the regression equation. We understand this from the significances of the t values which must be less than 0.05 for us to conclude that this variable has a contribution the output. Results show that Sense of Virtual Community, Socializing and Networking, and Addiction and Dependency have positive relationship with emotional connectedness, but Trolling has negative relationship.

Second Multiple Linear Regression Analysis was made with low on dark personality traits cluster for Emotional Connectedness. The ANOVA table shows that, with an F value of 16.250 having a significance level of 0.001, this is a significant regression output. So, we can analyze the model summary and coefficients. R square is 39%, this means that 39% of variance in the dependent variable is explained by the independent variables in the model.

The Coefficient table shows us that Factors one, three, four and six do not contribute significantly to the regression equation. We understand this from the significances of the t values which must be less than 0.05 for us to conclude that this variable has a contribution the output. Results show that Sense of Virtual Community and Addiction and Dependency have positive relationship with emotional connectedness, but Trolling has negative relationship for the Twitch users with low dark personality trait scores.

Third Multiple Linear Regression Analysis was made with moderate on dark personality traits cluster for Emotional Connectedness. The ANOVA table shows that, with an F value of 9.087 having a significance level of 0.001, this is a significant regression output. So, we can analyze the model summary and coefficients. R square is 33%, this means that 33% of variance in the dependent variable is explained by the independent variables in the model.

The Coefficient table shows us that Factors one, three and six do not contribute significantly to the regression equation. We understand this from the significances of the t values which must be less than 0.05 for us to conclude that this variable has a contribution the output. Results show that only Sense of Virtual Community, Socializing and Networking, and Addiction and Dependency have

positive relationship with emotional connectedness for the Twitch users with moderate dark personality trait scores.

Forth Multiple Linear Regression Analysis was made with High on dark personality traits cluster for Emotional Connectedness. The ANOVA table shows that, with an F value of 24.922 having a significance level of 0.001, this is a significant regression output. So, we can analyze the model summary and coefficients. R square is 69%, this means that 69% of variance in the dependent variable is explained by the independent variables in the model.

The Coefficient table shows us that Factors one, two, three, five, six and seven do not contribute significantly to the regression equation. We understand this from the significances of the t values which must be less than 0.05 for us to conclude that this variable has a contribution the output. Results show that only Socializing and Networking have positive relationship with emotional connectedness for the Twitch users with high dark personality trait scores. With these results we can partially accept hypothesis H₁₄ (Each of the motivational factors significantly influences emotional connectedness.), because the factors excluding Information Seeking, Evasion and Recognition have a significant effect on emotional connectedness.

As next step, same multiple linear regressions were run for Intention to Watch. The results of the multiple linear regression analysis for Intention to Watch are given in Table 9.

Table 9. Multiple Linear Regression Analysis Results - Intention to Watch

Multiple Linear Regression Analysis Results - Intention to Watch				
	All	LD	MD	HD
n	417	189	136	87
R	0.62	0.60	0.57	0.78
R Square	39%	36%	32%	61%
Information Seeking about Games and Playing Tactics	0.11*			
Sense of Virtual Community	0.12**	0.22**		
Evasion			0.17*	
Socializing and Networking				0.37**
Addiction and Dependency	0.19**	0.22*	0.18*	
Recognition	0.20**	0.18*	0.17*	0.23*
Trolling	-0.22**	-0.27**	-0.20**	-0.20**

*Notes: LD is abbreviation for Cluster: Low on Dark Personality Traits, MD for the Cluster: Moderate Dark Personality Traits and HD for the Cluster: High on Dark Personality Traits

* β value for the significant relations at the 0.05 level.

** β value for the significant relations at the 0.01 level.

First Multiple Linear Regression Analysis for Intention to Watch was made with total sample. The ANOVA table shows that, with an F value of 36.102 having a significance level of 0.001, this is a significant regression output. So, we can analyze the model summary and coefficients. R square is 39%, this means that 39% of variance in the dependent variable is explained by the independent variables in the model.

The Coefficient table shows us that Factors three and four do not contribute significantly to the regression equation. We understand this from the significances of the t values which must be less than 0.05 for us to conclude that this variable has a contribution the output. Results show that Information Seeking about Games and Playing Tactics, Sense of Virtual Community, Addiction and Dependency and Recognition have positive relationship with Intention to Watch, but Trolling has negative relationship.

Second Multiple Linear Regression Analysis for Intention to Watch was made with low on dark personality traits cluster. The ANOVA table shows that, with an F value of 14.476 having a significance level of 0.001, this is a significant regression output. So, we can analyze the model summary and coefficients. R square is 36%, this means that 36% of variance in the dependent variable is explained by the independent variables in the model.

The Coefficient table shows us that Factors one, three and four do not contribute significantly to the regression equation. We understand this from the significances of the t values which must be less than 0.05 for us to conclude that this variable has a contribution the output. Results show that Sense of Virtual Community, Addiction and Dependency and Recognition have positive relationship with Intention to Watch, but Trolling has negative relationship for the Twitch users with low dark personality trait scores.

Third Multiple Linear Regression Analysis for Intention to Watch was made with moderate on dark personality traits cluster. The ANOVA table shows that, with an F value of 8.564 having a significance level of 0.001, this is a significant regression output. So, we can analyze the model summary and coefficients. R square is 32%, this means that 32% of variance in the dependent variable is explained by the independent variables in the model.

The Coefficient table shows us that Factors one, two and four do not contribute significantly to the regression equation. We understand this from the significances of the t values which must be less than 0.05 for us to conclude that this variable has a contribution the output. Results show that Evasion, Addiction and Dependency and Recognition have positive relationship, but Trolling has negative

relationship with Intention to Watch for the Twitch users with moderate dark personality trait scores.

Forth Multiple Linear Regression Analysis for Intention to Watch was made with high on dark personality traits cluster. The ANOVA table shows that, with an F value of 17.917 having a significance level of 0.001, this is a significant regression output. So, we can analyze the model summary and coefficients. R square is 61%.

The Coefficient table shows us that Factors one, two, three and five do not contribute significantly to the regression equation. We understand this from the significances of the t values which must be less than 0.05 for us to conclude that this variable has a contribution the output. Results show that Socializing and Networking, and Recognition have positive relationship, but Trolling has negative relationship with Intention to Watch for the Twitch users with high dark personality trait scores. With these results we can accept our hypothesis H₁₅ (Each of the motivational factors significantly influences the Intention to Watch.)

As third and final step, same multiple linear regressions were run for Intention to Stream. The results of the multiple linear regression analysis for Intention to Stream are given in Table 10.

Table 10. Multiple Linear Regression Analysis Results - Intention to Stream

Multiple Linear Regression Analysis Results - Intention to Stream				
	All	LD	MD	HD
n	412	189	136	87
R	0.57	0.55	0.50	0.67
R Square	32%	30%	25%	45%
Information Seeking about Games and Playing Tactics				
Sense of Virtual Community	0.12*	0.21**		
Evasion				
Socializing and Networking				0.30*
Addiction and Dependency	0.31**	0.31**	0.29*	
Recognition	0.29**	0.20*	0.34**	
Trolling				

*Notes: LD is abbreviation for Cluster: Low on Dark Personality Traits, MD for the Cluster: Moderate Dark Personality Traits and HD for the Cluster: High on Dark Personality Traits

* β value for the significant relations at the 0.05 level.

** β value for the significant relations at the 0.01 level.

First Multiple Linear Regression Analysis for Intention to Stream was made with total sample. The ANOVA table shows that, with an F value of 27.349 having a significance level of 0.001, this is a significant regression output. So, we can analyze the model summary and coefficients. R square is 32%, this means that 32% of variance in the dependent variable is explained by the independent variables in the model.

The Coefficient table shows us that Factors one, three, four and seven do not contribute significantly to the regression equation. We understand this from the significances of the t values which must be less than 0.05 for us to conclude that this variable has a contribution the output. Results show that Sense of Virtual Community, Addiction and Dependency, and Recognition have positive relationship with Intention to Stream.

Second Multiple Linear Regression Analysis for Intention to Stream was made with low on dark personality traits cluster. The ANOVA table shows that, with an F value of 11.272 having a significance level of 0.001, this is a significant regression output. So, we can analyze the model summary and coefficients. R square is 30%, this means that 30% of variance in the dependent variable is explained by the independent variables in the model.

The Coefficient table shows us that Factors one, three, four and seven do not contribute significantly to the regression equation. We understand this from the significances of the t values which must be less than 0.05 for us to conclude that this variable has a contribution the output. Results show that Sense of Virtual Community, Addiction and Dependency, and Recognition have positive relationship with Intention to Stream for the Twitch users with low dark personality trait scores.

Third Multiple Linear Regression Analysis for Intention to Stream was made with moderate on dark personality traits cluster. The ANOVA table shows that, with an F value of 6.024 having a significance level of 0.001, this is a significant regression output. So, we can analyze the model summary and coefficients. R square is 25%, this means that 25% of variance in the dependent variable is explained by the independent variables in the model.

The Coefficient table shows us that Factors one, two, three, four and seven do not contribute significantly to the regression equation. We understand this from the significances of the t values which must be less than 0.05 for us to conclude that this variable has a contribution the output. Results show that Addiction and Dependency, and Recognition have positive relationship with Intention to Stream for the Twitch users with moderate dark personality trait scores.

Forth Multiple Linear Regression Analysis for Intention to Stream was made with high on dark personality traits cluster. The ANOVA table shows that, with an F value of 9.151 having a significance level of 0.001, this is a significant regression output. So, we can analyze the model summary and coefficients. R square is 45%.

The Coefficient table shows us that Factors one, two, three, five, six and seven do not contribute significantly to the regression equation. We understand this from the significances of the t values which must be less than 0.05 for us to conclude that this variable has a contribution the output. Results show that Socializing and Networking have positive relationship with Intention to Stream for the Twitch users with high dark personality trait scores. With these results we can partially accept our hypothesis H₁₆ (Each of the motivational factors significantly influences the Intention to Stream.). Because Information Seeking, Evasion and Trolling do not affect Intention to Stream in any sample but the rest of the factors have significant effect on Intention to Stream.

CHAPTER 6

DISCUSSION AND CONCLUSION

This chapter discusses the results of the study, highlights the potential implications of the results, goes over the limitations faced during the study and propose ideas for future research.

6.1 Discussion of the results

In this study, we have explored the motivational drivers of Twitch users, their dark personality traits, and the effects of these personality traits on their behaviors.

After the results of a factor analysis, motivational drivers were examined using seven factors. Those factors were Information Seeking about Games and Playing Tactics, Sense of Virtual Community, Evasion, Socialization and Networking, Addiction and Dependency, Recognition and Trolling. Dark personality traits were measured with the Dark Triad. Dark Triad includes Narcissism, Machiavellianism and Psychopathy. To measure the actual behavior, we used three constructs: Emotional connectedness, Intention to Watch and Intention to Stream.

With the results of correlation analysis, we saw that Psychopathy has a medium positive relationship with Addiction and Dependency, and Trolling and has a weak positive relationship with all other five motivator factors. When we compare all those relationships, we can see that Psychopathy has stronger relationships with Trolling and Addiction and Dependency. When we look at Narcissism's relationships, we can see that it has a positive relationship with all motivators but Trolling. When we compare all those weak relationships, we can see that Narcissism has medium positive relationships with Addiction and Dependency, and Recognition,

and those relationships are stronger than other motivator factors. The last personality trait, Machiavellianism, has a weak positive relationship with all factors but Information Seeking about Games and Playing Tactics. The strongest relationship among the factors was with Addiction and Dependency, and the second strongest one was Trolling.

According to these results, all three personality traits have a relationship with addictive motivators. Tang et al.'s (2022) study highlights that internet disorders are related to dark personality traits and cause addictive behavior. Our study shows similar results.

Trolling Motivator is related to Psychopathy and Machiavellianism. Trolling and Psychopathy relationship is the strongest of all the relationships found in correlation analysis. Lopes and Yu's (2017) findings support this result by saying that people with higher psychopathy traits tend to troll more.

The second strongest relationship is between Recognition motivator and Narcissism. Preotiuc-Pietro et al. (2016) also support the idea that Narcissism contributes to the tendency of self-display.

With a cluster analysis, we split the whole sample into three clusters, each of which was divided by their dark personality scores. First has lower on all personality traits, second has moderate and the last has higher on all. First cluster with low dark personality traits had lowest cluster centers for all dark personality traits, and the third cluster with high dark personality traits had the highest centers for all dark personality traits. Second cluster which includes moderate dark personality traits had all the medium level centers but the highest center among three dark personality traits was Narcissism.

Crosstab analysis on clusters shows that first including correspondents with low dark personality traits and second cluster including correspondents with moderate dark personality traits had similar profiles with the whole sample. But they have slightly more number of elder correspondents and low number of young correspondents also similar results are seen for education level. These two clusters had more correspondents with higher education levels, similar with the age. For second (moderate) cluster we see a little higher ratio of female correspondents and higher ratio on highest education level.

But the biggest difference can be seen on the cluster 3 which includes high dark personality traits. This cluster had higher ratio of male and younger correspondents with lower education level. These results show that Twitch users with high dark personality traits are more likely to be young and have somewhat high school level education or bachelor's student.

Next, we ran a logistic regression analysis to see the relationship between motivators and behaviors by using a whole sample and three different clusters. We examined the effect of the dark triad on those relationships.

Socializing and Networking motivation increases the likelihood of subscription because subscription increases their interactions with the streamer. Recognition has a similar effect whenever someone subscribes to a streamer. The streamer mentions the name of the subscription, which creates recognition for the subscriber. On the other hand, Twitch users who seek information or want to troll are less likely to subscribe. Information seekers can get the information they want without spending any money. Trolling behavior tries to harm others, but supporting the streamer with a subscription would be totally opposite. Similarly, Trolling negatively affects donations for the same reason. Another negative motivator for

donation is Evasion. Some of the problems that respondents want to evade can be economic. Due to this problem, they may not be able to donate. On the other hand, Addiction positively affects donation behavior. Another behavior that Addiction affects is heavy Twitch usage. It is expected to see users with Addiction motivations to use Twitch for longer hours. Recognition motivation positively affects heavy Twitch usage. People seeking recognition tend to spend more hours on Twitch. Lastly, Trolling motivation has a negative effect on heavy usage behavior. Trolls perform their trolling actions in short daily Twitch usages.

According to multiple linear regression results, the Sense of Virtual Community motivator affects Emotional Connectedness, as well as watching and streaming intentions on the whole sample and cluster with lower dark personality traits. Additionally, it affects emotional connectedness for moderate dark personality trait cluster. For most of the people Sense of Virtual Community is a usage motivator, they use it to be a part of a community. They feel emotionally connected to the platform due to this motivation. But only the people with high dark personality traits do not use Twitch for a community. Hilvert-Bruce et al.'s (2018) study showed similar results by showing relationships between the Sense of Virtual Community motivator and Twitch usage. Additionally, highlights that this relationship is stronger for smaller channels.

Information Seeking is only a motivator for the Intention to Watch. This is an expected situation because emotional connectedness is more related to social aspects, and the people who obtain the information are the viewers, not the streamers. Results do not show that it was a motivator for the whole sample but none of the clusters. In future research, a similar study can be done for separate dark personality traits and with a bigger sample group to have a better understanding. Correlation analysis had

shown that there was a relationship between Narcissism and Information Seeking due to the need for improvement. Morft et al. (2011) claim that Narcissism leads to self-enhancement to achieve success and fulfill their needs to be in the limelight. This supports our findings.

Socializing and Networking is a motivation affecting all dependent variables for the higher on dark personality traits cluster. Dark personality traits boost the effect of Socializing and Networking motivators. Toxic behavior requires socializing. Therefore, Socializing and Networking is a motivator of Twitch usage for people with high dark personality traits. Also, this group may not be able to socialize in real life and seek socializing in a virtual place. Buckel et al. (2014) support this by claiming that the Internet provides antisocial individuals with greater opportunities to connect with like-minded people and to express themselves in ways that were not possible without the Internet. Cruz et al. (2017) add that trolls do not always have a negative impact on communities; at times, they can boost interaction, bring new perspectives, or even make community members laugh.

Opposite to Socializing and Networking, Addiction and Dependency motivate Twitch usage for people with lower or moderate dark personality traits but do not motivate people with higher dark personality traits. An interesting output is that Addiction was correlated with all three dark personality traits. People with high dark personality traits may not be aware of being addicted. Tang et al. (2022) support this result by claiming that addictive behavior on the internet is related to dark personality traits.

Our results show that Evasion was a motivation only for Intention to Watch and that group had moderate dark personality traits. However, contrary to our findings, Sjöblom and Hamari's (2016) findings show a strong effect on their whole

sample. Watching something is a way to unwind and run away from everyday problems. It is also easier than streaming. Emotional connectedness may require some effort, too. This explains why only watching intention is affected by the Evasion motivator. Previous research and findings have shown that people with higher dark personality traits are more likely to have social problems in their lives, but they may not be aware of this, and it requires Evasion. This can explain why Evasion motivation affects watching intention on moderate dark personality traits cluster.

Recognition is a motivator for all sample groups for Intention to Watch and most of the sample groups except higher dark personality cluster for Intention to Stream. As we have seen on the correlation table, Narcissism has a higher role in this relation. Also, this relation is stronger for the Intention to Stream. Lopes and Yu's (2017) findings also show that people with high Narcissism traits like to have popular profiles on Facebook. It is a reflection of Twitch being a streamer and having high numbers of followers. However, in regression analysis, Recognition was not a motivator for higher dark personality traits. Moderate dark personality traits clusters highest cluster center was for Narcissism. However, for the higher dark personality traits cluster, all three dark personality trait centers were high. This supports that Narcissism is more related to Recognition.

Lastly, Trolling is not a motivator for streaming, but it has a negative relationship with the Intention to Watch and Emotional connectedness. These relationships are weaker for people with higher dark personality traits and Trolling is not a significant motivator for Emotional Connectedness for people with high dark personality traits. Similar to Addiction, people with dark personality traits may not be aware of their actions being toxic. People with high dark personality traits lack

empathy and may have alexithymia (difficulty in understanding others' feelings) (Schimmenti et al. 2017). People with high dark personality traits may not be aware of their actions being toxic because of this lack of empathy. In support of this, Sest and March (2017) state that trolls may lack empathy for their victims, which drives their behavior. Even with high cognitive empathy, individuals with strong psychopathic traits may still engage in trolling, as they take pleasure in causing emotional harm. Also, Cheng et al. (2017) discuss that while some individuals may be born to be trolls, their study findings suggest that ordinary users can also engage in trolling behavior because of their current mood or the context of the discussion. This also suggests that the trolling behaviors that drive people away from Twitch may also be performed by non-trolls.

In summary, this study shows that Information Seeking, Sense of Virtual Community, Evasion, Socializing and Networking, Addiction and Dependency, Recognition, and Trolling are motivators of Twitch usage, and these motivations are affected by dark personality traits. For example, Socializing and Networking's effects are stronger with Twitch usage on people with higher dark personality traits. On the other hand, Trolling negatively affects Twitch usage for people with low dark personality traits. We can also see that different dark personality traits have stronger relationships with different motivators. For instance, Trolling has a stronger relationship with Psychopathy, and Recognition has a stronger relationship with Narcissism. Trolling is related to Psychopathy and Machiavellianism, but people with high dark personality traits are not aware of their toxic behaviors.

6.2 Conclusion

With the rising popularity of live streaming and the growth of online gaming industry Twitch has become one of the popular social networking platforms, but since Twitch is relatively newer compared to other social media platforms, there are significantly fewer studies conducted in this field compared to those on other social media platforms. In recent years, toxic behaviors and trolling have become quite common occurrences, too. There were previous research on motivational drivers of Twitch usage but they were not including dark personality traits. Also, there were studies focusing on toxic behavior on Twitch, but this study provides an extra view point with the usage of dark triad. For these reasons, this study was conducted.

To answer our research questions 'What are the motivators of Twitch usage?', 'What are the personality traits of Twitch users?' and 'How do personality traits impact toxic and troll behavior?'; in this study, we have formed a theoretical framework based on previous research on the motivational drivers of Twitch usage and conducted a survey based on this framework to collect data. This framework and survey included constructs and statements to measure the motivational drivers of Twitch usage, dark personality traits (Narcissism, Psychopathy, and Machiavellianism), as well as Twitch usage behavior intentions and actual behaviors.

After shaping the theoretical framework and collecting the data, we conducted several analyses. We performed a factor analysis to reshape our theoretical framework and then conducted subsequent analyses using the seven motivational driver factors of Twitch usage identified in the factor analysis. Next, we conducted a correlation analysis to examine the relationships between motivational driver factors and dark personality traits. Following that, we divided our sample into clusters based on different levels of dark personality traits. For each of these clusters, we performed

logistic and multiple linear regression analyses to examine whether the seven motivational driver factors affect Twitch usage behavior intentions and actual behaviors, as well as the impact of dark personality traits on them.

Results of this study have shown the motivators of Twitch usage, the dark personality traits of Twitch users, and how these motivations are affected by the dark personality traits. Information Seeking, Sense of Virtual Community, Evasion, Socializing and Networking, Addiction and Dependency, and Recognition are positive motivators of Twitch usage, and these motivations can be affected by Narcissism, Psychopathy, and Machiavellianism. While Trolling is a negative motivation for Twitch users with low dark personality traits but for users with high dark personality traits Trolling is not a motivator; it is a behavior that they are not aware of doing. But if someone uses Twitch with Trolling motivations, they are less likely to donate, subscribe, and spend long hours on Twitch.

At the end of this study, we were able to shed light on the motivations behind Twitch usage, examine the dark personality traits of Twitch users, and explore the impact of these dark traits on trolling and toxic behavior. Our findings offer a deeper understanding of how certain personality characteristics may influence online behavior, particularly in terms of toxic interactions within the Twitch community. Additionally, this study provides insights into which individuals are more likely to engage in such toxic behaviors based on their personality traits.

6.3 Practical implications

Twitch has seen a remarkable surge in popularity and continues to grow, creating numerous opportunities for businesses and content creators on the platform. This study offers valuable insights into the motivations and behaviors of Twitch users,

which can be instrumental for companies seeking to better understand and engage with their audience. These companies can be broadly categorized into three groups: game developers, brands using Twitch for marketing purposes, and live streaming platforms themselves.

As discussed in the literature review, game developers can benefit from Twitch by using the platform to inform and refine their development processes. By gaining a deeper understanding of user preferences and behaviors, developers can more effectively identify and reach their target audience. This targeted approach not only improves development efficiency but also enhances the likelihood of creating successful and well-received games. Moreover, the real-time feedback provided by Twitch's community can serve as a valuable tool for developers to iterate on their projects and better align them with player expectations.

For the second group, companies leveraging Twitch for marketing, this study provides essential insights into audience dynamics. As noted in the literature review, many companies are already utilizing Twitch to engage with their target demographic. A more nuanced understanding of user motivations, as well as strategies to reach the right audience more effectively, can significantly boost the impact of their marketing efforts. By tailoring content and campaigns based on audience insights, these companies can maximize their return on investment and improve the overall effectiveness of their marketing initiatives.

The third group, consisting of live streaming platforms such as Twitch itself, can use the findings of this study to enhance user experience and platform engagement. By understanding the key motivators behind user behavior, these platforms can develop strategies to increase user retention, attract a broader audience, and drive long-term success. Additionally, by examining the role of dark personality

traits, the study provides important insights into the individuals who are more prone to engaging in toxic behavior. This understanding allows platforms to implement more effective moderation and community guidelines, which can help create a safer and more inclusive space for users. Similarly, Twitch streamers and community moderators can apply the insights from this study to foster a healthier, more positive environment on their channels. Since they are directly interacting with users, they are in a prime position to manage toxic behavior and cultivate a welcoming community.

A toxic-free environment is crucial for the success of both individual channels and the platform as a whole. As the study demonstrates, users with lower dark personality traits, who represent the majority of Twitch's audience, are generally less motivated by harmful behaviors like trolling. By focusing on positive engagement, both streamers and moderators can contribute to a more enjoyable experience for all users.

6.4 Limitations and future research

Possible future research for this study could explore various hypotheses related to distinct clusters of dark personality traits. This could involve testing new models that account for the relationships between different dark traits, such as Psychopathy, Narcissism, and Machiavellianism, and their influence on online behavior.

Additionally, more focused studies could examine specific personality traits or motivational factors in greater depth. For instance, investigating the relationship between Psychopathy and Trolling or exploring how Narcissism impacts an individual's intention to stream could yield valuable insights. Another avenue for future research is expanding studies to different live-streaming platforms, such as YouTube or emerging competitors like "Kick," as well as exploring how these

platforms might influence behavior differently from Twitch. This would help clarify whether the motivations and behaviors observed on Twitch are consistent across various platforms, or whether platform-specific dynamics play a significant role.

One important limitation of the current study is its focus on a single platform and potentially a limited cultural context. Research conducted in different cultural environments might yield different findings, as motivations and dark personality traits could vary based on cultural factors. Conducting similar studies in other regions or cultures could provide a more nuanced understanding of how dark traits manifest in online environments and whether they are universally applicable.

Moreover, the study's focus on Twitch as the primary platform limits the generalizability of the results. As new live streaming platforms like "Kick" emerge, they might offer different user experiences and attract different kinds of streamers, which could lead to different findings. Thus, studies that compare multiple platforms and their respective user bases could offer a broader view of the motivations and behaviors of live streamers.

As the current study primarily focuses on quantitative analysis through surveys, factor analysis, and regression to explore the relationship between Twitch usage motivations and dark personality traits, a potential direction for future research could involve a qualitative approach. Conducting interviews or organizing focus groups with streamers could provide deeper insights into the personal experiences and motivations behind their behavior on the platform. These qualitative methods would allow researchers to explore the nuances of individual perspectives, offering a richer understanding of the factors influencing Twitch streaming beyond what quantitative data can capture. By integrating qualitative research, future studies could complement and expand upon the findings of this study, providing a more holistic

view of how dark personality traits manifest in online environments and affect streamers' motivations.



APPENDIX A

CONSTRUCTS USED IN THE STUDY

Construct	Items	Original Source
Information	Using Twitch, I can better decide which game I want to play than in the past	Sjöblom & Hamari (2016)
	Seeking about	
	Using Twitch, I am better informed about new games I consider playing	Sjöblom & Hamari (2016)
	Game Products	
Information	Using Twitch, I find games I would not otherwise have found	Sjöblom & Hamari (2016)
	Using Twitch, I can better decide whether I want to play a particular game or not	Sjöblom & Hamari (2016)
Learning about Game Strategies	Using Twitch, I am better informed about new game strategies	Sjöblom & Hamari (2016)
	Using Twitch helps me get information on learning to play games	Sjöblom & Hamari (2016)
	Using Twitch helps me look for information on game tricks	Sjöblom & Hamari (2016)
	Using Twitch helps me see what game tactics are out there	Sjöblom & Hamari (2016)
Entertainment	I use Twitch to follow tournaments and events.	Gros et al. (2017)
	I use Twitch as an alternative or addition for TV	Gros et al. (2017)
	I use Twitch to criticize a streamer in a negative way	Gros et al. (2017)
Escapism	Using Twitch, I can forget about school, work, or other things	Sjöblom & Hamari (2016)
	Using Twitch, I can get away from the rest of my family or others	Sjöblom & Hamari (2016)
	Using Twitch I can escape from reality	Lee et al. (2015)
	Using Twitch I can Forget about troubles	Lee et al. (2015)
	Using Twitch I can Avoid loneliness	Lee et al. (2015)
	Using Twitch I can Relax	Lee et al. (2015)
Distraction	Using Twitch is a habit, just something I do	Sjöblom & Hamari (2016)
	When I have nothing better to do, I use Twitch	Sjöblom & Hamari (2016)
	Using Twitch passes the time away, particularly when I'm bored	Sjöblom & Hamari (2016)
Recognition	I like when other Twitch users take my comments into account	Sjöblom & Hamari (2016)
	I feel good when my comments prove to other Twitch users that I have knowledge about the game being played	Sjöblom & Hamari (2016)
	I try that my comments improve my reputation among other Twitch users	Sjöblom & Hamari (2016)
	I like when streamers on Twitch take my suggestions into consideration	Sjöblom & Hamari (2016)

Meeting New	Using Twitch helps me to meet new friends	Hilvert-Bruce et al. (2018)
People	Using Twitch helps me to find new people with the same interests	Hilvert-Bruce et al. (2018)
	Using Twitch helps me to increase my social networks	Hilvert-Bruce et al. (2018)
Socialization	I use Twitch to communicate with other viewers through the chat	Gros et al. (2017)
	I use Twitch to play with other users	Gros et al. (2017)
	I use Twitch to be part of a community	Gros et al. (2017)
	I use Twitch to support a streamer financially	Gros et al. (2017)
	I use Twitch to get in touch with a streamer	Gros et al. (2017)
	I use Twitch to troll/annoy other users	Gros et al. (2017)
Social Interactions	I maintain close social relationships with some other Twitch users	Hilvert-Bruce et al. (2018)
	I spend a lot of time interacting with some Twitch users	Hilvert-Bruce et al. (2018)
	I know some Twitch users on a personal level	Hilvert-Bruce et al. (2018)
	I have frequent communication with some other Twitch users	Hilvert-Bruce et al. (2018)
Addiction	I find myself using Twitch longer than I planned to	Singh et al. (2021)
	I would rather spend time using Twitch than do things around the house	Singh et al. (2021)
	Much of my time I spend using Twitch	Singh et al. (2021)
	Twitch take up almost all of my leisure time	Singh et al. (2021)
	I am bothered when people interrupt me while I am using Twitch	Singh et al. (2021)
Sense of Virtual Community – Membership	I feel as if I belong to (my) Twitch community	Koh & Kim (2003)
	I feel membership in Twitch community	Koh & Kim (2003)
	I feel as if (my) Twitch community members are my close friends	Koh & Kim (2003)
	I like (my) Twitch community members	Koh & Kim (2003)
Sense of Virtual Community - Influence	I am well known as a member of (my) Twitch community	Koh & Kim (2003)
	I feel that I control (my) Twitch community	Koh & Kim (2003)
	Other Twitch members reply to my posts on Twitch chat frequently	Koh & Kim (2003)
Emotional Connectedness	I am proud to tell people I'm watching Twitch	Hilvert-Bruce et al. (2018)
	I feel out of touch when I haven't logged onto Twitch for a while	Hilvert-Bruce et al. (2018)
	I would be sorry if Twitch shut down	Hilvert-Bruce et al. (2018)
Intention to Watch	I will keep watching Twitch in the near future	
	I am willing to subscribe to a Twitch channel in the future	
	I prefer to watch Twitch even though there is a new alternative platform	
Intention to Stream	I plan to start/continue streaming on Twitch in next two months	
	I prefer to stream on Twitch even though there is a new alternative platform	
	I'm willing to start/continue streaming on Twitch in the near future	

Machiavellianism	I have used deceit or lied to get my way	Jonason & Webster (2010)
	I tend to manipulate others to get my way	Jonason & Webster (2010)
	I have used flattery to get my way	Jonason & Webster (2010)
	I tend to exploit others towards my own end	Jonason & Webster (2010)
Narcissism	I tend to want others to admire me	Jonason & Webster (2010)
	I tend to want others to pay attention to me	Jonason & Webster (2010)
	I tend to expect special favors from others	Jonason & Webster (2010)
	I tend to seek prestige or status	Jonason & Webster (2010)
Psychopathy	I tend to lack remorse	Jonason & Webster (2010)
	I tend to be callous or insensitive	Jonason & Webster (2010)
	I tend to not be too concerned with morality or the morality of my actions	Jonason & Webster (2010)
	I tend to be cynical	Jonason & Webster (2010)

APPENDIX B

SURVEY QUESTIONS

1. Are you a Twitch user? _Yes _No
2. Are you a streamer? _Yes _No
3. Twitch Usage Motivators (1: Strongly Disagree.....5: Strongly Agree)
 - (1) Using Twitch, I can better decide which game I want to play than in the past
 - (2) Using Twitch, I am better informed about new games I consider playing
 - (3) Using Twitch, I find games I would not otherwise have found.
 - (4) Using Twitch, I can better decide whether I want to play a particular game or not
 - (5) Using Twitch, I am better informed about new game strategies
 - (6) Using Twitch helps me get information on learning to play games
 - (7) Using Twitch helps me look for information on game tricks
 - (8) Using Twitch helps me see what game tactics are out there
 - (9) I use Twitch to follow tournaments and events.
 - (10) I use Twitch as an alternative or addition for TV.
 - (11) I use Twitch to criticize a streamer in a negative way.
 - (12) Using Twitch, I can forget about school, work, or other things
 - (13) Using Twitch, I can get away from the rest of my family or others
 - (14) Using Twitch I can escape from reality
 - (15) Using Twitch I can Forget about troubles
 - (16) Using Twitch I can Avoid loneliness
 - (17) Using Twitch I can Relax
 - (18) Using Twitch is a habit, just something I do.
 - (19) When I have nothing better to do, I use Twitch.
 - (20) Using Twitch passes the time away, particularly when I'm bored
 - (21) I like when other Twitch users take my comments into account
 - (22) I feel good when my comments prove to other Twitch users that I have knowledge about the game being played.
 - (23) I try that my comments improve my reputation among other Twitch users.

- (24) I like when streamers on Twitch take my suggestions into consideration.
- (25) Using Twitch helps me to meet new friends.
- (26) Using Twitch helps me to find new people with the same interests.
- (27) Using Twitch helps me to increase my social networks.
- (28) I use Twitch to communicate with other viewers through the chat.
- (29) I use Twitch to play with other users.
- (30) I use Twitch to be part of a community.
- (31) I use Twitch to support a streamer financially.
- (32) I use Twitch to get in touch with a streamer.
- (33) I use Twitch to troll/annoy other users.
- (34) I maintain close social relationships with some other Twitch users
- (35) I spend a lot of time interacting with some Twitch users
- (36) I know some Twitch users on a personal level.
- (37) I have frequent communication with some other Twitch users
- (38) I find myself using Twitch longer than I planned to.
- (39) I would rather spend time using Twitch than do things around the house.
- (40) Much of my time I spend using Twitch.
- (41) Twitch take up almost all of my leisure time.
- (42) I am bothered when people interrupt me while I am using Twitch.
- (43) I feel as if I belong to (my) Twitch community.
- (44) I feel membership in Twitch community.
- (45) I feel as if (my) Twitch community members are my close friends.
- (46) I like (my) Twitch community members.
- (47) I am well known as a member of (my) Twitch community.
- (48) I feel that I control (my) Twitch community.
- (49) Other Twitch members reply to my posts on Twitch chat frequently.

4. Dark Triad (1: Strongly Disagree.....5: Strongly Agree)

Machiavellianism:

- (1) I tend to manipulate others to get my way.
- (2) I have used flattery to get my way.
- (3) I have used deceit or lied to get my way
- (4) I tend to exploit others towards my own end.

Narcissism:

- (1) I tend to want others to admire me.

(2) I tend to want others to pay attention to me.

(3) I tend to expect special favors from others.

(4) I tend to seek prestige or status.

Psychopathy:

(1) I tend to lack remorse.

(2) I tend to be callous or insensitive.

(3) I tend to not be too concerned with morality or the morality of my actions.

(4) I tend to be cynical.

5. Twitch Behavior (1: Strongly Disagree.....5: Strongly Agree)

Emotional Connectedness:

(1) I am proud to tell people I'm watching Twitch.

(2) I feel out of touch when I haven't logged onto Twitch for a while.

(3) I would be sorry if Twitch shut down.

Intention to Watch:

(1) I will keep watching Twitch in the near future.

(2) I am willing to subscribe to a Twitch channel in the future.

(3) I prefer to watch Twitch even though there is a new alternative platform.

Intention to Stream:

(1) I plan to start/continue streaming on Twitch in next two months.

(2) I prefer to stream on Twitch even though there is a new alternative platform.

(3) I'm willing to start/continue streaming on Twitch in the near future.

6. Twitch Usage

How many months in total have you been subscribed to a Channel on Twitch?

☐ I've never subscribed ☐ 1-3 months ☐ 4-6 months ☐ 7-12 months ☐ More than a year

On average, how many hours do you spend using Twitch per day?

☐ Less than an hour ☐ 1-3 hours ☐ 4-6 hours ☐ More than 6 hours

Estimate how much money (USD) you have donated in total to broadcasters on Twitch?

☐ I've never donated ☐ Less than 5\$ ☐ 6-20\$ ☐ 21-50\$ ☐ More than 50\$

7. Demographics

Age

☐ Under 18

☐ 18-24

☐ 25-30

☐ 31-40

☐ 41 and above

Gender

☐ Female

☐ Male

☐ Prefer not to say

Education

☐ Somewhat high
school

☐ Undergraduate
student

☐ Bachelor's degree

☐ MA/MBA/PhD
student

☐ MA/MBA/PhD
degree



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