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‘There are 13,000 people here; I can’t care about all of you because I don’t know any of you’: Twitch’s Impact on Parasocial Relationships Developed Towards Max Verstappen

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Abstract: *This article investigates the development of parasocial relationships (PSRs) between fans and Formula One driver Max Verstappen, specifically focusing on the impact of the live-streaming platform Twitch. Utilising a mixed-methods approach, the study compares Twitch users with non-users to determine how platform features like live chat, donations, and clips influence psychological connections. The research introduces the concept of "parasocial extension" (PSE), measuring how a fan's connection with a core media figure extends to their affiliated associates, such as the esports group Team Redline. Findings indicate that Twitch fans exhibit stronger PSRs characterised by higher levels of interest and identification. The article concludes that Twitch’s interactive affordances transform traditional one-sided PSRs into "one-and-a-half-sided" interactions, fostering deeper intimacy through perceived authenticity and shared community experiences.*

Keywords: *Parasocial Relationships, Twitch, Formula One, Max Verstappen, Parasocial Extension*

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I’d like to acknowledge the Twitch streamer Ludwig Ahgren, who first introduced me to the concept of parasocial relationships and ignited my interest in the topic with this monologue from his stream 5 years ago:

> How could we not get attached to someone like you? Just treat it like you would treat the TV show Mad Men. You shouldn’t form a relationship with me. At the end of the day, I'm entertainment. If I stop entertaining you, stop watching. That's it. That's what I want from you guys. If I’m ever resident sleeper [boring], I want you to stop watching me because I’m not your friend. I will never ever hang out with you, and I don’t care about you because I don’t know you. I can’t there are 13,000 people here I can’t care about all of you because I don’t know any of you… Even if you drop a primer [Twitch Prime subscription], I still ain’t your homie.

Introduction

In the last decade, Formula One (F1) has developed a strategy that has provided extensive insights into its drivers while fostering stronger connections to its fans. Drivers have followed this strategy and begun using different platforms to engage their audience, especially after the COVID-19 pandemic. Platforms like Twitch were used to keep fans entertained while the 2020 F1 season was delayed when lockdowns began and social media was people’s only connection to the outside world. Since F1 returned to normal action, one driver has consistently used Twitch to connect with his fans and showcase a side of himself not present under the scrutiny of F1’s media. 2021’s most popular driver, Max Verstappen, has utilised Twitch alongside his esports group, Team Redline, to stream games and interact with fans outside of the F1 weekends.

Through viewing and engaging with this content, fans can develop parasocial relationships (PSRs), conceptualised by Horton and Wohl (1956) but redefined by Sheng (2025) as an “individual's unilateral, dynamic, and strong psychological connection with another party through media”. To fans, these relationships can appear real but often offer no reciprocation from the media figure they are

attached to. F1 drivers can foster these relationships by showcasing their personal lives and personalities through their social media accounts, where fans can become interested in the driver and identify with them. Previous research surrounding these relationships with motorsport drivers noted that PSRs were often driven by shared beliefs and values (Spinda, Earnheardt and Hugenberg, 2009), while a study on these relationships in F1 found that PSRs also increased suspense and hope for a positive outcome while the favourite driver was racing (Hartmann, Stuke and Daschmann, 2008). Although studies have been completed in the past surrounding PSRs and F1, few have focused on the drivers' and fans' relationship in the age of social media, especially the different impacts that certain platforms have on this relationship.

One of these platforms, Twitch, has already been recognised for its capacity to support and promote PSRs among its live streamers. Twitch offers a reciprocation that is less likely among other social media platforms, as features such as Twitch chat and donation notifications can direct streamers' attention to the fan. Sjöblom and Hamari (2017) observed that "The live experience and social interaction available between viewer and streamer allows for a personalisation that is not possible with prerecorded material." Fans do not receive the full connection and personalised feeling watching their favourite driver in F1 interviews or traditional social media as they do on Twitch. For the streamers, Twitch gives them the chance to reflect a true version of themselves (Sherrick et al., 2023), something which Formula One has attempted with its drivers through its docuseries "Drive to Survive". For Verstappen, he chose to promote himself on Twitch, only joining the docuseries in 2023 after criticising it for representing him as a villain figure in the sport. Orlove (2024) noted that it was the personality of drivers such as Verstappen that made their streams successful; hence, it is important to research the effect Twitch has on the relationships between fans and Verstappen and why fans are motivated to continue this relationship away from other social and F1 media.

Most athlete-fan studies relating to Twitch have focused on the streamer's interaction with the fans and how athletes can promote their brands to new audiences, but as Yu (2022) noted, there is a "need to consider how the two-way interaction may change the parasocial relationship between athletes and viewers". This study aims to understand this relationship between fans and Formula One's most popular driver to understand how this relationship changes between fans who do not use Twitch and those who do. I will also expand on previous research surrounding the features of Twitch, where the primary focus has been on Twitch chat and monetary features such as subscriptions and donations (Hilvert-Bruce et al., 2018; Sjöblom et al., 2019). Here, this study will relate the usage of features such as Twitch clips and channel rewards to PSRs along with those previously mentioned. Lastly, an unresearched aspect of PSRs will be looked at relating to their ability to extend onto other people affiliated with Max Verstappen, such as his friends and members of Team Redline who appear in his content, analysed under the term 'parasocial extension' (PSE).

The analysis of my study will look at results from a 32-item survey, with 25 items relating to PSR and 7 items relating to the PSE. Respondents' answers to their usage of certain features and their motivations for watching Verstappen on Twitch will be used to understand how this relationship differs with certain levels of engagement with the Twitch platform itself and if certain motivations correlate with a difference in the strength of the relationship and extension to affiliates. The survey used is based on a reconstruction of previous parasocial interaction surveys that were better suited to measuring parasocial relationships (Boyd, Morrow and Rocconi, 2022; Boyd, Rocconi and Morrow, 2024), with four key factors of this relationship being identified and analysed to understand which factor developed a stronger parasocial bond towards Verstappen: interest, knowledge, identification and interaction.

Ultimately, the study aims to explore how Twitch and its features influence the parasocial relationships between fans and Max Verstappen, as well as individuals affiliated with him, to enhance

understanding of whether athletes can leverage Twitch to deepen connections with their audience. Specifically, it investigates the impact of Twitch on these parasocial relationships, examines whether fans who use Twitch develop stronger parasocial bonds with Verstappen compared to non-Twitch users, assesses whether certain Twitch features are associated with higher levels of parasocial engagement, and considers whether these relationships extend to people connected to Verstappen.

Literature Review

Fan-athlete relationships in the digital age

The rise of social media has offered a platform where athletes as individuals can transcend the media's portrayal of them through traditional media. Previously, media such as interviews, press conferences, and news reports could dictate fans' opinions and connections with an athlete (Sanderson and Kassing, 2014, p. 247), but now social media offers fans a direct pathway to these sports figures. Sanderson (2011, p. 69) identified social media as a bridge that connects fans and athletes to facilitate interaction. These platforms have also reinforced the idea that fans and sports figures become closer the more digital access they have. With this access, athletes have been given the chance to express themselves through their content and control how fans view them. Athletes can control narratives surrounding themselves inside and outside of the sports and teams they are a part of. Sanderson (Sanderson, 2011, p. 17) noted that "athletes can exert more control over their public portrayals and directly counter mass media reports". For example, in 2023, Manchester United player Jadon Sancho took to the social media platform X to counter his manager's statement that he was underperforming in training (Andrews, 2023). Social media offers athletes an instant method of countering negative media messaging while generating support and engagement from fans (Sanderson, 2011, p. 33).

Social media has also been utilised by athletes to develop relationships and connections with their fans while simultaneously promoting their brand image. Athletes view social media sites like Twitch as a method of promoting their brand image as gaming-orientated by competing in esports-related events while streaming the action to their fans (Yu, 2022, p. 142). Footballer Neymar Jr uses Twitch to promote his esports gameplay, while former footballer Sergio Aguero uses Twitch to provide analysis and content related to soccer while also promoting his esports team KRÜ Esports (Murko, 2023). Additionally, on the social media platform TikTok, athletes were more likely to promote content related to their personal lives, giving fans a chance to get to know them outside of their related sport (Su et al., 2020). These platforms have brought new opportunities for athletes to capitalise on new and existing audiences while also deepening their relationships with fans.

From a sports fan perspective, they are motivated to use social media to strengthen their fanship and increase their knowledge surrounding an athlete. Fanship here is the identification and connection to the athlete, which affects media use, an individual's opinion of oneself and their self-esteem (Gantz and Lewis, 2023). Sports fans view fanship as "an extension of their sense of self" and attempt to strengthen their fan identification by interacting with athletes online (MacPherson and Kerr, 2021). On X (formerly Twitter), previous studies have noted its ability to facilitate social interaction and information-sharing opportunities (Frederick et al., 2012). Fans take advantage of Twitter to gather information about an athlete, to be entertained and to view the interactions the athlete has with others (Clavio and Kian, 2010). Formula One in the last decade has attempted to capitalise on this fan behaviour by encouraging drivers to utilise their social media to strengthen their connection with fans to increase both F1's and the drivers' popularity.

Formula One's Focus on the Fan-Driver Relationship

In 2017, Formula One (F1) was bought by Liberty Media (hereafter: Liberty) from Bernie Ecclestone in an attempt to capitalise on a fan market that Ecclestone purposefully ignored. Prior to the sale, Ecclestone viewed Formula One as an "old boys' club" that ignored a younger fan demographic present on platforms like Facebook and X (Twitter), which he claimed "haven't got any money" (Wood and Burkhalter, 2023, p. 47; Shah and Williams, 2024, p. 2). The problem with this viewpoint is fans' identification and fanship towards a sport are much higher at a younger age (Gantz and Lewis, 2023). A 41% decline in F1 viewership from 2008 to 2017 (Shah and Williams, 2024) correlated with a massive increase in usage of social media during the same period. For context, usage of Facebook went from 1.5% of the world in 2008 to 30% in 2018 (Ortiz-Ospina, 2019). After researching the Formula One market, Liberty recognised the need to expand F1's content on digital and social media platforms so that younger casual fans could easily access the sport, the teams and, most importantly, the drivers (Wood and Burkhalter, 2023).

Liberty had to find new methods of engaging the audience with the drivers and promote them as individual stars rather than extensions of the previous elitist establishment. Sturm (2023) labelled drivers as monolithic media personalities who were boring and acted as corporate shills. Liberty's most notable attempt to remove this sentiment and increase fan engagement and fanship has been the introduction of "Drive to Survive" in 2018, a Netflix docuseries showcasing the lives and personalities of the athletes. The show helped fans increase their identification with the drivers, with one stating, "Drive to Survive connected me as a fan to the drivers and teams on a human level, to which you identify more" (Shah and Williams, 2024). F1's social media accounts also began focusing on the drivers by showing their perspectives during the races, video backstories of the drivers and a podcast which sometimes included the drivers (Wood and Burkhalter, 2023, p. 50). Although fans have criticised the docuseries for its dramatisation of the sport, they have preferred Liberty's push on social media and Netflix over the former owner's previous media strategy (Panzone, 2022). Not only have fans benefitted from the increased coverage of the drivers, but the drivers have seen their social media following increase by millions, turning them into "celebrities" (Wood and Burkhalter, 2023, p. 51).

From drivers who were previously labelled as often indistinguishable from one another (Sturm, 2023), these now-called "celebrities" have offered the exact unique insights "Drive to Survive" aimed for through their social media accounts, each creating their own personal following. Lewis Hamilton, the most followed F1 driver on Twitter and Instagram, posts content relating to his products and his personal adventures while occasionally advocating for certain causes (Wood and Burkhalter, 2023, p. 52). Interaction from Hamilton's audience may increase as identification towards a media figure strengthens when fans share similar issues or concerns. (Tsiotsou, 2015). While Hamilton has largely stayed on Twitter and Instagram, Lando Norris has made use of several platforms to increase his fan engagement. Norris's personal life has been shown throughout his motorsport career, with vlogs of his race weekends and a Twitch channel where he has engaged with audiences through a live chat while he played video games (Youssef, 2023).

In 2020, Twitch became a central location for fans to engage with their favourite drivers and Formula 1 as the COVID-19 pandemic delayed the start of the F1 season. Initially, F1 drivers and other media personalities participated in a virtual F1 race live-streamed on Twitch and YouTube (Tudor, 2019; Wood and Burkhalter, 2023), but soon after, drivers followed Lando Norris's approach to engaging fans through their personal channels on Twitch. Although the over-dramatisation of drivers' lives in Drive to Survive encouraged more interaction with the athletes, their Twitch streams showcased their personalities outside of their boring, corporate personas in official F1 media (Orlove, 2024). According to F1 content creator Tom Bellingham, the driver's streams helped boost the popularity of the athlete, F1, and F1 content creators (Youssef, 2023). As previously mentioned, fans

identify more with athletes who they can interact with and, in the case of F1 drivers, who appear on a human level.



Figure 1: Official Formula One account showcasing highlights from the drivers' Twitch streams where they engaged with other drivers and fans. (*F1 Driver Streams: Top 10 Funniest Moments!*, 2020)



Figure 2: Highlights from the COVID-19 Twitch streams gathered and reshared by fans on YouTube. (*Best Moments on TWITCH of F1 Driver - Quarantine Day* 😈, 2021)

Max Verstappen stands out from the Formula One grid for his approach to fan engagement and interaction, particularly through his continued use of Twitch while maintaining a following on traditional social media platforms, sharing content from his professional and personal life. In the case of Twitch, Verstappen streams alongside other esports racing drivers through the account Team Redline. Verstappen has brought fans closer by giving them a view into his personal relationships with

his friends and family, which can increase fan identification, while offering reciprocation to his fans through engagement with the live chat and participating in charity races where donations can influence his race and racing with fans on the live stream (maxv1stappen_, 2025; RacingNews365, 2025; Team Redline, 2025). Despite not providing "Drive to Survive" with personal insights until 2023, Verstappen was still voted F1's favourite driver in the 2021 F1 Global Fan Survey (Safronov et al., 2021; Youssef, 2023). These results indicate that Verstappen successfully leveraged Twitch and social media, alongside his media presence in Formula One, to maintain a relationship with fans that was reciprocal, personal and entertaining. These fan experiences reflect those found within modern parasocial interactions, which can lead to the development of parasocial relationships stronger than those found on traditional social media.



Figure 3: Highlights from Verstappen's personal life which were shown on Twitch livestreams and gathered and reshared onto YouTube (Penelope Bothering Max Verstappen for 4 Minutes, 2023).

Parasocial Relationships Within Social Media and Sport

The athlete-fan interaction on social media has often been one-sided and non-reciprocal, in that fans engage and react to athletes' content and performances while the athletes remain largely unaware of their interactions. Horton and Wohl (1956) described this phenomenon as parasocial interaction (PSI), in which media performers create a conversation that audiences can interact with while not receiving reciprocation from the performer. Through consistent exposure to the media figure and repeated parasocial interaction, one-sided connections can develop, called parasocial relationships (PSRs). These relationships can create feelings of intimacy dependent on how close the media performer feels to the audience and, in the case of this study, by offering the audience a feeling of a face-to-face conversation.

Researchers often struggle to separate PSRs from PSIs, which can lead to inconsistent reporting and measurement of each parasocial concept (Sheng, Kostyk and Chatzipanagiotou, 2025). Often these inconsistencies stem from the popular Parasocial-Interaction-Scale, which has been better suited to measuring parasocial relationships (Schramm and Hartmann, 2008). Rubin created this scale, understanding PSI as a "one-sided interpersonal relationship" prior to the separation of PSR and PSI as concepts. This understanding calls into question studies like Frederick et al. (2012) and Spinda et al. (2009), which use modified versions of Rubin's PSI scale to measure fans' PSIs rather than longer-term PSRs towards athletes. Since the fan-athlete relationship through media is longer-term

and can extend from sports media to social media, Sheng et al.'s (2025) definition of PSR as "an individual's unilateral, dynamic, and strong psychological connection with another party through media" is more appropriate.

Another popular survey used is Auter and Palmgreen's (2000) audience-persona interaction scale, which has also been criticised for making the same mistake of measuring PSRs instead of the interactions as Rubins did (Schramm and Hartmann, 2008). In response to these critiques, and considering social media's role in developing PSRs, Boyd (2022) created the PRISM survey adapted from the PSI scale, the API scale and the CPPI scale (Bocarnea, 2007). The 20 items found in this survey were grouped into four determining factors of PSRs. First, a person's interest was measured to understand their fondness for a celebrity and their content. Secondly, knowledge was measured to understand people's current knowledge of the celebrity and their desire to learn more. Next, identification was measured, which, as previously stated, is the self-identified similarities between the media figure and the audience member. Lastly, interaction was measured, but as opposed to actual engagement with the celebrity, Boyd described this as "participants feelings of social and friendship connections with the online celebrity". Following the original survey, Boyd (2024) revalidated the survey to test for invariance among different platforms and deemed it suitable for measuring PSRs on different social media platforms. Additionally, one of these platforms was Twitch, leading to its validity in laying the foundation for the survey used in this study.

Repeated interactions with media figures foster parasocial relationships, but fans are inspired to strengthen their connection by certain elements of their relationship with these figures. Fanship, a fan's connection to a media figure, has been found to positively correlate with the presence of PSI from fans (Earnheardt and Haridakis, 2009; as cited in Frederick et al., 2012). Certain factors of fanship, such as media use, self-esteem and fan identification are similarly found to strengthen PSR. Sun and Wu (2012) observed these similarities, listing sports spectatorship, low self-esteem and parallels between the fan's and athlete's personalities as determinants of stronger PSRs towards athletes.

Parasocial relationships have evolved in the social media age as the connection between athletes and fans grows stronger, changing PSRs from one-sided relationships to slightly mutual relationships. Hoffner and Bond disagreed, believing that while interaction between the media figure and fan can occur, the relationship was still inherently one-sided. Lou (2022) believes that the move to social media has reshaped PSRs as trans-parasocial, where fans can receive live and delayed reciprocation while directly impacting the content that the social media figure produces. Other scholars call these changes in the relationship one-and-a-half-sided PSRs, as, in the case of live streaming, the media figure offers live reciprocation to the audience (Kowert and Daniel, 2021). Reciprocation is important, as it has been noted to further develop parasocial relationships on social media (Xu et al., 2023, p. 381).

Parasocial phenomena have become especially prevalent in sports fandoms as social media provides an opportunity for fans to try to contribute to an athlete's performance and speak to them directly. Fans have begun to engage in parasocial interactions with athletes' content, attempting to offer advice and consolation when an athlete is struggling, as well as to show support and share their emotions during an athlete's performance (Sanderson, 2011, p. 77). Parasocial relationships also strengthen when fans receive responses to their content from the athlete, such as reposts or likes (Hoffner and Bond, 2022), which may encourage their audience to continue interacting. These interactions are easier to send online rather than in a physical letter and offer fans around the world the illusion that their messages were more likely read (Sanderson, 2011). In the case of F1, a fan might believe their message online is closer to the driver than a letter, as the drivers travel between countries nearly weekly.

Twitch and Parasocial Relationship Development

Twitch is especially important in engaging fans and fostering the previously mentioned one-and-a-half-sided PSRs that offer consistent interactions and occasional reciprocations between the streamers and viewers. Initially, fans move to these platforms for six key reasons: "social interaction, sense of community, meeting new people, entertainment, information seeking, and a lack of external support in real life" (Hilvert-Bruce et al., 2018). Those with a higher PSR towards video game streamers were particularly motivated by entertainment, information seeking and escapism (from real-life problems) (Blight, 2016). Wishful identification was also found to predict the level of PSRs on Twitch. This differs from fan identification as viewers are motivated to look for streamers that can act as role models rather than just having similar values and traits to the viewer (Kowert and Daniel, 2021).

Whether video game streamers or not, a repeated finding in Twitch studies shows that fans often choose to watch live streams for the streamer and not the game or content (Kowert and Daniel, 2021; Jiang et al., 2023; Speed, Burnett and Robinson II, 2023). Speed et al. (2023) identified this particularly in viewers he labelled "loyal lurkers" who don't engage with the streamer's community. Despite their passive engagement, they were still found to have developed parasocial relationships with the streamers. Speed et al. identified another group as "social viewers", those who engage with the community and the streamer through Twitch's interactive features. While not identifying these viewers as having PSRs, they exhibited elements such as heightened identification, one-and-a-half-sided interaction and the illusion of friendship.

Certain features and affordances of Twitch have been studied previously, with correlations being found between their usage and the development of PSRs between streamers and fans. Often, Twitch streamers will use microphones and webcams to show their facial and vocal reactions to their fans, which can be in response to viewer interactions. Audiovisual affordances can form a "social connectivity" between the streamer and the audience, with previous research showing that speaking directly to the camera can encourage initial PSI (Sjöblom et al., 2019; Sherrick et al., 2023). Twitch also offers viewers a live chat room that offers an immediate and close link between the viewer and the streamer. The type of message that the viewer chooses to convey can dictate whether a PSR is present, such as continued messages directed at the streamer in the hopes that a social relationship can develop or a viewer messaging about their mental health or personal struggles in the hopes of reciprocation in the form of advice (Kowert and Daniel, 2021; Leith, 2021).

Viewers can also use paid subscriptions and donations to increase their interaction and recognition with the streamer in the hopes of increased reciprocation between the two parties. Twitch encourages this, as streamers and the audience are notified of new and recurring subscriptions and donations, which the streamer often verbally thanks the viewer for (Yu, 2022, p. 57). Subscriptions can also be motivated by wishful identification as streamers may lock events and the live chat to subscribers and offer increased interaction to the viewers. In these cases, subscriptions could facilitate a teacher (i.e., streamer) and student (i.e., viewer) relationship. Although there are clear elements of subscriptions that could foster PSRs, no direct correlation has been made. There is also a lack of research surrounding other Twitch features such as channel points, which offer rewards that can be used to increase interaction, and Twitch clips, short highlights of live streams that viewers can create and share on other platforms.

In previous sections, athletes have been discussed as pursuing Twitch to engage fans outside of traditional social media, offering new ways to foster parasocial relationships and offer more personal interactions. While Blight (2016, p. 29) identified streamers promoting alternative social media such as Instagram and Twitter to offer insights into their personal lives, the opposite is the case for athletes, with their live streaming content often deepening the insight into their personal lives (Jiang et al., 2023, p. 20). There is also a notable change in the fan's motivation to seek these athletes'

streams, with Jiang (2023, p. 21) recognising that entertainment was not a significant motivation factor as it was with other streamers. However, socialisation was still an important motivation factor.

Building on these motivations and current indicators of PSRs found on Twitch, the following survey will observe whether these PSRs are present among viewers of Verstappen on Twitch and how these differ from PSRs developed by fans who are non-Twitch viewers.

Methodology

This study aims to understand the impact, if any, Twitch has on the strength of parasocial relationships found within fans of the Formula One driver Max Verstappen. Using quantitative methods, a mean PSR score will be gathered from 25 items found in the survey, with responses to a qualitative question being examined through thematic analysis to understand whether certain motivations are dictated by stronger PSRs.

Research Design

Smaller-scale surveys have been noted as being suitable for finding "demographic characteristics, behaviours and attitudes". Therefore, this study utilised scales within online surveys to understand the parasocial relationships characterised in fans of athletes and Twitch streamers. Previous PSR studies have also used quantitative analysis, most notably using scales such as Rubin's PSI scale and Auter and Palmgreen's API scale. As mentioned, these scales were labelled incorrectly and measured PSRs more than PSIs, but with adaptations to these materials, they have stayed relevant, especially when measuring F1 drivers' and fans' relationships and the relationships found on Twitch (Hartmann, Stuke and Daschmann, 2008; Sherrick et al., 2023). Boyd's PRISM survey was chosen as the template for this survey due to its strong correlation with modern parasocial relationships on social media and its usage in measuring PSRs on Twitch. It is also one of the adaptations of the original PSI.

Sampling

Initial testing of the survey took place before the survey went public to ensure the results correlated with fans' understanding of their parasocial relationship. This was completed by allowing people the chance to view their PSR score for any media figure they chose, give feedback on this score and ensure the questions could not be misinterpreted. The trial responses were then cleared, and the survey was opened for 11 days once a suitable amount of respondents was reached. Responses were collected through a non-probability sampling method targeted towards fans of Max Verstappen aged 18 years or older who engaged with him through social media and Twitch. The survey was posted on F1 fan forums on Reddit and F1 communities on Discord, in particular the official Team Redline Discord relating to the Twitch account that Verstappen appears on. The survey was also posted on social media platforms such as Instagram, appearing on my personal account and a motorsport-centric university society's account; Tumblr, under hashtags relating to Redline and Max Verstappen; and lastly, Bluesky. To begin the survey, respondents were asked whether they had or hadn't watched Verstappen on Twitch. Both groups would continue to the next section, which consisted of 32 items respondents could answer through a 5-point Likert scale ranging from strongly disagree to strongly agree. The first 25 items were formed using 20 items from Boyd et al.'s (2024) PRISM survey, 3 items from Centeno's (2016) PSIR used to further insights into certain aspects of the relationship, and 2 original items that relate to Formula 1 fans' knowledge of Verstappen. These questions were grouped into four key factors identified by Boyd which determined PSR: interest, knowledge, identification and interaction. The scores for these items help answer SQ1. Following this, participants were asked 7 items relating to their engagement and interest in people whom Verstappen engages with (i.e., friends, colleagues, and people who appear in content with him). These items were included in relation to SQ3. The last two sections were for Twitch viewers only and asked participants to select which Twitch features they engaged with and, if they wanted, to offer an insight into their motivations to view Verstappen and, by extension, Team Redline, on Twitch. The mean PSR score and selection of features would be used

in relation to SQ2, while the qualitative question could be used to correlate respondents' data to all of the research questions and previous studies.

Analysis

First, analysis was conducted on respondents' answers to the 5-point Likert scale items. The responses' means were found across the 25 items, while the average was found for each individual item, creating scores between 1 and 5. These PSR scores were compared between Twitch and non-Twitch users to find any difference in the relationship. Following this, the PSR scores were analysed for each Twitch feature the participant could select to find any correlation between the two. The number of features a participant selected was then checked to see if the increased engagement with Twitch features correlated with a change in the level of relationship. Lastly, an analysis was completed on the 7 items relating to participants' engagement and opinion of people who are engaged with Max Verstappen (e.g., friends, colleagues and people he makes content with), with the average PSR & PSE scores of these items compared between non-Twitch and Twitch users. In the case of Twitch users, their usage of the platform's features and the number of features used were compared to their PSR scores to analyse any impact they had on participants' engagement and relationship with Verstappen and his associates.

Once initial quantitative analysis was completed, a thematic analysis was used to find continuous themes found in the motivations of fans to engage with Max Verstappen and, by extension, Team Redline on Twitch. Thematic analysis was used for its usefulness in finding patterns within qualitative responses, with these patterns being the viewers' motivations (Clarke and Braun, 2017). These themes were compared to previously found themes that indicated a presence of parasocial relationships to see if this study's results correlated.

Results

Quantitative Analysis

Survey responses were gathered over an 11-day period, with 93 participants partaking in the 25-item parasocial relationship survey directed at the relationship with Max Verstappen, with 7 extra items relating to fans' engagement with people affiliated with Max Verstappen. Out of these 93 participants (see Table 1), 48 respondents answered yes to having watched Max Verstappen on Twitch, while 45 responded no. After completing the main 32 items of the survey, respondents who watched Verstappen on Twitch were asked to select which Twitch features they used when viewing the stream. Lastly, 22 Twitch respondents answered an open-ended question on their motivations for watching Max Verstappen on Twitch.

Overall	**N**	**PSR**	**SD**	**PSE**	**SD**
Everyone	93	3.16	1.25	2.44	0.87
Twitch	48	3.25	0.53	2.53	0.82
Non-Twitch	45	3.06	0.68	2.34	0.92
Difference	3	0.19	-0.15	0.19	-0.1

Table 1: Participants who have and have not watched Verstappen on Twitch

The results found throughout the survey seek to contribute to the main research question, with the following results answering if fans who use Twitch experience a stronger parasocial relationship towards Verstappen than non-Twitch fans.

Averaging was completed for the 25 items of each participant, with a 'strongly disagree' response being a 1 and a 'strongly agree' response being a 5. As shown in Table 1, the PSR score for the 48 participants who used Twitch was 3.25 with a standard deviation (SD) of 0.53. Following this, the PSR score for non-Twitch participants was measured at 3.06. Figure 4 highlights these differences, with the Twitch users' bell curve located further along the horizontal PSR axis and the probability density located at a higher point on the horizontal and vertical axes compared to non-Twitch users' bell curve peak. To understand the different aspects of this score, the questions were separated into 4 groups, as seen in Table 2. Fans answered statements relating to interest much higher than other groups, with Twitch users averaging a score of 3.96 while non-Twitch users measured 0.44 lower. The second highest score was ‘identification’ for both Twitch and non-Twitch users, with Twitch being a significant 0.54 lower for ‘identification’ than ‘interest’. Next, ‘knowledge’ was third for both Twitch and non-Twitch fans. The lowest scoring group was interaction for both Twitch and non-Twitch fans, which was significantly lower than the previous three categories. Across all groups, Twitch users scored consistently higher than non-Twitch users.

Overall		**PSR**	**PSE**
Interest	Twitch	3.96	2.41
	Non-Twitch	3.52	2.22
Knowledge	Twitch	3.07	2.52
	Non-Twitch	2.90	1.98
Identification	Twitch	3.42	3.25
	Non-Twitch	3.38	2.91
Interaction	Twitch	2.10	2.35
	Non-Twitch	1.90	2.41

Table 2: Scores gathered from questions relating to 4 characteristics found in parasocial relationships.

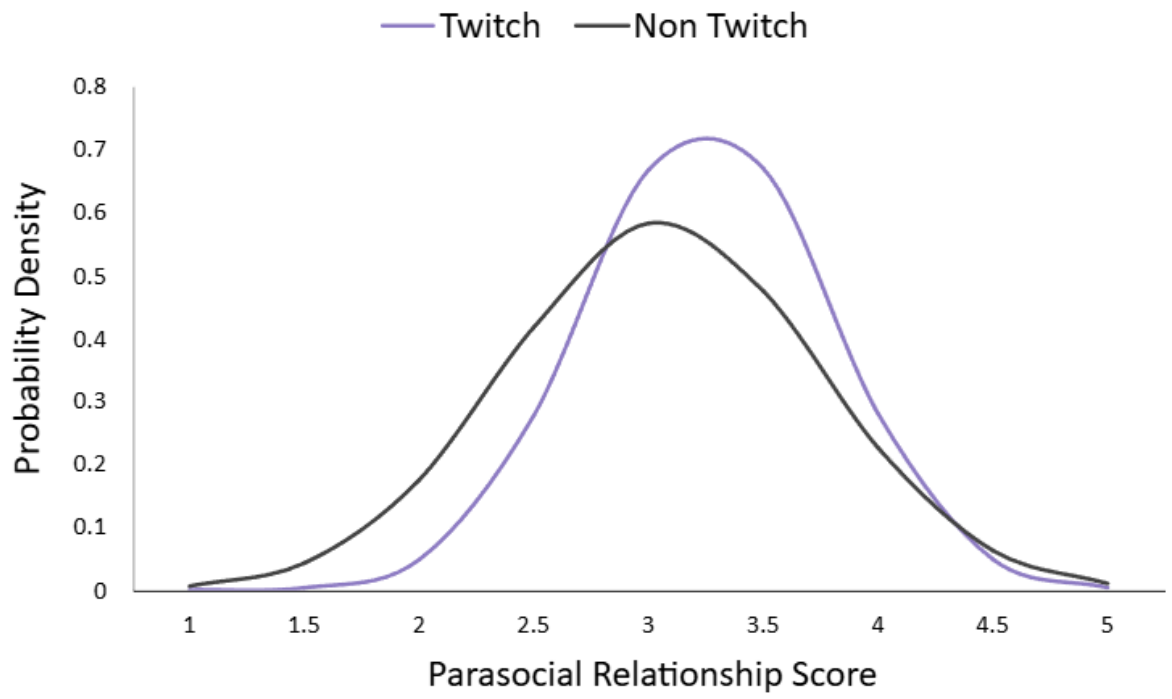


Figure 4: The PSR scores for Twitch and non-Twitch fans were normally distributed and plotted onto a bell curve.

The next set of results was used to see if certain Twitch features correlated with a stronger level of parasocial relationship. First, the PSR score was gathered for each feature. If a respondent indicated a usage of multiple features, this response was included in the individual score of both features as shown under the "All Users" section of Table 3. Donating bits had the highest PSR with a mean of 3.68, but this feature was only selected by 1 respondent. Following this, Twitch Clips and Subscriptions matched for the second-highest PSR score at 3.44, with 11 and 9 participants choosing these features, respectively. To see if there was any further difference between these two, the PSR score was found for participants who solely used those features, with exclusive users of Twitch Clips (M = 3.47, SD = 0.7) averaging a 0.51 higher PSR score than those who used Subscriptions exclusively (M = 2.96, SD = 1). Next, the PSR across 12 fans who used Twitch's channel points & rewards system had a lower score (M = 3.29, SD = 0.44). Lastly, the lowest PSR score was Twitch Chat (M = 3.25, SD = 0.48), which was used by 35 participants. Measurements were also found for two groups Speed et al. (2023) indicated as containing PSRs. Table 3 also demonstrates that those who avoided Twitch chat but interacted with other features were labelled previously 'Loyal Lurkers' and 'Social Viewers' who interacted with Twitch chat, both measured with the same PSR. Conversely, 'Loyal Lurkers' had a larger range of responses than 'Social Viewers'.

	All Users				User chose one feature				
Features	**N**	**PSR**	**SD**	**PSE**	**SD**	**N**	**PSR**	**SD**	**PSE**	**SD**
Twitch Chat	35	3.25	0.48	2.58	0.83	21	3.14	0.49	2.35	0.85
Channel points + rewards	12	3.29	0.44	2.46	0.84	4	3.15	0.47	1.82	0.62
Twitch Clips	11	3.44	0.59	3.01	0.49	6	3.47	0.70	2.88	0.44
Subscriptions	9	3.44	0.64	2.92	0.86	3	2.96	1	2.19	1.11
Donating Bits	1	3.68		3.29		0				
Viewer Type	**Twitch Chat vs Non-Twitch Chat viewers**									
Social Viewer (Twitch Chat)						35	3.25	0.69	2.40	0.79
Loyal Lurker (Non-Twitch Chat)						13	3.25	0.48	2.58	0.83

Table 3: Average PSR and PSE scores of features used by fans, with the left side focusing on all participants (main focus) and the right side focusing on participants who only used one feature (additional research). Two types of viewers also measured based on feature usage.

To determine how Twitch feature usage correlated with PSR, the PSR score for the number of features used by participants was calculated. As seen in Table 4, 4 features were the most any participant used, with that participant also being the only fan to “donate bits” towards Redline/Verstappen. Their PSR score was 3.68. The PSR score for participants who used 3 features was 0.03 less at 3.65. Next, the PSR was found for the 9 participants who used 2 features (M = 3.28, SD = 0.45), while the PSR score for the 34 participants who used 1 feature was the lowest (M = 3.19, SD = 0.56). These results show an increase in participants' PSR scores as more features are used while the number of participants using them decreases. In the case of participants who used 3 features, they had the largest increase in PSR score compared to participants who used one less feature, measuring at 0.37 higher.

Features Used	**N**	**PSR**	**SD**	**PSE**	**SD**
One Feature	34	3.19	0.56	2.37	0.82
Two Features	9	3.28	0.45	2.68	0.73
Three Features	4	3.65	0.33	3.39	0.38
Four Features	1	3.68		3.29	
Five Features	0				

Table 4: PSR and PSE scores increase as fans use more features, with the exception of parasocial extension being 0.10 lower for 4 features than for 3.

After answering the first 25 items on the survey, the following 7 items were used to ascertain if parasocial relationships extend to people Max Verstappen is affiliated with. This includes individuals such as friends, colleagues and people who appear in content with Verstappen, e.g., Team Redline members. These PSE scores found alongside the PSR scores in Table 1 are made up of questions relating to interest, identification, knowledge and interaction, characteristics found in PSRs. PSE was lower overall among Twitch (M = 2.53, SD = 0.82) and non-Twitch (M = 2.34, SD = 0.92) users when compared to PSR. Similar to PSR, Twitch participants' score was 0.19 higher than non-Twitch participants'.

The item, “I engage with people more if they have appeared in content with Verstappen”, was measured with Twitch participants at a PSE score of 2.46, indicating a neutral response to viewing

others linked with the driver, while non-Twitch participants measured 0.42 lower at 2.04. The variety in responses was notably large, with standard deviations of 1.30 and 1.28, respectively. Both sets of participants were similarly disinterested in engaging with these affiliates if Verstappen was not present: Twitch (M = 2.21, SD = 0.99) and non-Twitch (M = 2.18, SD = 1.15).

In Table 3, the PSR scores found for each Twitch feature correlated with the PSE scores. First, the singular respondent to donate bits maintained a relatively high PSE score alongside their PSR score at 3.29. Twitch clips had the next highest PSE score at 3.01, ahead of subscriptions in third at 2.92. Furthermore, usage of Twitch chat (M = 2.58, SD = 0.83) was the second lowest indicator of PSE, while channel points & rewards were the lowest (M = 2.46, SD = 0.84).

As seen in Table 4, the amount of Twitch features used correlated with the level of PSE, as it did with PSR. However, the single participant with 4 Twitch features used (M = 3.29) had a lower PSE than those who used 3 features (M = 3.39, SD = 0.38). Participants who used 2 Twitch features had a significantly lower PSE score than the 2 highest, measuring at 2.68, while those who used 1 feature were the least interested in Verstappen's associates, measuring at 2.37.

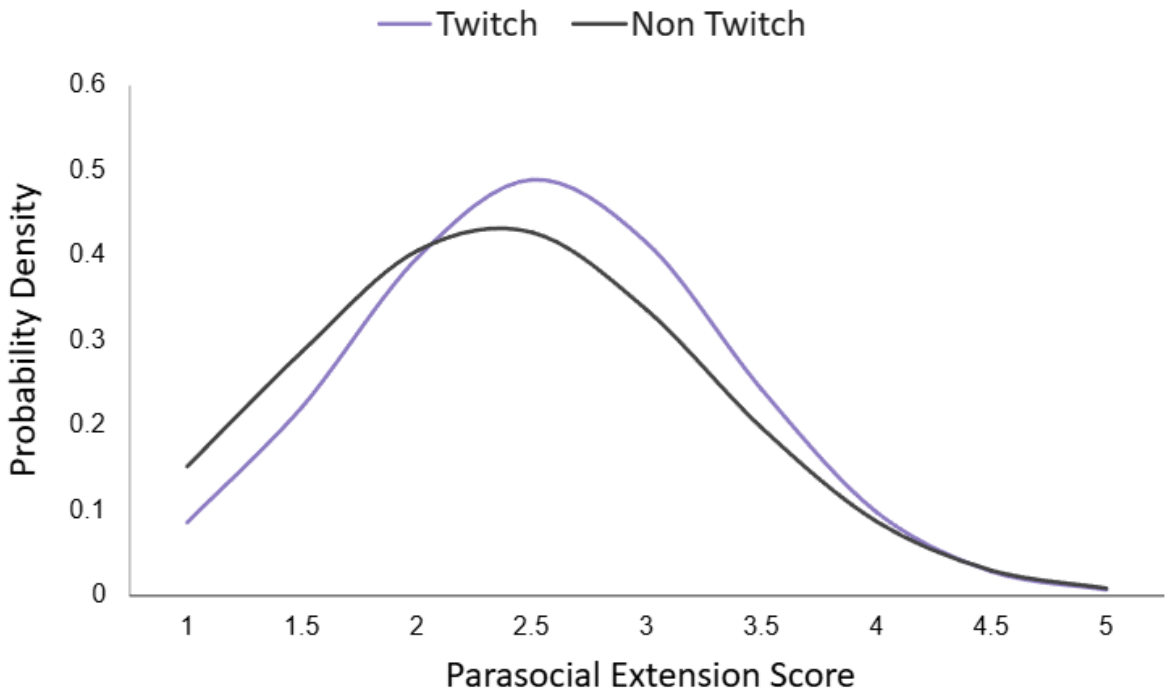


Figure 5: The PSE scores for Twitch and non-Twitch fans were normally distributed and plotted onto a bell curve.

Thematic Analysis

The last question in the survey asked for participants' motivations for viewing Max Verstappen on Twitch, with 22 responses put through thematic analysis and separated into 9 motivations and 1 sub-motivation identified in Table 5. Some responses included more than one motivation. The following themes were identified: entertainment (n = 7), authenticity (n = 7), content (n = 4), interest (n = 4), information (n = 2), accessibility (n = 2), sense of community (n = 1), interaction (n = 1) and escapism (n = 1). Participants were mostly motivated to watch Verstappen for entertainment and authenticity reasons.

Table 5 showcases that PSR scores were highest among one participant searching for interaction with Verstappen and another motivated by escapism, with scores of 3.68 and 3.64, respectively. Participants were most commonly motivated to watch Verstappen for entertainment purposes and to view a more authentic version of Verstappen. Participants identified under the entertainment motivation had a slightly positive PSR score at 3.14, while those who viewed Verstappen, because of his authenticity, had a noticeably higher PSR score at 3.39. On authenticity, 4 participants noted wanting to see an uncensored version of Verstappen; this subgroup's average PSR was 3.45, a 0.06 increase on the whole group.

Next, fans were motivated to watch Verstappen due to the content he produced, for example, sim racing content, and had a similarly high PSR to those motivated by authenticity. Accessibility was also a factor, with one fan stating it was easier for them to watch in America, likely due to the time zone difference. This group also had a higher PSR at 3.22 than non-Twitch viewers. Interest was another motivation mentioned by 4 participants, all stating they were interested in Verstappen as a

Formula One driver while having an average PSR score of 3.21. A smaller group motivated by information seeking had a slightly weaker PSR towards Verstappen, measuring at 3.16. Lastly, the lowest PSR score at 2.60 was found among one participant motivated by the sense of community on Twitch, likely due to their focus on speaking to other fans of Verstappen rather than Verstappen himself.

Similar to previous sections, the PSE scores were noticeably lower than the PSR scores for the same items. Interaction, escapism and accessibility were the only three themes to have a PSE score of 3.00, with interaction and escapism being the only themes with a higher PSE than PSR. Their PSE measured at 3.71 each compared to a PSR of 3.68 and 3.64, respectively. Authenticity had the next highest PSE at 2.80, with the censorship subgroup measuring in similarly at 2.82. Entertainment, content and community followed, with PSE scores indicating a more neutral relationship towards people Verstappen appears with. Lastly, interest and information-seeking were the only scores among PSR and PSE to go below 2.5. In the case of information seeking, the participant might feel that learning more about Verstappen's associates might distract from learning about Verstappen.

Themes	**N**	**PSR**	**SD**	**PSE**	**SD**
Entertainment	7	3.14	0.45	2.69	0.79
Authenticity	7	3.39	0.38	2.80	0.55
Censorship (Want to see Verstappen uncensored)	4	3.45	0.44	2.82	0.32
Content	4	3.36	0.60	2.75	1.13
Interest	4	3.21	0.60	2.39	0.84
Accessibility	2	3.22	0.03	3.00	0.20
Information seeking	2	3.16	0.34	2.29	0.40
Interaction	1	3.68		3.71	
Escapism (and seeking external support)	1	3.64		3.71	
Community	1	2.60		2.57	

Table 5: PSR & PSE scores of 10 motivations identified among Twitch participants

Discussion

Throughout the study, the goal has been to measure Twitch's impact on parasocial relationships with Max Verstappen. This was accomplished by measuring the differences in PSR scores between Twitch and non-Twitch users and correlating Twitch viewers' PSR scores with their use of the features available to them. Further analysis was conducted to understand how parasocial relationships might extend to people affiliated with Max Verstappen through his personal life and his content. The results for this indicate Twitch affected fans' identification with and knowledge of these affiliates. Following the collection of all the measurements, it became evident and consistent that the parasocial relationships formed with Verstappen and his affiliates were influenced by Twitch usage and its features.

Parasocial Relationship Differences between Twitch and Non-Twitch Fans

The current study found that parasocial relationships were marginally stronger for fans who watched Max Verstappen on Twitch than those who did not. The current survey measured four aspects of PSRs: interest, knowledge, identification and interaction. Through these, it was noted that a fan's interest in Verstappen was the largest indicator of their PSR, but Twitch fans' interest was noticeably higher than non-Twitch fans. They were more interested than non-Twitch fans in Verstappen's content and his life

outside of F1, indicating that seeing into Verstappen's personal life through his streams positively affected how close the fan-athlete relationship was. This correlation was also seen in the question "I am aware of the personal details of Verstappen's life", where Twitch fans were more likely to agree while non-Twitch fans disagreed.

Although different surveys were used between this study and Hartmann (2008, p. 28), his PSR score of 2.5 within F1 fans was notably lower than this study's PSR scores for Twitch (3.25) and non-Twitch (3.06) fans of Max Verstappen. This relationship might be stronger due to the increasing visibility and presence Formula One drivers are offered through social media platforms. This also shows Liberty's successful attempt to increase the connection between fans and drivers through Drive to Survive and encouraging drivers to increase their social media engagement.

"Identification with" was the second-highest scoring PSR section in the survey, but both groups of fans had very similar results. Boyd (2024) observed that a person's opinions, beliefs, attitudes, and choices influenced identification more than their interactions with a media figure. Fans of Verstappen are likely to come from F1, where they are already familiar with his opinions and attitudes. In F1 media, Verstappen is known not to shy away from expressing his opinion on racing incidents or penalties that come his way; hence, both fans already agree and identify with him before they engage with him through social media. For example, the question "I like how Verstappen handles conflicts" could be interpreted as his rivalries and battles in F1, and therefore the fan would naturally side with their favourite driver.

"Knowledge of" Verstappen was measured to understand how much fans knew about his personal life and their desire to seek information on him. Responses to questions in this group were mostly neutral, with Twitch fans slightly leaning more parasocial and non-Twitch fans leaning less. Although these neutral results were presented, both groups responded positively to the question, "If I saw a story about Verstappen, I would read it." Valero (2013) observed fans developed a parasocial relationship with sports figures who received lots of media attention. With Verstappen being at the front of Formula One since 2021, it makes sense that fans presented similar PSR scores to these questions; the difference then comes as people choose to learn more about his personal life, which also dictates the strength of the PSR (MacPherson and Kerr, 2021).

Lastly, PSRs were less affected by a fan's interaction with Verstappen. Boyd (2022) labelled these questions as "indications of participants' feelings of social and friendship connections with the online celebrity". It is clear from the results that lesser interaction with Verstappen did not necessarily mean that parasocial relationships could be developed. The fast-paced nature of Twitch chats and the increase in average viewership when Verstappen is participating indicate that fans recognise it is more difficult for Verstappen to notice them with their interactions, and therefore a friendship is less likely to be self-identified.

Motivations for Strengthening Parasocial Relationships on Twitch

Hilvert-Bruce et al.'s (2018) six motivations for live streamer engagement (social interaction, sense of community, meeting new people, entertainment, information seeking, and a lack of external support in real life) appeared in the motivations of the participants, with four of the motivations correlating with a higher PSR. A sense of community and meeting new people were only mentioned by one participant who had a weaker PSR than the average respondent. Studies show that PSR contributed to fans' development of a sense of community on Twitch and motivated them to return to the streams (Blight, 2016; Sherrick et al., 2023), but in this study, fans with a stronger PSR did not mention SOC as a motivation to watch Verstappen and Team Redline on Twitch.

Entertainment did appear as a clear motivator for fans to watch Verstappen and Team Redline on Twitch, with these fans' PSRs being present but not as strong as other motivations. This was also the participants' joint most common reason for watching and returning to these streams, which contradicts Jiang's (2023, p. 21) claim that "entertainment motivation was not significant" in encouraging fans of athletes to watch them on Twitch. Conversely, the results correlate with the claim that entertainment was an important motivation for watching esports streams (Hilvert-Bruce et al., 2018, p. 63). Respondents described Verstappen's streams as enjoyable and entertaining because of the interactions between him and the group, which frequently occur as a result of the group racing as a team in esports events (for example, iRacing Daytona 24 hours).

Speed et al. (2023) previously noted that viewers developed their parasocial connection with social media personalities because of their authenticity. This study's participants were more motivated to watch Verstappen because of his authenticity, and their PSR was higher than that of the typical Verstappen Twitch viewer. Without Twitch and social media, fans would often only view Verstappen through interviews with journalists and official F1 media, where he appears to an audience much larger than Team Redline averages, forced to control what he says. One participant attributed this to his PR team, stating:

> "I guess because it's the only platform he appears on willingly, and outwardly it mostly appears as if it's run by himself/his team, so it's more authentic and relaxed – though I only catch the occasional stream."

While another participant focused more on the media surrounding F1:

> "It feels like a less censored, relaxed version of Max Verstappen that is not as worried about having every word and action be picked apart by media."

The governing body of F1, the FIA, has been criticised for its censorship of drivers using words in official F1 interviews and drivers' ability to criticise stewards' decisions. PSRs might be affected by this because fans can't identify with Verstappen if he cannot express things the exact way he wants; hence, fans move to platforms where they can foster the relationship through identification.

PSRs were identified in participants motivated by Twitch's accessibility, learning information provided by Verstappen or their interest in Verstappen as an F1 driver, but their relationship was slightly weaker than people motivated by other items, particularly escapism. Escapism was mentioned by one respondent as the reason for their motivation to view Verstappen:

> "Team Redline and Max help me calm down after a hard and stressful day. I like watching them because of their relaxed and easy-going nature and the occasional bickering, and just in general they make me laugh. (sorry for the mistakes, English is not my first language)"

Kowert and Daniel (2021) noted that parasocial relationships on Twitch could be highly intimate, with people using streams to help them cope with difficult periods in their lives. This observation was supported by this participant's statement and their escapism motivation. The fan was using Twitch and Verstappen's live streams to relax and escape from the real-life issues they were facing. Their PSE and PSR were also stronger than average and reaffirm how intimate these relationships can feel from the fan's perspective.

Twitch Feature Usage

From the results, it was clear that certain Twitch features indicated a higher level of PSR towards Verstappen. While the feature of "donating bits" had not directly been studied before, previous

studies pointed to the fact that donation notifications appeared to the streamer often with the hopes of soliciting a response from them (Sjöblom et al., 2019). Although only one participant used this feature, their PSR score indicated that their relationship was stronger than the average participant's. People with higher PSRs may use this as their last tool to interact with Verstappen, as no other fan used more than three features. Donating bits is also the least beneficial to the viewer in that it is a purely financial donation used to interact with the streamer. In Team Redline and Verstappen's case, they have no long-term incentives on their account, such as leaderboards of donators, to warrant donating money outside of subscriptions that offer locked emotes and a personal icon to indicate you have subscribed and for how long.

The results showed a clear correlation with the usage of Twitch features and an increased strength in the PSR. Viewers who chose to use more features possibly sought more ways to interact with Verstappen and may have been more familiar with the features of Twitch through more exposure to Verstappen's content and the platform. The correlation in increase among features and PSR was also found in PSEs. PSEs for those who used three and four features were much higher than the average PSE score. This may show that people who are willing to use more features, such as subscriptions and Twitch clips as opposed to just Twitch chat, may be more willing to return to the stream when Verstappen is not present and develop a connection with the other members of Team Redline.

Twitch clips stood out as the second highest-scoring feature for PSR. This was interesting due to it not appearing in previous research surrounding Twitch features and PSRs. In this study, it also appeared as the 3rd most used feature behind Twitch chat and channel points and ahead of subscriptions and donating bits, likely due to the financial cost of those latter two. In Verstappen's case, viewers can share clips where he is the focus rather than the other members of Team Redline. Viewers might also save clips to be entertained when they are not live streaming. Verstappen also appeared to be central in 8 out of the top 8 most popular Twitch clips on TwitchTracker (TeamRedline - Streamer Overview & Stats, no date). This correlates with Blight's (2016, p. 29) findings that people who sought to express their interests online had a higher PSR. Twitch clips had the second highest PSE, indicating an interest in not just Verstappen but people who appeared in content with him, such as Team Redline. Their PSRs could have extended to other people because of Verstappen's interactions with them, or the affiliates stood out to the fan, leading to them sharing clips of either personality online.

Subscriptions continue to be an indication of the connection between fans and streamers but less so than Twitch clips and donating bits. The financial aspect of subscriptions likely leads to less engagement with the feature, but PSRs still appeared to be strong among those willing to pay. With TeamRedline, users get a Redline icon beside their Twitch username, which identifies them as a more prominent member of the community. Motivations to subscribe may be linked with the desire for more interaction through becoming more recognisable in the live chat, leading to the strengthening of the viewer's PSR with Verstappen.

Twitch chat and channel points & rewards correlated positively with PSRs but were the weakest of the five selected. In Verstappen and Team Redline's streams, these features are easily accessible and can lead to direct communication between the fan and the streamer. Twitch chat was used by 73% of participants, with 44% of participants using it solely. Twitch chat offers itself as a better alternative to Verstappen fans wanting to engage with him due to the live reciprocation it offers. Furthermore, Twitch chat's PSR score is still higher than the average non-Twitch user, supporting it as a means of bringing the fans closer to media personalities. Channel points & rewards can enhance Twitch chat by highlighting certain messages to grab Verstappen and Team Redline's attention. The PSR for this feature was marginally higher than Twitch chat, with the PSE being lower, indicating that

the chat was used more to grab Verstappen's attention than the other members contributing to the parasocial relationship. Additionally, the groups of participants Speed et al. (2023) identified as "Loyal Lurkers", those who did not interact with the chat and just watched Verstappen, and "Social Viewers", those willing to interact with other viewers and the streamers through Twitch chat, had the same strength of PSR as each other. PSRs in "Social Viewers" were measured because, despite having comparable relationships to "Loyal Lurkers", Speed et al. did not directly link the two in their study.

Further Analysis of Parasocial Extension

There has been a lack of research surrounding the ability for parasocial relationships to extend upon others who appear in content with the main media person fans are attached to. In scripted content, the main character is often introduced alongside the side characters, while in the case of this study, Verstappen fans arrive from F1 and move to Twitch or social media, where they are then introduced to other members after the initial parasocial relationship has developed. This study measured this extension to be lower than the average PSR score for both Twitch and non-Twitch fans. Fans supported Verstappen's affiliates and did not mind receiving responses from them but were less willing to pursue the affiliates' content when Verstappen was not present. In the case of Team Redline, viewers often prioritise streams where Verstappen's name is in the title, indicating his presence, as seen in Table 5 and on TwitchTracker (TeamRedline - Streams List and Statistics, no date). Table 5 also indicates a loss of 38 followers for the TeamRedline channel when they stream without Verstappen, which may cause disappointment among his fans when he is not present. Conversely, Verstappen's presence the following day brought an additional 106 followers. This leads to another question of whether fans have a higher PSR and PSE if they have Twitch notifications enabled and if Verstappen's presence in the notification dictates a fan's emotions or whether they interact with the alert.

Stream Title	Duration (hours)	Average Viewers	Max Viewers	Followers
Spa w/ Chris [Real racing driver btw]. Sam & Crane	4.6	409	465	-38
Thruxton w/ Chris, Kevin, **Max** & Crane	1.1	1,984	2,291	+106

Table 6: Two streams within two days of each other. Stream without Verstappen averaged 409 viewers, while the stream with Verstappen averaged 1,984 viewers (TeamRedline - Streams List and Statistics, no date)

Interestingly, the Twitch PSE score was higher by the same amount as the Twitch PSR score when compared to the non-Twitch scores, indicating that Twitch was a stronger platform for not only developing the parasocial relationship with Verstappen but also with people affiliated with him. The strength of the relationship between fans and people affiliated with Verstappen was more in line with Hartmann et al.'s (2008) study, where the relationship was noted as being less warm and intimate than other social or interpersonal relationships.

The impact of Twitch on the Parasocial Relationship towards Max Verstappen

To answer the main research question, "What impact does Twitch have on the parasocial relationships between fans and Max Verstappen?", this study found that Twitch created a deeper connection to Verstappen. First, fans were more interested in the content provided by Verstappen, feeling it to be more personal and engaging and willing to share this increased interest with others through Twitch clips. Second, fans of Verstappen were more knowledgeable about his relationships and personal lives. Next, this understanding of Verstappen outside of his other social media platforms and Formula One media led to an increased identification with Verstappen that strengthened the PSR towards him. Lastly, Twitch offers a sense of interaction and reciprocation through its features that encourages the

one-sided PSR to move to a one-and-a-half-sided PSR as previously studied by Kowert and Daniel (2021).

Conclusion

This study aimed to contribute to research on fan-athlete relationships on social media, particularly on Twitch, through the theory of parasocial relationships (PSRs). These measurements were gathered through an adaptation of Boyd's (2024) PRISM survey used to analyse the relationships found within fans of Formula One driver Max Verstappen. Verstappen was chosen, as he is currently the only driver to engage with this platform regularly since the COVID-19 pandemic. The findings indicated Twitch positively impacted the relationship between the driver and the fans by providing an alternative platform for increased reciprocation and identification with Verstappen, increasing the intimacy found within this set of fans. While this increase in the strength of the relationship was smaller than expected, the current relationships were found to be much higher among Verstappen than drivers prior to social media's emergence and Liberty's revamped marketing campaign to encourage driver and fan connections (Hartmann, Stuke and Daschmann, 2008; Youssef, 2023).

This strengthening was largely seen through participants' engagement with Twitch's features, where people with stronger parasocial relationships used more features, especially ones that involved gaining recognition through financial means such as subscriptions and donating bits. This recognition could be gained through an icon beside the user's name and messages or a notification alerting Verstappen and Team Redline to a new donation or subscription, possibly fostering reciprocation which strengthens PSRs. Unexpectedly, the PSR strength of those who used Twitch clips was strong, which correlates with previous research that found people with stronger PSRs want to share their interest (Max Verstappen) with others (Blight, 2016). Twitch clips here had the joint strongest PSR alongside subscriptions but were higher when only measuring those who exclusively used each feature.

This study also introduced the concept of parasocial extension, which measured the ability for fans' PSRs with Max Verstappen to extend to his friends and people affiliated with him through his content. After answering 7 items relating to these affiliates, PSE was measured to be lower than the PSR score, indicating their relationship was not as strong with people connected with Verstappen as it was with the driver. PSE also contributed to fans' use of Twitch features, with the amount of features used increasing as the PSR increased.

Lastly, the motivation of fans with different PSRs was studied, with "Entertainment" and "Authenticity" motivating fans with slight PSRs to view Max Verstappen on Twitch the most. These results contradicted previous research which stated entertainment was not an important motivation to view athletes who live stream (Jiang et al., 2023). Authenticity was particularly notable as fans wanted an escape from PR-controlled messaging from the driver and sought to watch a truer version of Max Verstappen. The motivation with the strongest PSR was escapism, which correlated with previous research highlighting the intimate nature of the parasocial relationships on Twitch (Kowert and Daniel, 2021). This viewer sought an escape from a "hard and stressful day" and used their PSR and Verstappen's stream to relax.

These results expand on previous research which noted an increase in the presence of PSRs in the wake of social media, with the one-and-a-half-sided nature of these PSRs developing stronger connections. Live streaming content on Twitch assisted the development of stronger PSRs in fans willing to view the athlete's content, but the number of motivations and different combinations of feature usage showcased the variety within these relationships. This study also contributes to a lack of research surrounding differences in PSRs of certain media personalities across different platforms and introduces new measurements to understand how these PSRs can extend onto others.

Future research should look into the direct positive and negative effects of fans' relationships with athletes on social media, especially as drivers have begun to criticise fans for being obsessive and creepy. Lando Norris, Formula One's second most popular driver, stated, "The people who don't respect your personal life at all and the people you hang with and so on. That's definitely the worst bit of it" (Saunders, 2021). Research should also look into how parasocial relationships extend onto others, especially in the case of athletes. Norris noted this within his life, stating, "I think the one bad thing is just personal life with friends, people who, through no fault of their own, get put into the spotlight sometimes because of being seen with me or me following them on social media or something." (Saunders, 2021).

Previous research has found PSRs to be present in children as social media and online content become more popular among this demographic (Tolbert and Drogos, 2019). Unfortunately, due to ethical limitations around surveying those under the age of 18, this group was unable to be measured in this study. Future research should observe any differences in the strength of PSRs between different age groups and athletes, especially within F1, as the sport is pushed to younger audiences through "F1 Kids" and the strict banning of swear words in official Formula One media (F1, 2023; Jackson, 2025).

In conclusion, this article highlights the impact Twitch has on the relationships between fans and Max Verstappen and the correlation between engagement with the platform and the strength of these relationships.

Word count: 10,651 words (excluding abstract, keywords and references)

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