Are We Really Friends? Examining the Impact of Parasocial Interactions in Video Game Live Streams

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Contents

A. Abstract

This study investigated the impact of Parasocial Interactions (PSIs) on video game live stream viewers in the Philippines. Drawing from previous literature, this research presumed that live stream PSIs initiated by the viewer's favorite video game streamer play an integral role in influencing the viewer's perception of the streamer both in terms of the PSIs themselves and the credibility of the streamer. Repeated PSIs strengthen these perceptions until such time that the viewer starts perceiving that they have a Parasocial Relationship (PSR) with the streamer, and it is this PSR that leads to attitude and behavior formation, whether positive or negative, on the viewer. The study employed a survey to measure the strength of this impact on a sample of Filipino video game live stream viewers. We uncovered three significant findings. First, that perceptions of the viewers regarding their PSR was positive, indicating that they feel a sense of closeness with their favorite live streamer. Second, that regular watching of these live streams increases perceptions of loneliness among viewers, meaning that frequent video game live stream watching make viewers feel lonelier. And third, that most viewers perceived that their favorite streamers were credible, indicating that streamers who put considerable effort into improving their physical attractiveness, trustworthiness, and expertise will find it easier to build positive PSRs with their audience. The implications of these findings towards video game live stream viewers, their favorite streamers, and live streaming platforms were discussed afterwards.

B. The Problem Statement and its Significance

Video games are a global entertainment phenomenon that have grown in reach and popularity since the first game, Tennis for Two, was released in 1958 by physicist William Higinbotham (Tretkoff & Ramlagan, 2008). Defined by PC Mag (2024) as "interactive software that is used for entertainment, role playing, and simulation", video games have become so popular globally that the current best-selling ever video game, Minecraft, has

recorded worldwide sales of over 300 million units (Clement, 2023) which is a whopping 199,900% more than the 150,000 units of Pong sold on the Atari home console, the first ever "hit" video game released in 1975 (Bonifacic, 2022). As of 2023, the video game industry is expected to make $184.0 billion in revenue for the year (Wijman, 2023), and this is in no small part thanks to the 3.32 billion people worldwide (Howarth, 2023) who like playing these video games, colloquially known as gamers (Cambridge Dictionary, 2024a). With both video game industry revenue and gamer count increasing yearly (Wijman, 202; Howarth, 2023), it thus comes as no surprise that its respective subculture, simply known as video game culture or game culture, continues to grow in influence as a cultural phenomenon, changing entertainment as we know it (Baker, 2023). Besides playing video games through a wide range of gaming platforms from game consoles to mobile phones, gaming culture has also expanded into other aspects such as esports, or online competitive gaming (Leroux-Parra, 2020), gaming conventions, or video game-centered gatherings (Tedesco, 2023), and video game live streaming, or the simultaneous recording and broadcasting of gameplay to a live audience via live streaming platforms (Chiovato, 2021).

One aspect of video game culture, video game live streaming, or the act of broadcasting video in real time over the Internet, is a digital media phenomenon that has steadily been gaining popularity over recent years. With the proliferation of several live streaming platforms such as Twitch, Facebook Live, YouTube Live, and Instagram Live, to name a few, it comes as no surprise that the live streaming market valuation is steadily increasing and is expected to hit $17.42 Billion (Mordor Intelligence, 2024) over the next five years, despite a declining viewership percentage amongst Internet users worldwide (Ceci, 2023). The people who broadcast these gaming live streams, colloquially called streamers, play an active role in continuously developing their "distinct self-image" so that they can attract a community around their brand (Chen and Yang, 2023). One common goal of live

streamers is to attract a substantial following since it not only spells fame and popularity, but also sponsorships and promotional deals with various brands. With Twitch alone having approximately 6.89 million live streamers as of October 2023 (Clement, 2023b), an increasing number of brands are partnering with streamers to both use their video ads throughout the stream and create unique and more valuable experiences for the audience (Burke, 2020). Examples of popular streamers include Ninja, the most followed streamer, Auronplay, the most followed Spanish streamer, Pokimane, the most followed female streamer, and Clix, the most popular Fortnite streamer (Patterson, 2024). The vast appeal of live streaming has also attracted other celebrities into popular live streaming platforms like Twitch, hence, notable personalities like Formula 1 driver Max Verstappen, American rapper T-Pain, and American politician Alexandra Ocasio-Ortez can be found streaming from time to time (Luci, 2023).

As a phenomenon that is continuing to rise in popularity, several researchers, particularly those focusing on the psychology, marketing, or communication discipline, have taken a special interest in studying live streaming and its various characteristics. Much of the ongoing research (Fu & Hsu, 2019; Kreissl et. al., 2021; Küper & Krämer, 2021; Lim et. al., 2020; Martin & Cohen, 2023; McLaughlin & Wong, 2021; Webster, 2019; Wulf et. al., 2021; Xu et. al., 2021) focuses on examining the Parasocial Interactions (PSI) and Parasocial Relationships (PSR) found in various online community relationships, such as video game live streamers and their audiences, or e-commerce live stream sellers and their community of online shoppers.

The Parasocial Relationship (PSR) theory explains how repeated Parasocial Interactions (PSI) help build and nurture unilateral, or one-sided relationships between a performer and their audience (Horton & Wohl, 1956). Several types of PSRs, such as celebrity PSRs (Chung & Cho, 2017; Laken, 2009; Xu et. al., 2002), politician PSRs (Cohen

& Holbert, 2018; Hakim & Liu, 2021; Centeno, 2016a), and fictional television character PSRs (Eyal & Rubin, 2003; Bond, 2020; Bernhold & Metzger, 2018), have been studied over the years. However, the focus of most PSI and PSR research nowadays has shifted to *new media,* otherwise known as online or digital communities, such as e-commerce live stream platforms (Mai et. al., 2023; Xu et. al., 2019; Xu et. al., 2022), social media platforms (Tsiotsou, 2015; Bond, 2016; Baek et. al., 2013), and live streaming platforms (Kowert & Daniel, 2021; Chen, 2021; Scheibe et. al., 2022).

With the rising popularity of live streaming, there are increasing concerns that both parasocial relationships and parasocial interactions shared between live streamers and their audience may be harmful to the individual.

For instance, a study done by Quinten Bernhold and Miriam Metzger (2018) on older adults with depression who maintain PSRs with fictional television characters, found that there is a link between parasocial relationships and depressive symptoms, such as sadness, anxiousness, hopelessness, loneliness, and low self-esteem, among others (NHS, 2023). They attributed this increased chance to the "strong bonds" formed with the television characters that "might serve as poignant reminders of what is missing from one's real-life relationships." As other studies mirror these findings as well (Baek et. al., 2013; Bernhold, 2019), there seems to be a link between PSR and depressive symptoms, especially if the person already has depression to begin with.

Another study conducted by Chen Lou and Hye Kyung Kim (2019) found that adolescents are more likely to show materialistic behaviors if they watch social media influencers, with the likelihood further increasing if the parents set rules to control their children's social media use (Restrictive Parental Mediation). These findings have urged the researchers to recommend two things: (1) That parents must be "alert" against the "soaring

popularity of social media influencers" for their "impact on their adolescent followers", and that (2) Influencers refrain from overly promoting "material possessions and/or social comparisons", and instead rely on the "entertaining value of their content" to foster stronger PSRs with followers. Similar studies indeed show that there appears to be a link between influencer PSIs and an increase in purchase intentions among viewers (Rungruangjit, 2022; Sokolova & Kefi, 2020; Koay et. al., 2023; Wahab & Tao, 2022; Masuda et. al., 2022).

As current literature shows that both parasocial interactions and parasocial relationships are capable of both introducing both desirable and undesirable behavior amongst viewers, this was a phenomenon that we wanted to understand more deeply. In this study, we explored this world, specifically looking at parasocial interactions and the harms that they might be causing. Consequently, we have devised this problem statement to help us answer that:

"Do video game live stream viewers perceive the parasocial interactions that they share with their favorite video game live streamers positively or negatively?"

By getting the inputs of regular video game live streamers via survey, we wanted to both figure out how audience members perceive the parasocial interactions shared between them and the streamer, and measure whether they perceive these interactions positively or negatively. The goal of this study and its expected findings was not to encourage nor discourage live stream audiences from viewing live streams. Rather, it was to raise awareness of the potential benefits and harms that are present in live streamer and audience parasocial relationships. Ultimately, we wanted to help encourage audience members to watch these streams more mindfully so that they can simultaneously take advantage of the positive effects of watching live streams and guard themselves of the negative effects.

To guide the direction of this research and ensure that we answer the research problem, we have also devised an accompanying research question, which is:

How can we measure a video game live stream viewer's perception of Parasocial Interactions, Parasocial Relationships, Streamer Credibility, and their associated positive and negative effects, towards their favorite streamer using quantitative methods?

Establishing this research question from the get-go has helped us clarify the direction that this research should go from beginning to end.

However, with that in mind, our foray into past PSI/PSR studies left us with an impression that there is an existing hurdle with current PSI and PSR research. Earlier researchers have tended to misuse the two theories, in that they would use PSI or PSR in their study, when in fact they should be using the other theory instead. Although this was bound to happen because both theories have similar names, were developed at the same time, and study the same phenomenon, this has served as a notable setback for parasocial research because these are two distinct theories that hold overlapping definitions. Thus, current researchers will have to contend with inaccurate findings, or if they are unaware of the misplaced definitions, may even run the risk of arriving at the wrong conclusion or findings, both of which serve as obstacles to those wanting to conduct quality studies on the phenomena. Researchers Caitlin McLaughlin and Donghee Yvette Wohn in 2021, who, coincidentally, also studied parasocial phenomena in the live streaming context (McLaughlin and Wohn, 2021), are among the first scholars to bring this concern to light. The two researchers tried to "disentangle the understanding" of both PSI and PSR by opting to study each of their respective predictors, such as Interpersonal Attractiveness, Physical Attractiveness, Loneliness, and Extroversion, to name a few, separately. They have done so

because they have noted that earlier researchers have tended to use them interchangeably, thus causing confusion. Therefore, we capitalized on this significant development, and deliberately avoided the mistakes that earlier studies has committed, by primarily focusing on PSIs, or the repeated interactions between the media persona and their respective audience. We have opted to do so because earlier studies have shown that it is these interactions that slowly changes an audience member's perspective on the live streamer (whether the perspective is positive or negative) and later encourages them to build a relationship with the live streamer. In other words, it is the PSIs initiated by the live streamers that play a crucial role in inducing attitude change and forming PSRs amongst audience members.

B. Review of Related Literature

In this Review of Related Literature (RRL), we sought to define the important participants, theories, and variables that were involved in this study. All of these participants, theories, and variables included in the RRL's succeeding portions are a part of the Conceptual Framework. Hence, we have characterized the RRL as a way for the readers to gain a deeper understanding of the Framework, which in turn will help give them a better appreciation for the research's Findings and Implications discussed below.

We started the RRL by providing a definition of what live streaming is, followed by a description of the two parties involved in the video game live stream PSR, namely, the video game live streamers and the video game live stream viewers. We then went on to describe both Parasocial Interactions and Parasocial Relationships, which are the two theories that formed the backbone of our Conceptual Framework. After that, we dedicated an entire section to discussing a recent shift in perspective regarding Parasocial Relationships in a Live Streaming context, where two researchers proposed that these PSRs were actually one-and-a-half-sided instead of purely one-sided such as the other forms of PSRs. Lastly, we discussed the common Positive and Negative Effects of PSRs towards audience members that other

researchers have observed in previous studies. We then synthesized all these discussions in the ‘Research Angle and Research Direction’ portion, where we both explained the importance of discussing these concepts, and framed the direction in which we wanted the research to go in light of these existing findings.

I. Live streaming and Live streamers

Live streaming, otherwise known as streaming, is a method of transmitting video wherein a streamed video (a video that is transmitted over to the web a few seconds at a time) is sent over to the Internet in real time without being first being recorded or stored (Cloudflare, 2023). It is this transmission of the video in real time, or “as it happens” (Cambridge Dictionary, 2024b), that makes live streaming distinct from other forms of streamed media such as vlogs or YouTube videos. About any kind of content can be live streamed, however, the focus of this research is on video game live streaming due to its continuously rising popularity and its distinctive type of PSR that is different from the PSRs that can be found on other medium (Kowert and Daniel, 2021). Popular video game live streaming platforms include Twitch, YouTube Gaming, Facebook Gaming, Afreeca TV, and Bigo Live (Team Capermint, 2024).

Live streamers, otherwise known as streamers, make videos of themselves doing various activities, from gaming to even just chatting, and puts them on the Internet simultaneously via live streaming platforms (Cambridge Dictionary, 2024c). Live streamers are an integral part of the live streaming PSR because, just like other media persona (Chung & Cho, 2017; Eyal & Rubin, 2003), they handle starting and supporting the parasocial interaction with their audience, raising feelings of PSR between them. However, unlike other more “traditional” types of media persona like celebrities (Laken, 2009), politicians (Centeno, 2016a), or athletes (Stahler, 2019), live streamers are their own publicists. They handle strategically branding and presenting themselves to cultivate a desirable “self-brand

image" to attract sponsors and viewers from the right target group (Fietkiewicz et. al., 2018). Thus, the Digital Age and the emergence of social media platforms, live streaming platforms included, has made it easier to become a self-celebrity, since they hold all the necessary tools and interactivity needed for about anybody to become a star. Researcher Terri Senft (2013) first coined the term "micro-celebrity" to describe these self-made celebrities who have made a "commitment to deploying and maintaining one's online identity as if it were a branded good." In the context of PSRs, framing live streamers as micro-celebrities is important since, just like celebrities, it is in their best interest to brand themselves as attractively as possible to elicit stronger PSRs. How they do so varies depending on their own self-branding strategy, but the interactive factor of live streaming platforms makes it so that their PSIs and self-branding play a crucial role in eliciting either positive or negative PSRs. As discussed shortly, Negative PSRs increase the formation of both positive and negative attitudes and behaviors (Schemer & Meltzer, 2019) resulting in a streamer's fanbase potentially noticing and even absorbing these attitudes or behaviors.

II. Parasocial Relationships

Donald Horton and R. Richard Wohl (1956) are the researchers who first defined Parasocial Relationships (PSRs) as an illusory "relationship" wherein viewers of a mediated encounter with performers in mass media gradually start to consider these influential personas as friends, despite these influential personas having little to no interactions with them. This "reciprocal" relationship, reciprocal describing how the audience perceives the relationship even if it is not so in reality, was first observed by both Horton and Wohl as being mediated through television, although subsequent research done by other researchers found that it can also happen through books (Burnett & Beto, 2000; Schmid & Klimmt, 2011; Arora, 2022), radio (Quintero Johnson & Patnoe-Woodley, 2016; Agee, 2014; Candraningrum & Dewi, 2021), and online communities (Ballantine & Martin, 2005; Gong

& Xu, 2014; Reynolds, 2022), among others. This research has primarily drawn inspiration from PSR studies conducted on online communities, as this is the same medium used by live streamers to grow their respective online fanbases.

A key part of Parasocial Relationships is Parasocial Interactions (PSI). Unlike PSRs which refer to the relationship between the media persona and the audience itself, PSIs refer to the "interaction between a media character and a media user that occurs strictly during media reception" (Liebers & Schramm, 2017), meaning that PSIs can be described as the "origin point" through which PSRs are formed and strengthened. Repeated PSI exposures allow audience members to start developing feelings of "intimacy, perceived friendship, and identification with the celebrity," which enough of will result in a PSR with the persona (Horton & Wohl, 1956).

III. From one-sided to one-and-a-half-sided

In addition to requiring PSI, another key characteristic of Parasocial Relationships is that the communications that take place between the media persona and their audience is "transmitted through media rather than face-to-face (Stever, 2013)." This means that although people tend to recognize the "artificiality" of the encounter thanks to it being technologically mediated, media personas can skillfully cultivate the "illusion of interpersonal intimacy," therefore causing a "real psychological reaction" (Martin, 2023)." It is mediation that makes PSR what it is, as it is the lack of a direct face-to-face contact element in this relationship that truly makes it a one-sided relationship. In PSRs, it is the audience who will always exert more effort to get to know the media persona, despite the media persona themselves being completely unaware of the existence of the other.

However, there has been a recent shift in thinking about PSRs as a one-sided relationship. Ever since its start, researchers have held that PSRs only occur as a one-sided

relationship that lacks reciprocity, given its mediated nature. But Rachel Kowert and Emory Daniel Jr. (2021) argue in their study that live streaming PSR does not fall under this one-sided classification because live streaming platforms can accommodate reciprocal communication between live streamers and their viewers, something that PSRs facilitated through other mediums do not have. An example of this unique interactivity is that live streamers can engage with their viewers directly by acknowledging them through shout-outs, asking them questions, and even replying to the comments made by the viewers. However, we should note that it is erroneous to label video game live stream PSRs as fully two-way relationships because streamer interpersonal interactions with audience members tend to be few and isolated and are noticeably harder to do the more viewers there are (Wulf et. al., 2021). Despite that, we have conducted this study on the assumption that these live streaming platforms have distinct features that allow for reciprocal communication to happen between live streamers and their viewers, setting it apart from other forms of parasocial relationships.

IV. Positive and Negative Effects of PSRs

Because we can observe PSRs across various mediums and types of media personas, researchers have extensively studied its positive effects. For instance, Cynthia Hoffner and Bradley Bond (2022) found that PSRs help people improve their relationships, foster personal development, and even enhance their skills and overall well-being. Another research found that PSRs can help boost the low self-esteem of college students by providing them with an alternative to interpersonal relationships that allow them to think more positively about themselves without the risk (Derrick et. al., 2008). For younger people like adolescents, PSRs are also highly beneficial since researchers found that adolescents who have PSRs with celebrities develop autonomy and form their identities much more easily than those who do not (Gleason et. al., 2017). We therefore surmised that PSRs can play a beneficial role in helping people become better selves.

For all its benefits though, PSRs also has its notable drawbacks. For instance, researchers found that PSRs with fictional television characters may cause an intensification of the depressive symptoms of depressed older adults who already have poor interpersonal relationships. The researchers who conducted the study, Quinten Bernhold and Miriam Metzger (2018), found that PSRs reminded these depressed adults their poor real-life relationships worsening their symptoms. Therefore, this study reveals that people may perceive PSRs differently depending on their own individual characteristics and the real-life relationships that they hold. A similar study done by Bernhold (2019) the following year but related to disliked television characters instead of liked television characters, also revealed similar findings. Depressed older adults with low-quality romantic relationships experienced an intensification of their depressive symptoms, the more intense the PSR they have with the disliked character became. These two studies show that a combination of personal circumstances and the intensity of the PSR play a crucial role in deciding whether a PSR would amplify, or diminish, a person's mental and social well-being.

Even PSRs may affect adolescents in a negative manner. Researchers Chen Lou and Hye Kyung Kim (2019) found that adolescents who actively follow social media influencers have a higher chance of developing materialistic behavior, thus driving up their purchase intentions as well. Furthermore, the two researchers also discovered that only the adolescents subjected to Restrictive Parental Mediation, otherwise known as rules on their social media usage, reported higher purchase intentions and materialism. This implies that the ideal way for parents to reduce materialistic tendencies in their children is not to set down harsh rules, but to start open discussions to develop the adolescents' critical thinking skills. A similar study done by Hamza Kaka Abdul Wahab and Meng Tao (2019), albeit with university students instead of adolescents, mirrors these findings. This shows that the micro-celebrities

of the Internet have the power to increase purchase intentions and feelings of materialism by strengthening the parasocial relationships that they share with their audience.

But feelings of materialism and purchase intentions are not the only behavioral variables that social media influencers, specifically live streamers, can influence their audience with. Research conducted by David McLean (2021), found that there is a strong correlation between how a streamer acts, and the beliefs that viewers have on the streamer. The study, which focused on studying negative, or "toxic" behavior on live streams, found that participants who saw a streamer's toxic behavior through voice chat attributed more negative personality traits to the streamers than participants who saw the toxic behavior through chat only. A similar study by Teodora Mihailova (2022) on *Dark Souls* live chats on Twitch also discovered comparable results, that problematic discourses such as toxic masculinity, homophobia, and sexism are seen, though uncommon. She also noted that because it was "extremely rare to see the behaviors called out" by other users, it was mostly up to the streamers to set boundaries for their own spaces by setting up rules and recruiting moderators to enforce them. What both studies seem to agree on is that the behavior and language of the streamer plays a huge role in how their communities behave. Research conducted by William Hamilton, Oliver Garretson, and Andruid Kerne (2014), who found out by directly taking part in Twitch live streams that "streams develop an atmosphere that reflects the streamer's attitude and values", supports these findings. Thus, although first-time viewers may perceive undesirable behaviors negatively, they tend to start normalizing it after experiencing repeated PSIs with the streamer. The streamer's personality plays a huge role in persuading viewers to form PSRs with them because the "attitudes and values" that the streamer conveys is shared "not only by the streamer, but by the community that emerges" (Hamilton et. al., 2014).

V. Research Angle and Research Direction

Research conducted on Parasocial Relationships or Parasocial Interactions span a wide range of medium and media persona since its first inception in 1956. Given that statistics show that the video game live streaming market is expected to grow in profits (Statista, 2024), total audience (Chiovato, 2022) and hours watched (May, 2022), research that helps streamers and live streaming platform management understand how audiences perceive the PSIs and PSRs that they share with streamers are highly beneficial. More specifically, we asked the audience two things via a survey: (1) How they would describe the PSR and the PSIs that they are getting from the streamers, and (2) Their perception on the impact of streamer-initiated PSIs and PSRs on their real-life relationships. However, before discussing such, we wanted to recap everything that we have defined and discussed in the Review of Related Literature.

To recap, the first thing we did was to clarify the definition of 'Live Streaming,' 'Live Streamers,' and 'Live Streaming Platforms.' Live Streaming is defined as the transmission of video over to the Web in real-time, or "as it happens", Live Streamers are people who broadcast or 'stream' themselves doing various activities in real time for others to watch, and Live Streaming Platforms are the websites where these live streams are hosted, popular examples being Twitch, Facebook Gaming, and YouTube Gaming. We then went ahead to define live streamers in-depth, coining them as 'micro-celebrities' because of their painstaking efforts to cultivate a desirable "self-image" and to keep that crafted online identity as if it were a "branded good." Ultimately, defining and interpreting these terms was crucial to figuring out this research's direction because previous studies show that the "self-branding" that video game live streamers build, play a significant role in eliciting both positive and negative PSRs. Live stream viewers may imbibe both these Positive and Negative PSR effects, such as an increase in wanting to emulate a streamer and a boost in

one's sense of community for the positive effects, and loneliness and live stream addiction for the negative effects. Out of the other 'positive and negative variables' seen, these four have appeared the most often in existing literature, and hence, are the variables that we have chosen to measure in our sample respondents using a survey.

The next concept that we defined were Parasocial Relationships and Parasocial Interactions. We operationally defined PSRs as an "illusory relationship" because the viewers within a mediated encounter end up viewing the performer as friends even if the performer does not know them. We highlighted that PSR theory consistently evolved over time to accommodate more types of media, such as video game live streams, which is the medium we are focusing on for this study. In connection with PSR, we defined PSIs as the interactions that happen between a specific media character and media user that only happens during media reception. Earlier literature also noted that with frequent PSI exposures, audience members may start developing feelings of "intimacy, perceived friendship, and identification with the celebrity." Both PSR and PSI warranted an in-depth understanding in the context of this research and the direction we want it to go, not only because both theories formed the backbone of this study's conceptual framework, but also because they have proven to be extremely helpful in understanding the widespread appeal of newer and less extensively studied forms of 'mediated encounters' like video game live streams.

After defining PSI and PSR, we felt that it was right to dedicate an entire section to discussing a shift in perspective with PSI and PSR research in the context of live streams. For most media, researchers perceive PSRs as a one-way relationship. This is not surprising, given that the lack of a direct face-to-face contact element between most media platforms means that the audience will always exert the effort to build and support the relationship, and not vice versa. However, we also noted in the section that researchers Rachel Kowert and Emory Daniel Jr. believed that PSRs formed within live stream contexts are not purely one-

way relationships. Instead, they viewed live stream PSRs as ‘one-and-a-half-sided’ because live stream platforms, by design, accommodate for reciprocal communication between a live streamer and their audience through live chat, shout-outs, and other features. However, even with these features, we highlighted an important distinction. It is not possible to label the relationship as a two-way, because the amount of effort that the audience members to build and support the relationship will always far supersede the efforts that the streamer will put in to do the same. We believed that this was an important thing to take note of in the context of this research and the direction it should go because it allowed us to prepare for any unexpected findings. All the variables measured, from PSI/PSR beliefs to live stream addiction and loneliness, would have exhibited different results compared to other studies that focus on PSI and PSR in the context of other media.

The last topic we discussed within this Literature Review are the possible positive and negative effects of PSRs. Some of the positives mentioned include improvements in interpersonal relationships (Hoffner & Bond, 2022), boost in self-esteem (Derrick et. al., 2008), enhanced well-being, and an earlier and faster development of one’s self-identity (Gleason et. al., 2017). We also noted within the section that extensive studies have explored its positive aspects, so similar findings obtained also observed these benefits. As for the negative effects, we highlighted three negatives, namely, an increase in depressive symptoms (Bernhold & Metzger, 2018), an increase in materialistic behavior among (Lou & Kim, 2019), and negative streamer behavior resulting in toxic community behavior (McLean, 2021; Mihailova, 2022; Hamilton et. al., 2014). Both the positive and negative effects of PSR are important to know in the context of this research because it gave us an idea of the variables we should measure when we conducted the survey.

For this study, we aimed to focus on the negative effects on the audience for two reasons. One, because it has not been as extensively studied as much as the positive effects

(Lim et. al., 2020; Wulf et. al., 2021; McLaughlin & Wong, 2021; Hu et. al., 2017; Leith, 2019), especially in a video game live streaming context. And two, because both the positive and negative effects observed in numerous existing studies have a considerable chance of being imbibed by the live stream viewers (Wee & Tan, 2021). Once we analyzed the survey data, we discussed the implications and the practical applications of the findings from the perspective of the live stream viewer. As shown above, part of the self-branding that "micro-celebrities" like live streamers do is to exhibit certain behaviors and interact with their viewers in a unique manner to attract more viewers and set up a loyal following. Thus, we applied our findings in the perspective of the live stream viewers because, as previous studies have shown, the perceived relationship and perceived streamer credibility in the eyes of the viewers play a huge role in how their respective audiences interact.

C. Theoretical Framework

Both Parasocial Interaction (PSI) and Parasocial Relationship (PSR) as conceptualized by Donald Horton and R. Richard Wohl in 1956 served as the primary theoretical influence for this study. Parasocial Interaction refers to the interactions between a media persona and the audience where the audience starts to show feelings of intimacy, perceived friendship, and identification towards the media persona. In contrast, Parasocial Relationship refers to the relationship itself held between the media persona and the audience member (Horton & Wohl, 1956). Since its start more than 60 years ago, researchers have employed both PSR and PSI to study these one-sided relationships across different mediums and with different media personas. As the two theories differ from one another in scope, most studies have opted to use just one of two (Webster, 2019; McLaughlin & Wong, 2021; Lin, 2021; Lin et. al., 2021), or both at the same time (Centeno, 2016a; Bernhold & Metzger, 2018). Although the title of this study implied that we would solely focus on PSIs, we still incorporated Parasocial Relationship within the framework as well. We have done this for

two reasons. First, it is because PSRs, defined in this research as the one-and-a-half sided relationship between a video game livestreamer and their audience, is the final product of repeated PSI. Thus, a series of successful PSIs and the later beliefs of these PSIs by the live stream audience member is what allows the PSRs to form in the first place. Second, it is because Parasocial Relationships themselves allow for both positive and negative effects to influence the audience members themselves as they continue to watch more of the streamer's live streams. Once a PSR forms with a streamer, the viewer would feel the urge to "nurture" this relationship, and therefore would start tuning in to the streamer's live streams more habitually. This regular viewing behavior is what results in a higher likelihood of the audience member to experience attitude formation or behavioral changes, whether positive or negative. To sum up what has been said, although it may have seemed that the primary focus for this research are PSIs, PSRs cannot be ignored since it is a product of the repeated PSIs between the live streamer and their audience and is what drives both positive and negative attitude and behavior formation to form within the live stream viewer. Subsequently, throughout the remaining parts of this study, we endeavored to consider a concept's relationship and relevance to both PSI and PSR so that all of the survey questions that we have produced at the time help in answering the problem statement.

Now that it is clear that both PSIs and PSRs play an indispensable role in this study's framework, we believe that it is now time to reveal our diagram as a visual representation of the conceptual framework:

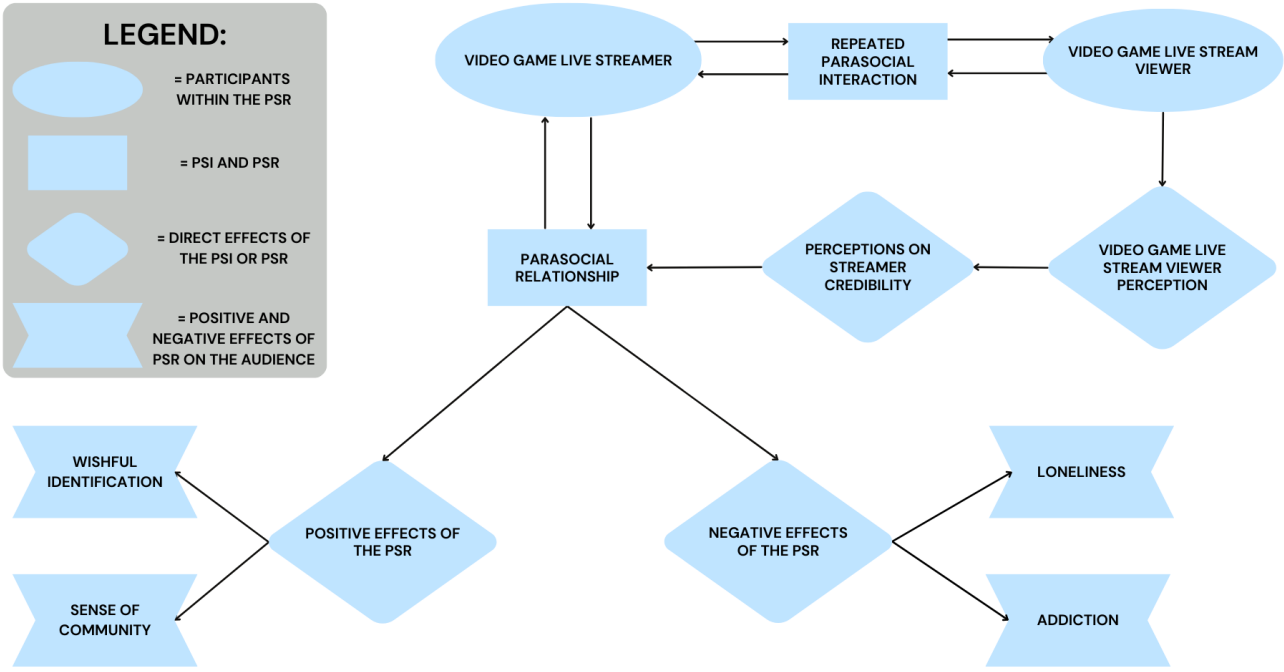


Figure 1: Diagram of the Conceptual Framework

We created this diagram to show how both Parasocial Interaction theory and Parasocial Relationship theory, along with other concepts, are all interrelated. We placed a high importance on this diagram as we believed that it was as a satisfactory visual guide to help in answering our research question and interpreting our findings.

We have specifically designed for the framework to show the relationships between the different concepts that we want to study. Thus, it incorporated certain design cues like shapes, a uniform color, unidirectional arrows, and a symbol legend, so that it would be easier for the readers to visualize how the concepts are related to one another.

We opted to use different shapes, such as an oval, a rectangle, a diamond, and a bow in the framework because it would provide a visual categorization of each of the concepts present. The ovals stand for the human participants involved in the study, namely the video game live streamers and the video game live stream audiences. The rectangles stand for the theories involved in the framework, which are Parasocial Interaction theory and Parasocial Relationship theory. The diamonds stand for the direct effects, or consequences, of the PSIs and the PSRs shared between the live streamers and their audience. Lastly, the bows are there to represent the positive and negative effects of PSRs that we measured using our survey. For further clarification if needed, we have also taken the liberty to incorporate a legend beside the diagram for a more concise description of the symbolism behind the shapes.

The other major design element that we would like to point out are the arrows. We used two types of arrows, namely, uni-directional arrows, and bi-directional arrows. The arrows we deemed to be worth mentioning are the bidirectional arrows, which connected four elements, namely, Parasocial Relationship, Parasocial Interaction, Video Game Live Streamers, and Video Game Live Stream Viewers. We did this to acknowledge the findings of researchers Rachel Kowert and Emory Daniel Jr. (2021), who first noted that the limited interactivity afforded by live streaming platforms meant that there is an opportunity for the audience members to reciprocate any PSIs initiated by the streamer. This makes video game live streaming PSRs uniquely ‘one-and-a-half’ way, and so we used bidirectional arrows to represent this unique trait.

As this research aims to survey the harmful effects of parasocial interactions in video game live streaming PSRs, there is a need to search for research that surveys PSI’s harmful effects to guide the creation of the research instrument for this study.

One such research is Venus Jin's (2018) work on women, which aimed to study the effects of Instagram foodies' body shape and follower count on a person's eating intention, envy, parasocial interaction, and online friendship. To do so, the study showed participants 4 different Instagram profiles of a fictional female foodie, each with a different body shape and popularity, which was then followed by a survey that combined different measurement scales, such as an envy scale (Lange & Crusius, 2015), PSI scale (Jin, 2010), intention to build Instagram friendship scale (Jin & Phua, 2014), and a BMI test. The study showed that a thin foodie with a high follower count resulted in the most significant increases on a person's eating intention, envy, parasocial interactions (such as messaging the account or liking and commenting on its posts) and desire to be online friends with them. Therefore, although the study shows that using thin models for Instagram posts seem to be effective in inducing higher levels of PSI and desires for online friendship with viewers, the harmful effects of such PSI, such as malicious envy (a desire to put a person down), and an increased eating intention does occur. This shows that even supposedly "inspiring" or "motivational" PSI may have their dark sides, especially amongst people with eating disorders or who have low self-esteem, as this research uncovered (Jin, 2018).

Another research that surveys the effects of harmful PSIs is a study conducted by Reza Shabahang and colleagues (2020) on male college students. This study aimed to figure out if having PSIs with narcotic-addicted celebrities would result in a higher addiction potential for their fans. To get the necessary data, the researchers created a survey that is composed of three different scales, namely the Iranian Addiction Potential Scale (Zargar, 2006), the Celebrity Parasocial Interaction Scale (Bocarnea & Brown, 2007), and the Celebrity Attitude Scale (McCutcheon et. al., 2002). The researchers found out that both PSI with narcotic-addicted celebrities and worshipping them are positively related with addiction potential, and vice-versa. What this research proves is that there may be a correlation between

the level of fascination that a fan has towards a media persona with the likelihood that the fan would emulate the behavioral and cognitive characteristics that the media persona has. Therefore, if a media persona has undesirable behaviors or attitudes, there is an increased chance that fans who show higher PSI with the media persona would adopt those undesirable behaviors or attitudes in an effort "to be more like them," despite the negative consequences (Shabahang et. al., 2020).

Lastly, research conducted by Anan Wan and Linwan Wu (2020) on Chinese live stream viewers wanted to test how watching live streams can lead to undesirable consequences. The researchers opted to get their data using a survey with a 7-point scale, which combined several measurement scales such as entertainment-seeking motive (Papacharissi & Rubin, 2000), the social interaction motive (Lee et. al., 2015), enjoyment with the broadcaster (Kyle & Mowen, 2005), parasocial relationship (Rubin et. al., 1985), loneliness (Hughes et. al., 2004), and addiction (Baek et. al., 2013). The researchers were able to find out that the live stream viewers' beliefs of loneliness and addiction are both influenced by the PSR, with loneliness also directly influencing the extent to which the viewers are addicted to social live streaming. What the study was able to show is that though a viewer's social needs may motivate them to watch online live streams, doing so does not necessarily compensate for their poor real-life relationships. Consequently, the researchers note that the findings of the study show that there is a need for live streamers and industry regulators to take concrete action to better protect the psychological well-being of the audience themselves (Wan & Wu, 2020).

D. Research Methods

We will obtain the necessary data needed for this study through a survey questionnaire. This is because the applicable research question for this part of the paper,

which is research question 2, aims to characterize the parasocial relationship between streamers and their respective audiences, with specific focus on the perspective of the audience. Therefore, it is research question 2 that forms the basis for us deciding to use a questionnaire for this study, since the characteristics of a large sample, which for this research would be video game live stream audiences in the Philippines, can be best observed with the help of a questionnaire (DeFranzo, 2023). Earlier parasocial-related studies that used questionnaire surveys have reported both valid and insightful findings, whether the researchers opted to focus on parasocial interactions (Sokolova & Kefi, 2019; Shabahang et. al., 2020; Wulf et. al., 2021) or on parasocial relationships (Schmid & Klimmt, 2011; Reynolds, 2022; Liebers & Schramm, 2017). We selected each of the survey's participants via convenience sampling, with the survey itself administered via Google Forms.

To ensure that the questionnaire data would result in valid findings, the respondents must satisfy two conditions. The first condition to be satisfied is that they must know about video game live streams. We will be screening this through the pre-test part of the questionnaire, where it will ask viewers if they watch live streams (Yes or No question) and will ask them to name at least one streamer that they know (Open-ended question). Respondents can name any streamer that they have in mind as streamer specific details, such popularity, country of origin, preferred game genre, and others are irrelevant to the purposes of this study. This condition is present to simply prove if the respondent takes part in video game live streaming, or at the very least are aware of what it is. The second condition to be satisfied is that they must regularly watch video game live streams. We will also ask this in the pre-test part of the questionnaire, where our prepared questions will prompt viewers with their weekly video game live stream viewing habits. Several sources show that the average Twitch user spends 95 minutes per day watching live gaming (Geyser, 2023; Johnson, 2023; Wise, 2023; Shandrokha, 2023; Sjöblom, 2019), However, the recommended frequency to

stream on Twitch is 3-5 times per week for at least 2 hours per stream (Nielsen, 2022; May, 2023), and being a partner on Twitch, which is highly recommended for streamers looking to grow their channel further in popularity and profits, requires a "regular streaming schedule" of at least three days to be considered as a potential candidate for the program (Twitch, 2024). For the purposes of this study, we think that a reasonable threshold for "active viewers" would be that they must view video game live streams at least once every week, equal to the minimum recommended streaming frequency for streamers. To sum, we would only consider the data of respondents who satisfactorily meet both conditions of knowledge of video game live streams and frequency of watching video game live streams to produce satisfactory results for further analysis and discussion.

The questionnaire itself will primarily use close-ended questions to analyze and process the results more easily. The questions used in the survey will be a combination of those derived from earlier research scales, and those that we have made, but may change to better fit these respective research scales depending on the variable that we aim to measure with the question. Most of the questions will have something to do with PSIs, PSRs, perceived streamer credibility, and both the desirable and undesirable effects that may manifest in video game live streamer-audience PSRs. What is certain is that we will analyze all these questions in such a way that the findings should give us an idea of the perceived characteristics of the parasocial relationship shared between live streamers and their audiences from the perspective of the audience members themselves.

Although we have created most of the survey items with research question 2 in mind, we must acknowledge that, in terms of data analysis, it would be difficult to set up a direction for which the analysis should go without some hypotheses to test. This research is quantitative in nature; hence, we believe that it would be much simpler for us to figure out whether the data affirms or denies the proposition we are making in this study via hypotheses

testing. Here are the seven hypotheses that we have formulated, along with an accompanying null hypothesis, or status-quo, that we seek to disprove via the survey data. We have created each of the seven hypotheses in such a way that they are related to a specific measurement scale within the research.

1. Video game live stream viewers experience positive parasocial relationships with their favorite streamers.
    a. **Null**: Video game live stream viewers experience neutral or negative parasocial relationships with their favorite streamers.
2. Video game live stream viewers experience positive parasocial interactions with their favorite streamers.
    a. **Null**: Video game live stream viewers experience neutral or negative parasocial interactions with their favorite streamers.
3. Video game live stream viewers look up to their favorite streamers and aspire to be like them or do the things that they do.
    a. **Null:** Video game live stream viewers do not look up to their favorite streamers, nor do they aspire to be like them or do the things that they do.
4. Video game live stream viewers feel lonely when watching their favorite streamers regularly.
    a. **Null:** Video game live stream viewers do not feel lonely when watching their favorite streamers regularly.
5. Video game live stream viewers feel that they are addicted to watching live streams.
    a. **Null:** Video game live stream viewers do not feel that they are addicted to watching live streams.
6. Video game live stream viewers think that their favorite streamer's fanbase is essential to helping them enjoy their favorite streamer's streams more.

   a. **Null:** Video game live stream viewers think that their favorite streamer's fanbase is inessential to helping them enjoy their favorite streamer's streams more.

7. Video game live stream viewers consider their favorite streamers credible due to the streamer's attractiveness, trustworthiness, and skill.
   a. **Null**: Video game live stream viewers do not consider their favorite streamers to be more credible due to the streamer's attractiveness, trustworthiness, or skill.

To test the survey's validity in terms of getting the data that we needed, we first distributed the survey to a fraction of the respondents that we are aiming to gather. Although we admit that we were unable to conduct a pilot study, we only distributed it to a small fraction of the total sample group that we are targeting for this study. we have enjoyed remarkable success with this as fifty-two respondents have answered the survey at the time of writing this proposal. we have checked the responses of all these respondents, and so far, all of it is acceptable data that we can use, with no need to set aside any. As we are getting satisfactory results from the survey instrument as is, we feel that we would be able to use the questionnaire that we have created as is without having to change it. In lieu of a conventional pre-survey distribution pilot testing, we will instead conduct a pilot data analysis, which aims to test this study's hypotheses against the data we have gathered so far. We will be doing this to learn whether the way that we are analyzing data is satisfactory, or if we will need to change our analysis strategy.

As mentioned earlier, we will conduct a pilot data analysis to test the data we have gathered against the hypotheses we have formulated. To do that, we intend to follow the Data Analysis Process the entire way. As a budding data analyst, we have found that we get the best results when following this process because its clear step-by-step process is specifically

to be a useful framework for data analysts and data scientists to work with their data in the most accurate and efficient way possible. Depending on the source, it most commonly appears as a five-step process (Hui, 2023; Hillier, 2023) or a six-step process (mangalgiaishwarya2, 2024; Crabtree & Nehme, 2023). However, regardless of the source, there appears to be a consensus on what these steps are supposed to be, further adding to the framework's reliability and reputability. For this research, we will be using the six-step

Figure 2: Data Analysis Process

version of the framework as incorporated by authors Matt Crabtree and Adel Nehme in their article "What is Data Analysis? An Expert Guide with Examples" (2023). we opted to use this version because of its brevity and straightforward explanation. Here is a graph from the article having all the processes involved, along with the actual steps listed below:

Data Analysis Process Steps:

1. Define aims and questions.
2. Data collection
3. Data cleaning
4. Data analysis
5. Data interpretation and visualization
6. Data storytelling

At this point in the study, we can say that we have already completed both steps one and two. we have already identified the objectives and questions that we want to address by

the end of this study by virtue of the research questions and hypotheses, and we have already both designed and utilized the research survey through which we hoped to be able to capture the needed data.

For steps 3 to 5, we will be doing most of the work through Python. Although R is a programming language specifically designed for use by statisticians to analyze and visualize their data (Worsley, 2023), we have decided to use Python instead because it is a language that we are more proficient in. Python is no less capable of doing complex data analysis and visualization tasks thanks to several of its libraries such as NumPy, Pandas, and Matplotlib, hence, we are confident that the results that we would obtain on Python would be exact and suitable for later interpretation and visualization.

Prior to conducting any analysis, it is proper procedure for data analysts to clean their dataset, hence, step 3 is a crucial part of any data analyst process framework. This helps ensure the accuracy of the findings, as well as to avoid any computing errors that may arise when analysis tools analyze inconsistent data. Although we will not delve into the process of how we analyzed our data because it may be too technical and merely detracts from the topic at hand, our data comparisons between our cleaned and uncleaned datasets proved that it was the right call to clean the dataset. Fortunately, we have not had to clean much due to the multiple constraints we have placed in several of the questionnaire items, so much of our cleaning merely involved having to reformat certain column headers, and fixing typos and capitalization errors with some of the open-ended records.

Although steps 4 and 5 involve completely different tasks, we have found ourselves simultaneously doing both tasks whilst working with our data. One particularly useful characteristic of Python is that we can execute code cell by cell. This is a welcome feature because it allows programmers to break down complex tasks into code that they can

distribute into different cells and execute each one separately. This also immensely helps when it comes to tracking down errors, if ever. we admit that we have taken advantage of this feature liberally to test out different analysis tools or to better show errors, and thus, have had to change our adherence to the data analysis process to reflect that. Thus, we have found that we were working better when we have had to work on the two processes simultaneously instead of focusing solely on the step we are on. we will give a brief background on the types of analysis tools and visualizations that we have used to help create the various findings and graphs that we will see in the Findings section down below.

Typically, the first set of analysis tools used by data analysts are Exploratory Data Analysis (EDA) tools. EDA is an important part of data analysis wherein the analyst does a first analysis and visualization of the data to find preliminary patterns, correlations, outliers, and other data nuances. First popularized by John Tukey in his eponymously named 1977 book “Exploratory Data Analysis” (Tukey, 1977), he promoted the use of EDA because he felt that it was pertinent to understand exactly what we can do with the data before measuring and analyzing it using more advanced analysis tools (Andrews, 1978). Although a lot of analysist tools employed during EDA such as bar charts, histograms, dispersion techniques, statistical summaries, among others, predate the term, researchers credit author John Tukey not for creating the instruments, but for promoting the practice that is now widely considered as an indispensable part of any data analysis process. Given how important EDA is in any data analysis project or task, this is a process that we will undergo for this research. we will dedicate a separate section to it in “Findings,” so its respective results and visualizations do not mix with the findings from more advanced measures or tools.

After running the necessary EDA tools and having generated their respective visualizations to help make the data easier to understand, we will then continue with testing the seven hypotheses against the data using some helpful measures. Because the data is from

a five-point Likert scale, it is safe to assume that the results will follow a non-normal distribution. Hence, this research may use non-parametric analysis methods such as the Wilcoxon Signed-Rank Test, Spearman Correlation, and Kruskal-Wallis H Test depending on the trends that we are able to garner within our EDA.

To provide a quick background on non-normal distributions for clarification, non-normal distributions are simply distributions that do not follow a normal distribution. Types of non-normally distributed data include Discrete Data, or data that can only take on certain values, and Categorical Data, or data that is groups or categories. Two common types of Discrete Data include Nominal Data, or data that cannot be ordered, and Ordinal Data, or data that can be ordered in a meaningful way. Because Likert scale data can be ordered meaningfully, and the distance between each rank is indescribable or is unknown, it is widespread practice to label it as Categorical Data that follows an Ordinal system of measurement.

Note that a common procedure that statisticians and researchers who work with Likert scale data do is to convert this data into a numerical equivalent (example, one for Highly Disagree and five for Highly Agree). This allows for easier data analysis, as a lot of analysis tools and even visualizations simply work better with numerical values. Some researchers involved in parasocial research who have used survey data and opted to employ this practice include (cite researchers from reference doc). The meaningful findings that these studies were able to arrive at convinced us that this is a practice that we would like to adopt for our data analysis, and so we have already converted our Likert Scale data results into numerical values even prior to conducting any form of EDA so we can use the numerical version of these values to their fullest extent.

After we have adequately reported on the findings and visualizations gleaned from the survey data, we feel we can move onto interpreting the data, which is the core focus of step 6 in the Data Analysis Process. A crucial part of interpreting data is weaving a story out of everything we have seen and analyzed. Most of the observations that we have made in the 'Findings' section, though exact, is something that we are not comfortable leaving as is, because we feel that the 'Findings' section alone is dry and may not mean much to others when left alone. This is part of the magic of being a data analyst, to weave a relevant story out of data that even non-technical people can appreciate. Thus, the reader can expect that the 'Conclusion', 'Implications', and 'Further Studies' will not only simply stop at a retelling of what's observed, but will extend on to a carefully crafted synthesis that is specially designed to make sense and will offer novel conclusions or recommendations that would be of much to use to future readers, especially people that we have identified as those that would benefit the most out our research, such as future PSR and PSI researchers who specifically focus on live streams, the viewers and streamers of these live streams themselves, and those who play a decision-making role in the regulatory boards, live stream platforms, and other related companies or organizations.

E. Scope and Limitations

With this research, we intend to better understand the harmful effects of parasocial interactions on video live stream audience members. Thus, the survey questionnaire that we plan on administering is important to this research since it would allow us to characterize how viewers perceive these parasocial interactions from their point of view. To be specific however, we only intend to cover video game live stream audiences in the Philippines, and not Philippine live stream viewers of other types, like e-commerce live streams, nor video game live stream viewers living in other parts of the world. There are two reasons why we have done this. One, the facet of live streaming that we specifically want to cover in this

research is video game live streams. Research that specifically focuses on Filipino video game live stream viewers would contribute to existing literature since there is a lack of studies that specifically choose to analyze these Filipino video game live stream viewers and how they perceive these parasocial interactions. Two, there are certain constraints that would prevent us from doing a more extensive study that goes beyond Filipino video game live stream viewers. We will go deeper into this later, but we do think that this is not much of a problem since a more focused view on viewers here would give us an opportunity to take a closer look at these perceptions and give a more in-depth characterization of these PSIs, something that would be difficult to do if the scope is any larger. Therefore, we think that the best scope for this research would be Filipino video game live stream viewers who regularly view these live streams since they are in the best position to be able to characterize these parasocial interactions, whether they think it is harmful or not.

The single biggest limitation that this research will meet is the length of the study. Due to time constraints, this research would not be a longitudinal study because that would need frequent observation of the variables that we aim to measure over an extended period. This is possibly one of the most common limitations that we have encountered whilst reading up on other similar studies, and is quite unfortunate, as researchers who would be willing to undertake a longitudinal study on the effects of PSI and PSR on live stream audience would be able to identify factors that cannot be seen on shorter term studies, such as trends or the causal relationship between two variables.

Another limitation of this research is that this will focus on the perspective of the audience members. If time allowed, then it would also be interesting to see how the video game live streamers themselves also view these parasocial interactions. These live streamers are much like other media persona in the sense that they induce feelings of intimacy amongst their fans (Horton & Wohl, 1956), however, they are also different in the sense that the

features of live streaming platforms allow for moments of reciprocity to occur between the streamer and their audience (Kowert & Daniel, 2021). Therefore, getting the inputs of streamers, such as through interviews (Webster, 2019), thereby possibly needing mixed methods research, will also give more insights or even differing perspectives of how we see this parasocial interaction between the two parties.

The last limitation that this research would have to deal with is that we would have to limit our respondents to video game live stream viewers that live in the Philippines. To a certain extent however, we also think that this is also an opportunity for this research, since there is a lack of parasocial research conducted in the Philippines that specifically focuses on video game live streaming platforms. The vast majority of PSR and PSI research conducted here covers celebrity PSRs (Lacap et. al., 2023; Dianito et. al., 2023; Reyes et. al., 2021; McCutcheon et. al., 2021) and politics related PSRs (Centeno, 2016a; Centeno, 2016b; Centeno, 2015). The only related source that we were able to find locally was an exploratory essay on perceived loneliness brought by the parasocial relationships formed on video game live streaming platforms (Buan, 2022). This proves that there is a need for Philippine-based research that studies about the parasocial interactions that takes place between live streamers and their Filipino audiences, since there may be differences that make the Philippine streamer-audience PSR dynamic different than those that take place in other countries.

F. GANTT CHART

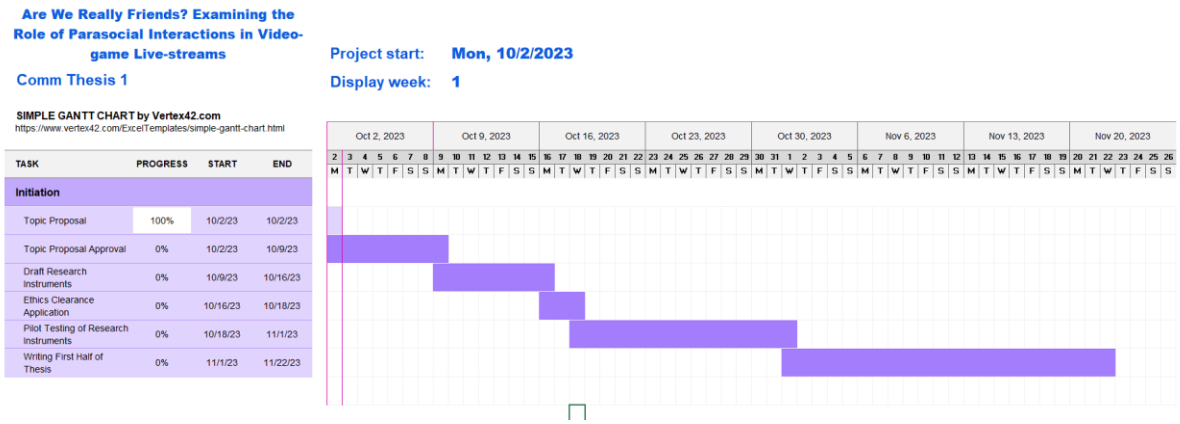


Figure 3: GANTT Chart

G. Student Information

As the sole researcher conducting this study, Ethan has always been obsessed with video games. Ever since he could remember, he would spend copious amounts of time after school playing video games of all genres. Although he plays less video games nowadays due to time constraints, he does his best to follow the latest trends and happenings in the gaming world, and he feels that watching streams is one of the best ways to do so. It is through watching streams that he noticed that the dynamics between streamers and audience is quite like celebrities and their fans, or to musicians and their admirers who would attend their concerts. This interested him immensely, as the audience members would often know lots about their favorite streamers and would even do certain things to capture their behavior, such as donating to them in the hopes that they get a mention in the stream, whereas the streamer themselves do not know their audience members personally. This one-sided relationship has piqued Ethan's curiosity, and so he has made it a point to want to further study this in the hopes of informing both streamers and audience about which factors in their PSR are most crucial in making them feel close to each other.

To better understand the science behind video games, Ethan is also currently taking an elective in Game Studies in hopes of both understanding what makes video games so alluring to people and meeting like-minded people who are as enthusiastic about video games as he is. Besides video games, he also has an interest in Marketing, most especially when it comes to the research and strategy part of the field, and so his past internships in popular newspaper Philippine Star and ad agency DDB Philippines have helped him hone his research, writing, and organization skills, which he believes would serve him well whilst conducting this study.

H. Findings

As explained earlier in the 'Research Methods' section, we have divided 'Findings' into two major parts. The first part would be the 'EDA Findings' subsection dedicated to all the observations and visualizations we have obtained whilst conducting some exploratory data analysis. The second part would be the 'Statistical Analysis Findings' subsection, which covers the more advanced statistical analysis we have conducted to test our findings against the hypotheses. Together, both groups of findings are there to help make this analysis as comprehensive and purposeful as possible.

I. EDA Findings

For our initial exploratory findings, we wanted to follow a systematic approach when it came to conducting EDA on the dataset. Thus, we are presenting these EDA findings in the same order in which we wanted to do them. Note that this order is not something we have solely created on a whim, as it is based on a process first outlined by John Tukey in his seminal book, later popularized by both statisticians, researchers, and data analysts in their respective works. Much like the others, we tried to subscribe to this process as much as we can because we found it to be the most systematic way in which we could make sense out of the dataset before us.

The first thing we did under EDA was to get a first summary for all the columns in the dataset using the 'describe' function found in the Pandas library. Because the columns were of varying data types, we have had to generate two separate summaries: one for categorical columns, and another for numerical columns for easier categorization. We used four different criteria: 'count,' 'unique,' 'top,' and 'freq.' to evaluate the columns. 'count' simply tallied the number of observations that existed for each column. 'unique' did a similar thing, but only tallied the number of distinct observations that existed for each column. 'top' displayed the value or string within the column that appeared the most often, and 'freq' displayed the total number of times that the 'top' value or string appeared within the column. Both displayed summaries take up a lot of space, hence, we will only display a small sample of the generated summaries below. Please note that it may look visually unappealing in its raw form, hence, what we see is a snippet of an Excel table of all the values generated by the 'describe()' function. Displaying all sixty-five rows (including header) will take up too much space, so we opted to place a picture of the full table down below in the appendix section for reference.

Column1	count	unique	top	freq
Timestamp	52	52	3/6/2024 19:41	1
Gender	52	2	Male	34
Age	52	4	18 to 24	21
On a weekly basis, how often do you watch video game live streams?	52	4	More than three times a week	30
What live streaming platforms do you usually watch video game live streams on? Please check all that apply.	52	21	Bola.TV	10
Who would you say is your favorite video game live streamer? You may list more than one.	52	46	Renniyyya Gaming	4
While watching my favorite live streamer, I had the feeling that the streamer I'm watching... [Was aware of me.]	52	5	Strongly Agree	21

Figure 4: Describe Table

The function can be useful for data analysis in many ways. It can be useful when cleaning a dataset, since comparing the 'count' values of different columns may help we ensure that the number of records displayed across columns are consistent. On the other hand, the function does help give analysts a feel for the kind of findings that they can expect when further analyzing the data.

In our case, the 'top' and 'freq' values have helped us gain a first feel for what our later findings would be. For the categorical data, it gave us an initial idea of the most popular

responses (which we then seeked to verify through further EDA), whereas for the numerical data, it gave us an initial taste of what responses would come out on top when further analyzing our data. For instance, it is through these results where we were able to find items that had different ‘top’ results, such as ‘Neither Agree nor Disagree’ rather than ‘Strongly Agree.’ These results made us aware of the fact that viewers tend to perceive some items (and by extension, scales) less positively than others. Therefore, we can assume that these scales would have a lower aggregated score than other more positively perceived scales. However, note that the kinds of observations that one can derive from the ‘describe()’ function is severely limited and may not even be accurate, hence, this is a great initial EDA tool to use, but is one that should not be solely relied on for any EDA.

The next thing we wanted to see was the distribution of the responses for every pertinent categorical variable or column present within the survey. we wanted to generate these because we felt that it would help us characterize our sample of video game live stream viewers. Although not a certainty, these characteristics may also help us make sense of any findings or data we uncover in our later analyses. To visualize these observations, we created several bar charts, with one bar chart corresponding to a variable ‘distribution’ that we wanted to see and visualize.

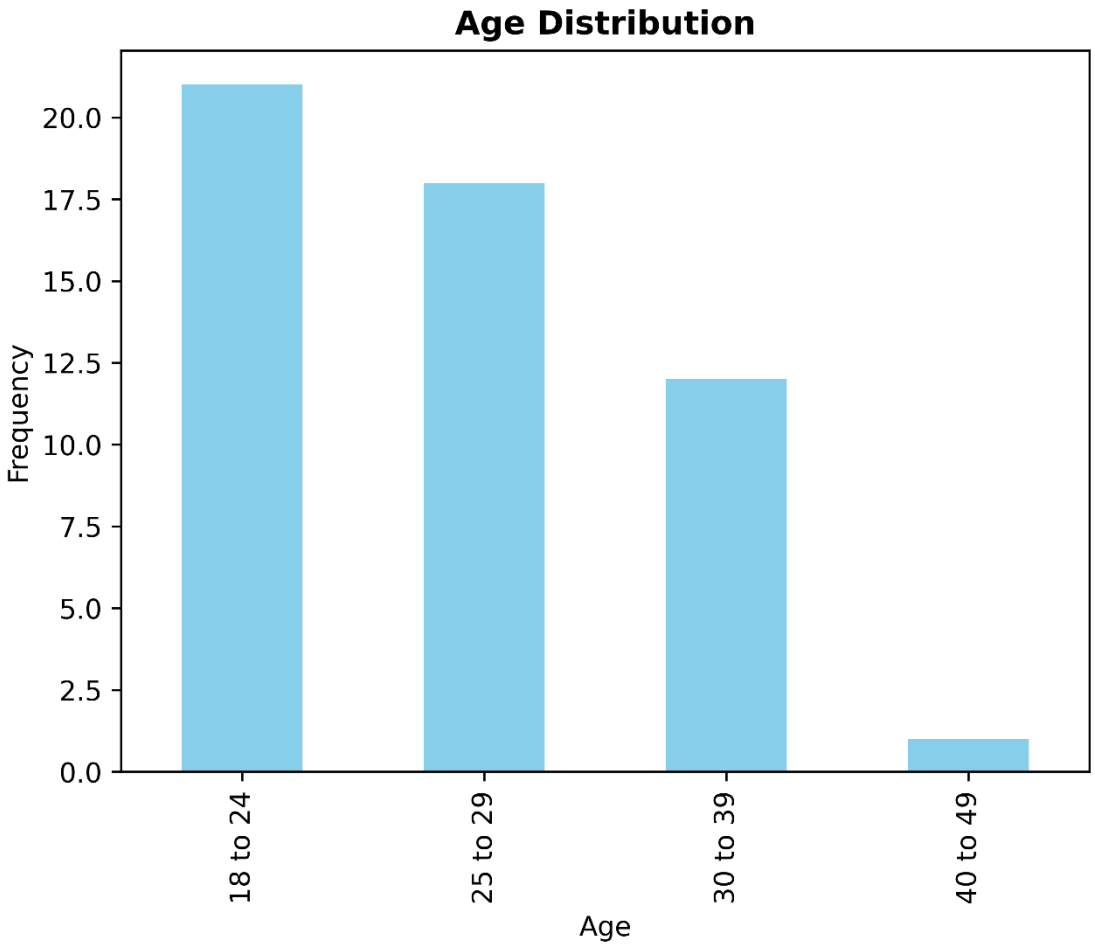


Figure 5: Age Distribution

The first distribution graph we generated was an Age Distribution bar chart that classified respondents according to the age bracket they belonged to. As predicted, most video game live stream viewers are young adults, aged 18-24, though, it is also interesting to note that the number of viewers aged 25-29 and 30-39 is also considerably high. However, this drops off, as there was only one respondent who admitted that their age was from 40 to 49, and no respondents admitted that their age was fifty and older.

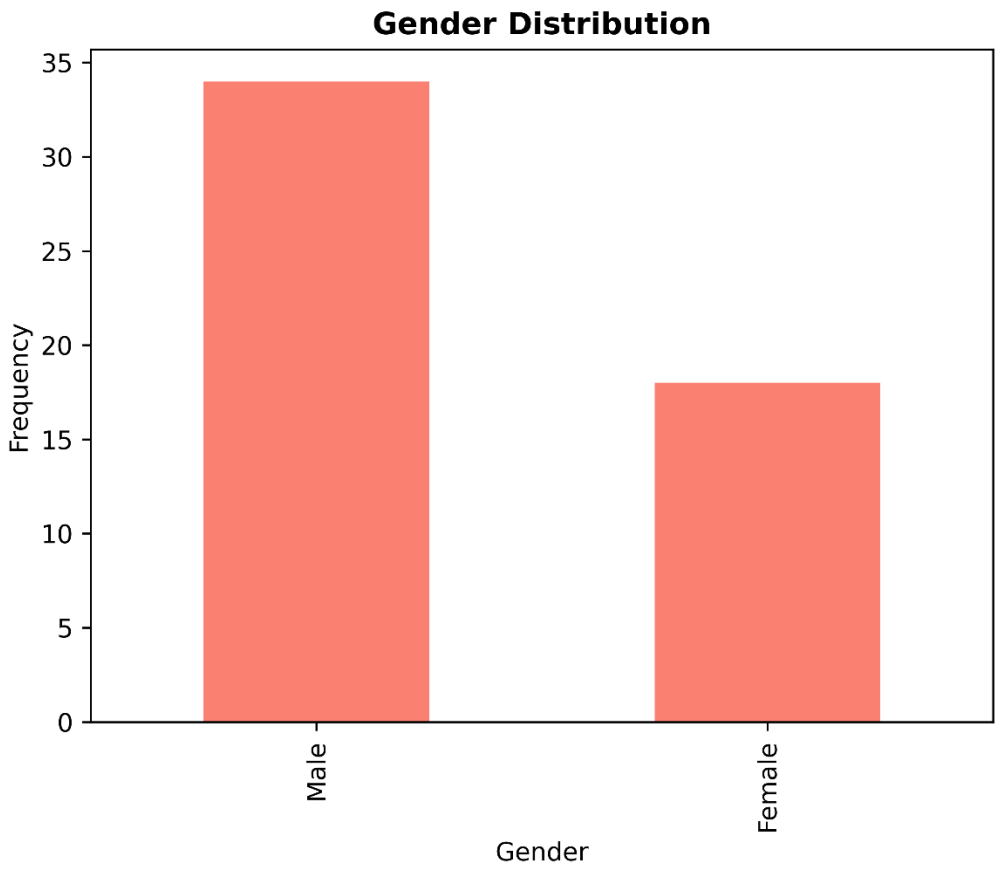


Figure 6: Gender Distribution

Next, we generated a Gender Distribution bar chart that classified respondents depending on their gender. As seen in the chart, more than half of the video game live stream viewer sample is male, at 34 respondents.

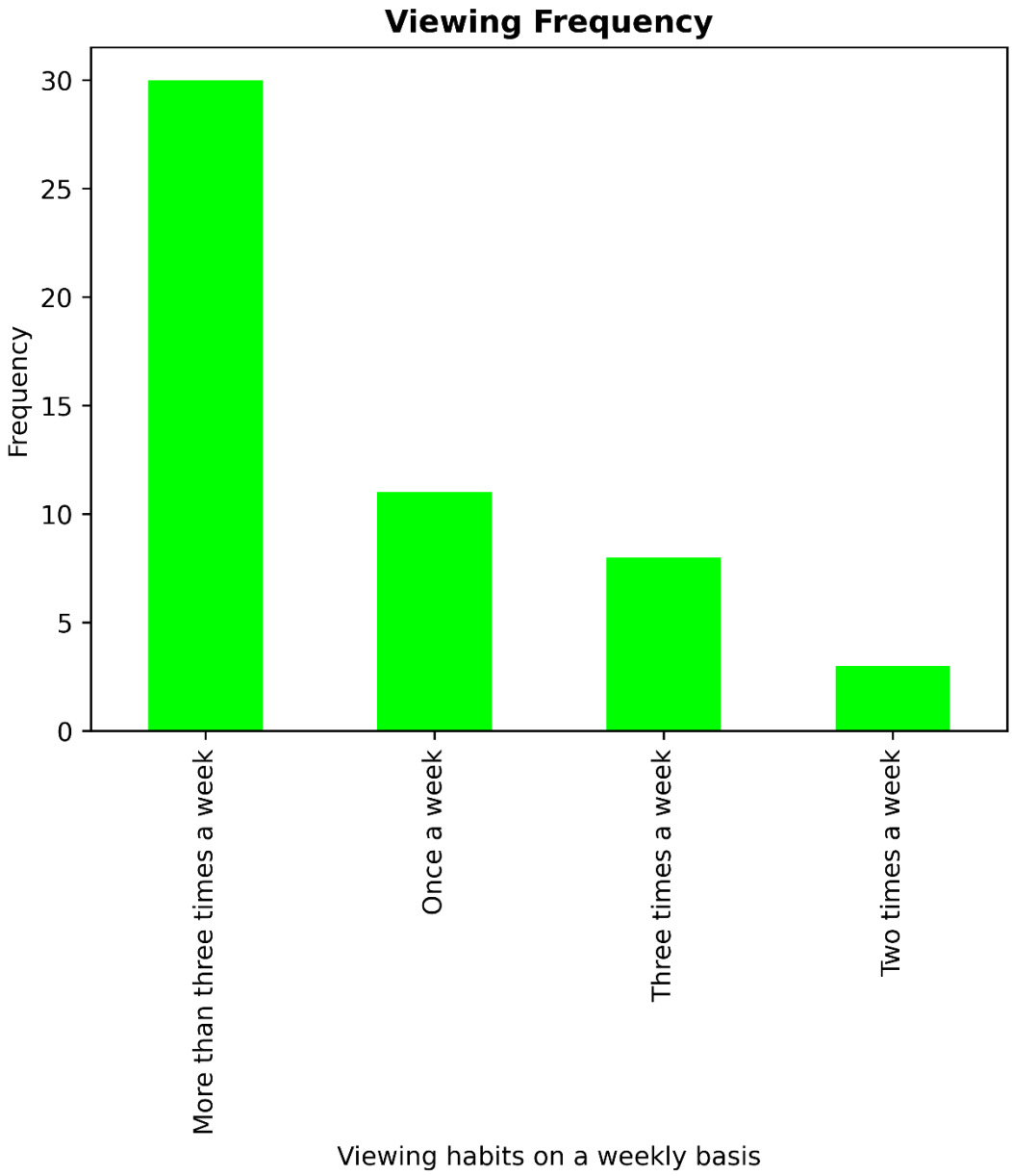


Figure 7: Viewing Frequency Distribution

After generating the Gender Distribution, we went on to create a bar chart for the Viewing Frequency of the respondents. It is interesting to note that most respondents are regular video game live stream viewers, with most admitting that they watch more than three times a week. This figure is higher than those admitting that they watched only one, two, or three times a week combined! This chart's findings are especially noteworthy in the context of this study because it shows that most of the respondents are frequent viewers, thus, it increases the validity and accuracy of this study's results.

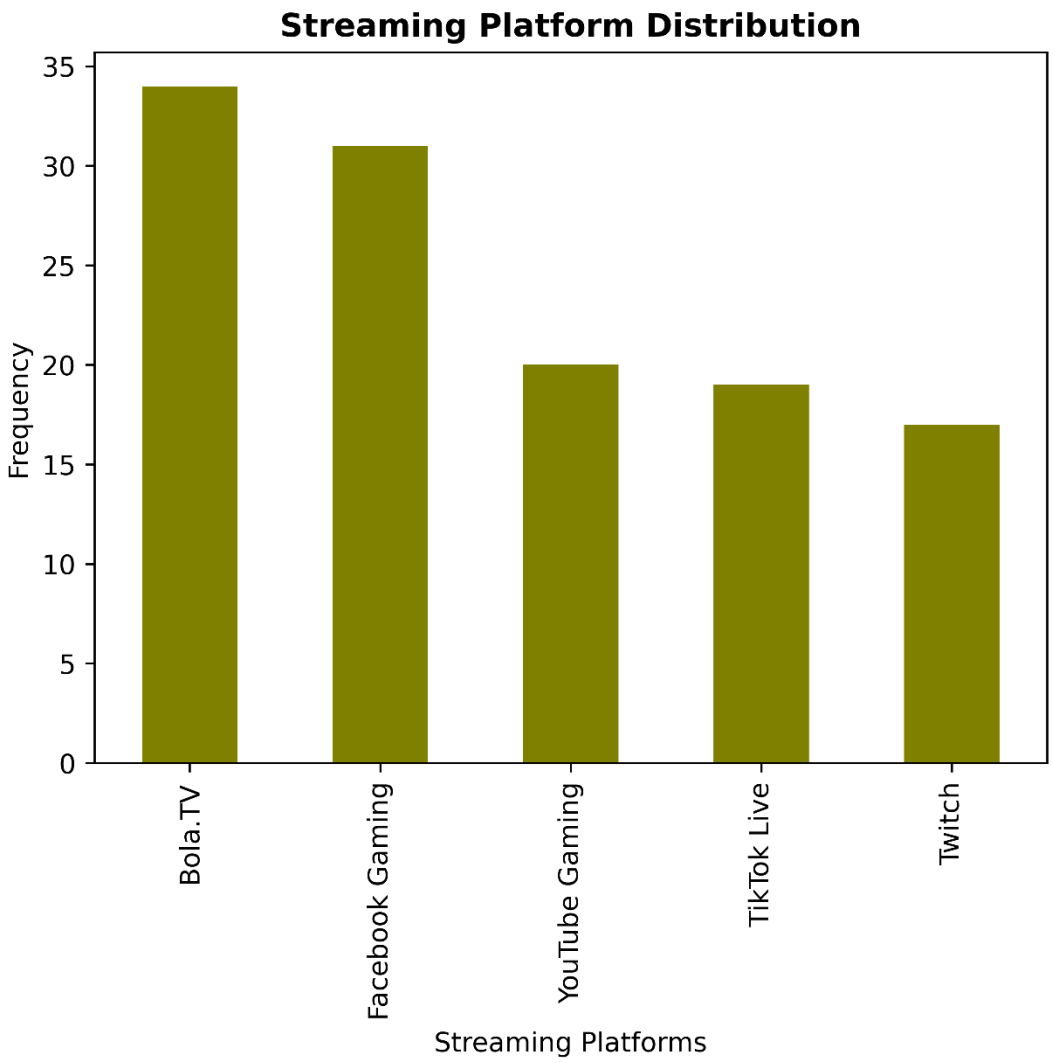


Figure 8: Streaming Platform Distribution

The next graph we generated was the Streaming Platform Distribution bar chart to find out the live streaming platforms that respondents preferred to use. Interestingly, out of the nine options we gave for the item (including the 'Other' option for other streaming platforms that we may not have accounted for), only 5 options were selected by the video game live stream viewers, namely 'Facebook Gaming', 'YouTube Gaming', 'TikTok Live', 'Twitch', and 'Bola.TV'. This may show that contrary to first impressions, the other live streaming platforms were not as popular as we thought. The bar chart clearly shows that Bola.TV is the most popular streaming platform, followed by Facebook Gaming, YouTube Gaming, TikTok Live, and Twitch. As a brief background, Bola.TV was a Philippine-based

video game live-streaming platform that primarily focused on promoting streamers who play e-sports and sports games. Although the platform is now defunct and inaccessible, a look at their Facebook page showed that the platform was quite popular amongst viewers who enjoyed watching e-sports games like Garena Free Fire. Given that more than half of the total respondents loved watching on Bola.TV, it may be reasonable to deduce that these respondents are into e-sports games as well.

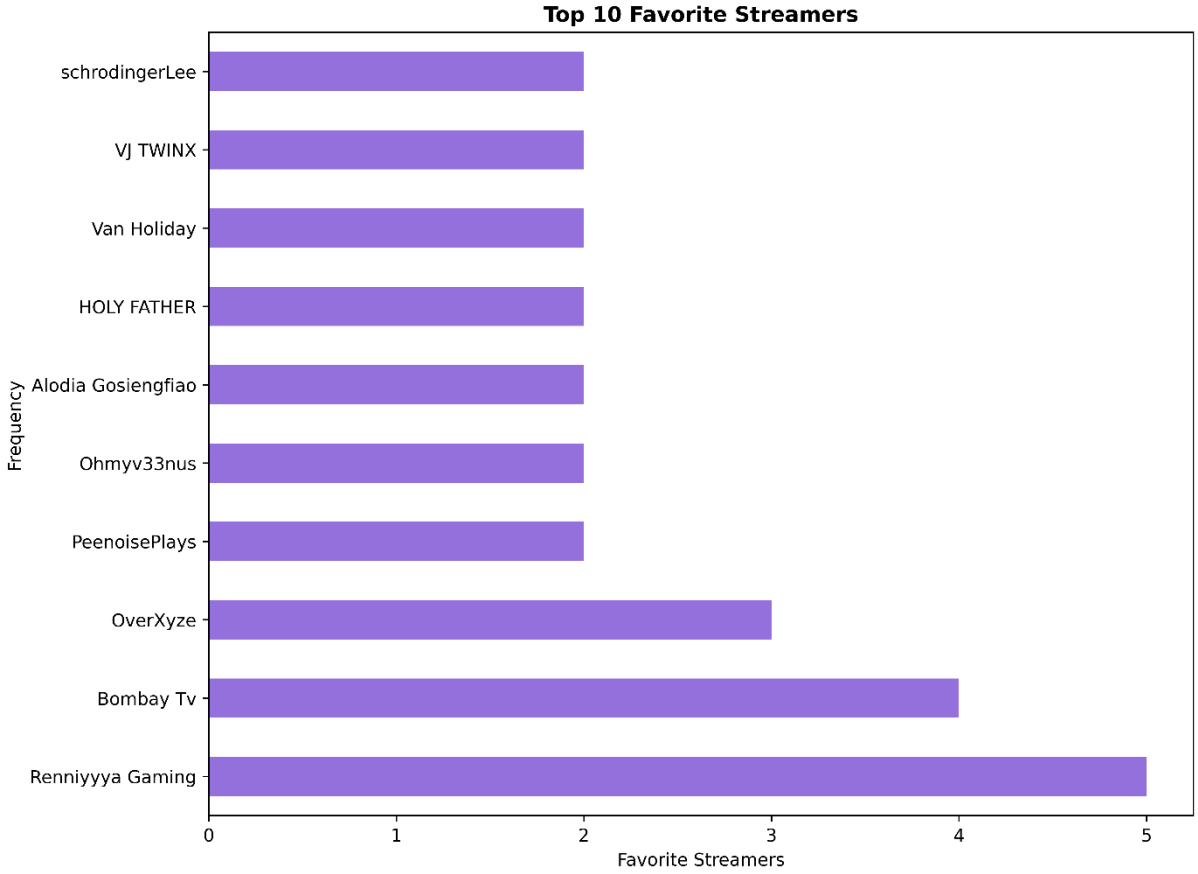


Figure 10: Favorite Streamer Distribution

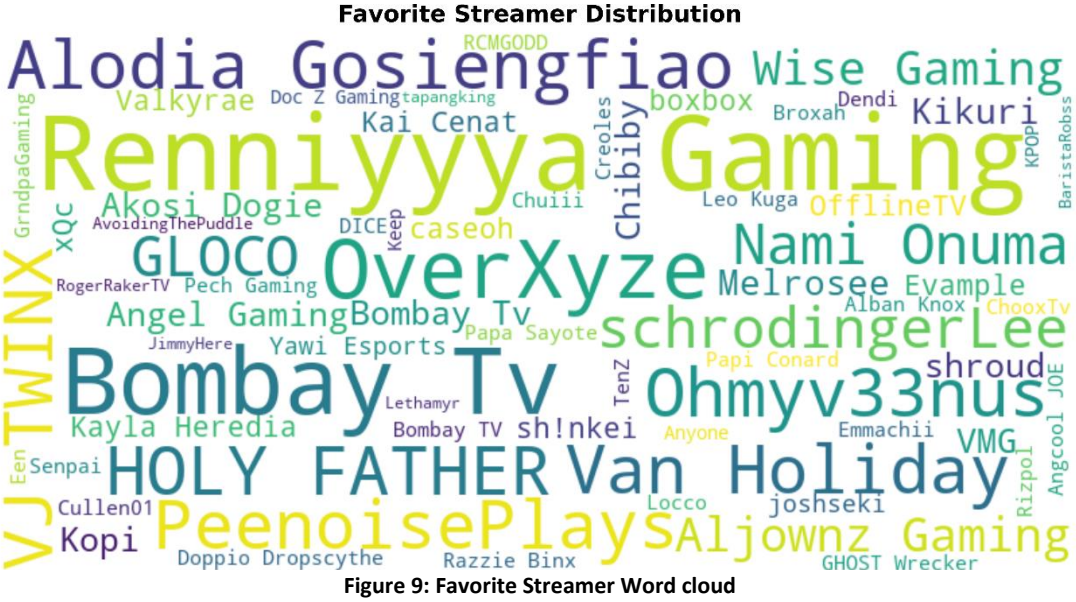


Figure 9: Favorite Streamer Word cloud

To properly generate the distribution for the favorite streamer, we had to employ both a bar chart and the word cloud. This is because the fifty-two respondents mentioned a grand total of sixty-nine distinct live streamers. Due to it being near impossible to fit all this data in a conventional bar chart without significant crowding, we have decided to display the data using two visualizations instead.

The first visualization that we have had to produce is a bar chart. However, instead of displaying the frequencies of all sixty-nine live streamers, we instead opted to display only the top ten most often mentioned favorite live streamers. From this data alone, we can see that only three streamers stand out as a favorite, namely Renniyyya Gaming with five mentions, Bombay TV with four mentions, and OverXyze with three mentions. Unfortunately, it is difficult to learn any rankings in terms of favorite after these three streamers, as a lot of live streamers are competing for fourth and fifth place with two and one mentions each, respectively.

The second visualization that we produced, which is a Word Cloud, proved incredibly useful to show the names of each of the sixty-nine mentioned live streamers whilst uniquely standing for the popularity of each streamer via their text size. Fortunately, the results for this Word Cloud mirror our observations derived from the bar chart earlier, albeit in a more understandable manner.

Although it is not clear using the visuals alone, one noteworthy finding that we were able to obtain from this distribution is that most of the video game live stream viewers cite local video game streamers as their favorite rather than foreign ones. we found these results even more surprising when we noted that a lot of these favorite streamers are highly popular ones internationally such as Valkyrae, Shroud, TenZ, Kai Cenat, to name a few. This may show that local streamers may appeal to Filipino live stream viewers in an inherently unique

and more appealing way that their foreign counterparts cannot match. This finding allows us to make a reasonable assumption that Filipino viewers perceive higher levels of PSI and PSR with local streamers than foreign ones, though figuring out what they specifically do that drives this stronger appeal is beyond the scope of this research.

After generating the necessary distribution charts to help explain our categorical variables, we then wanted to calculate for the Measures of Central Tendency (Mean, Median, and Mode) and the Measures of Dispersion (Range, Variance, Standard Deviation, Inter-Quartile Range) of our Likert-scale data. However, prior to doing either of them, we felt that we can get better results for both by converting the Likert-scale data from strings to their numerical equivalents. The end results for both analyses show that it was a pragmatic course of action, as we may have vastly different results, and in turn vastly different conclusions, if we chose to not convert our data into their numerical equivalents.

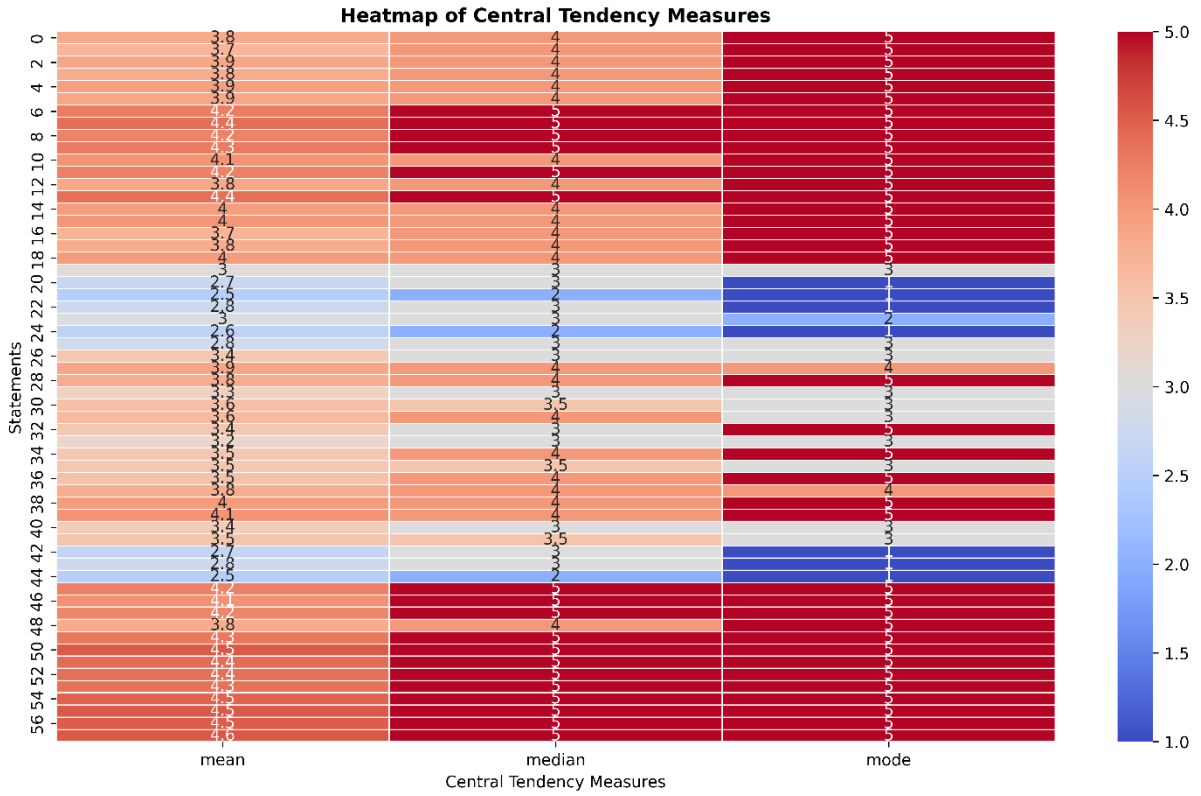


Figure 11: Central Tendency Heatmap

The Measures of Central Tendency is a "summary measure" that tries to characterize a full set of data using a single value that is at the center of the data set's distribution (Australian Bureau of Statistics, 2024). Researchers and statisticians widely hold that the three separate measures, namely the arithmetic Mean, the Median, and the Mode, are part of the Central Tendency Measures. We wanted to obtain these measures because we felt that comparing the mean, the median, and the mode of each column will allow us to both confirm the findings we got from using the 'describe()' function in Python, and to observe and document items that have Central Tendency values that significantly differ from the others. Because the findings by default look visually unappealing as is, we have had to transfer all the data into a heatmap as seen below.

A common observation that we have noted is that items belonging to the same scale typically show the same mean, median, and mode. This correlates with our findings for the Numerical Summary and goes for both positively perceived and negatively perceived scales. In the heatmap above, one example of such a scenario happening is PSR scale which goes from Statements 1 to 6. One can see that the mean for all six items hovers around 3.8, and

that the median and mode for all these items are identical. Note that this is not unique to the PSR items as it is quite noticeable that all statements with positive values for their mean, median, and mode also show the same pattern. One common theme with these scales is that they are the scales perceived most positively. Hence, a suitable first observation that we can make is that video game live streamers view PSRs, PSIs, and Streamer Credibility in a positive light, giving off the values seen above.

Conversely, the Loneliness (statements 37 to 44) and Addiction (statements 18 to 25) scales show the opposite. A look at the heatmap shows that these statements have a cooler shade of color than the positively perceived scores, to stand for their consistently lower mean, median, and mode scores. As these noticeably low values are only visible within the statements incorporating these items, it shows that video game live stream viewers view both Loneliness and Addiction scales in a negative light.

Interestingly, the only scale to not follow either of these trends is the Sense of Community Scale (Statements 26 to 36). As shown by the heatmap, the scores for Sense of Community, particularly when it comes to their mean and median, are neutral. This means that although their scores are not as high as PSI, PSR, and Celebrity Credibility, their scores are not as low as Loneliness and Addiction either. This implies that video game live stream viewers view a streamer's fanbase neutrally, neither as a highly positive nor highly negative thing. Out of the eleven statements within the scale, only four had a mode of five. These items are:

- **Statement 28**: Being a member of my favorite streamer's fanbase makes me feel good.
- **Statement 32**: we put a lot of time and effort into being part of my favorite streamer's fanbase.

- **Statement 34**: Fitting into my favorite streamer's fanbase is important to me.
- **Statement 36**: I expect to be a part of my favorite streamer's fanbase for a long time.

In short, this suggests that though video game live stream viewers may not necessarily view a streamer's fanbase to be a negative thing, and that they also feel that it is worth putting in the time and effort for, they also acknowledge that their involvement with the fanbase is not as important as, say, their involvement with the streamers themselves. This trend matches up with the other statements in the scale, which all have neutral mean, median, and mode scores.

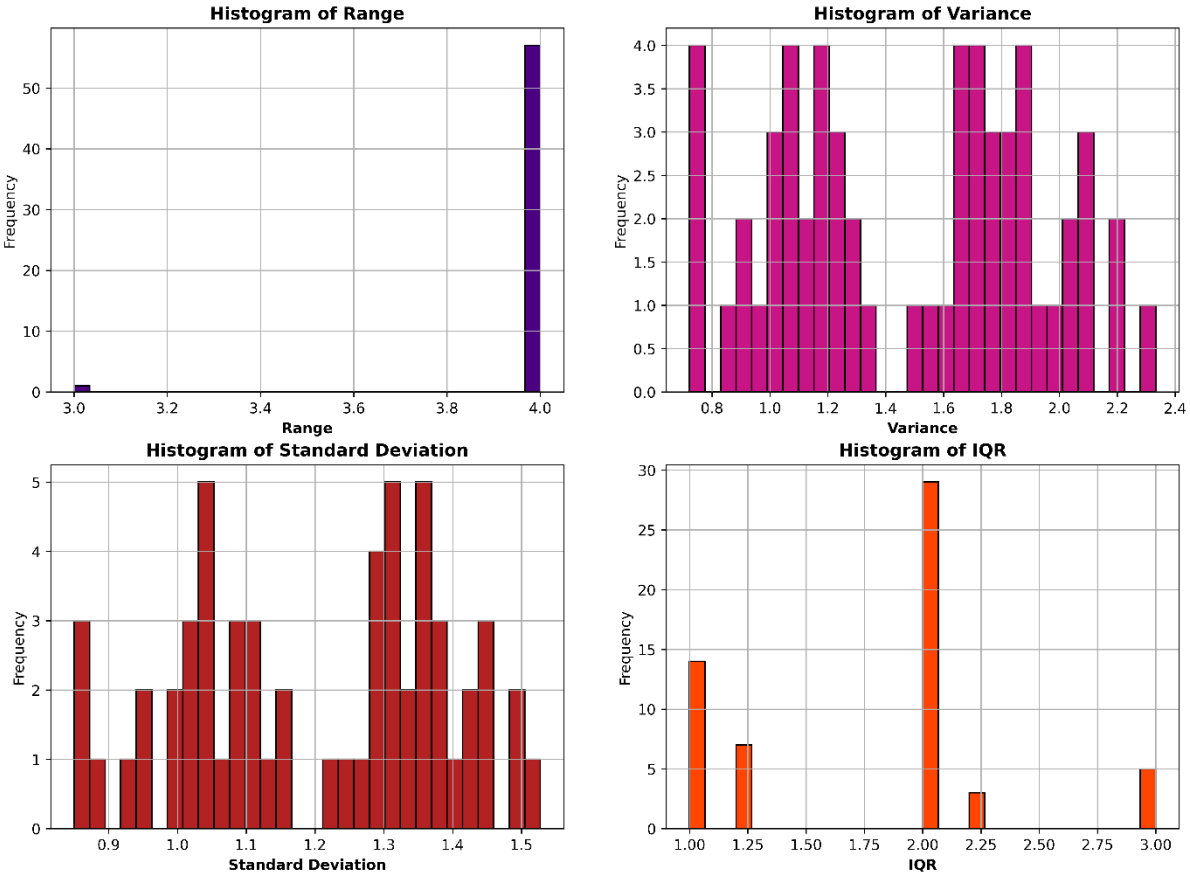


Figure 12: Dispersion Histogram

Besides the Central Tendency scores, the Measures of Dispersion are another set of commonly used measures alongside EDA. Comprising of Range, Variance, Standard Deviation, and IQR, these measures help us evaluate the dispersion of each of the scores

compared to the mean. Items that are more spread out will typically have higher Dispersion values, indicating that the opinion on the item is more varied, while items that are less spread out will typically have low Dispersion, indicating that there is a sense of consensus amongst respondents when it comes to the item in question. Like Central Tendency, the raw data for Dispersion may look visually unappealing, so we have created a series of histograms to better visualize each of the included measures.

One common thing about most of the positively perceived scales is that their Variance (represented as values ranging from 0.8 to 1.9), Standard Deviation (represented as values ranging from 0.9 to 1.3), and Inter-Quartile Range (represented as values from 1 to 2) are all on the lower side. These findings support the values that we unearthed earlier using Central Tendency Measures, as it does prove that when it comes to positively perceived items, video game live stream viewers have a consensus when it comes to responses. Additionally, as shown by the histogram, these lower Dispersion values appear more often than the higher Dispersion values. This implies that responses for most of the items in survey have a narrower range, meaning that the respondents typically end up agreeing with each other for most of the items within the survey.

However, this does not seem to be the case with the negatively perceived scales, namely the Addiction scale and Loneliness scale, as the items found in these scales typically have higher variance, standard deviation, and IQR scores. This proves that in contrast with their positively perceived counterparts, these scales have a particularly wide variation when it comes to responses. Although the Central Tendency scores of these items show that the majority of responses skew towards the negative side, these Dispersion results show evidence of a minority that do agree with these statements. Results like these underscore the importance of using both Central Tendency and Dispersion measures when conducting EDA,

as we may miss some crucial angles, or perspectives, if we chose to use only one of the two measures.

Right after calculating for the Dispersion measures, we created a series of violin plots, one for each column. Violin plots are especially helpful for visualizing Dispersion measure values because its shape is heavily dependent on both the Standard Deviation and the IQR.

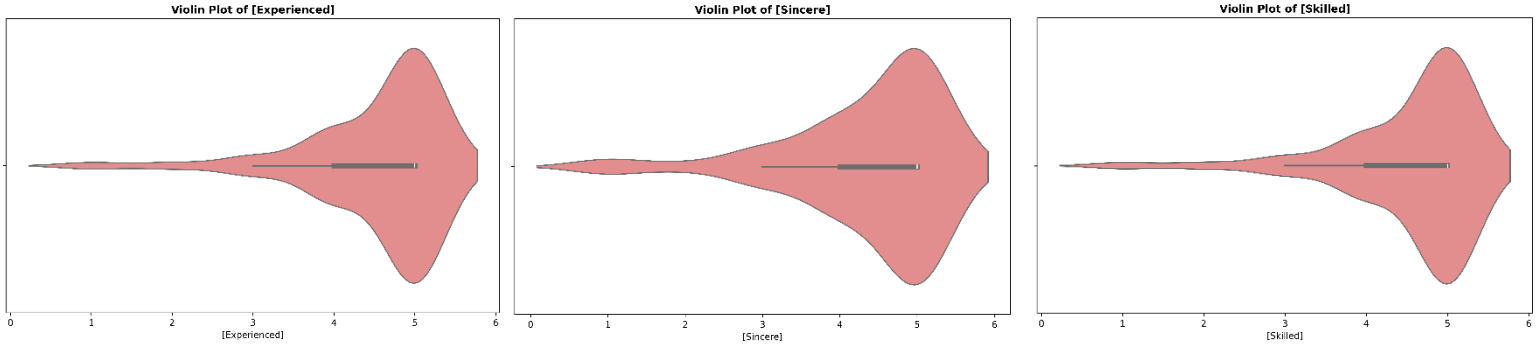


Figure 13: Violin Plot 1

Above are some violin plots generated based on the Dispersion measure values obtained from three items in the Celebrity Credibility scale. This scale, much like most of the other items found in other scales, has narrow violins. Variables that have low Dispersion measure values, specifically their variance, standard deviation, and IQR, typically have narrow violins. Fortunately, these violin plots confirm the Dispersion results for each of the respective items, as their variance and standard deviation are all low values that hover around one, showing low dispersion.

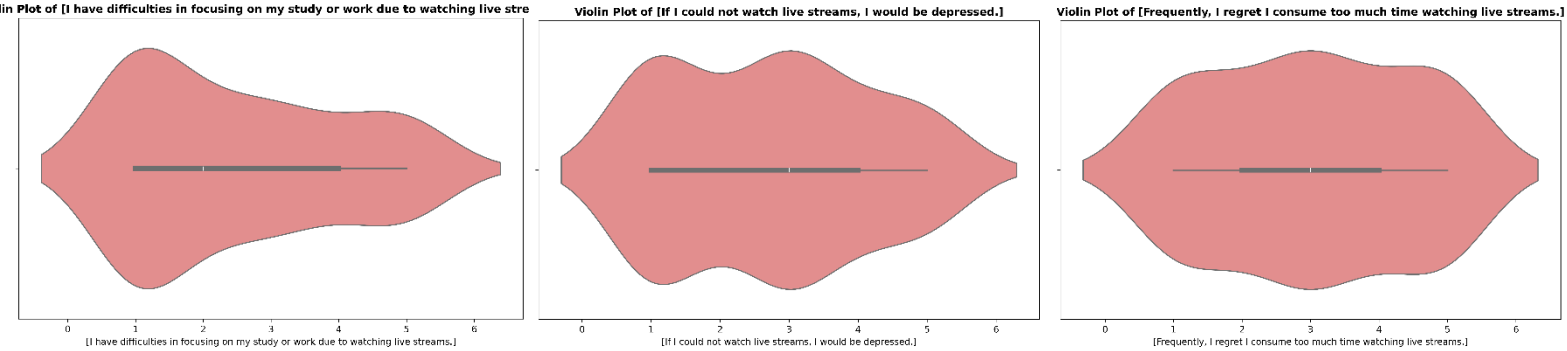


Figure 14: Violin Plots 2

On the other hand, if the item's variance, standard deviation, and IQR values are rather high, that will result in violins that are rounder, indicating a wider dispersion of responses. This is exemplified by the three violin plots above, derived from some of the items found in the Addiction scale. Much like the narrower violin plots, these plots are able to validate the findings of each of their respective Dispersion measures, as their variance and standard deviations are much closer to 2 than to 1, indicating high dispersion. Because one violin plot corresponds to one Likert-survey item on the survey, we was able to generate a total of 52 violin plots. As this is too many to display in this section, all these plots were placed in the appendix, which can be viewed below.

After generating violin plots to both validate and visualize the values obtained from calculating the Dispersion measures, we felt that it was appropriate to create a correlation heatmap next. Heatmaps have the ability to visualize the strength of a variable or item's correlation or another via differences in color intensity. Thus, if we had to calculate for the correlation that each of the 52 Likert-scale items have with one another, we am of the belief that heatmaps would be the best way to visualize it, as presenting it on a simple table would be overwhelming and unclear. With the sheer number of items found in the survey, it is indeed rational to think that certain items may exhibit strong positive or negative correlations with other items within the survey.

We have displayed the heatmap below. The number of items within the heatmap may make it quite challenging to make sense of the correlations within at one glance. Thus, we hope that our observations on the heatmap findings may help the reader understand these notable correlations better. Please note that due to the sheer length of the analysis, we have

subdivided the observation into different sections surrounding a certain viewpoint. These adjustments may help us better appreciate the heatmap findings.

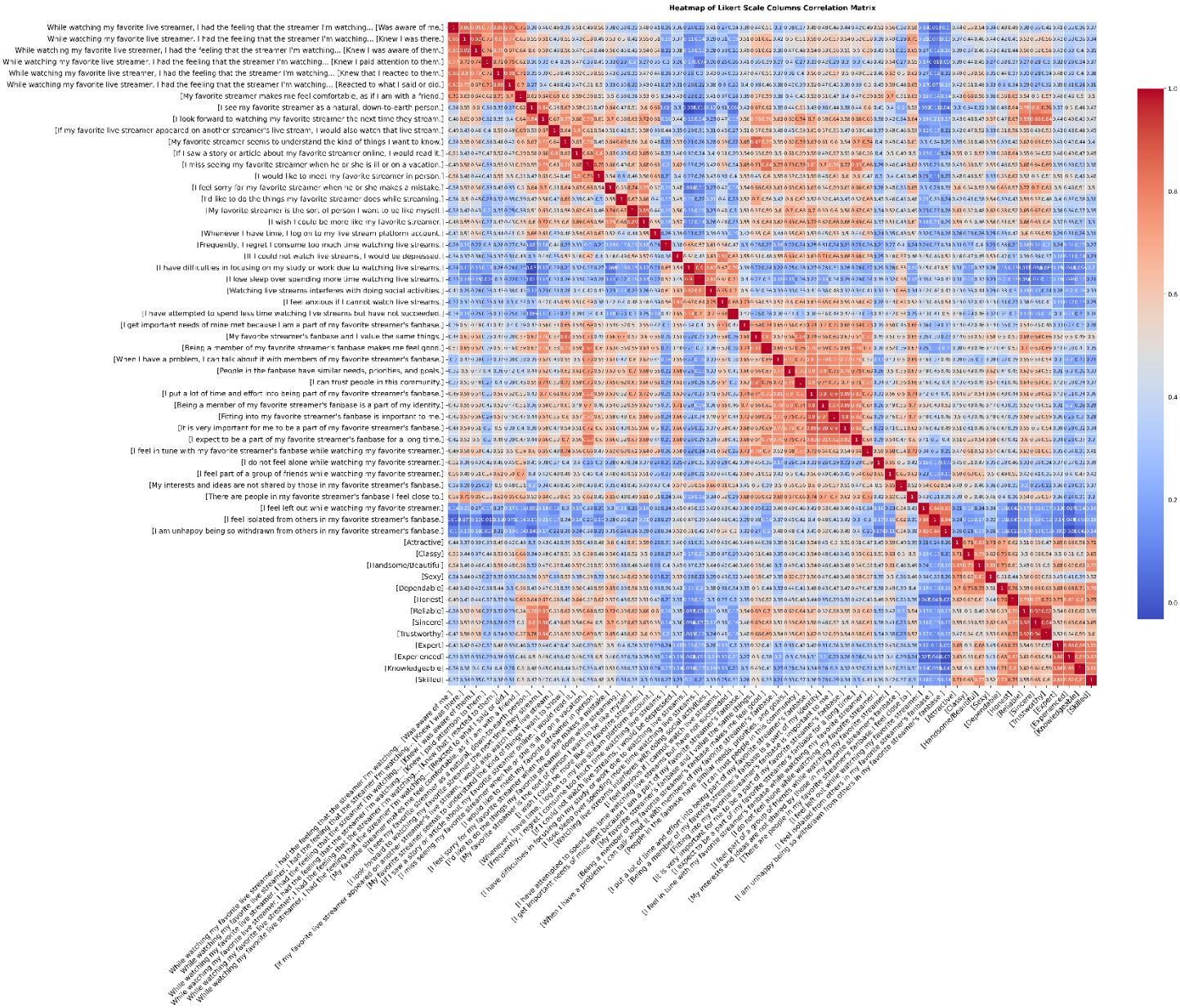


Figure 15: Correlation Heatmap

The heatmap has different correlation hotspots depending on the type of strong correlation. For instance, if we are looking for strong positive correlation within the heatmap, we would find that there are three areas within the heatmap where one can see strong positive correlation between survey items. On the other hand, if we are looking for strong negative correlations within the heatmap, we may see this in several spots within the heatmap,

although the areas with strong negative correlation are noticeably more dispersed than the areas with strong positive correlation.

A. Clusters with Strong Positive Correlation

When it comes to strong positive correlations, the first area that one might notice is a cluster found on the top left corner of the heatmap. Upon closer observation, these items belong to the same scale, specifically the PSI scale. This may show that live stream viewers who agree with a particular PSI statement will also agree with the other statements belonging to the same scale. Another cluster where we can see a strong positive correlation is a tiny 9-square one on the upper right of the square. These items come from the Addiction Scale. This may say that viewers who agree with one statement measuring addiction, such as being unable to focus on school or work, are also likely to agree with other addiction-measuring statements. We can also see another cluster in the middle. These items all belong to the Sense of Community scale. This may say that live stream viewers who feel positively about a particular fanbase statement, such as fitting in, will also feel agree with other statements in the sense of community scale. Although smaller, there is also a tiny 2x2 cluster above the Addiction Scale cluster as mentioned in number 2. These items belong to the Wishful Identification scale. This may show that live stream viewers who look up to their favorite streamer as someone they want to be in the future will also strongly agree with the other items in the scale. The last notable cluster we have seen for strong positive correlation is at the bottom right of the heatmap. All the items in the cluster, most noticeably the ‘Reliable,’ ‘Sincere,’ and ‘Trustworthy’ items, all belong to the 'Celebrity Credibility'. This may show that viewers who agree that their favorite streamers have any one of these qualities are also likely to agree with the other two.

B. Clusters with Strong Negative Correlation

Interestingly, though there are several strong negative correlations, the clusters are much smaller. These are the clusters that one should ideally take note of.

There is a 2x2 cluster with two items from the 'Addiction Scale' (difficulty focusing and lack of sleep) and two items from the 'PSR' scale (streamer is down-to-earth, eager to see streamer again). This may show that viewers who experience lack of sleep or are unable to get important tasks done may not view their favorite streamer as a down-to-earth person, nor are eager to watch their next live stream. There is another 2x2 cluster involving two items from the PSI Scale ('Was aware of me', 'Knew I was there) and two items from the 'Loneliness' scale (feeling isolated, unhappy from being withdrawn). This may show that viewers who felt as if their favorite streamer acknowledged their presence tended not to feel isolated by others also viewing the live stream, nor were they likely to feel withdrawn. Just a little below number 2 is another 2x2 cluster involving the same 2 'Loneliness' scale ('I feel isolated, unhappy being so withdrawn) items, but two different items from the PSI Scale (streamer paid attention to them, streamer knew that they reacted to them). This may say that viewers who felt that their favorite streamers were giving them ample attention and appropriately reacting to their interactions were less likely to feel withdrawn or isolated within a streamer's fanbase.

C. Cells with Strong Positive Correlation

Clusters are not the only parts of the heatmap where we can see strong positive and negative correlations. There are lone items within the heatmap that we have noticed are exceptionally hot (strong positive) or cold (strong negative), showing that they are lone items that may have strong correlations with each other. Therefore, the focus for both this section

and succeeding ones is the proper identification of these lone cells that either have strong positive correlations or strong negative correlations.

We can also see a three-cell strong positive correlation in the upper right corner of the square. The items involved is one item from the PSR scale (looking forward to watching my favorite streamer again) and three items from the 'Celebrity Credibility' scale (Reliable, Sincere, Trustworthy). This may say that if viewers see their favorite streamer as being reliable, sincere, and trustworthy, they are also more likely to look forward to watching their favorite streamer again. We can also see another one-cell strong positive between one PSR item (favorite streamer seems to understand what the viewer wants) and one 'Sense of Community' item (fanbase and viewer value the same things). This may show that if a viewer and their fanbase value the same things, then the streamer is more likely to understand the viewer's wants and needs.

D. Cells with Strong Negative Correlation

There is a strong negative correlation between one PSR item ('I feel sorry for my favorite streamer when they make a mistake') with two items from the 'Addiction scale' (difficulty focusing, lack of sleep). This may say that there if viewers feel that watching live streams robs them of valuable sleep or makes it difficult for them to prioritize doing what is important, then they are less sympathetic to their favorite streamers when they make a mistake. We can also find another single-cell strong negative correlation between two 'Loneliness Scale' items ('I do not feel alone...') and ('I am unhappy being so withdrawn from others in my favorite streamer's fanbase'). This may show that viewers who feel withdrawn from others while watching live streams also tend to feel lonely while watching these live streams. To add, there is also a single-cell strong negative correlation between one PSR item (streamer feels natural, down-to-earth) and one 'Loneliness' item (feeling withdrawn from

others). This may say that streamers who appear natural or down-to-earth help their viewers feel less withdrawn from others also watching. In addition to the earlier observations, there is also a three-cell strong negative correlation between one 'Celebrity Credibility' item (Honest) and three 'Loneliness' scale items (feeling left out, isolated, withdrawn from others in the live stream). This may show that streamers who viewers perceive to be honest, tend to help their viewers feel less left out, isolated, or withdrawn from other viewers while streaming. Lastly, a three-cell strong negative correlation exists between one 'Celebrity Credibility' item (Experienced) and three 'Loneliness' scale items (feeling left out, isolated, withdrawn from others in the live stream). This may show that streamers perceived as experienced by viewers perceive tend to help their respective viewers feel less left out, isolated, or withdrawn from other viewers while streaming.

While these correlations may not mean much on their own, they are still a helpful EDA tool where preliminary patterns and initial observations and inferences typically appear. In the face of more advanced statistical tools, such as the likes of which we will use later, it is likely that a handful of the inferences we have made using the correlations between items may end up unfounded. However, that may not be true for all the correlations we have seen within the heatmap, so it is nice to note that we have these findings and inferences to build from should some of the correlations prove to be correct.

The next few plots that we wanted to generate next are the Q-Q plots. Otherwise known as Quantile-Quantile plots, they are a type of scatterplot created by plotting two sets of quantiles against each other. Notably, these plots clarify whether one’s data follows a normal distribution or a non-normal distribution.

Q-Q Plots are typically interpreted by observing each value, or response, plotted against the theoretical red line created by the analysis tool. If virtually all of the plotted values fall within the red line, then it indicates that the data follows a normal distribution. Otherwise, it is merely non-normal, meaning that the people analyzing the data must consider using non-parametric forms of data analysis to get the necessary findings. Another typical use for Q-Q is to identify any outliers within a dataset. These points are quite visible because they are typically separated from both the hypothetical red line and the rest of the data points.

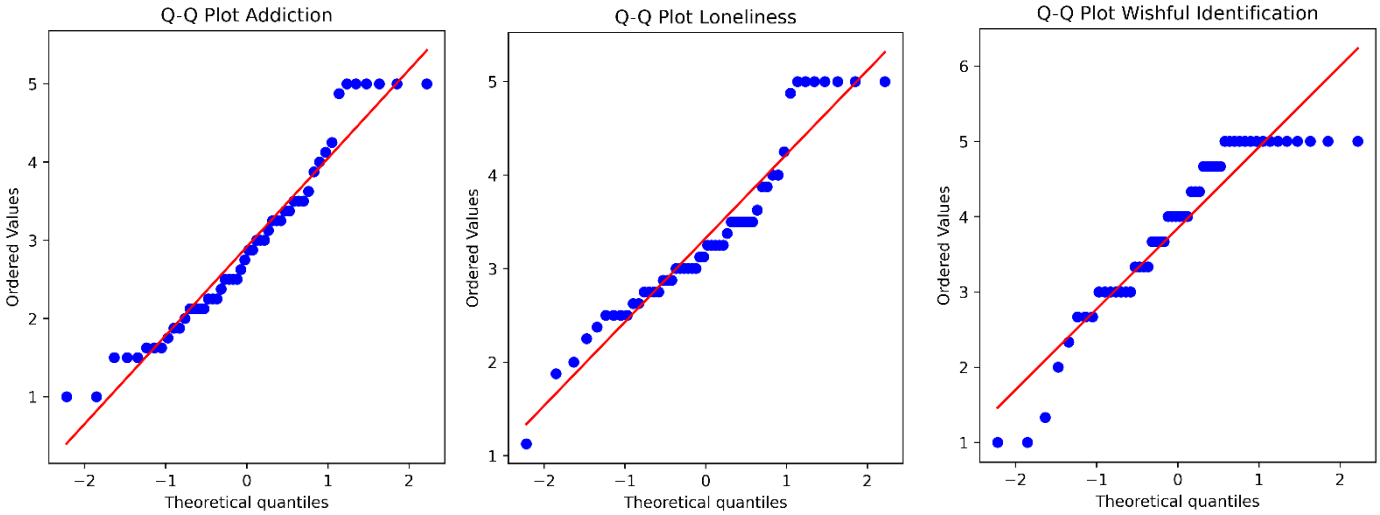


Figure 16: Q-Q Plot

The sample three Q-Q plots that we have generated above clearly indicate that the dataset does not follow a normal distribution for two reasons. The first would be that a considerable number of values do not fall within the red line. This alone should be enough to determine that the data does not follow a normal distribution. However, the second reason, which is also intriguing to note, is the staggered placement of the data points. One can assume that these staggered data points imply the presence of discrete data, which is data that can only assume a limited number of values. Although it does not necessarily imply whether a dataset follows a Normal Distribution or not, one may notice that the dataset does contain

some outliers which are most noticeable in the bottom left of the plot. Thankfully, these follow the curve or the placement of the rest of the points, so we do not think that this is a cause for concern. The bottom left quarter of the plot is where the ‘Slightly Disagree’ and ‘Strongly Disagree’ data points would be placed, hence, one can infer that these responses appear to contain the most outliers.

These sample Q-Q plots convey a similar output to the other Q-Q plots we was able to generate, so it is safe to conclude that a non-parametric research method would need to be employed for this study. A total of 7 Q-Q plots were generated and visualized, with each one corresponding to one specific hypothesis. Placing all of these 7 plots within the Findings section may consume too much space, so they are placed in the appendix instead should one need to refer to it.

The last few plots that we generated under EDA are the skewness plots. Skewness essentially measures the asymmetry of a distribution. They are typically categorized and interpreted using two metrics, namely, their distribution and their magnitude. Skewness distribution is used to describe the side of the scale that the data points cluster towards. Thus, a distribution can either be negatively skewed (to the left), positively skewed (to the right), or contain no skew at all (symmetrical data). Skewness distribution is also measured based on its magnitude, or the amount of asymmetry contained within a data distribution. A skew between -0.5 and 0.5 indicates symmetrical data, a skew between -1 and 0.5 and 0.5 to 1 indicates a moderate skew, and a skew less than -1 or greater than 1 indicates highly skewed data.

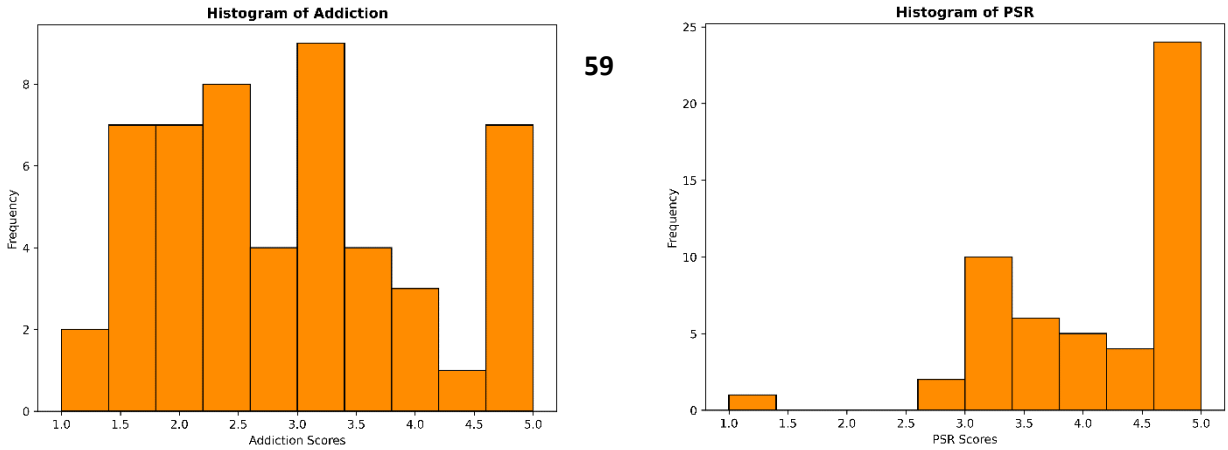


Figure 17: Skewness

Having said that, there are two main observations that we can deduce from generating the Skewness histograms for all of the hypotheses. The first observation would be that the more neutrally-to-negatively perceived hypotheses, namely Loneliness, Addiction, and Sense of Community, are fairly symmetrical. As evidenced by the Addiction histogram on the upper left, these hypotheses have a roughly even distribution of scores, with a slight tendency towards either positive or negative values. This is in line with previous observations that note that these three hypotheses were found to be more 'controversial' by respondents, as responses to the items of the three scales tended to be more mixed than other scales, demonstrating a lack of a general consensus towards the statements.

Interestingly, the skewness of the other hypotheses range from a moderate to high left skew. This is evident in the PSR histogram seen on the upper right, as the responses for all these four scales tended to mostly be positive to highly positive, with some spread out, but significantly less, negative responses. This is also in line with previous analyses and findings, as it shows that respondents tended to harbor strongly positive perceptions towards the statements found within the PSR, PSI, Wishful Identification, and Celebrity Credibility scales. Note that none of the hypotheses in the survey were found to have a moderate to high right skew (which indicates mostly negative responses). Similar to the Q-Q Plots, placing all 7 Skewness Plots would consume too much space within the ‘Findings’ section, so these were placed in the appendix section for reference.

Obtaining the skew of the distribution marks the end of the Exploratory Data Analysis section of the Findings. To summarize what has been done so far, we first ensured that we had a clean set of data, or data with no missing values or errors, prior to doing any form of EDA. Then, we went ahead with using Python's built-in 'describe()' function to obtain each column's 'count', 'unique', 'top', 'freq'. we used the function twice, once to generate the summary for the numerical columns, and once to generate the summary for the categorical columns. It is here where we made crucial preliminary observations on the data, such as the most popular responses per column. we then moved on to generating the distribution bar charts for each of the categorical variables, where we once noted key findings such as the age and gender distribution of the respondents, their viewing habits, their preferred streaming platform, and their favorite streamer. Next, we made sure to convert the Likert column responses into numerical equivalents for a more quality analysis, before proceeding to calculate for both the Measures of Central Tendency and the Measures of Dispersion. In these two sections, we were not only able to validate our initial findings from the 'describe()' function, but we were also able to make a series of important observations and distinctions. One such observation is the difference in mean, median, and modes between positively perceived scales and negatively perceived scales, and another observation, in the case of Dispersion, are the predominantly low variance, standard deviation, and IQR scores indicating a consensus among respondents when it came to certain items and scales. we subsequently generated some violin plots, which we used to not only confirm the findings of the Measures of Dispersion, but to better visualize these Dispersion results. Note that in this section, we generally observed two kinds of violins: One that is narrow (indicating low Dispersion scores), and one that is wider (indicating high Dispersion scores). It is after the Violin Plots that we generated another crucial EDA visualization, the Correlation Heatmap. The heatmap was important in helping us nail down any clusters (or cells) that exhibited

strong positive or strong negative correlation, as we rationalized that determining this may help us see any preliminary patterns and initial observations to make informed first inferences on our potential results. This part was quite lengthy, so we did a bit of analyzing before moving on to our next task, which was to generate the Q-Q plots. These plots were indispensable in helping us decide that our data follows a non-normal distribution, and we arrived at that conclusion due to observations we have made such as the differences in the shape of the data and its staggered appearance. The last set of plots generated for EDA are the Skewness Plots, generated to give us an idea of the type of data distribution that the data points under each hypothesis have. It is here that we also uncovered important findings within our data, such as moderate to high left (positive) skew seen with most scales, and the near symmetrical skew seen with other scales. With the EDA concluded, we can then move on to Statistical Analysis, where we will conduct both hypothesis testing and scale reliability analysis.

II. Statistical Analysis Findings

Before moving on to test the seven hypotheses, we must first actually figure out whether the scales we have used are valid or are reliable enough for further analysis. One common way of doing this is through the Cronbach's Alpha, which is a measure used to

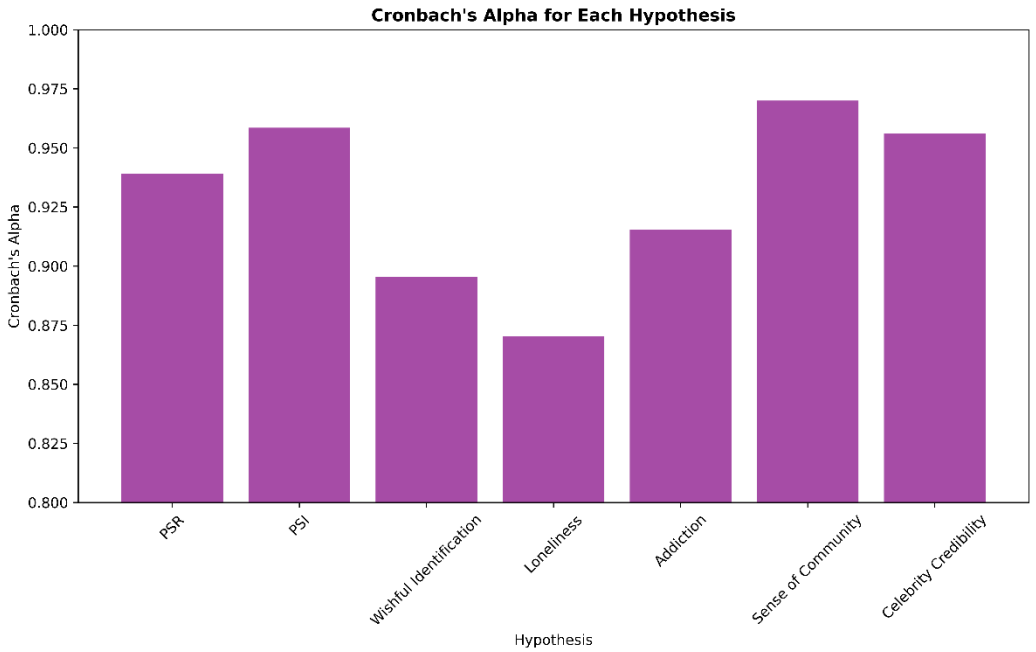


Figure 18: Cronbach's Alpha

gauge the consistency or reliability of a set of items belonging to a single scale (Cronbach, 1951). First conceptualized by Lee Cronbach in his seminal work "Coefficient alpha and the internal structure of tests," the Cronbach's Alpha is now widely used by researchers when constructing a scale or when conducting a survey, as it can determine how effective items in a scale are when it comes to measuring a single construct. Although there is no 'fixed value' in terms of how a Cronbach's Alpha score should be interpreted, as different studies give conflicting interpretations of this value (Taber, 2017), to simplify things, we have decided to go with the rule-of-thumb when it comes to interpreting the score. According to this rule, the typical cut-off for an 'acceptable' Cronbach's Alpha score is 0.7, with scores at 0.8 to 0.9 showing good general consistency, and scores of 0.9 and higher showing excellent general consistency.

As seen by the values above, the Cronbach's Alpha for all scale items is reliable. The 'PSR,' 'PSI,' 'Sense of Community,' and 'Celebrity Credibility' scales all return excellent reliability scores, while the 'Wishful Identification' and 'Loneliness' scales return good reliability scores. High Cronbach's alpha values may suggest that the scales used within the study are both reliable and internally consistent, which means that the responses to each of the items in the scales are consistent. Additionally, this also means that the subsequent hypothesis testing that we will be conducting is valid, because each item in the survey is able to cohesively measure their respective constructs. With the satisfactory results that we have obtained here, it is apt that we now move on to hypothesis testing.

We opted to analyze the data using a One-sample Wilcoxon Signed-Rank Test. Created by Frank Wilcoxon, researchers working with non-normally distributed data, part of which are data that is discrete, ranked, and non-parametric, widely use the test. The survey data that we have been analyzing so far, which consists of results obtained from Likert

Scales, all fit these criteria, so it is reasonable to deduce that this test is capable of effectively analyzing our data. Alone, the One-sample Wilcoxon Signed-Rank Test generates two values: The W-Statistic, and the P-Value. Please note that other related measures, specifically Effect Size, Hypothesized Median, Actual Median, and Confidence Interval, go with these values. These measures will be present to give more context to the Wilcoxon results, particularly the P-Value. A brief description of each of these measures follow this.

The Wilcoxon W-Statistic is a measure that shows the rank sum of the less frequent sign in the Wilcoxon Signed-Rank Test. We can calculate for this value by pairing observations, calculating their differences and their ranks, and then getting the sum of the ranks of the positive and negative differences separately. The W-Statistic is the smaller of these two sums. Note that on its own, only the Wilcoxon formula uses the W-statistic to help compute for the P-value, so we will not be delving much into its interpretation in our data analysis as it does not translate to any notable findings.

The Wilcoxon P-Value is a measure that shows the probability that the observed result will occur assuming that the null hypothesis is true. The lower this value is, the more statistically significant are the findings. For this research, we will be using a 95% confidence level, which means that only P-values that are lower than 0.05 are statistically significant. Of the two Wilcoxon-associated values, this may be of interest to more people, because the p-value helps us decide whether we should accept or reject the null hypothesis.

Effect Size is a measure used to calculate for the size of the difference between two groups. Note that the larger the value, the stronger the effect or difference. we have opted to include this measure it builds on the findings of the p-value. Whereas the p-value can only find whether an effect exists, the effect size can provide more practical information about the significance of the results.

In the context of our chosen research instrument which is a five-point Likert scale, some of our hypotheses do not necessarily stand for a purely neutral median (3). Hence, we have had to incorporate the Hypothesized Median as a measure to minimize confusion. Most of our hypotheses assume a slightly positive response, so with the exclusion of 'Loneliness' and 'Addiction', we have set our hypothesized median in these items to four. Note that this is distinct from the Actual Median, in the sense that we use the raw, aggregated data itself to calculate for the actual median. The purpose of placing the Hypothesized Median is to provide a point of reference for how similar (or different) it is to the Actual Median.

With all the crucial terms introduced, we will now continue to both test each of the hypotheses with Wilcoxon and conduct more analyses on them using the other measures which we have specified. Because the raw data may be harder to interpret as is, we have also placed a graph to below to serve as a supplement to the explanation that should make it easier to understand.

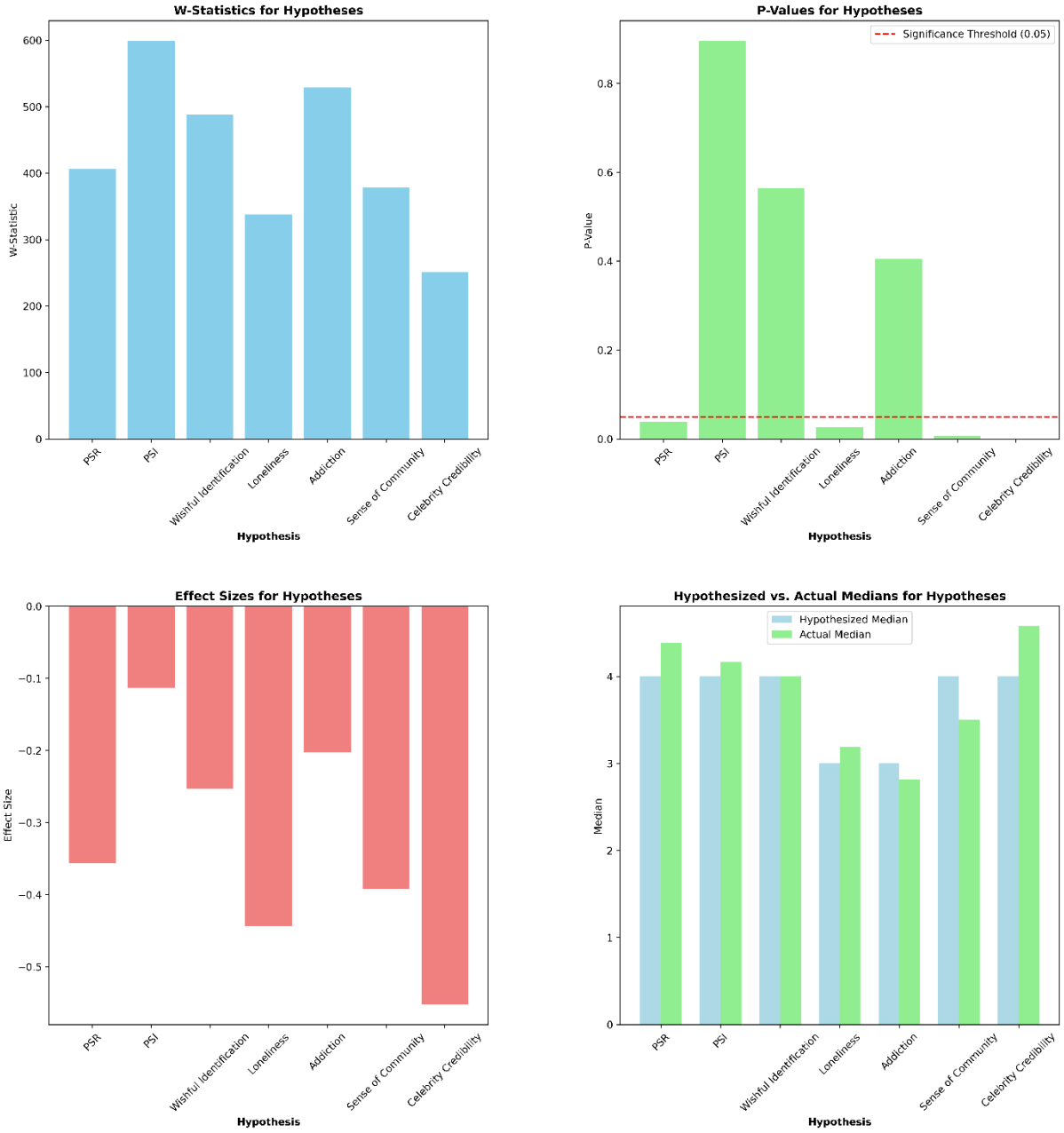


Figure 19: Wilcoxon Results

Hypothesis One, which postulated that video game live stream viewers viewed the parasocial relationship that they have with their favorite streamer positively, is supported by the data analysis measures. The P-Value is approximately 0.0382, which at a 95% confidence level, means that the null value for this hypothesis can be rejected. In relation to this, the calculated effect size of around 0.3568 means that the hypothesis carries a moderate level of practical significance over the tested sample. The computed actual median of the responses, which hovers around 4.3889, further confirms these claims, as it is higher than the hypothesized median of four. To conclude, all these show that Hypothesis 1 carries enough statistical and practical significance for us to consider that video game live stream viewers tend to perceive that they have a positive PSR with their favorite streamer.

Quite surprisingly, in contrast to parasocial relationships, video game live stream viewers were inclined to perceive their parasocial interactions with the streamers more neutrally. **Hypothesis two**, which proposed that video game live stream viewers viewed the parasocial interactions that they have with their favorite streamer positively, was not supported by the data analysis measures. The P-Value, which is approximately 0.8964, is higher than the 95% confidence level threshold employed in this study. This signifies that the null hypothesis the findings are not statistically significant, hence, we will have to reject the alternative hypothesis. The Effect Size of approximately 0.113 supports this high p-value, as it connotes that the hypothesis' practical significance is too small to be meaningful. The computed median of all the responses, around 4.1667, is also only slightly higher than the hypothesized median of four, which signifies that respondents view the PSIs they have with their favorite streamers in a more neutral manner. To sum, these findings suggest that Hypothesis 2 cannot be accepted as an alternative to the null hypothesis, as there is a lack of

compelling evidence to suggest that video game live streamers react to their favorite streamers in a significantly positive manner.

Hypothesis three, which suggested that video game live stream viewers look up to their favorite streamers and aspire to be like them, was also rejected by the results obtained from the measures used. Like Hypothesis 2, Hypothesis 3 also has a high P-value much higher than the acceptable 95% confidence level threshold, at approximately 0.5646. This shows that there is no statistically significant difference between this and the null hypothesis four, hence, we cannot reject the null hypothesis for Wishful Identification. Although the effect size of approximately -0.2532 borders a medium practical significance level, this figure is meaningless, as the hypothesis is not statistically significant to begin with. Both the hypothesized median and the actual median are the same at 4.0, which proves that at best, viewers only have a slightly positive inclination. In conclusion, these findings suggest that Hypothesis 3 will have to be rejected, as there is an absence of compelling evidence to suggest that it is significant, both statistically and practically.

Hypothesis four, which assumed that viewers who watch frequent live streams of their favorite streamer will experience increased feelings of loneliness, was found to be significant enough for acceptance over its null hypothesis. Its P-Value of approximately 0.0265 is less than the 95% confidence level threshold of 0.05, so we can say that the findings for Loneliness is statistically significant enough for us to reject the null hypothesis. This is backed up by the effect size results of -0.4433, which makes the hypothesis meaningful enough to consider as it provides evidence of the findings having a moderate practical significance. The actual median of about 3.1875 being higher than the hypothesized median of three further supports our observation of increased, showing that matching our earlier assumptions, viewers who watch live streams regularly have a higher chance of feeling

lonely. Although loneliness is a 'negative effect', we must remember that its scale used in this study uses the same scoring system as the other hypotheses, hence, a higher score insinuates higher, and not lower, feelings of loneliness amongst respondents, much unlike the negative perceptions or attitudes measured in other scales. Overall, the results of these measures tell us that, in both a statistically significant and practical sense, it is safe to posit that regular video game live stream viewers do feel lonelier when regularly the streams of their favorite streamers.

Unlike Loneliness, the results for **Hypothesis 5**, which postulated that frequent video game live stream viewers become addicted to watching live streams, were not statistically nor significant enough to dismiss its respective null hypothesis. This is shown in several of the measures. First, its P-Value of 0.4056 is significantly above the 0.05 95% confidence level threshold, which means that the results do not have any statistical significance over what is already expected via the null hypothesis. This is also supported by its small effect size of approximately -0.2021, which shows that any observable differences are too small and meaningless to hold any significant weight. Its actual median of approximately 2.8125 is smaller than the hypothesized median of three, thus again proving that most respondents tend to disagree with the scale's statements measuring their levels of addiction. The results tell us that, in both a statistical and a practical sense, most video game live stream viewers who watch live streams often do not feel like they are addicted to watching these live streams.

The results for **Hypothesis 6**, which suggested that video game live stream viewers are likely to view their favorite streamer's fanbase as essential to helping them enjoy the live streams more, is interesting in the sense that it the results may send mixed messages. It may appear that the Hypothesis 6 is both statistically and practically significant enough to reject the null hypothesis. It has a P-Value of approximately 0.0076 and a moderate effect size of -

0.3921. Both figures show that, at least from a statistically and practically significant standpoint, Hypothesis 6 can support the alternative hypothesis. However, upon closer inspection of the actual median and the hypothesized median, it then shows the actual median is 3.5, much lower than the hypothesized median of 4.0. Therefore, this result initially may seem to make little sense, because an actual median lower than the hypothesized median also disproves the alternative hypothesis. In hindsight though, these results make sense. The p-value merely measures how different the actual and hypothesized medians are, regardless of the inherent 'direction' that the difference is geared towards. It is true that there is a sizable gap between the two figures, which explains the low, statistically significant P-value. However, because the hypothesis posits that most respondents view the streamer's fanbase positively, and the null covers everything else, the actual and hypothesized medians support the idea that the null must continue to be supported, as these values insinuate that, viewers do not perceive their favorite streamer's community to be as essential as initially thought. Thus, these peculiar findings all boil down to a clear statistical difference between the hypothesized and actual means, hence the results, but in such a way that does not actually favor the alternative hypothesis, but the null hypothesis instead. This is why to sum it up, the statistical and practical results prove that we cannot accept the alternative hypothesis for sense of community, even if its p-value and effect size prove that it is both statistically and practically significant.

The results for **Hypothesis 7**, which posited that video game live stream viewers perceive their favorite streamers to be credible due to their attractiveness, trustworthiness, and skill, is notably the strongest out of all the hypotheses, and hence, has the findings necessary to reject its null hypothesis. It has an exceptionally low p-value of approximately 0.0002, which is the lowest p-value found in the hypotheses. Notably, its effect size, which is approximately -0.5525, is not only the highest effect size amongst all the hypotheses but is

the only one that can categorize as showing a strong, substantial effect. These findings are supported by the rest of the measures. The hypothesis also enjoys a significant variation between the actual median of around 4.5769, and the hypothesized median of four. With these figures, we can reject the null hypothesis and arrive at the conclusion that video game live stream viewers perceive their favorite streamers to be highly credible in terms of attractiveness, trustworthiness, and skill.

Now that we have tested the hypothesis and conducted the pertinent other analyses, we can now say that the Statistical Analyses has concluded. With the EDA findings and the Statistical Analysis Findings complete, we can now start to draw some conclusions based on everything that we have seen.

I. Conclusion

This study aimed to explore the relationships of video game live stream viewers with their favorite streamers across several dimensions, including parasocial relationships, parasocial interactions, wishful identification, feelings of loneliness, live stream addiction, the sense of community felt with the favorite streamer's fanbase, and the perceived streamer credibility. Below are the following conclusions that we may draw from the analysis that we have conducted.

For **Parasocial Relationships**, The Wilcoxon Signed-Rank Test showed a statistically significant difference with a P-value of 0.0382 and a moderate effect size of -0.3568. The actual median of 4.3889 was higher than the hypothesized median of four. Therefore, we conclude that video game live stream viewers experience positive PSRs with their favorite streamers. This supports the idea that video game live stream viewers perceive a sense of friendship and comfort from their favorite streamers, aligning with the PSR theory that repeated interactions can foster a sense of closeness.

For **Parasocial Interactions**, the Wilcoxon Signed-Rank Test yielded a p-value of 0.8964, showing no statistically significant difference. The effect size was small at -0.113, and the actual median was 4.1667 compared to the hypothesized median of four, which is not so much of a difference. Thus, we conclude that video game live stream viewers do not experience significantly positive PSIs with their favorite streamers. This finding certainly aligns with the concept that while viewers may feel a connection, it does not necessarily translate into feeling acknowledged or being directly engaged by the streamer.

For **Wishful Identification**, the p-value of 0.5646 from the Wilcoxon Signed-Rank Test suggests no significant difference, with a small to medium effect size of -0.2532. The actual median matched with the hypothesized median of four. Consequently, we can therefore conclude that video game live stream viewers do not significantly aspire to be like their favorite streamers. This suggests that while viewers may enjoy the content, they do not necessarily see the streamers as role models that they aspire to emulate.

For **Loneliness**, the Wilcoxon Signed-Rank Test showed a statistically significant difference with a p-value of 0.0265 and a moderate effect size of -0.4433. The actual median (3.1875) was slightly higher than the hypothesized median (3). We conclude that video game live stream viewers feel lonelier when watching their favorite streamers regularly. This aligns with existing research suggesting that while PSRs can provide some sense of companionship, they may also highlight the absence of real-life social connections, leading to increased feelings of loneliness.

For **Addiction**, the p-value of 0.4056 shows no significant difference, with a small effect size of -0.2021. The actual median (2.8125) was slightly lower than the hypothesized median (3). Thus, we can conclude that video game live stream viewers do not feel addicted to watching live streams. This implies that while viewers regularly watch streams, they do not

necessarily feel that their viewing habits are out of control or are negatively affecting their lives.

For **Sense of Community**, the Wilcoxon Signed-Rank Test showed a statistically significant difference with a p-value of 0.0076 and a moderate effect size of -0.3921. The actual median (3.5) was lower than the hypothesized median (4). Therefore, despite the statistically significant difference, we must conclude that video game live stream viewers do not think their favorite streamer's fanbase is essential to enjoying the streams more. This suggests that the community aspect, while valued, is not a critical factor in their overall streaming experience.

For **Celebrity Credibility**, the Wilcoxon Signed-Rank Test showed a highly significant difference with a p-value of 0.0002 and a substantial effect size of -0.5525. The actual median (4.5769) was also substantially higher than the hypothesized median (4). We can conclude that video game live stream viewers consider their favorite streamers credible due to their attractiveness, trustworthiness, or skill. This supports the notion that audience members perceive streamers to be more credible if the streamers present themselves well and prove their trustworthiness and competence.

J. Implications

Based on our findings and the conclusions we have drawn from it, we believe that this study may have several important implications for the video game live stream viewers, their favorite streamers, the live stream platforms, and other researchers who are also conducting studies on the industry.

One of the things clear in the findings is that there is an existence of a positive parasocial relationship between video game live stream viewers and their favorite streamers. This shows that viewers feel a sense of closeness and affinity with their favorite streamers.

From the perspective of the streamers, this is a trend that they should not only take note of, but even nurture further, as this may translate to enhanced viewer loyalty and engagement. However, we hope that live streamers wield this considerable influence responsibly. They can induce significant emotional impact on their audience, so perhaps it should be in their best interest to strive to support positive interactions.

However, despite video game live stream viewers acknowledging that they have a positive parasocial relationship with their favorite streamers, we also must remember that this does not exactly translate to the viewers aspiring to be just like their favorite streamers. The findings show that most viewers tend to feel neutral about wanting to emulate their favorite live streamers, hence, from the perspective of the streamers, it may be fair to suggest that they take a more critical look at the overall theme or focus of their content. Given what we have uncovered, it is best if streamers ensure that their content focuses more on entertainment and engagement rather than inspirational themes. Although it may require a delicate balance in terms of content creation, we believe that it is possible for live streamers to create more relatable and enjoyable content without pressuring viewers to emulate them.

One unfortunate effect of video game live streaming that we have learned about through this study is that it may increase feelings of loneliness among regular viewers. According to the framework, two factors primarily mediate loneliness, specifically, the parasocial interactions shared between the two parties, and the viewer's belief of whether their favorite streamer is credible. Although the findings imply that streamer credibility plays a larger role in this than the PSIs themselves, the effects, both positive and negative, may still occur. Thus, from the perspective of both the live streamers and the streaming platforms, it might be beneficial for them to consider incorporating more interactive and community-building features to help mitigate these feelings. Creating opportunities for viewer interaction would help in two ways. One, it will foster a stronger sense of community, which would be a

welcome development to all since our findings do show that video game live stream viewers view their favorite streamer's fanbase rather dismissively. And two, it may help reduce feelings of loneliness, which is a phenomenon we strongly feel should be addressed, as the findings confirm that it is an undesirable feeling that a considerable number of viewers experience.

On the topic of addiction, unlike loneliness, the findings fail to reveal that it is a significant concern amongst video game live streamers. We must clarify that this is a good thing, and this study should not be misinterpreted as implying that it is something that we hoped we would be able to find compelling evidence for. However, from both a streamer and a livestreaming platform's perspective, it may still be best for both parties to promote healthy viewing habits. Some avenues that streamers and live stream platforms can explore to address this is to implement in-platform tools to manage screen time, and for both streamers and platforms to introduce visual (banners, notifications, among others) and on-stream reminders to encourage viewers to take a break.

Like addiction, the study has also failed to prove that viewers perceive their favorite streamer's fanbase to be an essential and highly welcome addition to helping them enjoy watching live streams more. However, we also do not want to fully dismiss it, because as discussed earlier, it may prove beneficial in helping video game live stream viewers better deal with the effects of loneliness. Nevertheless, because the fanbase may still be seen as a valuable aspect for some viewers, we think that it is best for streamers to continue to seek ways in which to nurture their fanbases, such as by offering community-building opportunities. However, on the other hand, we also believe that streamers should ensure that they do not rely solely on this for viewer satisfaction, as an over-reliance on it may turn off some viewers from wanting to watch them as the findings suggest.

Lastly, it is interesting to note that the findings reveal a strong positive perception of streamer credibility amongst video game live stream viewers. The results of this study imply that streamers who are perceived to be credible wield influence over their audience. Given that it is the most strongly perceived out of all the variables measured within the study, we are of the opinion that live streamers should take advantage of this to keep a strong yet positive influence over their viewers. We think that live streamers should ensure that they use this elevated level of trust placed upon them by their loyal viewers responsibly by continuing to promote positive messages and by avoiding misleading content as much as possible.

K. Further Studies

Given the results obtained in the study, we would like to think that it may serve as a benchmark for future researchers to build on. However, as shown in the 'Scope and Limitations' and 'Findings' section, the several limitations and inconclusive findings that we have met in this research makes us hope that future researchers working on this topic would be able to find a solution to overcome these obstacles. As this study has ended, we have listed some of the related areas below in which we believe that future researchers might want to explore.

Like what other studies in the same area have expressed, one thing that we do recommend is for a longitudinal study on streamer-viewer relationships to happen. Although difficult to do in practice due to time or financial constraints, conducting longitudinal studies to see changes in viewer perceptions and behaviors over time would be a fantastic addition to the field. Because they take place over a much longer period, researchers who conduct longitudinal studies may uncover new findings and process deeper than seen with studies that span a shorter duration.

Another aspect that future researchers may want to explore is incorporating more theories to their PSR and PSI research frameworks. The reason behind this is that although the study primarily focused on PSR and PSI, some of the findings within this research support the premises of other theories. One prime example of this is the credibility scale findings, as we noted that these findings support the premise of another theory, namely the Source Credibility Theory by Carl Hovland and Walter Weiss. Besides that, we are of the belief that integrating related theories such as the Uses and Gratifications Theory by Elihu Katz and colleagues into the framework may introduce fresh perspectives or entirely new findings that are hard to uncover using a research framework based solely on PSR and PSI.

Future researchers planning to explore this phenomenon further may also want to consider employing a mixed-method or qualitative approach when they do PSR/PSI research. Admittedly, most of the other previously conducted parasocial live stream related research with a similar scope are also quantitative since other researchers have opted to gather their data through surveys and other related methods. With that in mind, it is reasonable to say that a considerable number of the current facts or findings of PSRs and PSIs in live streaming contexts are quantitative in nature, meaning that these are observations derived from numbers or statistics. To clarify, this is not necessarily a problem, as researchers in the field regularly confirm and challenge new findings via the rigorous application and validation of the quantitative research instruments used in the field. However, we must acknowledge that qualitative research and their focus on observation, interviews, or focus groups, among other methods, may arrive at new findings or even a reframing of what is already known. It is in the nature of qualitative research to deal with more subjective matters such as emotions or perceptions, which in the context of this field means that qualitative research may help in gaining a deeper understanding of why video game live stream viewers do not feel that streamer fanbases are essential, or why they consider the credibility of a streamer to be a

significant factor for them to desire having a PSR with a particular live streamer. To sum, although quantitative measures may excel in determining the existence (or absence) of certain PSR/PSI attitudes and measuring the correlations between these different attitudes or characteristics, we think that the forte of a qualitative approach is helping us understand why these attitudes, interactions, and PSRs even form in the first place, and further exploring the unique character of Filipino video game live stream viewers and comparing them to in terms of perception and attitudes to video game live stream viewers from different countries.

We hope that all the findings that we have garnered in this study have helped reaffirm existing knowledge and beliefs regarding Parasocial Relationships and Parasocial Interactions held by existing related research. Although not all our premises may have been supported, we would still like to think that this research contributed to the other PSR and PSI-related studies currently out there by specifically targeting a segment not extensively covered by existing live streaming research, namely, the Filipino video game live stream viewers.

L. Sources:

Abelman, R., Atkin, D., & Rand, M. (1997). What Viewers Watch When They Watch TV: Affiliation Change as Case Study. *Journal of Broadcasting & Electronic Media , 41*(3), 360–379. https://doi.org/10.1080/08838159709364413

Adams, R. G., & Blieszner, R. (1994). An Integrative Conceptual Framework for Friendship Research. *Journal of Social and Personal Relationships*, *11*(2), 163–184. https://doi.org/10.1177/0265407594112001

Agee, M. E. (2014). *I listen to you every day: Parasocial relationships and self-disclosure in Christian Radio* (dissertation). *I LISTEN TO YOU EVERY DAY: PARASOCIAL RELATIONSHIPS AND SELF-DISCLOSURE IN CHRISTIAN RADIO*. Retrieved January 11, 2024, from https://rc.library.uta.edu/uta-ir/bitstream/handle/10106/24704/Agee_uta_2502M_12732.pdf?isAllowed=y&sequence=1.

Algesheimer, R., Dholakia, U. M., & Herrmann, A. (2005). The social influence of Brand Community: Evidence from European Car Clubs. *Journal of Marketing, 69*(3), 19–34. https://doi.org/10.1509/jmkg.69.3.19.66363

Andersen, P. A., & Todd de Mancillas, W. R. (1978). SCALES FOR THE MEASUREMENT OF HOMOPHILY WITH PUBLIC FIGURES. *The Southern Speech Communication Journal*, *43*(2), 169–179. https://doi.org/10.1080/10417947809372379

Appel, M., Koch, E., Schreier, M., & Groeben, N. (2002). Aspekte des leseerlebens: Skalenentwicklung. *Zeitschrift Für Medienpsychologie*, *14*(4), 149–154. https://doi.org/10.1026//1617-6383.14.4.149

Aron, A., Aron, E. N., & Smollan, D. (1992). Inclusion of Other in the Self Scale and the Structure of Interpersonal Closeness. *Journal of Personality and Social Psychology*, *63*(4), 596–612. https://doi.org/10.1037/0022-3514.63.4.596

Arora, T. R. (2022). (dissertation). *Finding Friends in Fiction: Fan Writing, Parasocial Relationships and Social Belongingness*. Retrieved January 11, 2024, from https://zone.biblio.laurentian.ca/bitstream/10219/3950/3/Final%20Dissertation%20Oct%207,%202022%20Arora.pdf.

Asbrock, F. (2010). Stereotypes of social groups in Germany in terms of warmth and competence. *Social Psychology*, *41*(2), 76–81. https://doi.org/10.1027/1864-9335/a000011

Ashe, D. D., & McCutcheon, L. E. (2001). SHYNESS, LONELINESS, AND ATTITUDE TOWARD CELEBRITIES. *Current Research in Social Psychology*, *6*(9), 124–133.

Auter, P. J. (1992). TV That Talks Back an Experimental Validation of a Parasocial Interaction Scale. *Journal of Broadcasting & Electronic Media*, *36*(2), 173–182. https://doi.org/10.1080/08838159209364165

Auter, P. J., & Palmgreen, P. (2000). Development and validation of a parasocial interaction measure: The audience-persona interaction scale. *Communication Research Reports*, *17*(1), 79–89. https://doi.org/10.1080/08824090009388753

Baek, Y. M., Bae, Y., & Jang, H. (2013). Social and parasocial relationships on social network sites and their differential relationships with users' psychological well-being. *Cyberpsychology, Behavior, and Social Networking*, *16*(7), 512–517. https://doi.org/10.1089/cyber.2012.0510

Bagozzi, R. P. (1981). Attitudes, Intentions, and Behavior: A Test of Some Key Hypotheses. *Journal of Personality and Social Psychology*, *41*(4), 607–627. https://doi.org/10.1037//0022-3514.41.4.607

Baker, J. (2023, June 21). *The rise of gaming culture - is this the next frontier for marketing?* The Drum. https://www.thedrum.com/news/2023/06/21/the-rise-gaming-culture-the-next-frontier-marketing

Ballantine, P. W., & Martin, B. A. S. (2005). Forming Parasocial Relationships in Online Communities. *Association for Consumer Research*, *32*, 197–201. https://www.acrwebsite.org/volumes/9073/volumes/v32/na-32

Baym, N. K. (2012). Fans or friends? Seeing social media audiences as musicians do. *Participations: Journal of Audience & Reception Studies*, *9*(2), 286–316.

Belanche, D., Casaló, L. V., Flavián, M., & Ibáñez-Sánchez, S. (2021). Understanding influencer marketing: The role of congruence between influencers, products and consumers. *Journal of Business Research, 132*, 186–195. https://doi.org/10.1016/j.jbusres.2021.03.067

Berg, J. H., & Archer, R. L. (1982). Responses to Self-Disclosure and Interaction Goals. *Journal of Experimental Social Psychology*, *18*(6), 501–512. https://doi.org/10.1016/0022-1031(82)90069-5

Bernhold, Q. S. (2019). Parasocial relationships with disliked television characters, depressive symptoms, and loneliness among older adults. *Journal of Applied Communication Research*, *47*(5), 548–570. https://doi.org/10.1080/00909882.2019.1679384

Bernhold, Q. S., & Metzger, M. (2018). Older adults' parasocial relationships with favorite television characters and depressive symptoms. *Health Communication, 35*(2), 168–179. https://doi.org/10.1080/10410236.2018.1548336

Berscheid, E., Snyder, M., & Omoto, A. M. (1989). The Relationship Closeness Inventory: Assessing the Closeness of Interpersonal Relationships. *Journal of Personality and Social Psychology*, *57*(5), 792–807. https://doi.org/10.1037//0022-3514.57.5.792

Bocarnea, M. C., & Brown, W. J. (2007). Celebrity-persona parasocial interaction scale. In R. A. Reynolds, R. Woods, & J. D. Baker (Eds.), *Handbook of Research on Electronic Surveys and measurements* (pp. 309–312). essay, Idea Group Reference/IGI Global.

Bond, B. J. (2016). Following your "friend": Social Media and the strength of adolescents' parasocial relationships with media personae. *Cyberpsychology, Behavior, and Social Networking*, *19*(11), 656–660. https://doi.org/10.1089/cyber.2016.0355

Bond, B. J. (2020). The development and influence of parasocial relationships with television characters: A longitudinal experimental test of prejudice reduction through parasocial contact. *Communication Research, 48*(4), 573–593. https://doi.org/10.1177/0093650219900632

Bonifacic, I. (2022, November 29). *"Pong" is now half a century old*. Engadget. https://www.engadget.com/pong-turns-50-214422370.html?_fsig=YHKYzV3SLOahw8G1qiP8yA--~A

Boon, S. D., & Lomore, C. D. (2001). Admirer-Celebrity Relationships Among Young Adults: Explaining Perceptions of Celebrity Influence on Identity. *Human Communication Research*, *27*(3), 432–465. https://doi.org/10.1093/hcr/27.3.432

Brennan, K. A., Clark, C. L., & Shaver, P. R. (1998). Self-report measurement of adult attachment: An integrative overview. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment Theory and Close Relationships* (pp. 46–76). essay, The Guilford Press.

Brislin, R. W. (1980). Cross-Cultural Research Methods. In I. Altman, A. Rapoport, & J. F. Wohlwill (Eds.), *Environment and Culture* (pp. 47–82). essay, Springer.

Buan, B. Y. (2022, August 11). *"the Parasocial problem with livestreaming": The distorted reality it shapes for its streamers and viewers*. Academia.edu. https://www.academia.edu/84515332/_The_Parasocial_Problem_with_Livestreaming_The_Distorted_Reality_it_shapes_for_its_Streamers_and_Viewers

Burke, M. (2020, September 4). *How brands should approach live-streamed gaming*. WARC An Ascential Company. https://www.warc.com/newsandopinion/opinion/how-brands-should-approach-live-streamed-gaming/en-gb/3782

Burnett, A., & Beto, R. R. (2000). Reading Romance Novels: An Application of Parasocial Relationship Theory. *North Dakota Journal of Speech & Theatre*, *13*, 28.

Buss, A. H., & Perry, M. (1992). The Aggression Questionnaire. *Journal of Personality and Social Psychology*, *63*(3), 452–459. https://doi.org/10.1037/t00691-000

Cacioppo, J. T., & Petty, R. E. (1982). The Need for Cognition. *Journal of Personality and Social Psychology*, *42*(1), 116–131. https://doi.org/0022-3514/82/4201-0116

Cambridge Dictionary. (2024a). *Gamer | Definition in the Cambridge English Dictionary*. https://dictionary.cambridge.org/us/dictionary/english/gamer

Cambridge Dictionary. (2024b). *Live stream | definition in the Cambridge English dictionary*. https://dictionary.cambridge.org/us/dictionary/english/live-stream

Cambridge Dictionary. (2024c). *Live streamer definition | Cambridge English dictionary*. https://dictionary.cambridge.org/us/dictionary/english/live-streamer

Candraningrum, D. A., & Dewi, F. I. R. (2021). Motivation, interest and para social interaction of today's radio young listeners. *Proceedings of the 1st ICA Regional Conference, ICA 2019, October 16-17 2019, Bali, Indonesia*. https://doi.org/10.4108/eai.16-10-2019.2304289

Canevello, A., & Crocker, J. (2010). Creating good relationships: Responsiveness, relationship quality, and interpersonal goals. *Journal of Personality and Social Psychology*, *99*(1), 78–106. https://doi.org/10.1037/a0018186

Casaló, L. V., Flavián, C., & Ibáñez-Sánchez, S. (2017). Antecedents of consumer intention to follow and recommend an Instagram account. *Online Information Review*, *41*(7), 1046–1063. https://doi.org/10.1108/oir-09-2016-0253

Ceci, L. (2023, August 21). *Share of internet users worldwide watching live streaming content on a weekly basis from 2nd quarter 2021 to 1st quarter 2023*. Statista. https://www.statista.com/statistics/1351162/live-streaming-global-reach/

Centeno, D. D. (2015). Constructing celebrities as political endorsers: Parasocial acts, cultural power, and Cultural Capital. *Philippine Political Science Journal*, *36*(2), 209–232. https://doi.org/10.1080/01154451.2015.1084746

Centeno, D. D. G. (2016). Celebrities' Parasocial Interaction and Relationships: Predictor of Voting Preference towards Endorsed Political Candidates. *Philippine Management Review 2016*, *23*, 53–68.

Centeno, D. D. G. (2016). Parasociality and habitus in celebrity consumption and political culture. *Asian Journal of Social Science*, *44*(4–5), 441–484. https://doi.org/10.1163/15685314-04404002

Chang, H. H., & Chuang, S.-S. (2011). Social Capital and individual motivations on knowledge sharing: Participant involvement as a moderator. *Information & Management*, *48*(1), 9–18. https://doi.org/10.1016/j.im.2010.11.001

Chavis, D. (2015). *Sense of Community index 2 (SCI-2): Background, instrument, and scoring instructions - PDF free download*. Community Science. https://docplayer.net/20770678-Sense-of-community-index-2-sci-2-background-instrument-and-scoring-instructions.html

Cheek, J. M. (1983). Revised Cheek and buss shyness scale. *PsycTESTS Dataset*. https://doi.org/10.1037/t05422-000

Chen, C.-D., Zhao, Q., & Wang, J.-L. (2022). How livestreaming increases product sales: Role of trust transfer and elaboration likelihood model. *Behaviour & Information Technology*, *41*(3), 558–573. https://doi.org/10.1080/0144929x.2020.1827457

Chen, C.-P. (2021). Digital gifting in personal brand communities of live-streaming: Fostering Viewer–streamer–viewer parasocial relationships. *Journal of Marketing Communications*, *27*(8), 865–880. https://doi.org/10.1080/13527266.2021.1910327

Chen, N., & Yang, Y. (2023). The role of influencers in live streaming e-commerce: Influencer Trust, attachment, and consumer purchase intention. *Journal of Theoretical and Applied Electronic Commerce Research*, *18*(3), 1601–1618. https://doi.org/10.3390/jtaer18030081

Cheung, C., Lee, Z. W. Y., & Chan, T. K. H. (2015). Self-disclosure in social networking sites: The role of perceived cost, perceived benefits and social influence. *Internet Research*, *25*(2), 279–299. https://doi.org/10.1108/intr-09-2013-0192

Chiovato, L. (2021, March 16). *Game Live Streaming: What Is Live Streaming? How Big Is the Audience? How Did the Pandemic Impact Live Streaming?* Newzoo. https://newzoo.com/resources/blog/what-is-game-live-streaming-how-big-is-the-audience-pandemic-impact-twitch-youtube

Chiovato, L. (2022, May 6). *Gaming's live-streaming audience will hit one billion next year & 1.4 ...* Gaming's Live-Streaming Audience Will Hit One Billion Next Year & 1.4 billion by 2025. https://newzoo.com/resources/blog/gamings-live-streaming-audience-will-hit-one-billion-next-year-1-4-billion-by-2025

Chiu, C.-M., Hsu, M.-H., & Wang, E. T. G. (2006). Understanding knowledge sharing in virtual communities: An integration of social capital and social cognitive theories. *Decision Support Systems*, *42*(3), 1872–1888. https://doi.org/10.1016/j.dss.2006.04.001

Cho, H., Shen, L., & Wilson, K. (2014). Perceived Realism: Dimensions and Roles in Narrative Persuasion. *Communication Research*, *41*(6), 828–851. https://doi.org/10.1177/0093650212450585

Choi, S. B., & Lim, M. S. (2016). Effects of social and technology overload on psychological well-being in young South Korean adults: The mediatory role of Social Network Service addiction. *Computers in Human Behavior*, *61*, 245–254. https://doi.org/10.1016/j.chb.2016.03.032

Chung, S., & Cho, H. (2017). Fostering parasocial relationships with celebrities on social media: Implications for celebrity endorsement. *Psychology & Marketing*, *34*(4), 481–495. https://doi.org/10.1002/mar.21001

Claessens, N., & Van den Bulck, H. (2015). Parasocial relationships with audiences' favorite celebrities: The role of audience and celebrity characteristics in a representative Flemish sample. *Communications*, *40*(1), 43–65. https://doi.org/10.1515/commun-2014-0027

Clark, L. A., & Watson, D. (1995). Constructing Validity: Basic Issues in Objective Scale Development. *Psychological Assessment*, *7*(3), 309–319. https://doi.org/10.1037/14805-012

Clark, P. W., Martin, C. A., & Bush, A. J. (2001). The Effect of Role Model Influence on Adolescents' Materialism and Marketplace Knowledge. *Journal of Marketing Theory and Practice*, *9*(4), 27–36. https://doi.org/10.1080/10696679.2001.11501901

Clement, J. (2023a, November 20). *Minecraft total sales 2023*. Statista. https://www.statista.com/statistics/680124/minecraft-unit-sales-worldwide/#:~:text=Since%20its%20release%20in%202011,and%20Grand%20Theft%20Auto%20V.

Clement, J. (2023b, November 27). *Global active streamers on twitch 2023*. Statista. https://www.statista.com/statistics/746173/monthly-active-streamers-on-twitch/

Cloudflare. (2024). *What is live streaming? | how live streaming works | Cloudflare*. https://www.cloudflare.com/learning/video/what-is-live-streaming/

Cohen, D., & Prusak, L. (2002). *In good company: How social capital makes organizations work*. Harvard Business School.

Cohen, J. (2001). Defining Identification: A Theoretical Look at the Identification of Audiences with Media Characters. *Mass Communication & Society*, *4*(3), 245–264. https://doi.org/10.4324/9781315164441-14

Cohen, J., & Holbert, R. L. (2018). Assessing the predictive value of parasocial relationship intensity in a political context. *Communication Research*, *48*(4), 501–526. https://doi.org/10.1177/0093650218759446

Cole, T., & Leets, L. (1999). Attachment Styles and Intimate Television Viewing: Insecurely Forming Relationships in a Parasocial Way. *Journal of Social and Personal Relationships*, *16*(4), 495–511. https://doi.org/10.1177/0265407599164005

Collins, N. L., & Miller, L. C. (1994). Self-Disclosure and Liking: A Meta-Analytic Review. *Psychological Bulletin*, *116*(3), 457–475. https://doi.org/10.1037//0033-2909.116.3.457

Crabtree, M., & Nehme, A. (2023, July 7). *What is data analysis? an expert guide with examples*. DataCamp. https://www.datacamp.com/blog/what-is-data-analysis-expert-guide

Cuddy, A. J. C., Fiske, S. T., & Glick, P. (2008). Warmth and competence as universal dimensions of social perception: The stereotype content model and the bias map. (M. P. Zanna, Ed.). *Advances in Experimental Social Psychology*, *40*, 61–149. https://doi.org/10.1016/s0065-2601(07)00002-0

Davis, M. H. (1980). A Multidimensional Approach to Individual Differences in Empathy. *JSAS Catalog of Selected Documents in Psychology*, 85.

De Wulf, K., Schillewaert, N., Muylle, S., & Rangarajan, D. (2006). The role of pleasure in web site success. *Information & Management*, *43*(4), 434–446. https://doi.org/10.1016/j.im.2005.10.005

DeFranzo, S. E. (2023, April 21). *4 main benefits of Survey Research*. SnapSurveys Blog. https://www.snapsurveys.com/blog/4-main-benefits-survey-research/

Delli Carpini, M. X., & Keeter, S. (1993). Measuring Political Knowledge: Putting First Things First. *American Journal of Political Science*, *37*(4), 1179–1206. https://doi.org/10.2307/2111549

Dennis, J. (1988a). Political Independence in America, Part I: On Being an Independent Partisan Supporter. *British Journal of Political Science*, *18*(1), 77–109. https://doi.org/10.1017/s0007123400004968

Dennis, J. (1988b). Political Independence in America, part II: Towards a theory. *British Journal of Political Science*, *18*(2), 197–219. https://doi.org/10.1017/s0007123400005068

DERRICK, J. L., GABRIEL, S., & TIPPIN, B. (2008). Parasocial relationships and self-discrepancies: Faux relationships have benefits for low self-esteem individuals. *Personal Relationships*, *15*(2), 261–280. https://doi.org/10.1111/j.1475-6811.2008.00197.x

Descutner, C. J., & Thelen, M. H. (1991). Development and Validation of a Fear-of-Intimacy Scale. *Psychological Assessment: A Journal of Consulting and Clinical Psychology*, *3*(2), 218–225. https://doi.org/10.1037//1040-3590.3.2.218

Dianito, A. J. P., Chavez, J. A., Ranis, R. A. I., Cinco, B. O. L., Tus, J., Templonuevo, W., Artiola, A., Ilano, N. D., & Alvarez, T. M. (2023). Celebrity Admiration and Its Relationship to the Self-Esteem of Filipino Male Teenagers. *Psychology and*

Education: A Multidisciplinary Journal, *7*, 305–313. https://doi.org/10.5281/zenodo.7683080

Dibble, J. L., & Rosaen, S. F. (2011). Parasocial interaction as more than friendship: Evidence for parasocial interactions with disliked media figures. *Journal of Media Psychology*, *23*(3), 122–132. https://doi.org/10.1027/1864-1105/a000044

Dindia, K. (1988). A Comparison of Several Statistical Tests of Reciprocity of Self-Disclosure. *Communication Research*, *15*(6), 726–752. https://doi.org/10.1177/009365088015006004

Dindia, K., Fitzpatrick, M. A., & Kenny, D. A. (1997). Self-Disclosure in Spouse and Stranger Interaction: A Social Relations Analysis. *Human Communication Research*, *23*(3), 388–412. https://doi.org/10.1111/j.1468-2958.1997.tb00402.x

Dodds, W. B., Monroe, K. B., & Grewal, D. (1991). Effects of Price, Brand, and Store Information on Buyers' Product Evaluation. *Journal of Marketing Research*, *28*(3), 307. https://doi.org/10.2307/3172866

Duckitt, J. (2001). A Dual-Process Cognitive-Motivational Theory of Ideology and Prejudice. *Advances in Experimental Social Psychology*, *33*, 41–113. https://doi.org/10.1016/s0065-2601(01)80004-6

Duran, R. L., & Kelly, L. (1988). The influence of communicative competence on perceived task, social, and physical attraction. *Communication Quarterly*, *36*(1), 41–49. https://doi.org/10.1080/01463378809369706

Erdem, T., & Swait, J. (2004). Brand Credibility, Brand Consideration, and Choice. *Journal of Consumer Research*, *31*(1), 191–198. https://doi.org/10.1086/383434

Escalas, J. E. (2004). Narrative Processing: Building Consumer Connections to Brands. *Journal of Consumer Psychology*, *14*(1–2), 168–180. https://doi.org/10.1207/s15327663jcp1401&2_19

Escalas, J. E., & Bettman, J. R. (2017). Connecting With Celebrities: How Consumers Appropriate Celebrity Meanings for a Sense of Belonging. *Journal of Advertising*, *46*(2), 297–308. https://doi.org/10.1080/00913367.2016.1274925

European Social Survey. (2024). *ESS10 Main Questionnaire*. https://www.europeansocialsurvey.org/methodology/ess-methodology/source-questionnaire

Eveland, W. P. (2004). The Effect of Political Discussion in Producing Informed Citizens: The Roles of Information, Motivation, and Elaboration. *Political Communication*, *21*(2), 177–193. https://doi.org/10.1080/10584600490443877

Eyal, K., & Rubin, A. M. (2003). Viewer aggression and homophily, identification, and parasocial relationships with television characters. *Journal of Broadcasting & Electronic Media*, *47*(1), 77–98. https://doi.org/10.1207/s15506878jobem4701_5

Eysenck, H. J., & Eysenck, S. B. G. (1975). Junior Eysenck personality questionnaire. *PsycTESTS Dataset*. https://doi.org/10.1037/t05462-000

Feeney, J. A., & Noller, P. (1992). Attachment Style and Romantic Love: Relationship Dissolution. *Australian Journal of Psychology*, *44*(2), 69–74. https://doi.org/10.1080/00049539208260145

Fenigstein, A., Scheier, M. F., & Buss, A. H. (1975). Public and private self-consciousness: Assessment and theory. *Journal of Consulting and Clinical Psychology*, *43*(4), 522–527. https://doi.org/10.1037/h0076760

Ferguson, M. A., Valenti, J. M., & Melwani, G. (1991). Communicating with Risk Takers: A Public Relations Perspective. *Public Relations Research Annual*, *3*(1–4), 195–224. https://doi.org/10.1207/s1532754xjprr0301-4_10

Fietkiewicz, K. J., Dorsch, I., Scheibe, K., Zimmer, F., & Stock, W. G. (2018). Dreaming of stardom and money: Micro-celebrities and influencers on live streaming services. *Lecture Notes in Computer Science*, *10913*, 240–253. https://doi.org/10.1007/978-3-319-91521-0_18

Fraley, R. C., Waller, N. G., & Brennan, K. A. (2000). An item response theory analysis of self-report measures of adult attachment. *Journal of Personality and Social Psychology*, *78*(2), 350–365. https://doi.org/10.1037//0022-3514.78.2.350

Friborg, O., Clausen, L., & Rosenvinge, J. H. (2013). A five-item screening version of the eating disorder inventory (EDI-3). *Comprehensive Psychiatry*, *54*(8), 1222–1228. https://doi.org/10.1016/j.comppsych.2013.05.004

Fu, J., & Hsu, C. (2019). Viewers' Consumption Intentions in the Live Game Streaming Context. *PACIS 2019 Proceedings*.

Gabriel, S., Paravati, E., Green, M. C., & Flomsbee, J. (2018). From Apprentice to President: The Role of Parasocial Connection in the Election of Donald Trump. *Social Psychological and Personality Science*, *9*(3), 267–380. https://doi.org/10.1177/1948550617722835

Gao, W., Liu, Z., & Li, J. (2017). How does social presence influence SNS addiction? A belongingness theory perspective. *Computers in Human Behavior*, *77*, 347–355. https://doi.org/10.1016/j.chb.2017.09.002

Gefen, D., & Straub, D. W. (2004). Consumer Trust in B2C e-commerce and the importance of social presence: Experiments in E-products and E-services. *Omega*, *32*(6), 407–424. https://doi.org/10.1016/j.omega.2004.01.006

Gefen, D., Karahanna, E., & Straub, D. W. (2003). Trust and TAM in Online Shopping: An Integrated Model. *MIS Quarterly*, *27*(1), 51–90. https://doi.org/10.2307/30036519

Gentina, E., Shrum, L. J., Lowrey, T. M., Vitell, S. J., & Rose, G. M. (2018). An integrative model of the influence of parental and peer support on consumer ethical beliefs: The

mediating role of self-esteem, power, and materialism. *Journal of Business Ethics, 150*, 1173–1186. https://doi.org/10.2139/ssrn.3235207

Geyser, W. (2023, November 21). *42 useful and updated twitch stats for influencer marketing managers*. Influencer Marketing Hub. https://influencermarketinghub.com/twitch-stats/#toc-32

Ghani, J. A., & Deshpande, S. P. (1994). Task characteristics and the experience of optimal flow in human—computer interaction. *The Journal of Psychology, 128*(4), 381–391. https://doi.org/10.1080/00223980.1994.9712742

Gleason, T. R., Theran, S. A., & Newberg, E. M. (2017). Parasocial interactions and relationships in early adolescence. *Frontiers in Psychology, 8*. https://doi.org/10.3389/fpsyg.2017.00255

Gleich, U. (1996). Sind Fernsehpersonen Die „Freunde" Des Zuschauers? Ein vergleich zwischen parasozialen und Realen Sozialen Beziehungen. *Fernsehen Als „Beziehungskiste"*, 113–144. https://doi.org/10.1007/978-3-322-83274-0_12

In German

Gleich, U. (1997). Parasoziale Interaktionen und Beziehungen von Fernsehzuschauern mit Personen auf dem Bildschirm. Ein theoretischer und empirischer Beitrag zum Konzept des Aktiven Rezipienten. *Landau: Verl. Empirische Pädagogik, 335*. https://doi.org/In German

Gong, N. Z., & Xu, W. (2014). Reciprocal versus parasocial relationships in online social networks. *Social Network Analysis and Mining, 4*(1). https://doi.org/10.1007/s13278-014-0184-6

Green, D. P., & Baltes, S. (2017). Party Identification: Meaning and Measurement. In K. Arzheimer, J. Evans, & M. S. Lewis-Beck (Eds.), *The SAGE Handbook of Electoral Behaviour* (pp. 287–312). essay, SAGE Publications Ltd.

Green, M. C., & Brock, T. C. (2000). The Role of Transportation in the Persuasiveness of Public Narratives. *Journal of Personality and Social Psychology, 79*(5), 701–721. https://doi.org/10.1037//0022-3514.79.5.701

Griffith, J., Aruguete, M., Edman, J., Green, T., & McCutcheon, L. E. (2013). The temporal stability of the tendency to worship celebrities. *SAGE Open, 3*(2), 215824401349422. https://doi.org/10.1177/2158244013494221

Guo, Y., Zhang, K., & Wang, C. (2022). Way to success: Understanding top streamer's popularity and influence from the perspective of source characteristics. *Journal of Retailing and Consumer Services, 64*, 102786. https://doi.org/10.1016/j.jretconser.2021.102786

Gupta, R., Kishor, N., & Verma, D. P. S. (2017). CONSTRUCTION AND VALIDATION OF A FIVE-DIMENSIONAL CELEBRITY ENDORSEMENT SCALE:

INTRODUCING THE PATER MODEL. *British Journal of Marketing Studies*, *5*(4), 15–35.

Ha, N. M., & Lam, N. H. (2017). The Effects of Celebrity Endorsement on Customer's Attitude toward Brand and Purchase Intention. *International Journal of Economics and Finance*, *9*(1), 64–77. https://doi.org/10.5539/ijef.v9n1p64

Hakim, M. A., & Liu, J. H. (2021). Development, construct validity, and measurement invariance of the parasocial relationship with political figures (PSR-P) scale. *International Perspectives in Psychology*, *10*(1), 13–24. https://doi.org/10.1027/2157-3891/a000002

Hall, A. (2009). Perceptions of the Authenticity of Reality Programs and Their Relationships to Audience Involvement, Enjoyment, and Perceived Learning. *Journal of Broadcasting & Electronic Media*, *53*(4), 515–531. https://doi.org/10.1080/08838150903310468

Hamilton, W. A., Garretson, O., & Kerne, A. (2014). Streaming on Twitch: Fostering Participatory Communities of Play within Live Mixed Media. *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*. https://doi.org/10.1145/2556288.2557048

Han, Eun Kyung, Lee, B. Y., & Moon, H. J. (2007). A Study on the development of a scale to measure the entertainer reputation: Focused on Korea, China, and Singapore. *Korean Journal of Broadcasting and Telecommunication Studies, 21*(5), 297–338.

[In Korean]

Han, Eun Kyoung, & Ki, E.-J. (2010). Developing a measure of celebrity reputation. *Public Relations Review*, *36*(2), 199–201. https://doi.org/10.1016/j.pubrev.2009.10.013

Han, Y. K., Morgan, G. A., Kotsiopulos, A., & Kang-Park, J. (1991). Impulse Buying Behavior of Apparel Purchasers. *Clothing and Textiles Research Journal*, *9*(3), 15–21. https://doi.org/10.1177/0887302x9100900303

Hartmann, T., & Goldhoorn, C. (2011). Horton and Wohl Revisited: Exploring Viewers' Experience of Parasocial Interaction. *Journal of Communication*, *61*(6), 1104–1121. https://doi.org/10.1111/j.1460-2466.2011.01595.x

Hartmann, T., & Klimmt, C. (2005). Ursachen und Effekte Parasozialer Interaktionen im rezeptionsprozess. *Zeitschrift Für Medienpsychologie*, *17*(3), 88–98. https://doi.org/10.1026/1617-6383.17.3.88

In German

Hartmann, T., & Vorderer, P. (2010). It's Okay to Shoot a Character: Moral Disengagement in Violent Video Games. *Journal of Communication*, *60*(1), 94–119. https://doi.org/10.1111/j.1460-2466.2009.01459.x

Hartmann, T., Stuke, D., & Daschmann, G. (2008). Positive Parasocial Relationships with Drivers Affect Suspense in Racing Sport Spectators. *Journal of Media Psychology*, *20*(1), 24–34. https://doi.org/10.1027/1864-1105.20.1.24

Hays, R. D., & DiMatteo, M. R. (1987). A Short-Form Measure of Loneliness. *Journal of Personality Assessment*, *51*(1), 69–81. https://doi.org/10.1207/s15327752jpa5101_6

Hazan, C., & Shaver, P. (1987). Romantic Love Conceptualized as an Attachment Process. *Journal of Personality and Social Psychology*, *52*(3), 511–524. https://doi.org/10.4324/9781351153683-17

Heatherton, T. F., & Polivy, J. (1991). Development and Validation of a Scale for Measuring State Self-Esteem. *Journal of Personality and Social Psychology*, *60*(6), 895–910. https://doi.org/10.1037//0022-3514.60.6.895

Heere, B., & Dickson, G. (2008). Measuring Attitudinal Loyalty: Separating the Terms of Affective Commitment and Attitudinal Loyalty. *Journal of Sport Management*, *22*(2), 227–239. https://doi.org/10.1123/jsm.22.2.227

Hendrick, C., & Hendrick, S. (1986). A Theory and Method of Love. *Journal of Personality and Social Psychology*, *50*(2), 392–402. https://doi.org/https://doi.org/10.1037/0022-3514.50.2.392

Hennig-Thurau, T., Gwinner, K. P., Walsh, G., & Gremler, D. D. (2004). ELECTRONIC WORD-OF-MOUTH VIA CONSUMER-OPINION PLATFORMS: WHAT MOTIVATES CONSUMERS TO ARTICULATE THEMSELVES ON THE INTERNET? *Journal of Interactive Marketing*, *18*(1), 38–52. https://doi.org/10.1002/dir.10073

Hill, R. W., Huelsman, T. J., Furr, R. M., Kibler, J., Vicente, B. B., & Kennedy, C. (2004). A new measure of perfectionism: The perfectionism inventory. *Journal of Personality Assessment*, *82*(1), 80–91. https://doi.org/10.1207/s15327752jpa8201_13

Hillier, W. (2023, May 31). *A Step-by-Step Guide to the Data Analysis Process*. CareerFoundry. https://careerfoundry.com/en/blog/data-analytics/the-data-analysis-process-step-by-step/

Hirschman, E. C. (1983). Predictors of self-projection, fantasy fulfillment, and escapism. *The Journal of Social Psychology*, *120*(1), 63–76. https://doi.org/10.1080/00224545.1983.9712011

Ho, S. S., Lwin, M. O., Yee, A. Z. H., Sng, J. R. H., & Chen, L. (2019). Parents' responses to cyberbullying effects: How third-person perception influences support for legislation and parental mediation strategies. *Computers in Human Behavior*, *92*, 373–380. https://doi.org/10.1016/j.chb.2018.11.021

Hoffner, C. (1996). Children's wishful identification and Parasocial interaction with favorite television characters. *Journal of Broadcasting and Electronic Media*, *40*(3), 389–402. https://doi.org/10.1080/08838159609364360

Hoffner, C. A., & Bond, B. J. (2022). Parasocial Relationships, social media, & well-being. *Current Opinion in Psychology*, *45*, 101306. https://doi.org/10.1016/j.copsyc.2022.101306

Hoffner, C., & Buchanan, M. (2005). Young adults' wishful identification with television characters: The role of perceived similarity and character attributes. *Media Psychology*, *7*(4), 325–351. https://doi.org/10.1207/s1532785xmep0704_2

Holbert, R. L., Zeng, C., & Robinson, N. W. (2017). Adopting an Integrated Behavioral Model Approach to the Study of News Media Exposure: A Focus on Experiential and Instrumental Attitudes Toward Politics. *Mass Communication and Society*, *20*(4), 573–593. https://doi.org/10.1080/15205436.2016.1274764

Holbrook, M. B., Chestnut, R. W., Oliva, T. A., & Greenleaf, E. A. (1984). Play as a consumption experience: The roles of emotions, performance, and personality in the enjoyment of games. *Journal of Consumer Research*, *11*(2), 728. https://doi.org/10.1086/209009

Holmqvist, J., & Lunardo, R. (2015). The impact of an exciting store environment on consumer pleasure and shopping intentions. *International Journal of Research in Marketing*, *32*(1), 117–119. https://doi.org/10.1016/j.ijresmar.2014.12.001

Horton, D., & Wohl, R. R. (1956). Mass communication and para-social interaction. *Psychiatry*, *19*(3), 215–229. https://doi.org/10.1080/00332747.1956.11023049

Howarth, J. (2023, August 10). *How Many Gamers Are There? (New 2023 Statistics)*. Exploding Topics. https://explodingtopics.com/blog/number-of-gamers

Hu, M., Zhang, M., & Wang, Y. (2017). Why do audiences choose to keep watching on live video streaming platforms? an explanation of dual identification framework. *Computers in Human Behavior*, *75*, 594–606. https://doi.org/10.1016/j.chb.2017.06.006

Hughes, M. E., Waite, L. J., Hawkley, L. C., & Cacioppo, J. T. (2004). A Short Scale for Measuring Loneliness in Large Surveys: Results from Two Population-Based Studies. *Research on Aging*, *26*(6), 655–672. https://doi.org/10.1177/0164027504268574

Hui, E. G. M. (2023, April 7). *What is Data Analysis Process?* Medium. https://medium.com/@gohminghui88/what-is-data-analysis-process-84864779eb5

Huston, T. L., McHale, S. M., & Crouter, A. C. (1986). When the Honeymoon's Over: Changes in the Marriage Relationship Over the First Year. In R. Gillmour & S. Duck (Eds.), *The Emerging Field of Personal Relationships* (1st ed., pp. 109–132). essay, Routledge.

Hwang, K., & Zhang, Q. (2018). Influence of parasocial relationship between digital celebrities and their followers on followers' purchase and electronic word-of-mouth intentions, and persuasion knowledge. *Computers in Human Behavior*, *87*, 155–173. https://doi.org/10.1016/j.chb.2018.05.029

Inglehart, R. F., Haerpfer, C., Moreno, A., Welzel, C., Kizilova, K., Diez-Medrano, J., Lagos, M., Norris, P., Ponarin, E., & Puranen, B. (2014). *World Values Survey Wave 6 2010-2014*. WVS Database. https://www.worldvaluessurvey.org/WVSDocumentationWV6.jsp

Jebril, N., Albæk, E., & de Vreese, C. H. (2013). Infotainment, cynicism and democracy: The effects of privatization vs personalization in the news. *European Journal of Communication*, *28*(2), 105–121. https://doi.org/10.1177/0267323112468683

Jiang, L., Hoegg, J., Dahl, D. W., & Chattopadhyay, A. (2010). The persuasive role of incidental similarity on attitudes and purchase intentions in a sales context. *Journal of Consumer Research*, *36*(5), 778–791. https://doi.org/10.1086/605364

Jin, S. V. (2018). Interactive effects of Instagram foodies' hashtagged #Foodporn and peer users' eating disorder on eating intention, envy, Parasocial Interaction, and online friendship. *Cyberpsychology, Behavior, and Social Networking*, *21*(3), 157–167. https://doi.org/10.1089/cyber.2017.0476

Jin, S.-A. A. (2010). Parasocial interaction with an avatar in second life: A typology of the self and an empirical test of the mediating role of Social Presence. *Presence: Teleoperators and Virtual Environments*, *19*(4), 331–340. https://doi.org/10.1162/pres_a_00001

Jin, S.-A. A., & Phua, J. (2014). Following celebrities' tweets about brands: The impact of Twitter-based electronic word-of-mouth on consumers' source credibility perception, buying intention, and social identification with celebrities. *Journal of Advertising*, *43*(2), 181–195. https://doi.org/10.1080/00913367.2013.827606

Johnson, P. (2024, January 8). *50+ twitch statistics for content creators in 2024*. Uscreen. https://www.uscreen.tv/blog/twitch-statistics/

Kang, Y. S., Hong, S., & Lee, H. (2009). Exploring continued online service usage behavior: The roles of self-image congruity and Regret. *Computers in Human Behavior*, *25*(1), 111–122. https://doi.org/10.1016/j.chb.2008.07.009

Kate, S. ten. (2010, November). (thesis). *Virtual consumer communities' social influence effects on product attitude changes: A social capital perspective*. Vrije Universiteit Amsterdam. Retrieved February 13, 2024, from chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.stephantenkate.nl/documents/social-influences-within-virtual-consumer-communities-stenkate.pdf.

Khalifa, M., & Shen, K. N. (2004). System design effects on social presence and telepresence in virtual communities. *University of Wollongong in Dubai - Papers*, 547–558.

Ki, C. "Chloe," & Kim, Y. (2019). The mechanism by which social media influencers persuade consumers: The role of consumers' desire to mimic. *Psychology & Marketing*, *36*(10), 905–922. https://doi.org/10.1002/mar.21244

Kim, H., Ko, E., & Kim, J. (2015). SNS users' para-social relationships with celebrities: Social media effects on purchase intentions. *Journal of Global Scholars of Marketing Science*, *25*(3), 279–294. https://doi.org/10.1080/21639159.2015.1043690

Kim, J., & Song, H. (2016). Celebrity's self-disclosure on Twitter and Parasocial relationships: A mediating role of Social Presence. *Computers in Human Behavior*, *62*, 570–577. https://doi.org/10.1016/j.chb.2016.03.083

Kim, Y., & Peterson, R. A. (2017). A meta-analysis of online trust relationships in e-commerce. *Journal of Interactive Marketing*, *38*, 44–54. https://doi.org/10.1016/j.intmar.2017.01.001

Knobloch, S., Patzig, G., Mende, A.-M., & Hastall, M. (2004). Affective News: Effects of Discourse Structure in Narratives on Suspense, Curiosity, and Enjoyment While Reading News and Novels. *Communication Research*, *31*(3), 259–287. https://doi.org/10.1177/0093650203261517

Koay, K. Y., Lim, W. M., Kaur, S., Soh, K., & Poon, W. C. (2023). How and when Social Media Influencers' intimate self-disclosure fosters purchase intentions: The roles of Congruency and parasocial relationships. *Marketing Intelligence & Planning*, *41*(6), 790–809. https://doi.org/10.1108/mip-06-2023-0246

Koc, M., & Gulyagci, S. (2013). Facebook addiction among Turkish College Students: The Role of Psychological Health, demographic, and usage characteristics. *Cyberpsychology, Behavior, and Social Networking*, *16*(4), 279–284. https://doi.org/10.1089/cyber.2012.0249

Konijn, E. A., & Hoorn, J. F. (2005). Some like it bad: Testing a model for perceiving and experiencing fictional characters. *Media Psychology*, *7*(2), 107–144. https://doi.org/10.1207/s1532785xmep0702_1

Kowert, R., & Daniel, E. (2021). The one-and-a-half sided parasocial relationship: The curious case of live streaming. *Computers in Human Behavior Reports*, *4*, 100150. https://doi.org/10.1016/j.chbr.2021.100150

Kreissl, J., Possler, D., & Klimmt, C. (2021). Engagement with the gurus of gaming culture: Parasocial relationships to let's players. *Games and Culture*, *16*(8), 1021–1043. https://doi.org/10.1177/15554120211005241

Kruskal, W. H., & Tanur, J. M. (1978). Chapter 5: Exploratory Data Analysis. In *International Encyclopedia of Statistics* (pp. 1–26). Free Press.

Kyle, G. T., & Mowen, A. J. (2005). An examination of the leisure involvement—agency commitment relationship. *Journal of Leisure Research*, *37*(3), 342–363. https://doi.org/10.1080/00222216.2005.11950057

Küper, A., & Krämer, N. C. (2021). Influencing factors for building social capital on live streaming websites. *Entertainment Computing*, *39*, 100444. https://doi.org/10.1016/j.entcom.2021.100444

Lacap, J. P., Cruz, M. R., Bayson, A. J., Molano, R., & Garcia, J. G. (2024). Parasocial relationships and social media interactions: Building brand credibility and Loyalty. *Spanish Journal of Marketing - ESIC*, *28*(1), 77–97. https://doi.org/10.1108/sjme-09-2022-0190

Laken, A. R. (2009). Parasocial relationships with celebrities: An illusion of intimacy with mediated friends. *UNLV Theses, Dissertations, Professional Papers, and Capstones*, *5*. https://doi.org/http://dx.doi.org/10.34917/2307944

Lange, J., & Crusius, J. (2015). Dispositional Envy revisited: Unraveling the motivational dynamics of benign and malicious envy. *Personality and Social Psychology Bulletin*, *4*(2), 284–294. https://doi.org/ 10.1177/0146167214564959

Laurenceau, J.-P., Barrett, L. F., & Pietromonaco, P. R. (1998). Intimacy as an Interpersonal Process: The Importance of Self-Disclosure, Partner Disclosure, and Perceived Partner Responsiveness in Interpersonal Exchanges. *Journal of Personality and Social Psychology*, *74*(5), 1238–1251. https://doi.org/10.4324/9780203311851-23

Laurenceau, J.-P., Barrett, L. F., & Rovine, M. J. (2005). The Interpersonal Process Model of Intimacy in Marriage: A Daily-Diary and Multilevel Modeling Approach. *Journal of Family Psychology*, *19*(2), 314–323. https://doi.org/10.1037/0893-3200.19.2.314

Laurenceau, J.-P., Rivera, L. M., Schaffer, A. R., & Pietromonaco, P. R. (2004). Intimacy as an Interpersonal Process: Current Status and Future Directions. In D. J. Mashek & A. Aron (Eds.), *Handbook of Closeness and Intimacy* (pp. 61–78). essay, Routledge.

Leary, M. R., Kelly, K. M., Cottrell, C. A., & Schreindorfer, L. S. (2013). Construct validity of the need to belong scale: Mapping the nomological network. *Journal of Personality Assessment*, *95*(6), 610–624. https://doi.org/10.1080/00223891.2013.819511

Lee, E., Lee, J.-A., Moon, J. H., & Sung, Y. (2015). Pictures speak louder than words: Motivations for using Instagram. *Cyberpsychology, Behavior, and Social Networking*, *18*(9), 552–556. https://doi.org/10.1089/cyber.2015.0157

Lee, J. E., & Watkins, B. (2016). YouTube vloggers' influence on consumer luxury brand perceptions and intentions. *Journal of Business Research*, *69*(12), 5753–5760. https://doi.org/10.1016/j.jbusres.2016.04.171

Lee, K. M., Peng, W., Jin, S.-A., & Yan, C. (2006). Can Robots Manifest Personality? An Empirical Test of Personality Recognition, Social Responses, and Social Presence in Human-Robot Interaction. *Journal of Communication*, *56*(4), 754–772. https://doi.org/10.1111/j.1460-2466.2006.00318.x

Leite, F. P., & Baptista, P. de P. (2022). Influencers' intimate self-disclosure and its impact on consumers' self-brand connections: Scale Development, validation, and application. *Journal of Research in Interactive Marketing*, *16*(3), 420–437. https://doi.org/10.1108/jrim-05-2020-0111

Leith, A. P. (2019). (dissertation). *Gameplay livestreaming: Human agents of gamespace and their parasocial relationships*. ProQuest. Retrieved January 16, 2024, from

https://www.proquest.com/openview/abd1b92290fa957ba267d809af1202ac/1?pq-origsite=gscholar&cbl=51922&diss=y.

Leroux-Parra, M. (2020, August 2). *Esports Part 1: What are Esports?* Harvard International Review. https://hir.harvard.edu/esports-part-1-what-are-esports/

Levy, M. R. (1979). Watching TV News as Para-Social Interaction. *Journal of Broadcasting*, *23*(1), 69–80. https://doi.org/10.1080/08838157909363919

Liang, T.-P., Wu, S. P.-J., & Huang, C. (2019). Why funders invest in crowdfunding projects: Role of trust from the dual-process perspective. *Information & Management*, *56*(1), 70–84. https://doi.org/10.1016/j.im.2018.07.002

Liebers, N., & Schramm, H. (2017). Friends in books: The influence of character attributes and the reading experience on parasocial relationships and romances. *Poetics*, *65*, 12–23. https://doi.org/10.1016/j.poetic.2017.10.001

Likert, R. (1932). *A technique for the measurement of attitudes* (Vol. 22). Archives of Psychology, Columbia University.

Lim, C. M., & Kim, Y. (2011). Older consumers' TV home shopping: Loneliness, parasocial interaction, and perceived convenience. *Psychology & Marketing*, *28*(8), 763–780. https://doi.org/10.1002/mar.20411

Lim, J. S., Choe, M., Zhang, J., & Noh, G.-Y. (2020, March 3). *The role of wishful identification, emotional engagement, and parasocial relationships in repeated viewing of live-streaming games: A Social Cognitive Theory Perspective*. Computers in Human Behavior. https://www.sciencedirect.com/science/article/pii/S0747563220300819

Lim, J. S., Hwang, Y., Kim, S., & Biocca, F. A. (2015). How social media engagement leads to Sports Channel Loyalty: Mediating roles of social presence and channel commitment. *Computers in Human Behavior*, *46*, 158–167. https://doi.org/10.1016/j.chb.2015.01.013

Lim, K. H., Sia, C. L., Lee, M. K. O., & Benbasat, I. (2006). Do I trust you online, and if so, will I buy? an empirical study of two trust-building strategies. *Journal of Management Information Systems*, *23*(2), 233–266. https://doi.org/10.2753/mis0742-1222230210

Lim, S., Cha, S. Y., Park, C., Lee, I., & Kim, J. (2012). Getting closer and experiencing together: Antecedents and consequences of psychological distance in social media-enhanced real-time streaming video. *Computers in Human Behavior*, *28*(4), 1365–1378. https://doi.org/10.1016/j.chb.2012.02.022

Lin, H.-F. (2008). Determinants of successful virtual communities: Contributions from system characteristics and social factors. *Information & Management*, *45*(8), 522–527. https://doi.org/10.1016/j.im.2008.08.002

Lin, L. C.-S. (2021). Virtual gift donation on live streaming apps: The moderating effect of social presence. *Communication Research and Practice*, *7*(2), 173–188. https://doi.org/10.1080/22041451.2021.1889190

Lin, R., & Utz, S. (2017). Self-disclosure on SNS: Do disclosure intimacy and narrativity influence interpersonal closeness and social attraction? *Computers in Human Behavior*, *70*, 426–436. https://doi.org/10.1016/j.chb.2017.01.012

Lippert, T., & Prager, K. J. (2001). Daily experiences of intimacy: A study of couples. *Personal Relationships*, *8*(3), 283–298. https://doi.org/10.1111/j.1475-6811.2001.tb00041.x

Liu, J. H., Yeh, K., Wu, C., Liu, L., & Yang, Y. (2015). The importance of gender and affect in the socialization of adolescents' beliefs about benevolent authority: Evidence from Chinese Indigenous psychology. *Asian Journal of Social Psychology*, *18*(2), 101–114. https://doi.org/10.1111/ajsp.12102

Liu, M. T., Huang, Y., & Minghua, J. (2007). Relations among attractiveness of endorsers, match-up, and purchase intention in sport marketing in China. *Journal of Consumer Marketing*, *24*(6), 358–365. https://doi.org/10.1108/07363760710822945

Liu, S., Liao, J., & Wei, H. (2015). Authentic leadership and whistleblowing: Mediating roles of Psychological Safety and personal identification. *Journal of Business Ethics*, *131*(1), 107–119. https://doi.org/10.1007/s10551-014-2271-z

Lombard, M., Ditton, T. B., Crane, D., Davis, B., Gil-Egui, G., Horvath, K., & Rossman, J. (2000). MEASURING PRESENCE: A LITERATURE-BASED APPROACH TO THE DEVELOPMENT OF A STANDARDIZED PAPER-AND-PENCIL INSTRUMENT. *Presence 2000: The Third International Workshop on Presence*.

Lou, C., & Kim, H. K. (2019). Fancying the new rich and famous? Explicating the roles of influencer content, credibility, and parental mediation in adolescents' parasocial relationship, materialism, and purchase intentions. *Frontiers in Psychology*, *10*. https://doi.org/10.3389/fpsyg.2019.02567

Luci. (2023, October 10). *140+ celebrities who stream on Twitch*. StreamScheme. https://www.streamscheme.com/celebrities-who-stream-on-twitch/

Ma, M. L.-Y., & Leung, L. (2006). Unwillingness-to-communicate, perceptions of the internet and self-disclosure in ICQ. *Telematics and Informatics*, *23*(1), 22–37. https://doi.org/10.1016/j.tele.2005.01.001

Mai, T. D., To, A. T., Trinh, T. H., Nguyen, T. T., & Le, T. T. (2023). Para-social interaction and trust in live-streaming sellers. *Emerging Science Journal*, *7*(3), 744–754. https://doi.org/10.28991/esj-2023-07-03-06

Maltby, J., & McCutcheon, L. E. (2001). Correlations between scores on attitudes toward celebrities and authoritarianism. *Psychological Reports*, *88*(4), 979–980. https://doi.org/10.2466/pr0.88.4.979-980

Maltby, J., Houran, J., Lange, R., Ashe, D., & McCutcheon, L. E. (2002). Thou shalt worship no other gods — unless they are celebrities: The relationship between celebrity worship and religious orientation. *Personality and Individual Differences*, *32*(7), 1157–1172. https://doi.org/10.1016/s0191-8869(01)00059-9

mangalgiaishwarya2. (2024, January 10). *Six Steps of Data Analysis Process*. GeeksforGeeks. https://www.geeksforgeeks.org/six-steps-of-data-analysis-process/

Manne, S., Ostroff, J., Rini, C., Fox, K., Goldstein, L., & Grana, G. (2004). The Interpersonal Process Model of Intimacy: The Role of Self-Disclosure, Partner Disclosure, and Partner Responsiveness in Interactions Between Breast Cancer Patients and Their Partners. *Journal of Family Psychology*, *18*(4), 589–599. https://doi.org/10.1037/0893-3200.18.4.589

Markus, H., & Nurius, P. (1986). Possible Selves. *American Psychologist*, *41*(9), 954–969. https://doi.org/https://psycnet.apa.org/doi/10.1037/0003-066X.41.9.954

Martin, M. C., & Cohen, E. L. (2023). "Welcome to the stream, vykaryous4eva!": The effect of vicarious interaction on parasocial relationships with a live streamer. *Technology, Mind, and Behavior*, *4*(3). https://doi.org/10.1037/tmb0000114

Martin, R. (2023, September 22). *Parasocial interaction*. Encyclopædia Britannica. https://www.britannica.com/science/parasocial-interaction

Masuda, H., Han, S. H., & Lee, J. (2022). Impacts of influencer attributes on purchase intentions in social media influencer marketing: Mediating roles of characterizations. *Technological Forecasting and Social Change*, *174*, 121246. https://doi.org/10.1016/j.techfore.2021.121246

May, E. (2022, November 7). *Streamlabs and Stream Hatchet Q3 2022 Live Streaming Report*. Streamlabs. https://streamlabs.com/content-hub/post/streamlabs-and-stream-hatchet-q3-2022-live-streaming-report

May, E. (2023, August 3). *What Are the Best Days & Times to Stream on Twitch?* Streamlabs. https://streamlabs.com/content-hub/post/what-are-the-best-days-and-times-to-stream-on-twitch

McAllister, D. J. (1995). AFFECT- AND COGNITION-BASED TRUST AS FOUNDATIONS FOR INTERPERSONAL COOPERATION IN ORGANIZATION. *Academy of Management Journal*, *38*(1), 24–59. https://doi.org/10.5465/256727

McCroskey, J. C., & McCain, T. A. (1974). The Measurement of Interpersonal Attraction. *Speech Monographs*, *41*(3), 261–266. https://doi.org/https://doi.org/10.1080/03637757409375845

McCroskey, J. C., & Teven, J. J. (1999). Goodwill: A reexamination of the construct and its measurement. *Communications Monographs*, *66*(1), 90–103. https://doi.org/10.1080/03637759909376464

McCroskey, J. C., Richmond, V. P., & Daly, J. A. (1975). The Development of a Measure of Perceived Homophily in Interpersonal Communication. *Human Communication Research*, *1*(4), 323–332. https://doi.org/10.1111/j.1468-2958.1975.tb00281.x

McCroskey, L. L., McCroskey, J. C., & Richmond, V. P. (2006). Analysis and Improvement of the Measurement of Interpersonal Attraction and Homophily. *Communication Quarterly*, *54*(1), 1–31. https://doi.org/10.1080/01463370500270322

McCutcheon, Lynn E., Lange, R., & Houran, J. (2002). Conceptualization and measurement of celebrity worship. *British Journal of Psychology*, *93*(1), 67–87. https://doi.org/10.1348/000712602162454

McCutcheon, Lynn E., Reyes, M. E., Zsila, Á., & Huynh, H. P. (2021). Is loneliness associated with celebrity attraction in LGBT+ persons? *Journal of Homosexuality*, *69*(14), 2371–2387. https://doi.org/10.1080/00918369.2021.1940014

McCutcheon, Lynn Ellis, Maltby, J., Ashe, D. D., & Houran, J. (2004). *Celebrity worshippers: Inside the minds of Stargazers*. PublishAmerica.

McGuire, W. J. (1974). Psychological Motives and Communication Gratifications. In *The Uses of Mass Communications: Current Perspectives on Gratifications Research* (pp. 167–196). essay, SAGE Publications Ltd.

McLaughlin, C., & Wohn, D. Y. (2021). Predictors of parasocial interaction and relationships in live streaming. *Convergence: The International Journal of Research into New Media Technologies*, *27*(6), 1714–1734. https://doi.org/10.1177/13548565211027807

McLean, D. (2021). *The Influence of Communication Mode and Facial Presence on Attributions of Toxic Behavior During Video Game Live Streams* (dissertation). *ProQuest*. University of Florida ProQuest Dissertations Publishing. Retrieved January 15, 2024, from https://www.proquest.com/openview/86cd7a9bca74a41199c25c593729db83/1?pq-origsite=gscholar&cbl=18750&diss=y.

Measures of central tendency. Australian Bureau of Statistics. (2024). https://www.abs.gov.au/statistics/understanding-statistics/statistical-terms-and-concepts/measures-central-tendency#mean

Metiu, A., & Rothbard, N. P. (2013). Task bubbles, artifacts, shared emotion, and mutual focus of attention: A Comparative Study of the microprocesses of group engagement. *Organization Science*, *24*(2), 455–475. https://doi.org/10.1287/orsc.1120.0738

Mihailova, T. (2020). Navigating ambiguous negativity: A case study of twitch.tv live chats. *New Media & Society*, *24*(8), 1830–1851. https://doi.org/10.1177/1461444820978999

Miller, K. W., & Mills, M. K. (2012). Contributing clarity by examining brand luxury in the fashion market. *Journal of Business Research*, *65*(10), 1471–1479. https://doi.org/10.1016/j.jbusres.2011.10.013

Miller, R. S., & Lefcourt, H. M. (1982). The Assessment of Social Intimacy. *Journal of Personality Assessment*, *46*(5), 514–518. https://doi.org/10.1207/s15327752jpa4605_12

Mitchell, Alexandra E., Castellani, A. M., Herrington, R. L., Joseph, J. I., Doss, B. D., & Snyder, D. K. (2008). Predictors of Intimacy in Couples' Discussions of Relationship Injuries: An Observational Study. *Journal of Family Psychology*, *22*(1), 21–29. https://doi.org/10.1037/0893-3200.22.1.21

Mitchell, Alexandra Elizabeth. (2006). *THE EFFECT OF SELF-DISCLOSURE AND EMPATHIC RESPONDING ON INTIMACY: TESTING AN INTERPERSONAL PROCESS MODEL OF INTIMACY USING AN OBSERVATIONAL CODING SYSTEM* (thesis).

Mitchell, Alexandra Elizabeth. (2008). *The Effect of Perceived and Observed Behaviors on Feelings of Intimacy: A Comparison of "Insider" Versus "Outsider" Perspectives* (thesis).

Mordor Intelligence. (2024). *Game Streaming Market Size & Share Analysis - Growth Trends and Forecasts (2024-2029)*. https://www.mordorintelligence.com/industry-reports/game-streaming-market

Morrell, M. E. (2003). Survey and Experimental Evidence for a Reliable and Valid Measure of Internal Political Efficacy. *The Public Opinion Quarterly*, *67*(4), 589–602. https://doi.org/10.1086/378965

Morrison, M. A., & Morrison, T. G. (2003). Development and Validation of a Scale Measuring Modern Prejudice Toward Gay Men and Lesbian Women. *Journal of Homosexuality*, *43*(2), 15–37. https://doi.org/10.1300/j082v43n02_02

Morton, T. L. (1978). Intimacy and Reciprocity of Exchange: A Comparison of Spouses and Strangers. *Journal of Personality and Social Psychology*, *36*(1), 72–81. https://doi.org/10.1037//0022-3514.36.1.72

Mowday, R. T., Steers, R. M., & Porter, L. W. (1979). The Measurement of Organizational Commitment: A Progress Report. *Journal of Vocational Behavior*, *14*(2), 224–247. https://doi.org/https://doi.org/10.1016/0001-8791(79)90072-1

Munnukka, J., Uusitalo, O., & Toivonen, H. (2016). Credibility of a peer endorser and advertising effectiveness. *Journal of Consumer Marketing*, *33*(3), 182–192. https://doi.org/10.1108/jcm-11-2014-1221

Murray, J. B. (1990). REVIEW OF RESEARCH ON THE MYERS-BRIGGS TYPE INDICATOR. *Perceptual and Motor Skills*, *70*(3), 1187–1202. https://doi.org/10.2466/pms.70.3.1187-1202

Nabi, R. L., Biely, E. N., Morgan, S. J., & Stitt, C. R. (2003). Reality-Based Television Programming and the Psychology of Its Appeal. *Media Psychology*, *5*(4), 303–330. https://doi.org/10.1207/s1532785xmep0504_01

Nabi, R. L., Stitt, C. R., Halford, J., & Finnerty, K. L. (2006). Emotional and cognitive predictors of the enjoyment of reality-based and fictional television programming: An elaboration of the uses and gratifications perspective. *Media Psychology*, *8*(4), 421–447. https://doi.org/10.1207/s1532785xmep0804_5

National Information Society Agency. (2024). *National Information Society Agency.* https://eng.nia.or.kr/site/nia_eng/main.do

NHS. (2023, July 5). *Symptoms - Depression in Adults.* NHS choices. https://www.nhs.uk/mental-health/conditions/depression-in-adults/symptoms/

Nielsen, T. (2022, July 18). *The best time to stream on Twitch in 2024*. Hootsuite. https://blog.hootsuite.com/best-time-to-stream-on-twitch/

Niemi, R. G., Craig, S. C., & Mattei, F. (1991). Measuring Internal Political Efficacy in the 1988 National Election Study. *American Political Science Review*, *85*(4), 1407–1413. https://doi.org/10.2307/1963953

Nowlis, V., & Nowlis, H. H. (1956). THE DESCRIPTION AND ANALYSIS OF MOOD. *Annals of the New York Academy of Sciences*, *65*(4), 345–355. https://doi.org/10.1111/j.1749-6632.1956.tb49644.x

Obst, P., Shakespeare-Finch, J., Krosch, D. J., & Rogers, E. J. (2019). Reliability and validity of the brief 2-way social support scale: An investigation of social support in promoting older adult well-being. *SAGE Open Medicine*, *7*. https://doi.org/10.1177/2050312119836020

Ohanian, R. (1990). Construction and Validation of a Scale to Measure Celebrity Endorsers' Perceived Expertise, Trustworthiness, and Attractiveness. *Journal of Advertising*, *19*(3), 39–52. https://doi.org/10.1080/00913367.1990.10673191

Omarzu, J. (2000). A Disclosure Decision Model: Determining How and When Individuals Will Self-Disclose. *Personality and Social Psychology Review*, *4*(2), 174–185. https://doi.org/10.1207/s15327957pspr0402_05

Osei-Frimpong, K., Donkor, G., & Owusu-Frimpong, N. (2019). The impact of celebrity endorsement on Consumer Purchase Intention: An emerging market perspective. *Journal of Marketing Theory and Practice*, *27*(1), 103–121. https://doi.org/10.1080/10696679.2018.1534070

Ostrom, T. M. (1969). The relationship between the affective, behavioral, and cognitive components of attitude. *Journal of Experimental Social Psychology*, *5*(1), 12–30. https://doi.org/10.1016/0022-1031(69)90003-1

Papacharissi, Z., & Rubin, A. M. (2000). Predictors of Internet Use. *Journal of Broadcasting & Electronic Media*, *44*(2), 175–196. https://doi.org/https://doi.org/10.1207/s15506878jobem4402_2

Park, H. J., & Lin, L. M. (2020). The effects of match-ups on the consumer attitudes toward internet celebrities and their live streaming contents in the context of product endorsement. *Journal of Retailing and Consumer Services*, *52*, 101934. https://doi.org/10.1016/j.jretconser.2019.101934

Park, J. H., & Lennon, S. J. (2004). Television Apparel Shopping: Impulse Buying and Parasocial Interaction. *Clothing and Textiles Research Journal*, *22*(3), 135–144. https://doi.org/10.1177/0887302x0402200304

Park, S.-Y., & Yang, Y. (2010). The Effect of Celebrity Conformity on the Purchase Intention of Celebrity Sponsorship Brand: The Moderating Effects of Symbolic Consumption and Face-Saving. *Journal of Global Fashion Marketing*, *1*(4), 215–229. https://doi.org/10.1080/20932685.2010.10593073

Pasek, J., Kenski, K., Romer, D., & Jamieson, K. H. (2006). America's Youth and Community Engagement: How Use of Mass Media Is Related to Civic Activity and Political Awareness in 14- to 22-Year-Olds. *Communication Research*, *33*(3), 115–135. https://doi.org/10.1177/0093650206287073

Patterson, C. (2024, January 19). *Top 20 twitch streamers (January 2024) – most followed channels*. Dexerto. https://www.dexerto.com/entertainment/top-20-most-followed-twitch-streamers-750744/

PC Mag. (2024). *Definition of video game*. https://www.pcmag.com/encyclopedia/term/video-game

Pittman, M., & Reich, B. (2016). Social media and loneliness: Why an Instagram picture may be worth more than a thousand twitter words. *Computers in Human Behavior*, *62*, 155–167. https://doi.org/10.1016/j.chb.2016.03.084

Prior, M. (2010). You've Either Got It or You Don't? The Stability of Political Interest over the Life Cycle. *The Journal of Politics*, *72*(3), 747–766. https://doi.org/10.1017/s0022381610000149

Qiu, L., Lin, H., Leung, A. K., & Tov, W. (2012). Putting Their Best Foot Forward: Emotional Disclosure on Facebook. *Cyberpsychology, Behavior, and Social Networking*, *15*(10), 569–572. https://doi.org/10.1089/cyber.2012.0200

Quintero Johnson, J. M., & Patnoe-Woodley, P. D. (2016). Exploring the influence of parasocial relationships and experiences on radio listeners' consumer behaviors. *Communication Research Reports*, *33*(1), 40–46. https://doi.org/10.1080/08824096.2015.1117440

Radloff, L. S. (1977). The CES-D Scale: A Self-Report Depression Scale for Research in the General Population. *Applied Psychological Measurement*, *1*(3), 385–401. https://doi.org/10.1177/014662167700100306

Reer, F., & Krämer, N. C. (2014). Underlying factors of social capital acquisition in the context of online-gaming: Comparing World of Warcraft and counter-strike. *Computers in Human Behavior*, *36*, 179–189. https://doi.org/10.1016/j.chb.2014.03.057

Reis, H. T., & Shaver, P. (1988). Intimacy as an Interpersonal Process. In B. M. Montgomery, W. Ickes, S. E. Hobfoll, D. F. Hay, & S. Duck (Eds.), *Handbook of Personal Relationships: Theory, Research and Interventions* (pp. 367–389). essay, John Wiley & Sons Limited.

Reyes, M. E. S., Ayuste, J. M. D., Cabarles, J. A. F., & Castillo, A. L. A. (2021). The Relationship of Celebrity Admiration to Social Media Use among Filipino Youth: A Brief Report. (Lynn E McCutcheon, Ed.). *North American Journal of Psychology*, *23*(3), 509–518.

Reynolds, S. M. (2022). Parasocial relationships with online influencers. *LSU Master's Theses*. https://doi.org/10.31390/gradschool_theses.5637

Reysen, S. (2005). Construction of a new scale: The Reysen Likability Scale. *Social Behavior and Personality*, *33*(2), 201–208. https://doi.org/10.2224/sbp.2005.33.2.201

Roberto, K. A., & Stroes, J. (1992). GRANDCHILDREN AND GRANDPARENTS: ROLES, INFLUENCES, AND RELATIONSHIPS. *The International Journal of Aging and Human Development*, *34*(3), 141–153. https://doi.org/10.4324/9781315227115-12

Rosaen, S. F., & Dibble, J. L. (2008). Investigating the Relationships Among Child's Age, Parasocial Interactions, and the Social Realism of Favorite Television Characters. *Communication Research Reports*, *25*(2), 145–154. https://doi.org/10.1080/08824090802021806

Rosaen, S. F., & Dibble, J. L. (2016). Clarifying the role of attachment and social compensation on parasocial relationships with television characters. *Communication Studies*, *67*(2), 147–162. https://doi.org/10.1080/10510974.2015.1121898

Rosengren, K. E., Windahl, S., Hakansson, P.-A., & Johnsson-Smaragdi, U. (1976). ADOLESCENTS' TV RELATIONS: Three Scales. *Communication Research*, *3*(4), 347–366. https://doi.org/10.1177/009365027600300401

Rotter, J. B. (1967). A new scale for the measurement of interpersonal trust. *Journal of Personality*, *35*(4), 651–665. https://doi.org/10.1037/t02271-000

Rubin, A. M. (1981). An Examination of Television Viewing Motivations. *Communication Research*, *8*(2), 141–165. https://doi.org/10.1177/009365028100800201

Rubin, A. M. (1983). Television Uses and Gratifications: The Interactions of Viewing Patterns and Motivations. *Journal of Broadcasting & Electronic Media*, *27*(1), 37–51. https://doi.org/10.1080/08838158309386471

Rubin, A. M. (1994). *Communication Research Measures: A Sourcebook* (R. B. Rubin, P. Palmgreen, & H. E. Sypher, Eds.; Vol. 1). Guilford Publications.

Rubin, A. M., & Perse, E. M. (1987a). Audience Activity and Soap Opera Involvement A Uses and Effects Investigation. *Human Communication Research*, *14*(2), 246–268. https://doi.org/10.1111/j.1468-2958.1987.tb00129.x

Rubin, A. M., & Perse, E. M. (1987b). Audience Activity and Television News Gratifications. *Communication Research*, *14*(1), 58–84. https://doi.org/10.1177/009365087014001004

RUBIN, A. M., PERSE, E. M., & POWELL, R. A. (1985). Loneliness, parasocial interaction, and local television news viewing. *Human Communication Research*, *12*(2), 155–180. https://doi.org/10.1111/j.1468-2958.1985.tb00071.x

Rubin, R. B., & McHugh, M. P. (1987). Development of Parasocial Interaction Relationships. *Journal of Broadcasting and Electronic Media*, *31*(3), 279–292. https://doi.org/10.1080/08838158709386664

Rungruangjit, W. (2022). What drives Taobao live streaming commerce? the role of parasocial relationships, congruence and source credibility in Chinese consumers' purchase intentions. *Heliyon*, *8*(6). https://doi.org/10.1016/j.heliyon.2022.e09676

Russell, D. W. (1996). UCLA Loneliness Scale (version 3): Reliability, validity, and factor structure. *Journal of Personality Assessment*, *66*(1), 20–40. https://doi.org/10.1207/s15327752jpa6601_2

Russell, D. W., Peplau, L. A., & Cutrona, C. E. (1980). The Revised UCLA Loneliness Scale: Concurrent and Discriminant Validity Evidence. *Journal of Personality and Social Psychology*, *39*(3), 472–480. https://doi.org/10.1037//0022-3514.39.3.472

Russell, D. W., Peplau, L. A., & Ferguson, M. L. (1978). Developing a measure of loneliness. *Journal of Personality Assessment*, *42*(3), 290–294. https://doi.org/10.1207/s15327752jpa4203_11

Scheibe, K., Zimmer, F., Fietkiewicz, K., & Stock, W. (2022). Interpersonal relations and social actions on live streaming services. A systematic review on cyber-social relations. *Proceedings of the Annual Hawaii International Conference on System Sciences*. https://doi.org/10.24251/hicss.2022.410

Schemer, C., & Meltzer, C. E. (2019). The impact of negative parasocial and vicarious contact with refugees in the media on attitudes toward refugees. *Mass Communication and Society*, *23*(2), 230–248. https://doi.org/10.1080/15205436.2019.1692037

Schmid, H., & Klimmt, C. (2011). A magically nice guy: Parasocial relationships with Harry Potter across different cultures. *International Communication Gazette*, *73*(3), 252–269. https://doi.org/10.1177/1748048510393658

Schramm, H., & Hartmann, T. (2008). The PSI-Process Scales. A new measure to assess the intensity and breadth of parasocial processes. *Communications*, *33*(4), 385–401. https://doi.org/10.1515/comm.2008.025

Schutte, N. S., Malouff, J. M., Hall, L. E., Haggerty, D. J., Cooper, J. T., Golden, C. J., & Dornheim, L. (1998). Development and validation of a measure of emotional intelligence. *Personality and Individual Differences*, *25*(2), 167–177. https://doi.org/10.1016/s0191-8869(98)00001-4

See-To, E. W. K., & Ho, K. K. W. (2014). Value co-creation and purchase intention in social network sites: The role of electronic word-of-mouth and trust – a theoretical analysis. *Computers in Human Behavior*, *31*, 182–189. https://doi.org/10.1016/j.chb.2013.10.013

Seiders, K., Voss, G. B., Grewal, D., & Godfrey, A. L. (2005). Do satisfied customers buy more? examining moderating influences in a retailing context. *Journal of Marketing, 69*(4), 26–43. https://doi.org/10.1509/jmkg.2005.69.4.26

Senft, T. M. (2013). Microcelebrity and the branded self. *A Companion to New Media Dynamics,* 346–354. https://doi.org/10.1002/9781118321607.ch22

Shabahang, R., Sheykhangafshe, F. B., Siahkoucheh, A. Y., Chirani, B. M., Mousavi, S. M., & Akhavan, M. (2020). Role of Parasocial Interaction with Narcotic-Addicted Celebrities and Worshiping them in the Prediction of Addiction Potential. *International Journal of Psychology*, *14*(1), 163–191. https://doi.org/ 10.22034/ijpb.2020.206719.1133

Shakespeare-Finch, J., & Obst, P. L. (2011). The development of the 2-way social support scale: A measure of giving and receiving emotional and instrumental support. *Journal of Personality Assessment*, *93*(5), 483–490. https://doi.org/10.1080/00223891.2011.594124

Shamir, B., Zakay, E., Breinin, E., & Popper, M. (1998). Correlates of charismatic leader behavior in military units: Subordinates' attitudes, unit characteristics, and superiors' appraisals of leader performance. *Academy of Management Journal*, *41*(4), 387–409. https://doi.org/10.5465/257080

Shandrokha, J. (2023, November 15). *Understanding the different types of streamers on twitch*. Famesters. https://famesters.com/blog/different-types-of-twitch-streamers-and-how-they-can-contribute-to-your-influencer-marketing-campaigns/

Sherrick, B., Smith, C., Jia, Y., Thomas, B., & Franklin, S. B. (2022). How parasocial phenomena contribute to sense of community on twitch. *Journal of Broadcasting & Electronic Media 2023*, *67*(1), 47–67. https://doi.org/10.1080/08838151.2022.2151599

Short, J., Williams, E., & Christie, B. (1976). *The Social Psychology of Telecommunications*. Wiley.

Singelis, T. M. (1994). The Measurement of Independent and Interdependent Self-Construals. *Personality and Social Psychology Bulletin*, *20*(5), 580–591. https://doi.org/10.1177/0146167294205014

Sjöblom, M. (2019, March 28). *The anatomy of a Twitch stream: What are successful Twitch streams made of?* LinkedIn. https://www.linkedin.com/pulse/anatomy-twitch-stream-max-sj%C3%B6blom

Sokolova, K., & Kefi, H. (2020). Instagram and YouTube bloggers promote it, why should I buy? how credibility and Parasocial Interaction Influence Purchase Intentions. *Journal of Retailing and Consumer Services*, *53*, 101742. https://doi.org/10.1016/j.jretconser.2019.01.011

Speed, A., Burnett, A., & Robinson, T. (2023). Beyond the game: Understanding why people enjoy viewing twitch. *Entertainment Computing*, *45*. https://doi.org/https://doi.org/10.1016/j.entcom.2022.100545

Stahler, A. R. (2019). *Parasocial relationships between sports fans and professional athletes* (thesis). (P. Sommer, Ed.) *Parasocial Relationships Between Sports Fans and Professional Athletes*. OhioLINK ETD Center. Retrieved January 14, 2024, from https://etd.ohiolink.edu/acprod/odb_etd/etd/r/1501/10?clear=10&p10_accession_num=ksuhonors1575907648474977.

Statista. (2024). *Games live streaming - worldwide: Statista market forecast*. https://www.statista.com/outlook/dmo/digital-media/video-games/games-live-streaming/worldwide

Sternberg, R. J. (1997). Construct validation of a triangular love scale. *European Journal of Social Psychology*, *27*(3), 313–335. https://doi.org/10.1002/(sici)1099-0992(199705)27:3<313::aid-ejsp824>3.0.co;2-4

Steuer, J. (1992). Defining virtual reality: Dimensions determining telepresence. *Journal of Communication*, *42*(4), 73–93. https://doi.org/10.1111/j.1460-2466.1992.tb00812.x

Stever, G. S. (2013). Mediated vs. Parasocial Relationships: An Attachment Perspective. *Journal of Media Psychology*, *17*(3), 1–31.

Stiles, W. B. (1979). Verbal Response Modes and Psychotherapeutic Technique. *Psychiatry*, *42*(1), 49–62. https://doi.org/10.1080/00332747.1979.11024006

Su, L., Swanson, S. R., Chinchanachokchai, S., Hsu, M. K., & Chen, X. (2016). Reputation and intentions: The role of satisfaction, identification, and commitment. *Journal of Business Research*, *69*(9), 3261–3269. https://doi.org/10.1016/j.jbusres.2016.02.023

Suh, K.-S., & Chang, S. (2006). User interfaces and consumer perceptions of online stores: The role of Telepresence. *Behaviour & Information Technology*, *25*(2), 99–113. https://doi.org/10.1080/01449290500330398

Susing, I., Green, L. S., & Grant, A. M. (2011). The potential use of the authenticity scale as an outcome measure in executive coaching. *The Coaching Psychologist*, *7*(1), 16–25. https://doi.org/10.53841/bpstcp.2011.7.1.16

Tal-Or, N., & Cohen, J. (2010). Understanding audience involvement: Conceptualizing and manipulating identification and Transportation. *Poetics*, *38*(4), 402–418. https://doi.org/10.1016/j.poetic.2010.05.004

Tang, J.-H., & Wang, C.-C. (2012). Self-Disclosure Among Bloggers: Re-Examination of Social Penetration Theory. *Cyberpsychology, Behavior, and Social Networking*, *15*(5), 245–250. https://doi.org/10.1089/cyber.2011.0403

Team Capermint. (2024, January 5). *Top 20 game streaming platforms and sites (2024)*. Capermint. https://www.capermint.com/blog/top-game-streaming-platforms/

Tedesco, L. (2023, December 6). *18 Biggest Gaming Conventions in The World (From Smallest to Largest).* Game Rant. https://gamerant.com/gamin-conventions-world-smallest-largest-ranked/#gamescom

Teo, H.-H., Chan, H.-C., Wei, K.-K., & Zhang, Z. (2003). Evaluating information accessibility and community adaptivity features for sustaining virtual learning communities. *International Journal of Human-Computer Studies*, *59*(5), 671–697. https://doi.org/10.1016/s1071-5819(03)00087-9

Tian, Q., & Hoffner, C. A. (2010). Parasocial interaction with liked, neutral, and disliked characters on a popular TV series. *Mass Communication and Society*, *13*(3), 250–269. https://doi.org/10.1080/15205430903296051

Trepte, S., Reinecke, L., & Juechems, K. (2012). The social side of gaming: How playing online computer games creates online and offline social support. *Computers in Human Behavior*, *28*(3), 832–839. https://doi.org/10.1016/j.chb.2011.12.003

Tretkoff, E., & Ramlagan, N. (2008, October). *October 1958: Physicist invents first video game*. American Physical Society. https://www.aps.org/publications/apsnews/200810/physicshistory.cfm

Tsiotsou, R. H. (2015). The role of social and parasocial relationships on social networking sites loyalty. *Computers in Human Behavior*, *48*, 401–414. https://doi.org/10.1016/j.chb.2015.01.064

Tukachinsky, R. (2010). Para-Romantic Love and Para-Friendships Development and Assessment of a Multiple-Parasocial Relationships Scale. *American Journal of Media Psychology*, *3*(1/2), 73–94.

Tukey, J. W. (1977). *Exploratory Data Analysis*. Addison-Wesley.

Twitch. (2024). *Tips for Applying to the Partner Program*. Twitch Help Portal. https://help.twitch.tv/s/article/tips-for-applying-to-the-partner-program?language=en_US

Valkenburg, P. M., Krcmar, M., Peeters, A. L., & Marseille, N. M. (1999). Developing a scale to assess three styles of television mediation: "Instructive mediation," "restrictive mediation," and "social coviewing." *Journal of Broadcasting & Electronic Media*, *43*(1), 52–66. https://doi.org/10.1080/08838159909364474

van der Heijden, H. (2003). Factors influencing the usage of websites: The case of a generic portal in the Netherlands. *Information and Management*, *40*(6), 541–549. https://doi.org/10.1016/s0378-7206(02)00079-4

van Reijmersdal, E. A., Tutaj, K., & Boerman, S. C. (2013). The effects of brand placement disclosures on skepticism and brand memory. *Communications - The European Journal of Communication Research*, *38*(2), 127–146. https://doi.org/10.1515/commun-2013-0008

Vashisht, D., & Royne, M. B. (2016). Advergame speed influence and brand recall: The moderating effects of brand placement strength and gamers' persuasion knowledge. *Computers in Human Behavior*, *63*, 162–169. https://doi.org/10.1016/j.chb.2016.05.022

Visscher, A., & Vorderer, P. (1998). Freunde in guten und schlechten Zeiten: Parasoziale Beziehungen von Vielsehern zu Charakteren einer Daily Soap. *Inszenierungsgesellschaft*, 453–469. https://doi.org/10.1007/978-3-322-89797-8_25

Voss, K. E., Spangenberg, E. R., & Grohmann, B. (2003). Measuring the Hedonic and Utilitarian Dimensions of Consumer Attitude. *Journal of Marketing Research*, *40*(3), 310–320. https://doi.org/10.1509/jmkr.40.3.310.19238

Vossen, H. G. M., & Valkenburg, P. M. (2016). Do social media foster or curtail adolescents' empathy? A longitudinal study. *Computers in Human Behavior*, *63*, 118–124. https://doi.org/10.1016/j.chb.2016.05.040

Wahab, H. K. A., & Tao, M. (2019). The Influence of Internet Celebrity on Purchase Decision and Materialism: The Mediating Role of Para-social Relationships and Identification. *European Journal of Business and Management*, *11*(15), 183–199. https://doi.org/10.7176/EJBM/11-15-20

Wan, A., & Wu, L. (2020). Understanding the Negative Consequences of Watching Social Live Streaming Among Chinese Viewers. *International Journal of Communication*, *14*, 5311–5330. https://doi.org/1932–8036/20200005

Wang, C., Siu, N. Y. M., & Hui, A. S. Y. (2004). Consumer decision-making styles on domestic and imported brand clothing. *European Journal of Marketing*, *38*(1/2), 239–252. https://doi.org/10.1108/03090560410511212

Wang, S.-J., Hsu, C.-P., Huang, H.-C., & Chen, C.-L. (2015). How readers' perceived self-congruity and functional congruity affect bloggers' informational influence. *Online Information Review*, *39*(4), 537–555. https://doi.org/10.1108/oir-02-2015-0063

Waring, E. M. (1988). *Enhancing Marital Intimacy Through Facilitating Cognitive Self-disclosure*. Routledge.

Waring, E. M., & Chelune, G. J. (1983). MARITAL INTIMACY AND SELF-DISCLOSURE. *Journal of Clinical Psychology*, *39*(2), 183–190. https://doi.org/10.1002/1097-4679(198303)39:2<183::aid-jclp2270390206>3.0.co;2-l

Waring, E. M., & Russell, L. (1980). Cognitive Family Therapy. *Journal of Sex & Marital Therapy*, *6*(4), 258–273. https://doi.org/https://doi.org/10.1080/00926238008406091

Wasko, M. M., & Faraj, S. (2005). Why should I share? examining social capital and knowledge contribution in electronic networks of Practice. *MIS Quarterly*, *29*(1), 35–57. https://doi.org/10.2307/25148667

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and Validation of Brief Measures of Positive and Negative Affect: The PANAS Scales. *Journal of Personality and Social Psychology*, *54*(6), 1063–1070. https://doi.org/10.1037//0022-3514.54.6.1063

Webster, P. (2019). *Parasocial Relationships in New Media* (thesis).

Wheeless, L. R. (1976). SELF-DISCLOSURE AND INTERPERSONAL SOLIDARITY: MEASUREMENT, VALIDATION, AND RELATIONSHIPS. *Human Communication Research*, *3*(1), 47–61. https://doi.org/10.1111/j.1468-2958.1976.tb00503.x

Wheeless, L. R. (1978). A FOLLOW-UP STUDY OF THE RELATIONSHIPS AMONG TRUST, DISCLOSURE, AND INTERPERSONAL SOLIDARITY. *Human Communication Research*, *4*(2), 143–157. https://doi.org/10.1111/j.1468-2958.1978.tb00604.x

WHEELESS, L. R., & GROTZ, J. (1977). The measurement of trust and its relationship to self-disclosure. *Human Communication Research*, *3*(3), 250–257. https://doi.org/10.1111/j.1468-2958.1977.tb00523.x

Wiggins, J. S. (1979). A Psychological Taxonomy of Trait-Descriptive Terms: The Interpersonal Domain. *Journal of Personality and Social Psychology*, *37*(3), 395–412. https://doi.org/10.1037//0022-3514.37.3.395

Wijman, T. (2023, November 14). *Newzoo's games market revenue estimates and forecasts by region and segment for 2023*. Newzoo. https://newzoo.com/resources/blog/games-market-estimates-and-forecasts-2023

Williams, D. (2006). On and off the 'net: Scales for social capital in an online era. *Journal of Computer-Mediated Communication*, *11*(2), 593–628. https://doi.org/10.1111/j.1083-6101.2006.00029.x

Wise, J. (2023, April 17). *TWITCH STATISTICS 2024: HOW MANY PEOPLE USE TWITCH?* EARTHWEB. https://earthweb.com/twitch-statistics/

Worsley, S. (2023, October 17). *What is R? - an introduction to the statistical computing powerhouse*. DataCamp. https://www.datacamp.com/blog/all-about-r

Wu, J., & Holsapple, C. (2014). Imaginal and emotional experiences in pleasure-oriented IT usage: A hedonic consumption perspective. *Information & Management*, *51*(1), 80–92. https://doi.org/10.1016/j.im.2013.09.003

Wulf, T., Schneider, F. M., & Queck, J. (2021). *Exploring viewers' experiences of parasocial interactions with videogame streamers on twitch*. Cyberpsychology, behavior and social networking. https://pubmed.ncbi.nlm.nih.gov/33535010/

Xu, P., Cui, B., & Lyu, B. (2022). Influence of Streamer's social capital on purchase intention in live streaming e-commerce. *Frontiers in Psychology*, *12*. https://doi.org/10.3389/fpsyg.2021.748172

Xu, X., Wu, J.-H., Chang, Y.-T., & Li, Q. (2019). The Investigation of Hedonic Consumption, Impulsive Consumption and Social Sharing in E-commerce Live-streaming Videos. *PACIS 2019 Proceedings*.

Xu, X.-Y., Niu, W.-B., Jia, Q.-D., Nthoiwa, L., & Li, L.-W. (2021). Why do viewers engage in video game streaming? the perspective of cognitive emotion theory and the

moderation effect of personal characteristics. *Sustainability*, *13*(21), 11990. https://doi.org/10.3390/su132111990

Xu, Y., Vanden Abeele, M., Hou, M., & Antheunis, M. (2022). Do parasocial relationships with micro- and mainstream celebrities differ? an empirical study testing four attributes of the parasocial relationship. *Celebrity Studies*, *14*(3), 366–386. https://doi.org/10.1080/19392397.2021.2006730

Yi, M. Y., & Hwang, Y. (2002). Predicting the use of web-based information systems: Self-efficacy, enjoyment, learning goal orientation, and the technology acceptance model. *AMCIS 2002 Proceedings*, 149. https://doi.org/10.1016/s1071-5819(03)00114-9

Yoo, B., & Donthu, N. (2001). Developing and validating a multidimensional consumer-based Brand Equity Scale. *Journal of Business Research*, *52*(1), 1–14. https://doi.org/10.1016/s0148-2963(99)00098-3

Yoshida, M., Heere, B., & Gordon, B. S. (2015). Predicting behavioral loyalty through community: Why other fans are more important than our own intentions, our satisfaction, and the team itself. *Journal of Sport Management*, *29*(3), 318–333. https://doi.org/10.1123/jsm.2013-0306

Yuan, J., & Jang, S. (2008). The effects of quality and satisfaction on awareness and behavioral intentions: Exploring the role of a wine festival. *Journal of Travel Research*, *46*(3), 279–288. https://doi.org/10.1177/0047287507308322

Zargar, Y. (2006). Developing Iranian Addiction Potential Scale. *Second Congress of Iran Psychology Association*.

[In Persian]

Şahin, C. (2018). Social Media Addiction Scale - Student Form: The Reliability and Validity Study. *TOJET: The Turkish Online Journal of Educational Technology*, *17*(1). https://doi.org/10.1037/t72756-000

I. Appendix

Appendix A. Consent Form

ATENEO DE MANILA UNIVERSITY
UNIVERSITY RESEARCH ETHICS OFFICE

ADMUREC FORM 12 - GUIDELINES AND APPLICATION FORM FOR STUDENT ETHICS CLEARANCE FOR RESEARCH WITH HUMAN PARTICIPANTS

Application Instructions:

- Read the Ethics Review Guidelines and Procedures for Student-Initiated Research (High School or Undergraduate Theses and Final Projects)
- Submit the following together with the application form:
  - ☐ Research proposal that includes the ethical considerations pertinent to the study
  - ☐ Participant recruitment materials
  - ☐ Informed Consent Forms (ICF) and Assent Forms (if applicable)
  - ☐ Permission letters sent or received from relevant collaborating offices or data collection areas
  - ☐ Instruments, questionnaires, interview or FGD scripts and protocols
- Obtain the approval and signature of faculty adviser / instructor
- Submit the application form and the attachments to the Ateneo Senior High School – Research Ethics Committee (ASHS-REC) or the designated Department Research Ethics Committee (DREC) representative who will review your proposal (assignment of reviewer is done through ASHS-REC or DREC protocols and may be through the adviser)
- For assistance, contact your ASHS-REC or DREC head or representative or the University Research Ethics Office (Tel. No.: +63 2 426-6001 ext. 4030, 0945 2136758, or Email: univresearchethics@ateneo.edu)

ATENEO DE MANILA UNIVERSITY
UNIVERSITY RESEARCH ETHICS OFFICE

ADMUREC FORM 12 - APPLICATION FORM FOR STUDENT ETHICS CLEARANCE FOR RESEARCH WITH HUMAN PARTICIPANTS

Project Title: Are We Really Friends? Examining the Impact of Parasocial Interactions in Video Game Live Streams			
Name/s of Investigator/s:	Ateneo ID Numbers:	Email Addresses:	Contact Numbers:
Ethan G. Fong	182019	ethan.fong@student.ateneo.edu	09270835665
[If HS] Grade and Section:			
[If LS] School and Department: School of Social Sciences, Department of Communication			
SY & Semester first enrolled in thesis / final project course: 2023-2024, 1st Semester SY & Semester this research / project needs to be completed to graduate: 2023-2024, 2nd Semester			
Guidance Note: Graduate student theses/dissertations/capstone projects in the Loyola Schools are reviewed by the CADRE Research Ethics Committee (UREC); consult adviser and UREO for forms and procedures. If the research is to be conducted and completed for a one-semester graduate class (i.e. required by faculty; not thesis/diss/capstone proj), the review may be conducted by department-level ethics reviewers using this form.			

Faculty Adviser: **Andrew Ty**	Ateneo ID (e.g., 13250): **16015**
Email Address: **aty@ateneo.edu**	Contact Number: **84266001 Local 5210**

A: General Purpose & Procedures:

1. Describe the objectives of the study:

To raise awareness of the potential harms that may be present in live streamer and audience parasocial interactions (PSIs) so that audience members are empowered to watch these streams mindfully and to know what to do
so that they are not overcome by these undesirable effects.

2. Describe the procedures that participants will undergo:

Participants will be answering a 59-item online survey administered through Google Forms, that will involve them rating statements using a five-point Likert Scale (with 1 being Highly Disagree and 5 being Highly Agree). Besides the items, the survey will also be asking them about basic demographic information such as age, gender, how often they watch video game live streams, who their favorite video game live streamers are, among other information.

3. How long will participants be involved in this research study? (i.e. the number of sessions; the duration of each session)

The participants will only be involved in the research study for a short time, as they are simply answering a survey. The survey itself would take about 10 minutes to answer.

4. Where will this research study take place? Include all that apply.

The survey will be administered online, so there would be no specific location of where the study will take place. The respondents will be free to answer the survey wherever they may be.

Guidance Note: Research in sites such as schools, hospitals, offices, etc. must be approved by an individual in a decision-making position at the site. Documented approval (i.e., a letter of agreement) is required.

B. Participants:

5. **Choose all categories of participants** who will be involved in this research study.
   - ☐ Healthy adults
   - ☐ Children-individuals under the age of 18
   - ☐ Prisoners
   - ☐ Women who are or may be pregnant, or of childbearing potential ▯ Tick one:
     - ☐ The research poses no known or suspected risks to the pregnant woman or the fetus if pregnant women are coincidentally enrolled or:
     - ☐ Precautions regarding possible risks to pregnancy and/or lactation and/or the fetus are addressed in the research protocol and included in the consent form
   - ☐ Patients (persons receiving medical treatment)
   - ☐ Individuals with a mental or decisional impairment
   - ☐ Institutionalized individuals (e.g., residing in government facilities, or in homes or centers)
   - ☐ Indigenous groups
   - ☐ Indigent persons (i.e. low socioeconomic status)
   - ☐ Senior citizens
   - ☐ Ateneo de Manila students ☒ LS ☐ HS ☐ GS ☐ Others, pls specify:
   - ☐ Other pertinent characteristic/s not specified above:

6. How many participants will be recruited for the study? 100 Participants will be recruited for the study.
   ▯ Briefly justify the number of participants: I aim to have at least 100 participants answer my survey because determining the specific viewing behaviors or the perceived PSIs that the respondent shares with the live streamer that they enjoy watching would require me to get enough participants to be able to observe correlations within the data.

7. Are there specific inclusion criteria for participating in the study? (i.e., should possess particular characteristics)
   ☐ Yes ▯ Specify: Participants should be viewers of video game live streams. The items within the questionnaire would not make sense to non-live stream viewers.
   ☐ No

8. Are there specific exclusion criteria for participating in the study? (i.e., should not possess particular characteristics)
   ☐ Yes ▯ Specify: Underage
   ☐ No

9. Could some or all participants be vulnerable to coercion or undue influence due to special circumstances (e.g., employees of researcher's family-owned or managed company; persons in subordinate positions to researchers or researchers' families)?
   ☐ Yes ▯ Describe the measures taken to preserve voluntary consent of these individuals:
   ☐ No

C. Recruitment:

10. Indicate the types of recruitment that will be done for this research and submit copies of the materials and/or verbal scripts. Choose all that apply:
    - ☐ Ads posted or aired in physical or digital media outlets (e.g. news, tv, radio)
    - ☐ Flyers/posters/brochures - Where will the items be displayed/distributed?
    - ☐ Web and social media sites - List the sites: Facebook
    - ☐ Letters/Emails/Telephone calls to potential participants
      ▯ Explain how potential participants' contact information are to be obtained: The contact information of potential participants will be primarily acquired through referrals and through contacts that the researcher knows himself.
    - ☐ Letters/Emails to professionals or administrators (e.g. education / health / NGO centers) for recruitment purposes
      ▯ Identify the position of administrator who will receive these letters:
    - ☐ Face-to-face approach
    - ☐ Students / Subject Pool ▯ Indicate the class:

Guidance Note: If you are not a member of the subject pool's department, submit the permission and approval letter.
☐ Other ▯ Explain:

11. Before potential participants sign a consent form, are there any screening questions that will be asked to determine whether an individual is appropriate for the study?
    ☐ Yes ▯ Answer Question 12 ☒ No ▯ Skip to Question 13

12. During screening questions, will identifiable information (e.g. name, ID no., contact info) about these individuals be recorded?
    ☐ Yes ▯ What is the identifiable information and how will it be treated if the individual is not continuing to participate in the study?
    ☒ No

Guidance Note: Please submit the procedure, script, and measure/tool for the screening questions.

13. Will investigators access education/medical/assessment records and/or school/hospital/clinic databases for recruitment and selection purposes?
    ☐ Yes ▯ Answer Question 14 ☒ No ▯ Skip to Question 15

14. Has permission to access information been granted by the institution holding these records?
    ☐ Yes ▯ attach permission letter
    ☐ No

15. Will professionals or administrators themselves provide identifiable information (e.g., name, telephone number, address) to investigators for recruitment purposes?
    ☐ Yes ▯ Provide evidence of the authorization release or consent form from prospective participants, for review
    ☐ No

D. Informed Consent Process:

16. Describe the process of obtaining informed consent/assent. If participants do not speak the language of the researchers, are illiterate, or have other special circumstances, describe the procedures in obtaining consent.

As this is an online survey, before filling in the necessary demographic information, participants will be presented with an online consent form and disclaimer that lists down the information that may be needed from them. This implied consent form mentions that answering the survey is completely voluntary on their part, and that they are free to withdraw without consequence.

17. What type of consent will be obtained? Choose all that apply and submit the informed consent/assent form(s) or scripts (if verbal consent).

- ☐ Signed consent - participant will sign consent form
  Guidance Note: If participants are to sign a consent form, they should receive a copy of their signed form.
- ☐ Implied consent - participant will not sign consent form (e.g., email, on-line survey, mailed survey)
  ▯ Justify: As an online survey, there would be no need for participants to sign a consent form, since they are free to withdraw from answering the survey at any time, even in the midst of answering it.
- ☐ Verbal consent - participant gives consent verbally (e.g., in-person interview, telephone interview)
  ▯ Justify:
- ☐ Passive/Opt-out consent - participant only required to act if they do not want to participate
  ▯ Justify:
- ☐ Complete waiver of informed consent
  ▯ Justify:
- ☐ Other ▯ Describe:

Guidance Note: Refer to Informed Consent Template for guidance on content required in informed consent forms.

18. If multiple groups of participants will be recruited (i.e., children, adults), specify whether and how informed consent procedures will be different for each group of participants:

Only one type of participants, which are adults who watch video game live-stream, will be recruited for this study.

E. Payment for Participation:

19. Indicate the type and amount of payment for participation that will be offered. **Choose all that apply.**
☐ Money Amount:

☐ Gift Certificate Amount:
☐ Extra/Class Credit (e.g., 5 points, 1% of final grade) Explain: ⫴ Answer Question 20
☑ Raffle Explain: Three lucky winners have the chance to win ₱₱ 1000 on GCash. Participants will be given the option to place their contact number at the end of the survey if they want to participate in the raffle.
☐ Other (e.g., merchandise) Explain:
☐ Compensation will **NOT** be offered Skip to Question 21

20. If participation is compensated in the form of class credit, an alternative, equal in time and effort, must be offered in place of participating in the research. Describe the alternative available for earning the class credit.

F. Data Collection Methods / Sources of Data:

21. Identify all of the data collection methods or data sources that will be used in this study. Submit a copy of all instruments/measures, interview and focus group topics/questions.
☐ educational / achievement / cognitive tests
☐ psychological tests
☐ surveys or questionnaires (e.g. self-reported/paper-pencil; online; telephone)
☐ individual interviews
☐ focus group discussions
☐ participant diaries/journals
☐ participant posts or entries in internet blogs and/or social media
☐ behavior observations
☐ photograph / audio / video recordings
☐ existing or secondary datasets/databases/records
☐ existing biological specimens
☐ collected biological specimens - blood, urine & other human-derived samples
☐ biomedical devices- e.g., EEG, EKG, MRI
☐ physical testing measures – e.g., height, weight, Body Mass Index, blood pressure
☐ Other ⫴ Explain:

22. Will participants be assigned to or compared by groups (eg experimental or quasi-experimental design)?
☐ Yes ⫴ Answer Question 23 ☐ No ⫴ Skip to Question 24

23. Will a control or comparison group(s) be used?
☐ Yes ⫴ Describe what condition or stimuli the control group will undergo:
☐ No

G. Discomforts and Risks

24. List all of the potential discomforts and risks (physical, psychological, legal, social, or economic) and describe the a) likelihood and b) magnitude of the discomforts/risks.

Along with the positive effects of watching video game live streams and fostering PSIs with the streamer, the survey will also measure possible negative effects of this, such as loneliness, and addiction, which may possibly cause discomfort on the part of the audience member as they may have sudden realizations or unwanted thoughts when reading the statements. Besides this, there is nothing else of note in the survey that may cause possible discomfort.

25. Describe all the steps taken to minimize risks to participants throughout the study:

Although the survey will be obtaining demographic information, because I plan to administer it to live stream audiences in general, I will not collect some demographic information such as I.D. No. and Name because these would be irrelevant for the purposes of my study. This also has the added benefit of adding an extra layer of anonymity to my responses, which will help minimize the risk to the participants.

26. Will medical, psychological, or other reparative measures be provided for participants who may require it as a result of their participation in the study?
☐ Yes ⫴ Describe & identify the source of medical or psychological care - include institution & contact information:
☐ No ⫴ Explain why medical, psychological, or other reparative measures will not be available: The statements in my survey will not delve into highly sensitive or highly personal information, so besides the slight discomfort as mentioned above, the chances of respondents requiring medical, psychological, or reparative help after answering the questionnaire would be highly unlikely.

H. Benefits

27. What are the potential direct benefits of the study to the participants?
Guidance Note: Payment or token is not considered a benefit as these are intended to compensate for time and other costs of participation.

PSIs have both their good and bad sides, as multiple studies on the phenomenon have shown. Therefore, helping live stream audiences become more aware of the PSIs that they have with the live streamer by exposing them to both positive and negative statements aim to also help them process the relationship that they share with the live streamer. By answering the survey, I hope that respondents are able to reflect on the streamer's PSIs with them so that they will be able to see if these PSIs are positively or negatively affecting them.

28. What are the potential indirect benefits of the study (i.e., to society)?

The parasocial theory has been around since 1956 as a way to conceptualize the mediated, one-sided relationships that TV audiences seem to have with TV performers or media personae. Since then, PSR theory has been expanded in scope to incorporate more types of mediated one-sided relationships, and it is only recently that the focus of parasocial research has shifted to live streams. However, there is an extra benefit of analyzing PSR from the context of live streams since recent research suggests that the extra interactivity that live stream platforms have make the PSRs mediated through these platforms unique compared to other media. Therefore, by analyzing this newest form of PSR, I aim to benefit society by bringing awareness to the possible benefits and harms that live stream PSIs may have to their audience. This may encourage live stream platforms, audience members, and even the streamers themselves to enact certain policies or adopt certain behaviors so that the possible harms of PSRs may be minimized.

29. Explain how the benefits outweigh the risks of the study.

As touched on above, the possible discomfort that respondents may feel when confronted with statements touching on the negative effects of PSRs is vastly outweighed by the benefits that this study will bring, not only to the field of PSR research, but also to the broader audience of live streamers, live stream platforms, and live stream viewers themselves. Helping these three parties become more aware of both the positive and negative effects of PSR will motivate them to enforce policies and create content that will encourage people to foster PSRs with these streamers responsibly, something that is needed in light of the common criticism of "toxicity" and offensiveness that some live stream fanbases infamously promote.

I. Confidentiality and Privacy

30. Describe the provisions made to maintain confidentiality of the data. Select all that apply:
☐ Use of identification codes (i.e., code numbers, pseudonyms)
Guidance Note: documents linking the ID codes with participants' identities should be confidential
☐ Password protected computer files
☐ Locked file cabinets
☐ Locked offices
☐ Other ⫴ Explain:

31. Describe how participants' privacy will be maintained in the process of data collection.

All data that the participants provide, specifically demographic data and survey data, can only be observed through either the Google Forms where it is administered, or the data analysis software SPSS, where I plan to process the data. Both of these sources can only be accessed through password-protected computers and password-protected applications, so the chances of data leakage are minimal.

32. Could the information being collected for this study have adverse consequences for participants or be damaging to their financial standing, employability, or reputation if accidentally disclosed?
☐ Yes ⫴ Indicate the information being collected:
☐ No

33. What will happen to the research data when the study has been completed? Choose only one:
☐ Destroyed immediately
☐ Stored
Explain and justify length of time of storage:
Explain and justify whether identifiers will be removed or remain attached to data:
Who will have access to the stored data:

34. Is it possible investigators will discover a condition previously unknown to the participant (e.g., disease) as a result of study procedures?

☐ Yes ⫴ Explain how and when such a discovery would be handled:
☐ No

35. Is it possible investigators will discover that a participant is engaging in illegal activities (e.g., drug use, child abuse/neglect, underage drinking) or has risk of harming self or others (e.g. suicidal ideation) in the process of the study?
☐ Yes ⫴ Answer Question 36-37
☐ No

36. What is the protocol in the event of discovery of illegal activities or high risk behaviors? Note that the faculty adviser should be directly involved in the protocol for such events:

37. Will the discovery of illegal activities or high risk behaviors entail disclosure of identifying information to other parties?
☐ Yes ⫴ Who will the information be disclosed to:
Guidance Note: Indicate the limits of confidentiality (i.e. conditions when information may be released) in informed consent form
☐ No

J. Drugs, Medical Devices, and Other Substances

38. Does this research study involve drugs or biologics?
☐ Yes ⫴ What are these and what is known about them so far (safety, risks, etc)?
☐ No

39. Does this research study involve a medical device?
☐ Yes ⫴ Note that the device must be approved for use and registered with the appropriate national agencies.
☐ No

Guidance Note: FDA's Definition of a Medical Device as indicated in Republic Act 9711: "Medical device" means any instrument, apparatus, implement, machine, appliance, implant, in-vitro reagent or calibrator, software, material, or other similar or related article intended by the manufacturer to be used alone, or in combination, for human beings for one or more of the specific purpose(s) of: diagnosis, prevention, monitoring, treatment or alleviation of disease; diagnosis, monitoring, treatment, alleviation of, or compensation for an injury; investigation, replacement, modification, or support of the anatomy or of a physiological process; supporting or sustaining life; preventing infection; control of conception; disinfection of medical devices; and providing information for medical or diagnostic purposes by means of in-vitro examination of specimens derived from the human body. This device does not achieve its primary intended action in or on the human body by pharmacological, immunological, or, metabolic means but which may be assisted in its intended function by such means.

K. Biological Specimens

40. Will biological specimens (including blood, urine and other human-derived samples) be used in this study?
☐ Yes ⫴ Describe and justify:
☐ No ⫴ Skip to Question 42

41. What will be done with these samples when the research has been completed? Choose only one:
☐ Destroyed immediately
☐ Stored
Explain and justify length of time of storage:
Explain and justify whether identifiers will be removed or remain attached to data:
Who will have access to the stored data:

L. Other Biomedical Procedures - Diagnostic Radiation Procedures, Physical Activity, Diet Modifications

42. Will participants be asked to undergo diagnostic radiation procedures while enrolled in this study?
☐ Yes ⫴ Describe and justify:
☐ No

43. Will participants be required to engage in or perform any form of physical activity?
☐ Yes ⫴ Describe the nature and extent of the physical activity:
☐ No

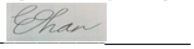
44. Will any type of electrical equipment other than audio headphones be attached to the participants (e.g., EMG, EKG)?
☐ Yes ⫴ Describe and justify: (submit documentation on the recent safety checks of the equipment)
☐ No

45. Will there be any diet modifications or restrictions?
☐ Yes ⫴ Describe and justify:
☐ No

M. Assurances

As the Principal Investigators on this research study, we assure that...

1. This application accurately reflects all procedures involving human participants and the nature and extent of their proposed involvement in my study.
2. I am familiar with and will comply with pertinent institutional and national regulations and policies regarding research ethics with human participants. I will inform my faculty adviser if I need support or advice regarding an ethical concern.
3. I will notify my faculty adviser and a DREC representative within one week regarding any significant adverse events that impact my human participants.
4. All research personnel listed on this form possess the requisite competencies and have been adequately trained in research and ethical behavior towards human participants.
5. Any individual associated with or responsible for the design, the conduct, or the reporting of this research will comply with Ateneo de Manila University rules and regulations.

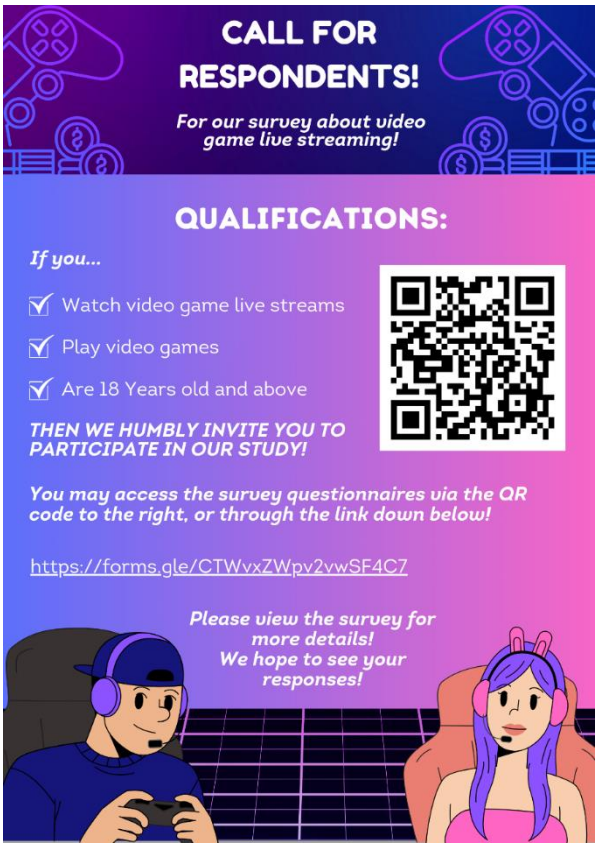
Printed Names & Signatures of Principal Investigators	**Date**
ETHAN G. FONG 	02/25/2024

I hereby confirm that I have supervised the completion of this application and my signature denotes the accuracy of the information provided.

I confirm that I will supervise the students as they conduct their study, and monitor that ethical standards and practices are maintained in the study.

Andrew Ty	01 March 2024
Printed Name & Signature of Faculty Adviser	**Date**

Appendix B. Recruitment Material



Appendix C. Online Survey Consent Preface

ATENEO DE MANILA UNIVERSITY
UNIVERSITY RESEARCH ETHICS OFFICE

ONLINE SURVEY/QUESTIONNAIRE PREFACE TEMPLATE

Instructions: Delete all instructions and guidance notes *[italicized text in brackets]* and the UREO letterhead prior to use in the activity. Adapt as appropriate according to the nature of your activity and participants (e.g. translate language). Refer to Endnotes for more guidance on content and types of informed consent.] [1]

Title of the Activity: Are We Really Friends? Examining the Impact of Parasocial Interactions in Video Game Live Streams

Name of Principal Investigator (PI): Ethan Fong
Contact Information of PI: 09270835665

Name of Faculty Adviser: Andrew Ty
Contact Information of Faculty Adviser: 84266001 Local 5210

You are being invited to participate in this online survey. Your participation is voluntary, which means you are free to choose whether or not to participate. If you decide not to participate, there will be no penalty or negative consequences to your class standing or job status.

Before you make this decision, you will need to know what this survey is about, the possible risks and benefits of participating in it, and what you will have to do if you decide to participate in the study.

Do not proceed with the survey ~~proper~~ if you are unsure or have remaining questions. As the sole investigator in this study, please feel free to contact me if there is anything unclear to you in the study, including any words in this Forms. If you decide to participate in this study, you may proceed to the survey proper. Please remember to save a copy of this Google Forms, as it has both the necessary contact information and answers to questions about the study.

What is the purpose of the survey?

The purpose of this study is to learn more about how you would describe the video game live streams that you regularly watch. Specifically, this study will ask you about your perceptions of these live streams in three ways. Firstly, in terms of how you view the streamer and the interactions that they initiate. Secondly, in terms of how you view the streamer's fanbase, or the active community that regularly tunes into the video game live streams alongside you. And thirdly, in terms of the potential benefits and drawbacks of the video game live stream itself that you get while watching.

Why am I being asked to participate in the survey?

The recruitment banner that was published contains a brief list of the characteristics that the study is looking for. By clicking the link or scanning the QR, you not only have expressed an interest in this study, but you also feel that you may be able to participate in it because you meet the required characteristics as listed in the recruitment banner. and ~~may be~~ planning to participate in it by answering the survey in the succeeding section. It's hoped that you indeed meet the requirements, as the following items may not make much sense to you if you do not regularly watch video game live streams.

What will I be asked to do?

You will be asked to answer the items located in the survey proper itself. The items that you will be responding to will generally involve you indicating the level to which you agree or disagree with a particular statement or will have you rate traits depending on whether you agree or disagree with how much it applies to the video game live streamer that you watch. In terms of demographic information, the information that the study will need from you is basic, as sensitive demographic information such as your name, email address, home address, and contact information, among others, will not be asked from you at any point in the survey since it is not needed by the research.

How long will this survey be?

Answering the survey will take approximately 5-7 minutes.

Are there any risks and what are they?

Due to the online nature of this survey, breach of data privacy is a possibility, but we have minimized these risks by ensuring that only me, as the sole investigator in this research project, has access to the data within. This data will be password-protected to ensure that it remains confidential, and the data will also be promptly deleted after the study is completed to ensure that I will not use it for any other purpose. Another valid concern in terms of privacy that you may have ~~is~~ the collation of sensitive, personal information, however, rest assured that this research has no use for identifiable sensitive information such as name, address, email address, contact information, and others, so we will not be asking you to supply this information at any time in the survey.

What are the benefits of participating in the study?

Your participation in this study will be beneficial to not only you, but also to other video game live stream viewers, the video game live streamers themselves, and the live stream platform. As live streaming is an entertainment phenomenon that is increasingly gaining popularity, a study that aims to characterize how it can help or harm viewers would be relevant and necessary currently. Although live streams can be highly enjoyable to its viewers, negative effects such as increased materialistic consumption, enhanced feelings of loneliness, and addiction may occasionally crop up and undermine its positive benefits. Therefore, it is in the best interest of this study to provide the information needed to help you, as a video game live stream viewer, to learn how to guard themselves against its possible negative effects while still enjoying the excitement and satisfaction that live streams bring you.

What happens if I do not choose to participate in this survey? Can I stop or withdraw from the survey even after it has started?

You may choose to answer the survey, or you may choose not to answer the survey. Your participation is voluntary. There is no penalty if you choose not to answer the survey.

You can stop your participation in the survey and withdraw your data at any time even after it has started by choosing not to submit your answers at the end. There is no penalty or loss of benefits if you decide to do so.

If you no longer wish to be part of the study, or if you want to withdraw your data so that the study will no longer use it, you may contact me directly through my contact number listed above. I will remove your data anywhere where it may appear, such as in the local files, in Google Forms, and in the analysis software, so that it cannot be used in any way for the purposes of this study.

How will confidentiality be maintained, and my privacy protected? What personal or identifiable data will you obtain? Who will have access to or see my data?

The information you provide is confidential. The possible harm that a privacy or data breach may cause is minimal, since this survey will not ask you for any sensitive identifiable information such as your name, email address, address, contact details, among others. However, be rest assured that for the other demographic information that you may need to supply for the purposes of this research, such as gender, age group, and hours of video game live streaming, etc. will not be identifiable with you in any report or publication of this study and will solely be used for the purposes of this study. Only I, being the sole investigator of this research, will know the identity associated with the information collected for this study, and I will not reveal it to anyone else. You may refer to the data privacy policies of Google here: https://policies.google.com/privacy?hl=en-US.

Will I be paid for participating in this study?

We will be raffling out Php 1000 on GCash to three lucky winners! If you are interested in joining the raffle, please indicate your contact details at the end of the survey.

Who can I call for questions about the study or if I'm concerned about my rights as a research participant?

If you have questions or concerns regarding the study and your participation in it, feel free to contact me through my contact details listed on page 1 of this form.

If for some reason I cannot be reached, or you want to talk to someone other than the person working on this study, you may contact the University Research Ethics Office at the Ateneo de Manila University by calling mobile no 0945 2136758 or landline (632) 8426-4001 local 4030 for any question, concern, or complaint about your rights as a research subject.

Do not proceed with the survey ~~proper~~ unless you have understood everything very clearly and, if necessary, obtained the necessary clarifications from me. Proceed to the survey ~~proper~~ only if you are fully and freely consenting to answer the survey. Proceeding to the survey proper implies that you are granting your consent to participate in the study.

Appendix D. Survey Questions

Proposed Questionnaire Items, Revised and Reworded

Note: All items are to be measured using a five-point Likert Scale, 1 = Strongly Disagree, 5 = Strongly Agree. This standardized scoring is for easier analysis of data and to reduce confusion on the part of the respondents. Items that are reverse-scored are noted below:

A. **PSI:**
While watching the clip, I had the feeling that the streamer I'm watching...
1. Was aware of me.
2. Knew I was there.
3. Knew I was aware of him/her.
4. Knew I paid attention to him/her.
5. Knew that I reacted to him/her.
6. Reacted to what I said or did.

B. **PSR:**
1. My favorite streamer makes me feel comfortable, as if I am with a friend.
2. I see my favorite streamer as a natural, down-to-earth person.
3. I look forward to watching my favorite streamer the next time they stream.
4. If my favorite streamer appeared on another streamer's live stream, I would also watch that live stream.
5. My favorite streamer seems to understand the kind of things I want to know.
6. If I saw a story or article about my favorite streamer online, I would read it.
7. I miss seeing my favorite streamer when he or she is ill or on a vacation.
8. I would like to meet my favorite streamer in person.
9. I feel sorry for my favorite streamer when he or she makes a mistake.

C. **Wishful Identification**:
1. I'd like to do the things my favorite streamer does while streaming.
2. My favorite streamer is the sort of person I want to be like myself.
3. I wish I could be more like my favorite streamer.

D. **Loneliness**
1. I feel in tune with the fanbase while watching my favorite streamer. (**Reverse-Scored**)
2. I do not feel alone while watching my favorite streamer. (**Reverse-Scored**)
3. I feel part of a group of friends when I'm watching my favorite streamer. (**Reverse-Scored**)
4. My interests and ideas are not shared by those in the fanbase.
5. There are people in the fanbase I feel close to. (**Reverse-Scored**)
6. I feel left out while watching my favorite streamer.
7. I feel isolated from others in the fanbase.
8. I am unhappy being so withdrawn from others in the fanbase.

E. **Addiction**
1. Whenever I have time, I log on to my live stream platform account.
2. Frequently, I regret I consume too much time watching live streams.
3. If I could not watch live streams, I would be depressed.
4. I have difficulties in focusing on my study or work due to watching live streams.
5. I lose sleep over spending more time watching live streams.
6. Watching live streams interferes with doing social activities.
7. I feel anxious if I cannot watch live streams.
8. I have attempted to spend less time watching live streams but have not succeeded.

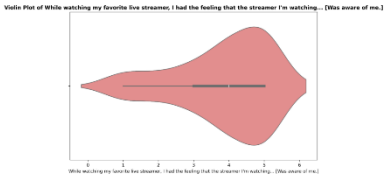
F. **Sense of Community**
1. I get important needs of mine met because I am a part of my favorite streamer's fanbase.
2. My favorite streamer fanbase and I value the same things.
3. Being a member of my favorite streamer's fanbase makes me feel good.
4. When I have a problem, I can talk about it with members of my favorite streamer's fanbase.
5. People in the fanbase have similar needs, priorities, and goals.
6. I can trust people in this community.
7. I put a lot of time and effort into being part of my favorite streamer's fanbase.
8. Being a member of my favorite streamer's fanbase is a part of my identity.
9. Fitting into my favorite streamer's fanbase is important to me.
10. It is very important for me to be a part of my favorite streamer's fanbase.
11. I expect to be a part of my favorite streamer's fanbase for a long time.

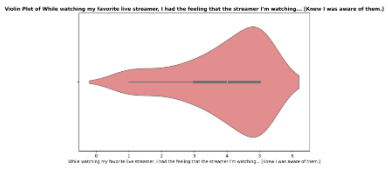
G. **Celebrity Credibility**
1. Attractive
2. Classy
3. Handsome/Beautiful
4. Sexy
5. Dependable
6. Honest
7. Reliable
8. Sincere
9. Trustworthy
10. Expert
11. Experienced
12. Knowledgeable
13. Skilled

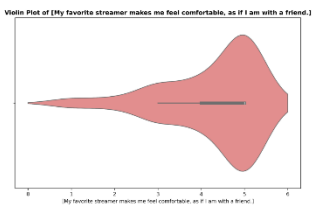
Appendix E. Describe Table

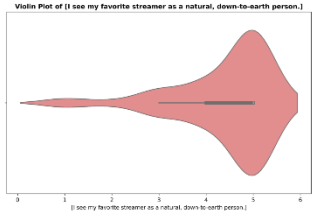
Column1	count	unique	top	freq
Timestamp	52	52	3/6/2024 19:41	1
Gender	52	2	Male	34
Age	52	4	18 to 24	21
On a weekly basis, how often do you watch video game live streams?	52	4	More than three times a week	30
What live streaming platforms do you usually watch video game live streams on? Please check all that apply.	52	21	Bola.TV	10
Who would you say is your favorite video game live streamer? You may list more than one.	52	46	Renniyyya Gaming	4
While watching my favorite live streamer, I had the feeling that the streamer I'm watching... [Was aware of me.]	52	5	Strongly Agree	21
While watching my favorite live streamer, I had the feeling that the streamer I'm watching... [Knew I was there.]	52	5	Strongly Agree	19
While watching my favorite live streamer, I had the feeling that the streamer I'm watching... [Knew I was aware of them.]	52	5	Strongly Agree	23
While watching my favorite live streamer, I had the feeling that the streamer I'm watching... [Knew I paid attention to them.]	52	5	Strongly Agree	22
While watching my favorite live streamer, I had the feeling that the streamer I'm watching... [Knew that I reacted to them.]	52	5	Strongly Agree	23
While watching my favorite live streamer, I had the feeling that the streamer I'm watching... [Reacted to what I said or did.]	52	5	Strongly Agree	21
[My favorite streamer makes me feel comfortable, as if I am with a friend.]	52	5	Strongly Agree	31
[I see my favorite streamer as a natural, down-to-earth person.]	52	5	Strongly Agree	34
[I look forward to watching my favorite streamer the next time they stream.]	52	4	Strongly Agree	28
[If my favorite live streamer appeared on another streamer's live stream, I would also watch that live stream.]	52	5	Strongly Agree	30
[My favorite streamer seems to understand the kind of things I want to know.]	52	4	Strongly Agree	24
[If I saw a story or article about my favorite streamer online, I would read it.]	52	5	Strongly Agree	27
[I miss seeing my favorite streamer when he or she is ill or on a vacation.]	52	5	Strongly Agree	23
[I would like to meet my favorite streamer in person.]	52	5	Strongly Agree	35
[I feel sorry for my favorite streamer when he or she makes a mistake.]	52	5	Strongly Agree	25
[I'd like to do the things my favorite streamer does while streaming.]	52	5	Strongly Agree	21
[My favorite streamer is the sort of person I want to be like myself.]	52	5	Strongly Agree	19
[I wish I could be more like my favorite streamer.]	52	5	Strongly Agree	22
[Whenever I have time, I log on to my live stream platform account.]	52	5	Strongly Agree	24
[Frequently, I regret I consume too much time watching live streams.]	52	5	Neither Agree nor Disagree	13
[If I could not watch live streams, I would be depressed.]	52	5	Strongly Disagree	16
[I have difficulties in focusing on my study or work due to watching live streams.]	52	5	Strongly Disagree	21
[I lose sleep over spending more time watching live streams.]	52	5	Strongly Disagree	15
[Watching live streams interferes with doing social activities.]	52	5	Slightly Disagree	13
[I feel anxious if I cannot watch live streams.]	52	5	Strongly Disagree	18
[I have attempted to spend less time watching live streams but have not succeeded.]	52	5	Neither Agree nor Disagree	21
[I get important needs of mine met because I am a part of my favorite streamer's fanbase.]	52	5	Neither Agree nor Disagree	19
[My favorite streamer's fanbase and I value the same things.]	52	5	Slightly Agree	20
[Being a member of my favorite streamer's fanbase makes me feel good.]	52	5	Strongly Agree	20
[When I have a problem, I can talk about it with members of my favorite streamer's fanbase.]	52	5	Neither Agree nor Disagree	13
[People in the fanbase have similar needs, priorities, and goals.]	52	5	Neither Agree nor Disagree	19
[I can trust people in this community.]	52	5	Neither Agree nor Disagree	20
[I put a lot of time and effort into being part of my favorite streamer's fanbase.]	52	5	Strongly Agree	17
[Being a member of my favorite streamer's fanbase is a part of my identity.]	52	5	Neither Agree nor Disagree	17
[Fitting into my favorite streamer's fanbase is important to me.]	52	5	Strongly Agree	16
[It is very important for me to be a part of my favorite streamer's fanbase.]	52	5	Neither Agree nor Disagree	16
[I expect to be a part of my favorite streamer's fanbase for a long time.]	52	5	Strongly Agree	16
[I feel in tune with my favorite streamer's fanbase while watching my favorite streamer.]	52	5	Slightly Agree	17
[I do not feel alone while watching my favorite streamer.]	52	5	Strongly Agree	21
[I feel part of a group of friends while watching my favorite streamer.]	52	4	Strongly Agree	23
[My interests and ideas are not shared by those in my favorite streamer's fanbase.]	52	5	Neither Agree nor Disagree	24
[There are people in my favorite streamer's fanbase I feel close to.]	52	5	Neither Agree nor Disagree	15
[I feel left out while watching my favorite streamer.]	52	5	Strongly Disagree	15
[I feel isolated from others in my favorite streamer's fanbase.]	52	5	Strongly Disagree	15
[I am unhappy being so withdrawn from others in my favorite streamer's fanbase.]	52	5	Strongly Disagree	21
[Attractive]	52	5	Strongly Agree	31
[Classy]	52	5	Strongly Agree	29
[Handsome/Beautiful]	52	5	Strongly Agree	28
[Sexy]	52	5	Strongly Agree	24
[Dependable]	52	5	Strongly Agree	29
[Honest]	52	5	Strongly Agree	37
[Reliable]	52	5	Strongly Agree	34
[Sincere]	52	5	Strongly Agree	32
[Trustworthy]	52	5	Strongly Agree	35
[Expert]	52	5	Strongly Agree	33
[Experienced]	52	5	Strongly Agree	36
[Knowledgeable]	52	4	Strongly Agree	37
[Skilled]	52	5	Strongly Agree	37

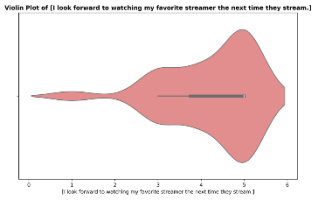
Appendix F. Violin Plots

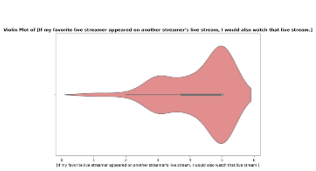


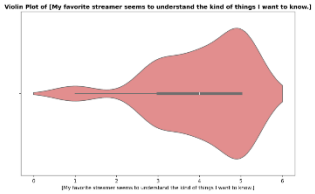


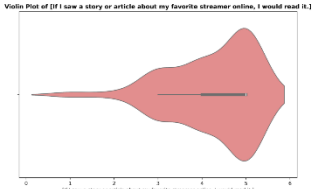


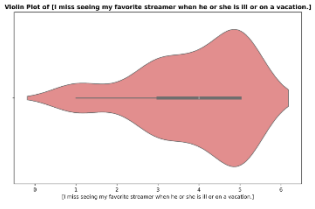


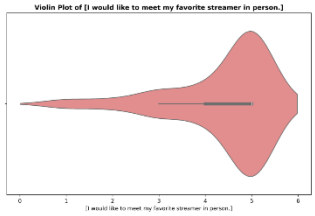


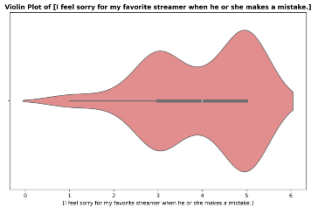




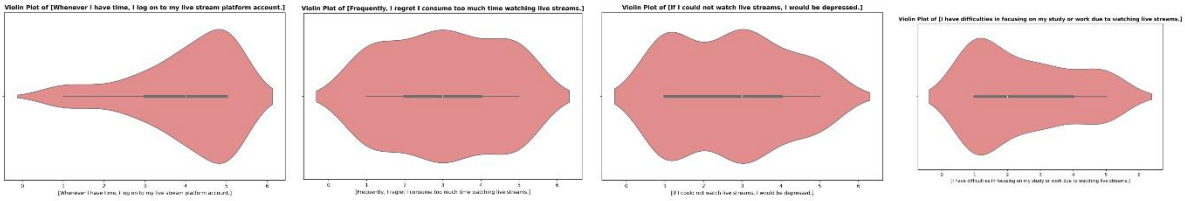


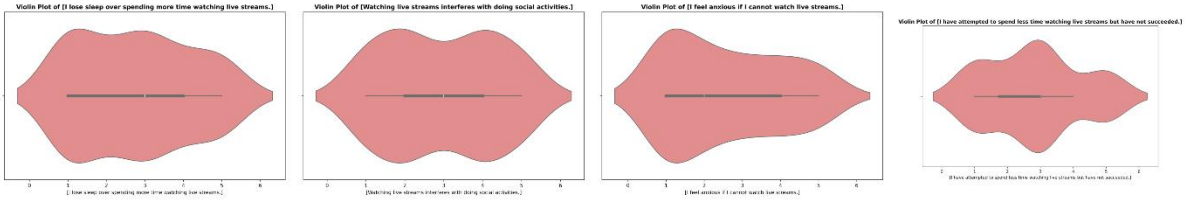


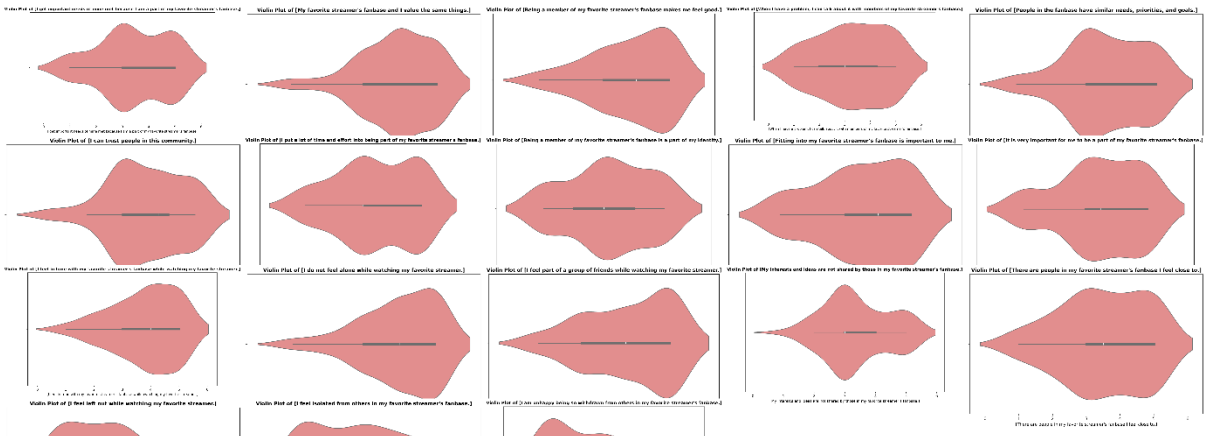


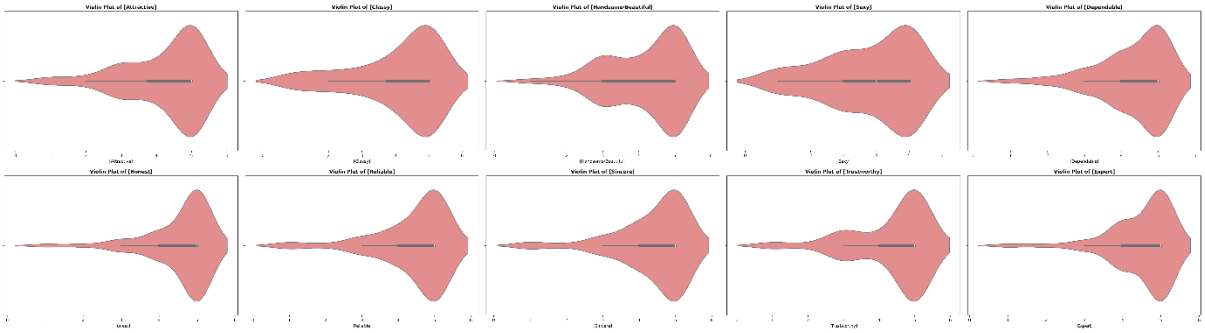


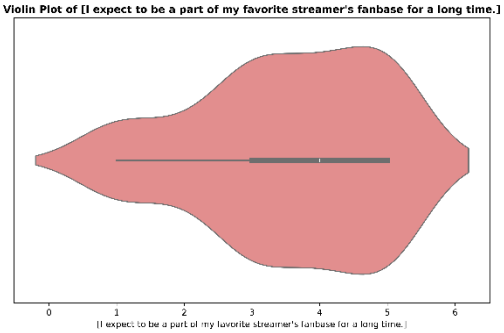

Violin Plot of [I'd like to do the things my favorite streamer does while streaming.]
[I'd like to do the things my favorite streamer does while streaming.]
Violin Plot of [My favorite streamer is the sort of person I want to be like myself.]
[My favorite streamer is the sort of person I want to be like myself.]
Violin Plot of [I wish I could be more like my favorite streamer.]
[I wish I could be more like my favorite streamer.]

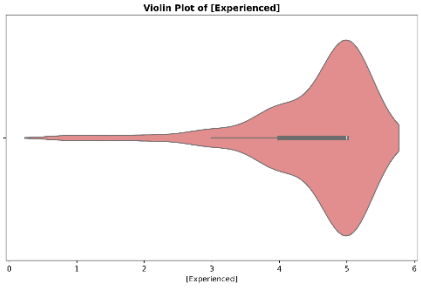

Violin Plot of [Whenever I have time, I log on to my live stream platform account.]
[Whenever I have time, I log on to my live stream platform account.]
Violin Plot of [Frequently, I regret I consume too much time watching live streams.]
[Frequently, I regret I consume too much time watching live streams.]
Violin Plot of [If I could not watch live streams, I would be depressed.]
[If I could not watch live streams, I would be depressed.]
Violin Plot of [I have difficulties in focusing on my study or work due to watching live streams.]

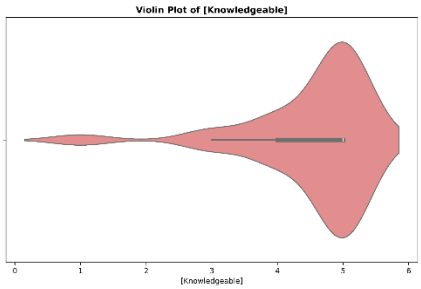

Violin Plot of [I lose sleep over spending more time watching live streams.]
Violin Plot of [Watching live streams interferes with doing social activities.]
[Watching live streams interferes with doing social activities.]
Violin Plot of [I feel anxious if I cannot watch live streams.]
[I feel anxious if I cannot watch live streams.]
Violin Plot of [I have attempted to spend less time watching live streams but have not succeeded.]

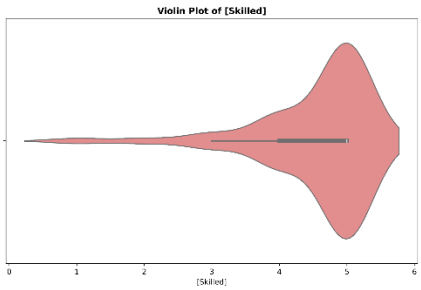

Violin Plot of [My favorite streamer's fanbase and I value the same things.]
Violin Plot of [Being a member of my favorite streamer's fanbase makes me feel good.]
Violin Plot of [People in the fanbase have similar needs, priorities, and goals.]
Violin Plot of [I can trust people in this community.]
Violin Plot of [I put a lot of time and effort into being part of my favorite streamer's fanbase.]
Violin Plot of [Being a member of my favorite streamer's fanbase is a part of my identity.]
Violin Plot of [Fitting into my favorite streamer's fanbase is important to me.]
Violin Plot of [It is very important for me to be a part of my favorite streamer's fanbase.]
Violin Plot of [I do not feel alone while watching my favorite streamer.]
Violin Plot of [I feel part of a group of friends while watching my favorite streamer.]
Violin Plot of [My interests and ideas are not shared by those in my favorite streamer's fanbase.]
Violin Plot of [There are people in my favorite streamer's fanbase I feel close to.]
Violin Plot of [I feel left out while watching my favorite streamer.]
Violin Plot of [I feel isolated from others in my favorite streamer's fanbase.]



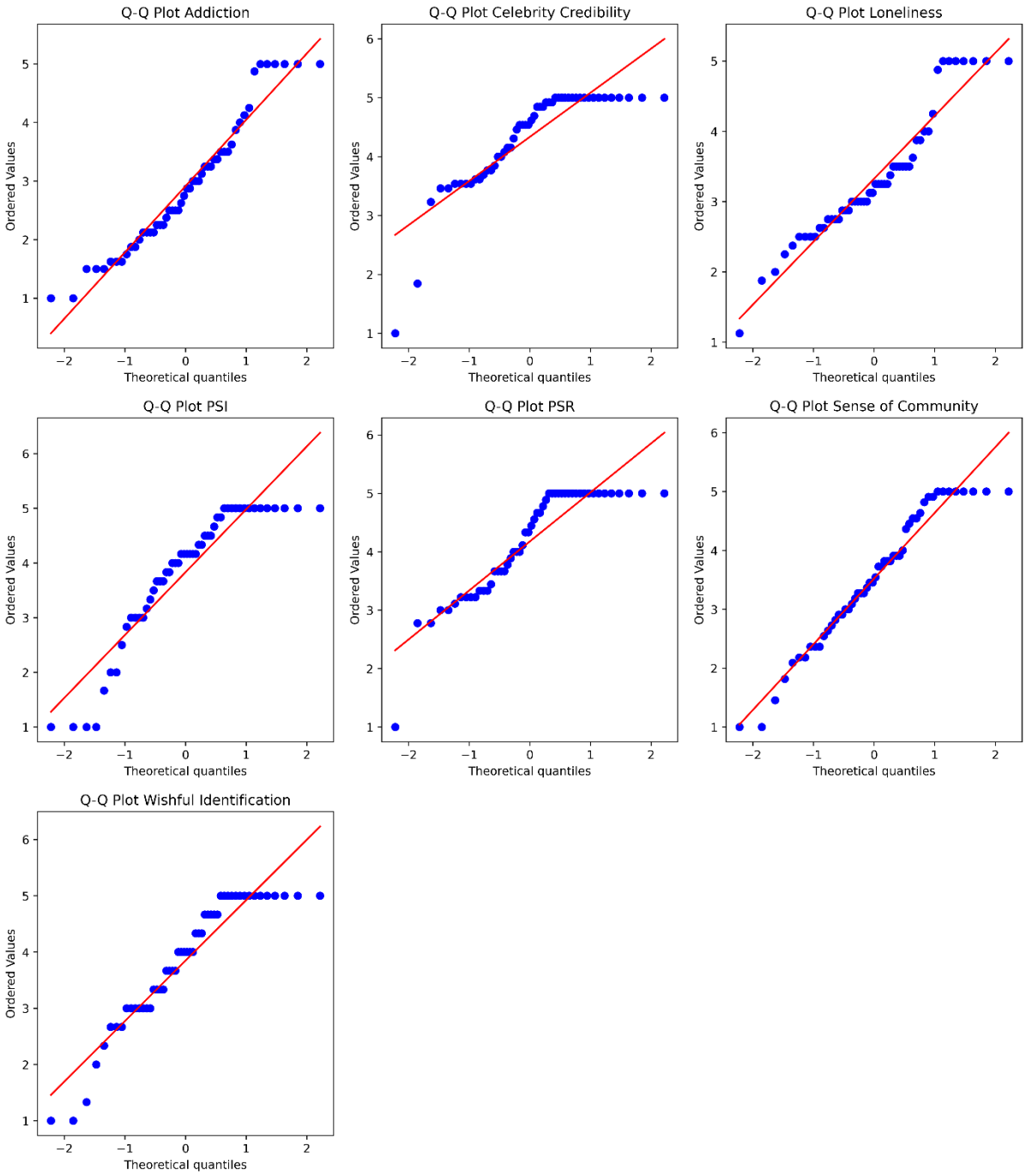

Violin Plot of [I expect to be a part of my favorite streamer's fanbase for a long time.]
0
1
2
3
4
5
6
[I expect to be a part of my favorite streamer's fanbase for a long time.]


Violin Plot of [Experienced]
0
1
2
3
4
5
6
[Experienced]


Violin Plot of [Knowledgeable]
0
1
2
3
4
5
6
[Knowledgeable]


Violin Plot of [Skilled]
0
1
2
3
4
5
6
[Skilled]

Appendix G. Q-Q Plots



Appendix H. Skewness Plots