



The role of wishful identification, emotional engagement, and parasocial relationships in repeated viewing of live-streaming games: A social cognitive theory perspective

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ABSTRACT

Grounded in Bandura's (2001) social cognitive theory of mass communication and Giles' (2002) model of parasocial relationship (PSR) development, the current research examines how a viewer's wishful identification with an online video game streaming personality and emotional engagement with other viewers lead to behavioral loyalty through PSR with their favorite live-streamer. To test the proposed mediation model, the researchers conducted a survey using a representative sample drawn from a national panel of a professional survey firm in South Korea. Results of a mediation analysis employing structural equation modeling reveal that both wishful identification and emotional engagement have indirect effects on behavioral loyalty through PSR. Put another way, a viewer's likeliness to continue viewing a live-streaming game increase as the viewer develops stronger PSR. The current research also demonstrates that wishful identification and engagement with others/streamers develop into PSR, as suggested by Giles' PSR development model.

1. Introduction

As technology has developed, live broadcasting has expanded beyond television to the internet to a new generation of live-streaming platforms including Twitch, Mixer, and Afreeca TV, where users can live-stream various events and real-time interactions. Streamers who play video games while chatting with viewers in real time have drawn vast and increasing numbers of audiences on popular live-streaming platforms (Ferchaud, Grzeslo, Orme, & LaGroue, 2018; Johnson & Woodcock, 2019; Sjöblom & Hamari, 2017). According to an industry report, online viewers spent about 8.9 billion hours in 2019 watching live streams of games on Twitch, compared to 6.3 billion hours in 2017 (Needleman, 2019). In addition, the Wall Street Journal broke the news that large video game publishers are paying tens of millions of dollars per hour to famous live-streaming gaming personalities (Needleman, 2019), demonstrating how live-streaming has reached a critical market. A recent study revealed that youths and young adults are spending more time viewing live-streaming content than traditional cable shows (Hu, Zhang, & Wang, 2017). The success of live streaming can be partly explained by audiences' intrinsic motivations to acquire new skills and

techniques in playing games through observational learning from the live shows and commentary from the host. However, viewers of televised entertainment and sports shows also have "a fundamental need to form connections with other people" (Hoffner & Buchanan, 2005, p. 326). Since live streaming allows users to watch celebrity streamers play and comment on games while reacting to comments posted by other audiences in real-time, the audiences of live streams have an earnest desire to connect with other viewers as well as their favorite streamers (Hu et al., 2017; Wohn, Freeman, & McLaughlin, 2018).

As viewing and interactions with others increase, audiences develop certain psychological feelings, such as wishful identification with the celebrity live-streamers and emotional engagement with other viewers, which go beyond the vicarious experience of watching a professional play a live-streamed game. Research inquiries about viewers' involvement with media personalities or media characters have inspired a great deal of scholarly attention (Cohen, 2006). In particular, Hoffner and Buchanan (2005) proposed the notion of wishful identification, which refers to "a psychological process through which an individual desires to attempt to become like another person" [italics in original] (Hoffner & Buchanan, 2005, p. 327). This psychological process is another factor,

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along with the desire to acquire new skills, techniques, and rules in the game, which motivates users to view popular live-streaming games. Viewers' desire to be like their favorite streamer and their emotional engagement with other viewers during the live-streaming can be explained by Bandura's (2001) social cognitive theory (SCT). This is because those motivations help them achieve their goals and valued outcomes while providing some rewards and gratification, including social interaction, enjoyment, sense of community (Hilvert-Bruce, Neill, Sjöblom, & Hamari, 2018) and tension release (Sjöblom & Hamari, 2017).

The purpose of the current research is twofold: (1) To explain how wishful identification (WI) and emotional engagement (EE) can be interpreted through the theoretical lens of Bandura's (Bandura, 2001) SCT of mass communication and social media; (2) To illustrate how WI and EE predict viewer behavior in the consumption of live-streamed games. Giles' (2002) model of parasocial relationship development suggests that the effect of WI and EE on repeated viewing is not so much direct as indirect. Giles' model assumes that WI and interaction with others have an impact on one's actual contact behavior through PSR, which can be defined as a one-sided intimate relationship that an audience feels toward a media performer, based on repeated encounters with the performer through mediated reality (Dibble, Hartmann, & Rosaen, 2015). Furthermore, Shin (2016) demonstrated that PSR behavior, influenced by social interactions, was positively related to viewing behavior using social TV. A recent study (Wohn et al., 2018) also demonstrates that PSR is the most important factor in predicting whether a viewer is willing to provide financial support to their favorite live-streamer on various platforms. If PSR is an important predictor of the audience's behavioral loyalty to a live-streaming channel (e.g., Wohn et al., 2018), then one can assume that PSR can mediate the effect of WI and EE on viewer behaviors. Although a few studies (Shin, 2016; Tolbert & Drogos, 2019) have examined the variables of WI, engagement, and PSR, in part or as a whole, in predicting the behavior observed in socially mediated platforms, no known published research to date has examined the structural relationships between the SCT-based variables (i.e., WI and EE) and repeated viewing, a proxy of viewers' behavioral loyalty, and a potential mediating role of PSR in the causal relationship. This research aims to fill the gap by demonstrating how WI and EE can increase behavioral loyalty through PSR.

2. Theoretical background

2.1. Social cognitive theory of mass communication and social media

The premise of the social cognitive theory (SCT) is that human behavior derives from the interplay of personal (e.g., values, self-efficacy, outcome expectations), environmental (e.g., others' behaviors, feedback) and behavioral (e.g., prior behavior) factors, which is called triadic reciprocal causation (Bandura, 1984, 1997). In this premise, SCT posits that human behavior is purposively driven by one's cognized goals and regulated by exercising some control over internal cognitions and actions as well as external sources of influence (Bandura, 1991). A great deal of research has used SCT as a theoretical background to predict diverse human behaviors. Most of the previous research centers predominantly around health behaviors (Bandura, 1994, 1998) or learning behaviors (Zimmerman, 1989). However, little SCT-based research has studied user behaviors in live-streaming platforms that are influenced by the presence of the streamer and other viewers. This lack of research is lamentable, considering that Bandura (2001) once proposed the SCT of mass communication, the theoretical implications of which are applicable to the human behaviors observed in the age of social media.

In the SCT of mass communication, Bandura theorized about what he called "social diffusion of new styles of behavior" that included "the acquisition of knowledge about innovative behaviors, the adoption of these behaviors in practice, and the social networks through which they

spread and are supported" (Bandura, 2001, p. 287). In the paper entitled "Social cognitive theory of mass communication," Bandura envisioned socially adopted behaviors (e.g., retweet, like, share, tagging, etc.) long before the current major social media platforms, such as Twitter and Facebook, were launched.

We believe that the SCT of mass communication provides a new insight to explain human behaviors that are formed and enacted on social media. This is because the advancement in communication technology has exposed people to diverse direct and vicarious experiences through social media. Bandura's (2001) SCT of mass communication suggests that media are having an impact on people's behavior in two pathways—(1) a direct pathway through which people are informed, motivated, and guided; (2) a socially mediated pathway through which people adopt, support, spread, and share the innovative ideas or behaviors.

Like all other types of human behaviors, a socially mediated behavior that occurs within a particular setting (e.g., social TV) is also influenced by the triadic determinants of cognitive, environmental, and behavioral factors. The adoption of social TV, defined as real-time backchannel communication during a live streaming show (Lim, Hwang, Kim, & Biocca, 2015), is a modeling behavior of the viewers of a live television (or live-streaming game) show. This behavior is learned from the observation of other viewers' behavior and behavioral norms while exerting self-regulation based on the appraisal of one's cognitive and behavioral capacity. Shin (2016) explains that viewers' adoption of social TV depends on their self-efficacy, their need for sociability, and their trial experience. In the same vein, a viewer's repeated viewing of a live-streaming game is formed in the triadic reciprocal relation—one's motivation to imitate the professional streamer/gamer (cognition) and emotional engagement with other viewers as well as the streamer (behavior) in the live-streaming setting (environment). In the following sections, we review the literature on how wishful identification and emotional engagement reflect Bandura's triadic reciprocal influences and how they are related to repeated viewing behavior through PSR.

Live-streaming platforms are enabling users to gain a vast amount of information and skill by symbolic modeling from the influential game streamers and their fans. These viewers of live-streaming games can learn by observation, which can transmit new ways and methods of improving one's gaming skills to "countless people in widely dispersed locales" (Bandura, 2001, p. 271). They are involved in acquiring new skills and information about professional gaming as well as the rules governing specific customs or the actions of others (see Eyal & Rubin, 2003).

Viewers of live-streaming shows obtain the rules of a particular behavior and adjust their actions based on their observational learning in the social TV environment. From the SCT perspective, therefore, live-streaming games play a role in the "social diffusion of new styles of behavior" (Bandura, 2001, p. 265). The users who are also gamers have an intrinsic motivation to enhance their self-efficacy in improving their game skills and leading to another level in playing the game (De Grove, Cauberghe, & Van Looy, 2014; Sjöblom, Törhönen, Hamari, & Macey, 2019). According to Bandura (2001, p. 292), "Virtual networking provides a flexible means for creating diffusion structures to serve given purposes, expanding their membership, extending them geographically, and disbanding them when they have outlived their usefulness," and viewers are more likely to learn new ideas in the casual environment, like online communities, than normal social cycles. Thus, viewers put greater motivational investment in viewing live-streaming games when they think the streamer and/or other viewers are helpful in achieving their goal of acquiring new skills and tips. Additionally, the viewers exchange tips and tricks of their own during live-streaming sessions. This exchange enhances their bonds and ultimately helps them achieve satisfaction by accomplishing set goals, such as improving game skills and efficacy. In other words, the viewers and the streamer of the live-streaming games work together to achieve their collective aspiration in playing games, helping them to shorten the skill acquisition

process.

2.2. Wishful identification

In his social cognitive theory, Bandura (2001) describes a “psychological matching processes,” through which an observer changes his or her thought patterns, emotional responses, and/or behaviors to match those of the modeled persona. This process clearly has a personal and motivational component. People identify with other individuals (or groups), in part, to achieve rewards or other valued outcomes such as forming interpersonal connections, maximizing their own potential, or enhancing their self-esteem. Identifying with a character means “feeling an affinity toward the character that is so strong that we become absorbed in the text and come to an empathic understanding for the feelings the character experiences, and for his or her motives and goals” (Cohen, 2006, p. 184). When this engagement is extended to an individual’s desire to be like or act like their favorite media character, this is referred to as “wishful identification” (Hoffner, 1996; Hoffner & Buchanan, 2005). Prior research suggests that fans are likely to be influenced to emulate celebrities, including sports stars (Pan & Zeng, 2018) and YouTubers (Tolbert & Drogos, 2019), when they have a strong identification with them (Fraser & Brown, 2002).

Using Bandura’s social cognitive theory, previous research explains that individuals learn behaviors and actions, such as functional skills, established customs or rules, and certain behavior, through observing a model (see Eyal & Rubin, 2003; Wood & Bandura, 1989). In this process, wishful identification with a model has emerged as an important cognitive factor that plays a key role in learning a certain behavior from the model (Eyal & Rubin, 2003; Harrison, 1997; Hoffner & Buchanan, 2005; Shoenberger & Kim, 2019; Tolbert & Drogos, 2019; van Mourik Broekman, Koudenburg, Gordijn, Krans, & Postmes, 2019). Shoenberger and Kim argue, “The concept of wishful identification derives its underpinnings from SCT whereby people are theorized to change their actual behaviors, emotional responses and/or thought processes to mirror another as part of what Bandura refers to as the process of psychological matching” (Shoenberger & Kim, 2019, pp. 51–52). In addition, to have wishful identification, one must have a strong belief regarding what would be possible outcomes of imitating behavior from the role model.

Wishful identification appears to be an essential precursor to social learning (Bandura, 1969) and symbolic modeling (Bandura, 2001). This is because the distinctive thing in wishful identification reflects one’s desire to “imitate the character” (Cohen, 1999, p. 329) or one’s aspiration to emulate the character (Tolbert & Drogos, 2019). SCT assumes that models deemed attractive or similar to the viewers are more likely to produce imitation than unattractive or dissimilar models (Bond & Drogos, 2014; van Mourik Broekman et al., 2019). This phenomenon of wishful identification can be found in the recent global K-Pop sensation where non-Korean global fans of different ethnic and cultural backgrounds avidly wish to identify themselves with the global superstars and express themselves through YouTube reaction videos (Swan, 2018). Indeed, posting reaction videos to the global superstars’ performance is the most conspicuous way to demonstrate one’s wishful identification. In a similar vein, viewers of live-streaming games have a psychological tendency to act like their favorite streamer. In terms of Bandura’s triadic reciprocal causation, wishful identification is influenced by the most salient behavioral determinant—that is, exposure to or prior viewing of related episodes that feature the popular live streamer. Previous research found that frequency of exposure to media personalities (Wenhold & Harrison, 2019) and time spent on YouTube is positively correlated with one’s level of wishful identification (Tolbert & Drogos, 2019).

2.3. Emotional engagement

Bandura (2012) asserted the importance of emotional engagement in

changing people’s behavior. Emotional engagement occurs when a viewer is situated in a fast-paced interactive chatting environment where he or she feels emotionally connected with others and subsequently expresses his or her emotions in reacting to the live-streamer or other viewers (Lim et al., 2015). Therefore, to experience the emotional engagement, the viewer must get to a state of psychological immersion in the live chatting environment with an awareness of others’ presence (Brockmyer et al., 2009). The notion of emotional engagement has emerged as a central component of social TV, which enables viewers of a live-streaming show to feel emotionally connected (Guo, 2018; Hilvert-Bruce et al., 2018) and express their emotions in response to the performer and other viewers.

In terms of triadic reciprocal causation, emotional engagement is an important behavioral factor that represents a new style of behavior (e.g., using emotes in Twitch) people start to learn from others as well as from the rules of the platform. Emotional engagement has emerged as the most conspicuous phenomenon that distinguishes viewing live-streaming shows on YouTube and other live-game platforms from viewing television shows. Observing how viewers are emotionally engaged during a streaming show stimulates one’s own emotional engagement. The SCT of mass communication states that individuals are “easily aroused by the emotional expressions of others” and “seeing others react emotionally to instigating conditions activates emotion-arousing thoughts and imagery in observers” (Bandura, 2001, p. 281).

Unlike online video games where a team of gamers have a shared goal and collaborate to accomplish the goal, viewers of a streamed game do not have the possibility of collaboration with others since they are not playing the game directly (Wohn et al., 2018). Thus, it is necessary for the viewers to engage with the streamer and other viewers through real-time chat to have a vicarious experience. This is a modeling behavior acquired through observing other viewers’ sharing their emotional or affective reactions during the show. Viewers of live-streaming games learn others’ expressions of emotions in real-time chatting, and they naturally engage in virtual conversation with other viewers.

2.4. Parasocial relationship

The term parasocial relationship (PSR) refers to a one-sided and long-term intimate relationship that an audience feels toward a media personality or celebrity based on repeated encounters with the performer through mediated reality (Dibble et al., 2015). There has been a plethora of studies that applied the PSR to a diverse array of illusionary intimate relationships between an audience and media characters or celebrities (Cohen & Holbert, in press; Grant, Guthrie, & Ball-Rokeach, 1991; Horton & Richard Wohl, 1956; Rubin, Perse, & Powell, 1985; Rubin & McHugh, 1987). Online environments can facilitate the development of parasocial interactions (PSI) between audiences and media personalities due to functional properties that bring viewers closer to the media personality through enhanced interactivity (Labrecque, 2014). A few recent studies have studied the PSR with the streamers (Chen, 2016; Ferchaud et al., 2018; Hwang & Zhang, 2018; Wohn et al., 2018) or YouTubers (Tolbert & Drogos, 2019).

PSR can also be reinforced through the process of mutual awareness. Unlike passive entertainment consumption, viewing live-streaming games may enhance the perceived mutual awareness when the game streamer acknowledges the presence of viewers and/or mention them while broadcasting their show. Unlike traditional celebrities, YouTubers and other live-streamers are empowered to speak with their audiences directly in real-time (Hou, 2019), and this allows for more effective interactivity. Thus, viewing live-streaming games facilitates the development of PSR more than watching other types of content in digital media.

2.5. Wishful identification and PSR

A few studies (Giles, 2002; Ramasubramanian & Kornfield, 2012; Tolbert & Drogos, 2019) have illustrated the structural relationship between wishful identification and PSR. Giles (2002) proposed the different stages in the development of PSR in which he elucidated the relationship between wishful identification and PSR. According to the PSR development, viewers who wish to resemble the media persona will engage in imitative behavior through an imagined encounter with the media personality and with other viewers. As the imagined encounters with the media persona and other viewers increase, viewers will develop stronger PSR with the media persona. Ramasubramanian and Kornfield's (2012) study, based on a survey of the US fans of Japanese anime/manga clubs, empirically demonstrated this relationship. It revealed that fans' level of wishful identification with the heroine of a Japanese anime was a positive predictor for their development of PSR with the heroine. In this study, we argue that fans' avid desire to be like or act like a celebrity influences the intensity of PSR. In other words, wishful identification is a precursor to fostering PSR with a live-streamer. Thus, we propose the following hypothesis:

H1. Wishful identification has a positive effect on PSR.

2.6. Emotional engagement and PSR

Emotional engagement, which involves both the sense of emotional connectedness (Guo, 2018; Hilvert-Bruce et al., 2018) and emotional expression (Lim et al., 2015), can lead to PSR. Emotional connectedness is a psychological state in which users feel they are emotionally connected with other viewers as well as with the streamer of a live-streaming show. The feeling of emotional connectedness comes from the nature of fast-moving live chats with other users who respond to each other's comments and questions—some of these chats include earnest comments for the streamer. When viewers are situated in the fast-moving live chat environment, they may experience the phenomenon of immersion, or a "mental sensation of engagement" (Shin, 2019, p. 1214) momentarily, which drives them to be actively engaged with others.

Another type of emotional engagement is established through emotional expressions using the so-called emotes, which are used to call for instantaneous emotional reactions, such as surprise, excitement, joy, happiness, or sadness in the streamer and other users. Live streamers also use various techniques (e.g., have bots automatically answer viewers' questions) to give the impressions that they are responding to their fans' questions and comments. One of the essential user experiences in viewing a live-streaming game is the sense of emotional connectedness that the user feels while reading and responding to other users' comments. Viewers of media content develop a sense of emotional connectedness not only with the performers (Russell, Norman, & Heckler, 2004) but also other viewers who are participating in real-time conversations (Guo, 2018; Hilvert-Bruce et al., 2018; Lim et al., 2015; Shin, 2016). Shin's (2016) research suggests that viewers who experience a high level of emotional engagement with other viewers, as well as the performer, are more likely to develop a rich PSR with the performer. Giles's (2002) conceptual model of the development of PSR clearly explains the role of other users in the PSR process. Giles suggests that other users' comments continuously update a viewer's judgments about a media character or a performer during the viewing, which influences the development of PSR with the media character or the performer. A viewer's ability to understand the emotional reactions of others is also strongly linked to PSR (Davis, Hull, Young, & Warren, 1987). Therefore, if users feel more emotional engagement with other users and the streamer, they will have a stronger sense of PSR with the streamer. Thus, we propose the following hypothesis:

H2. Emotional engagement has a positive effect on PSR.

2.7. PSR and repeated viewing, a proxy of behavioral loyalty

Prior research suggests that an individual's PSR/PSI with a brand has a direct effect on brand loyalty (Labrecque, 2014) or repeated television viewing (Conway & Rubin, 1991; Grant et al., 1991; Skumanich & Kintsfather, 1998). Through two studies employing both surveys and experiments, Labrecque (2014) showed that social media users' PSR with a brand was positively correlated with their loyalty to the brand. Communication researchers also suggest that there is a correlation between PSR and behavioral loyalty. For instance, Cohen and Holbert (in press) demonstrated that PSR was essential to achieving audience loyalty in terms of repeated viewing. Additionally, Pressrove and Pardun (2016) found that a parasocial relationship with a nonprofit through the frequent reading of its social media increased offline support for the organization as well as online engagement.

As live-streaming games have become a popular media genre, a viewer's loyalty to a live-streaming channel on YouTube or Twitch has emerged as an important concept. This loyalty to a live-streaming channel has been examined in slightly different contexts, including continuous watching intentions (Hu et al., 2017), a gamer's loyalty (Teng, 2017, 2018), live-stream usage intentions (Chen & Lin, 2018), and financial support (Wohn et al., 2018; Yu, Jung, Kim, & Jung, 2018). Wohn et al. (2018) found that PSR was consistently correlated with various types of social support that the viewers had with their favorite live-streaming game shows.

Based on the results of previous research, we predict that the level of PSR with the streamer can influence behavioral loyalty.

H3. PSR has a positive impact on repeated viewing in terms of behavioral loyalty.

2.8. Mediation model: wishful identification on behavioral loyalty through PSR

Wishful identification is an audience's strong desire to emulate his or her favorite celebrity or media persona. In the age of YouTube, new influencers have emerged in various areas like sports, entertainment, and the beauty industry. Fans of these online streaming spaces have demonstrated a strong desire to imitate popular online streamers' performance or behaviors.

As reviewed above, prior research suggests that wishful identification is a precursor to having stronger PSR (Tian & Hoffner, 2010; Tolbert & Drogos, 2019). Research on the fan-celebrity relationship suggests that fans become more loyal to their favorite stars when they develop intimate virtual relationships with them (Click, Lee, & Holladay, 2013). For instance, Tolbert and Drogos (2019) found that receiving a private message from their favorite YouTuber increased tweens' PSR with the YouTuber. However, Fraser and Brown (2002) pointed out that research has not adequately addressed what sorts of behavioral changes might manifest in an audience that relates to its favorite media personas or celebrities. While the changes can encompass a variety of persuasive attitudes and behaviors (for instance, Bond & Drogos, 2014; Caughey, 1984), behavioral loyalty to a channel that features the celebrity will be of the highest interest to media practitioners. When it comes to the live-streaming shows, the primary focus of the behavioral impact by the fans' wishful identification with the streamer is fans' repeated viewing and potentially financial support (Hilvert-Bruce et al., 2018; Wohn et al., 2018; Yu et al., 2018). As SCT assumes, wishful identification is a cognitive and motivational state that drives fans to emulate their celebrity's unique behaviors or features for modeling their identities. In the context of live-streaming shows, PSR can enhance the path from wishful identification to behavioral loyalty. If viewers have no relationship with the streamer, it would be hard for them to stay at a certain channel for a long time. Thus, the current research assumes that fans of live-streaming shows develop PSR with the host of the show, which in turn leads to repeated viewing of the game show. The following

hypothesis is posited:

H4. The effect of wishful identification on behavioral loyalty will be mediated by PSR.

2.9. Emotional engagement on behavioral loyalty through PSR

Social cognitive theory suggests that a viewer’s behavioral loyalty toward a media persona could be influenced by their emotional engagement with the persona. Bandura explains these “behavioral proclivities” toward media personas in terms of observers’ “modeled emotional experiences” acquired through their emotional engagement during the show (Bandura, 2001, p. 281). In the online streaming environment, viewers’ emotional engagement is expanded to include the engagement with other fans as well as with the streamer. Along with observational learning from a streamer, mood and feelings elicited during the interaction with other audience members can also help users develop an attachment to their favorite live-streaming channel. Hilvert-Bruce et al.’s (2018) study found that the degree to which an audience feels that he or she is attached to other audience members is an important predictor of behavioral engagement with a live-streaming show. To have bonding relationships with a channel and to be a loyal audience member, emotional engagement is necessary (Sutton, McDonald, Milne, & Cimperman, 1997). Lim et al. (2015) showed that viewers emotional engagement with other viewers and sports commentators during the live Olympic games led to channel loyalty.

Some recent studies suggest that emotional engagement could be a significant predictor in building loyalty through some theory-based mediating variables, depending on the research context. Xu and Yan (2011) found that individuals who feel socially connected with other viewers are more likely to watch popular television shows. Bowden (2009) and Sashi (2012) found that emotional engagement influenced brand loyalty through affective commitment. Lim et al. (2015) demonstrated that emotional engagement affects channel loyalty indirectly via

channel commitment. Likewise, emotional engagement can ultimately lead to behavioral loyalty through increased PSR. Through their engagement with others, viewers of a streaming show see the PSR akin to a fan-celebrity relationship (Hu et al., 2017), which can lead to the perceived social norms that require them to show loyalty to the streamer by “giving gifts or including the symbol or nickname in their username” (Yu et al., 2018, p. 1456). Thus, we propose the following hypothesis:

H5. The effect of emotional engagement on behavioral loyalty will be mediated by PSR.

The posited hypotheses can be illustrated in an SCT model of live-streaming game shows (See Fig. 1). The illustrated model is grounded in both Bandura’s (2001) SCT of mass communication and Giles’ (2002) model of parasocial development. The key dependent variable in the present SCT model is repeated viewing intention in terms of behavioral loyalty (Wu, Tsai, & Hung, 2012). In the proposed model, we illustrate the structural relations among wishful identification (WI), emotional engagement (EE), PSR, and repeated viewing. In the model, WI is an important personal factor in that it derives from self-motivation to learn by observing celebrities, anticipated outcomes, and cognitive appraisal of behavioral efficacy. EE is an important behavioral factor that represents a new style of behavior (e.g., using emotes in Twitch) people start to learn from others’ behaviors as well as the set rules in the platform. As assumed in the reciprocal determinism of SCT, WI, a cognitive determinant, is influenced by the celebrity streamer and other viewers of the live-streaming platform and at the same time, it influences what aspects of environmental input should be monitored and remembered. EE, a behavioral determinant, is achieved through learning from both direct and vicarious experiences in encountering others on the platform, and it also influences the platform environment in some ways. The triadic determinants in the model are also similarly illustrated in Giles’ model of parasocial development. Giles (2002) implied that the WI and EE (“discussion with others” in Giles’ model) would lead to PSR (“imagined interaction” in Giles’ model), which leads to an ultimate behavior of

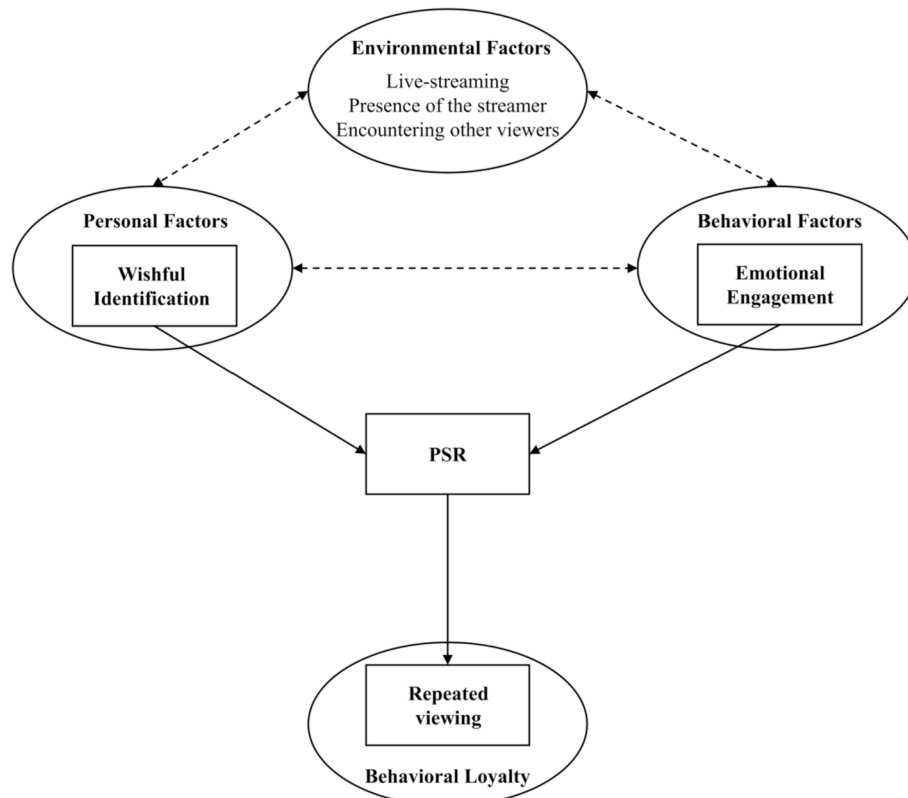


Fig. 1. An SCT model of live-streaming game shows based on Bandura’s (2001) and Giles’ (2002) models.

contacting the performer. In the aforementioned literature review, we provided the theoretical linkage between the triadic determinants and PSR (initial imaginary behavior). We also provided the theoretical linkage between PSR and behavioral loyalty.

3. Method

3.1. Procedure

After the research protocol had been approved by the Institutional Review Board, a professional research company in South Korea with approximately 1,160,000 panelists, *Macromill Embrain*, administered a survey. We used stratified random sampling based on three demographic variables (i.e., sex, age, and area of residence). First, 2581 eligible samples were randomly selected among 10,465 individuals listed on the panel, and an email was sent to each eligible participant. Among them, 1500 respondents (58.1%) completed the survey. For this study, we included in the analysis 485 respondents who reported that they watched live-streaming games shows at least once in the past 6 months. Survey items focused on respondents' experience of PSR with their favorite game live-streamers and interactions they have had with other viewers while watching live streams of games.

3.2. Sample and participants

Table 1 describes the descriptive statistics about the demographic information of the sample. The sample has a total of 485 Korean adults aged between 20 and 59 years ($M = 35.5$, $SD = 11.06$). Among the sample, 68.5% are male participants, and about 69% of participants received higher education. More than half of the participants (58%) earned \$3000 and above monthly. In terms of live-streaming game viewing time, 28.5% of participants reported that they spend less than 30 min, 16.5% spend 31 min to 1 h, 23.5% spend 1 h–1 h 59 min, 11.9% spend 2 h–2 h 59 min, and 19.6% spend more than 3 h per week.

3.3. Measures

To measure the four constructs in this study, items were adopted from existing literature. We modified the questionnaires slightly to reflect the context of live-streamed gaming shows. The descriptive statistics of all items are described in Table 2.

Parasocial Relationship (PSR). Using a 5-point Likert scale (1 = *strongly disagree*; 5 = *strongly agree*), we measured PSR with four items

Table 1
Demographic characteristics of respondents (N = 485).

Demographic Characteristics	N	%
<i>Gender</i>		
Male	332	68.5
Female	153	31.5
<i>Age</i>		
20–29 years	185	38.1
30–39 years	130	26.8
40–49 years	95	19.6
50–59 years	75	15.5
<i>Educational level</i>		
Less than high school	3	.6
High school	116	23.9
Undergraduate	335	69.1
Graduate	31	6.4
<i>Income (US dollar/one month)</i>		
<2000	173	35.7
2000–2999	108	22.3
3000–3999	87	17.9
4000–4999	60	12.4
>5000	57	11.8

Note. N is based on the respondents who are reportedly watched live-streaming game video at least once out of the total of 1500 complete responses.

Table 2
Summary of Confirmatory Factor Analysis Results for All Measures.

Factor & Items	Std. Loading	CR	AVE
<i>Parasocial Relationship (M = 2.78, SD = .89)</i>			
If my favorite live-streamer would appear live in another video, I would watch that video.	.86		
I would miss my favorite live-streamer when he/she was on vacation.	.85		
I find my favorite live-streamer's broadcast to be attractive.	.85		
I see my favorite live-streamer as a natural, down-to-earth person.	.74		
<i>Emotional Engagement (M = 2.87, SD = .91)</i>			
I quoted the live-streamer or commentator when he/she said something good or witty.	.87	.93	.73
I expressed my feelings about the live-streamer or commentator in live-streaming chats.	.86		
I sometimes use an emote to the streamer when he/she said something good or witty.	.86		
When I participate in a live-streaming chat, I feel emotionally connected with users I am chatting with.	.82		
<i>Wishful Identification (M = 2.11, SD = .94)</i>			
My favorite live-streamer is the sort of person I want to be like myself.	.92	.95	.81
Sometimes I wish I could be more like my favorite live-streamer.	.91		
I would like to have the same job as my favorite live-streamer.	.91		
I'd like to do the kinds of things my favorite live-streamer does in his/her life.	.88		
My favorite live-streamer is someone I would like to emulate.	.87		
<i>Behavioral Loyalty (M = 2.59, SD = .91)</i>			
I feel more attached to my favorite live-streaming channels than other channels.	.91	.94	.76
I will continue to watch my favorite live-streaming channel.	.88		
It would be difficult for me to be a fan of another live-streaming channel.	.88		
I will increase the amount of time I spend watching my favorite live-streaming channel.	.85		
I consider myself to be a committed fan of my favorite live-streaming channel.	.83		

derived from Rubin and McHugh's (1987) research.

Emotional Engagement (EE). Four items for emotional engagement were adapted from the measures in previous research (Lim et al., 2015) on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

Wishful Identification (WI). We adapted five items from the wishful identification scale (Hoffner, 1996; Hoffner & Buchanan, 2005). We measured these items on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). A higher score indicates greater wishful identification, in which a participant has a higher desire to be or like to act like their favorite live-streamer.

Behavioral loyalty (BL). We defined behavioral loyalty operationally as repeated viewing of a favorite live-streaming channel. The current study designated five items to measure individuals' likelihood to have loyalty towards their favorite live-streaming game channel. The measurement was adapted from the existing affective and behavioral loyalty scales in sports management (Heere & Dickson, 2008). The items for behavioral loyalty had a 5-point Likert scale that ranged from 1 (*strongly disagree*) to 5 (*strongly agree*).

3.4. Analysis

We tested our proposed model (see Fig. 1) and hypotheses employing a mediation analysis using structural equation modeling (SEM). Using Mplus 7, we performed the analysis in three steps: 1) We used confirmatory factor analysis (CFA) on the measurement model to ensure the construct validity of the latent variables, 2) We took the SEM approach

to test the structural, complex relationships between independent variables and dependent variables, and 3) We analyzed direct and indirect effects of exogenous variables on the endogenous variable to measure the proposed mediation hypotheses.

4. Results

4.1. Confirmatory factor analysis and measurement model fit

Before performing the SEM analysis, we tested the measurement model by employing a confirmatory factor analysis (CFA). Table 2 presents the measurement model results including the scale items. First, the results of factor loadings and Cronbach's alpha indicate the evidence of convergent validity among all measures of PSR, EE, WI, and BL. All indicators loaded significantly on the latent variables that they were intended to represent. For the internal consistency of measures, the reliability coefficients confirmed inter-item consistencies among items, ranging from a minimum of 0.84 to a maximum of 0.94 for an average of 0.90. The discriminant validity was tested by average variance extracted (AVE) and average shared squared variance (ASV). The AVE of each latent variable exceeded a 0.50 benchmark (Fornell & Larcker, 1981) and was larger than ASV (Hair, Black, Babin, & Anderson, 2010). The measurement model demonstrated a good fit to the data based on the criteria suggested by Hu and Bentler (1999): $\chi^2(120) = 395.44, p < .001, CFI = .96, TLI = .95, SRMR = .04, RMSEA = .07$.

Table 3 presents the reliability coefficients and inter-correlations of the constructs investigated in this study. The Pearson-correlation coefficient was computed to assess the relationship between all constructed measures. Our correlational analysis confirmed that there are significant and strong, positive relationships among all measures. The results suggest that higher levels of emotional engagement, wishful identification, or PSR are correlated with greater behavioral loyalty, and vice versa.

4.2. Test of the structural model with mediation analysis

Table 4 presents the result of the direct and indirect effects of the hypothesized causal link. The hypothesized model, as represented in Fig. 1, appears to be satisfactory goodness of fit to the data: $\chi^2(189) = 507.64, p < .001, CFI = .96, TLI = .95, RMSEA = .06, SRMR = .04$.

Testing H1. In H1, we predicted that a viewer's wishful identification would have a positive effect on PSR. The result yielded a statistically significant positive relationship between wishful identification and PSR [β (SE) = .33 (0.04), $p < .001$]. This result suggests that the stronger the viewer's desire to be like or act like the streamer, the higher will be the PSR with the streamer. Therefore, H1 was supported.

Testing H2. H2 predicted that a viewer's emotional engagement with the other viewers would strengthen their PSR with the streamer. As predicted, emotional engagement showed a significant positive effect on PSR [β (SE) = .56 (0.04), $p < .001$]. Thus, H2 was supported.

Testing H3. H3 predicted that PSR would have a positive effect on behavioral loyalty. Consistent with the prediction, PSR had a positive effect on loyalty [β (SE) = .83 (0.05), $p < .001$]. Therefore, H3 was supported as well.

Testing H4 and H5. To test H4 and H5, we performed mediation analyses using the bootstrapping method (See Table 4). Consistent with predictions, we found that wishful identification and emotional

Table 3
Correlation matrix for exogenous and endogenous variables.

Variables	α	1	2	3	4
1. Parasocial Relationship	.84	1.00			
2. Wishful Identification	.94	.64	1.00		
3. Emotional Engagement	.88	.74	.54	1.00	
4. Behavioral Loyalty	.92	.93	.62	.75	1.00

Note. Correlations are significant at $p < .001$ level.

Table 4
Results of structural equation modeling with mediation analyses.

Structural Equation Model (Direct Effects)				BC 95% CI	
Paths	Estimate	S.E.	Z	Lower	Upper
WI→PSR	.33	.05	6.42***	.25	.43
EE→PSR	.56	.06	9.17***	.49	.69
PSR→BL	.83	.08	11.02***	.72	.97
Control Variables				BC 95% CI	
Paths	Estimate	S.E.	Z	Lower	Upper
EDU→PSR	-.06	.07	-1.40	-.20	.01
INCOME→PSR	.04	.02	1.02	-.02	.06
AGE→PSR	-.10	.00	-2.78***	-.01	.00
MALE→PSR	.03	.06	.94	-.04	.15
Mediation Analysis (Indirect Effects)				BC 95% CI	
WI→BL through PSR				BC 95% CI	
	Estimate	S.E.	Z	Lower	Upper
Total Effect	.30	.06	5.58***	.21	.41
Total Indirect	.28	.05	5.70***	.20	.37
Direct	.03	.05	.58	-.06	.12
Specific Indirect:	.28	.05	5.70***	.20	.37
WI→PSR→BL				BC 95% CI	
EE→BL through PSR				BC 95% CI	
	Estimate	S.E.	Z	Lower	Upper
Total Effect	.58	.05	11.87***	.51	.72
Total Indirect	.47	.06	8.12***	.39	.61
Direct	.12	.07	1.78	.01	.24
Specific Indirect:	.47	.06	8.12***	.39	.61
EE→PSR→BL				BC 95% CI	

Note. WI = Wishful identification; EE = Emotional engagement; PSR = Parasocial relationship; BL = Behavioral loyalty. $\chi^2 = 507.64, df = 189, \chi^2/df = 2.69, SRMR = .04, RMSEA = .06$ [90% CI=.05-0.07], $CFI = .96, TLI = .95$. BC 95% CI: Bias-corrected 95% bootstrapped confidence interval (CI) based on 5000 resamples. * $p < .05, **p < .01, ***p < .001$.

engagement had indirect effects on behavioral loyalty through PSR. The indirect effect of wishful identification on loyalty (β [bootstrap 95% CI] = .28 [0.20, 0.37], $Z = 5.70, p < .001$) is strong and accounts for most of the total effect (β [bootstrap 95% CI] = .30 [0.21, 0.41], $Z = 5.58, p < .001$). The direct effect of wishful identification on loyalty is not significant. Taken together, the results indicate that PSR fully mediates the relationship between wishful identification and loyalty. Therefore, H4 was supported.

The effect of emotional engagement on loyalty was also fully mediated by PSR. The indirect effect of emotional engagement on loyalty was positive (β [bootstrap 95% CI] = .47 [0.39, 0.61], $Z = 8.12, p < .001$). The direct effect was not significant. Therefore, H5 was supported.

5. Discussion

Grounded in social cognitive theory and Giles' model of PSR development, the current research explains how the growing popularity of live streams of games can be explained by viewers' motivations to achieve their goals related to gaming. In explaining the goal-driven modeling behavior, the current research identified two theoretical variables, wishful identification (WI) and emotional engagement with other viewers (EE) that represent a personal factor and environmental factor respectively. We proposed the SCT model of live-streaming games, in which WI and EE would have an impact on viewers' behavioral loyalty to the streamer's channel through PSR. Through testing the proposed SCT model of live-streaming shows, we found that both variables of WI and EE had a direct positive impact on PSR and indirect effect on repeated viewing intentions through PSR.

5.1. Theoretical contributions

As the fandom of e-sports games becomes a major social phenomenon, the media ecosystem of the e-sports business has also grown. The current research explores the psychology of human behavior formed around the new ecosystem of e-sport business—popular live game-streaming platforms. In doing so, we hope to have made an important

contribution—that is, making a theoretical linkage between Giles' parasocial development model and Bandura's SCT. In particular, we noted the importance of having the imagined interactions among the live show viewers and the streamer. As Bandura notes, viewers who are positioned in the mediated reality of streamed game shows are prone to have symbolic interactions with others who are beyond the bounds of their immediate environment (Bandura, 2001). While being influenced by the environment, they engage in viewing behavior exerting their own self-regulation based on cognition and their prior viewing experience. We reasoned that wishful identification is an important personal factor that may be indirectly connected to their viewing behavior. This is because WI represents both self-efficacy and outcome expectations. The findings of the current research strengthen the structural relationships between SCT-based variables, PSR, and repeated viewing. We believe that the proposed model makes a significant theoretical contribution to the development of SCT of mass communication (Bandura, 2001). The integrative model extended the boundary and the scope of dependent variables of the SCT by suggesting that the theory can be used to explain new styles of human behaviors (e.g., giving super chat to YouTubers) observed in new emerging socially mediated platforms. It needs to be noted that PSR is considered an important behavior (Shin, 2016) that can be connected to other types of actual behaviors such as repeated viewing, donating to the live-streamer (YouTuber), subscribing to the channel, and so on. In this present study, we selected repeated viewing as a key dependent measure that presents behavioral loyalty (Wu et al., 2012).

The test of the proposed mediation model demonstrated that the viewers' behavioral proclivities toward the live-streaming game shows in terms of behavioral loyalty were influenced by two theoretical variables—wishful identification and emotional engagement. The most important finding of the current research is that PSR fully mediates the effect of wishful identification and emotional engagement on behavioral loyalty. The full mediation indicates that viewers' wishful identification and emotional engagement are necessary for repeated viewing of the live-streaming channel, but their impacts are greatly influenced by the strength of PSR.

The finding that PSR fully mediates the effect of wishful identification on behavioral loyalty also casts a theoretical implication. This is the first study that tests the causal path between wishful identification and PSR. In a previous study (Bond & Drogos, 2014), wishful identification has been treated with a separate mediator from the PSR that connects the relationship between exposure and behavior. We also performed a post-hoc analysis to test the possibility to predict behavioral loyalty using PSR and wishful identification as separate mediators, but the analysis produced a poorer fit to the data. In an article published in *Communication Theory*, Brown (2015) proposed a conceptual model in which PSI with a media persona was assumed to lead to identification with the persona. When the current researchers tested Brown's (2015) conceptual model, the point estimate for the path was positive and significant. However, wishful identification did not have a significant effect on behavioral loyalty. The reverse causal model is also contradictory to Giles' (2002) model and Labrecque's (2014) PSI-mediated model. Taken together, the results of this study indicate that the stronger the wishful identification, the stronger the PSR. We believe that this finding can be applied to other PSR related phenomena, including cross-racial identification as exemplified in the cultural study (Swan, 2018) of two K-Pop YouTubers' continual wishful identification across boundaries of race.

A path from emotional engagement to behavioral loyalty is also fully mediated by PSR. The properties and features of live-streaming platforms make it easy for audiences to express and share their emotions while watching the live-streaming shows. It should also be noted that the various response techniques that the streamer uses to give a synchronous response to the viewers can help build and maintain the PSR with viewers.

5.2. Limitations and suggestions for future research

Despite these theoretical contributions, the current research has a few limitations that call for attention from future researchers. First, the dependent measure of the current study is narrowly defined and may not explain other types of new behaviors that represent viewer loyalty to a live-streaming game show. For instance, a few recent studies examined live-streaming audiences' financial support for their favorite live-streamer by donation (Hilvert-Bruce et al., 2018; Wohn et al., 2018; Yu et al., 2018) or through paid subscription (Sjöblom & Hamari, 2017).

Second, we drew the sample from national panel data using a stratified sampling method. Thus, we had to exclude many responses that were complete but that came from non-viewers of the live-streaming shows. We suggest that future research needs to replicate this study by conducting a survey with randomly selected registered users of a popular streaming platform since non-viewers are not of primary interest to this research.

Another related limitation to the survey design is the use of cross-sectional data to test the proposed mediation model. To address the limitation of the cross-sectional data, we applied an SEM to the data. According to Bollen and Pearl, SEM is an inferential statistical method that can be used to test causal assumptions and derives "quantitative causal conclusions and statistical measures of fit" (Bollen & Pearl, 2013, p. 309). Although the significant model fit of an SEM does not confirm the causal assumptions, "it makes them tentatively more plausible (p. 309)." The test of the proposed SEM model with mediation analysis exhibited a good model fit compared to alternative models in a post-hoc analysis, which validates the causal relationship among the exogenous and endogenous variables. Nonetheless, we suggest that future research use a longitudinal study or a controlled experiment to replicate the finding of the current study.

Third, the current research used a short version of the PSI scale (Rubin & McHugh, 1987) since some items in the original PSI scale were not well-suited for describing PSR with live-streamers. We call for future research that updates the original Rubin and Perse's PSI scale, reflecting the newer and more diverse fan-influencer relationships that are observable in live-streaming platforms such as YouTube.

Finally, while many studies have applied the PSI scale proposed by Rubin and his colleagues (Rubin et al., 1985; Rubin & Perse, 1987), little effort has been made to check the unidimensionality of the measure through confirmatory factor analysis. We suggest that future research should fill the research gap.

6. Conclusions

As illustrated by Giles (2002), this study confirms the structural relations between wishful identification and PSR. The current research also confirms that viewers' emotional engagement increases PSR. Lastly, the proposed mediation model is confirmed by observing the indirect effects of wishful identification and emotional engagement on behavioral loyalty through PSR. Taken together, viewers' repeated viewing of live streaming games can be understood from the perspective of SCI-based PSR development.

CRedit authorship contribution statement

Joon Soo Lim: Conceptualization, Methodology, Formal analysis, Writing - original draft, Writing - review & editing. **Min-Ji Choe:** Conceptualization, Investigation, Project administration, Writing - original draft. **Jun Zhang:** Writing - original draft, Writing - review & editing. **Ghee-Young Noh:** Conceptualization, Supervision, Investigation, Funding acquisition, Resources.

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