Trans-Parasocial Relation Between Influencers and Viewers on Live Streaming Platforms: How Does it Affect Viewer Stickiness and Purchase Intention?☆

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Abstract

Live streaming has become one of the most important communication tools for influencers to synchronously interact with viewers. It is critical to understand the effect of the reciprocal and synchronously interactive relations built between influencers and viewers, so-called *trans-parasocial relations*, in the context of live streaming. In this study, we investigate how trans-parasocial relations impact viewers' stickiness and purchase intention on live streaming platforms. Furthermore, we investigate fanship as a mediating factor in the relationship between trans-parasocial relations and viewers' behaviors. Overall, the results reveal significant direct and indirect effects of trans-parasocial relations on viewers' stickiness and purchase intention. Higher trans-parasocial relations further lead to stronger viewers' fanship toward influencers and increases their willingness to stay longer or make purchases on live streaming platforms. These findings further the understanding of influencer-viewer relations and viewers' behavior on live streaming platforms and provide valuable insights into influencer marketing and live streaming.

Keywords: Live streaming, Trans-parasocial relation, Fanship, Stickiness, Purchase intention

1. Introduction

Consumers have become keen on communicating through live streaming services such as Facebook Live, YouTube Live, Instagram Live, V Live, Twitch, and AfreecaTV (Hilvert-Bruce et al. 2018; Wongkitrungrueng and Assarut 2020). Indeed, 30% of internet users aged 16 to 64 watch at least one live stream each week (Kemp 2022) and the live streaming industry is expected to reach $4.26 billion by 2028 (Meticulous Research 2022). Live streaming is not just for the retail industry but also popularly used in entertainment areas such as gaming, podcasts, TV shows, and Mukbang (known as an "eating broadcast" in Korea). Anyone can create or access streaming content, especially personal brands/ businesses that seek to interact with their followers/ customers in real time (Chen and Lin 2018).

Unlike traditional media, live streaming services are deeply entrenched in real-time activities. Due to this feature, live streaming has unique characteristics, including synchronization, co-created content using mobile devices, various interactions between influencers and viewers, and virtual gift-giving (Li, Li, and Cai 2021; Li and Peng 2021; Scheibe et al. 2018; Yu et al. 2018). Live streamers (i.e., influencers) can boost viewer engagement in real time and viewers can also send/receive immediate feedback from the influencers in the chat room (Wongkitrungrueng and Assarut 2020; Wulf, Schneider, and Queck 2021; Yu et al. 2018). Thus, the relationship between influencers and viewers are no longer one-

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sided as in traditional media but reciprocal and synchronously interactive in the era of digital media (Lou 2021). Especially in live streaming, influencers try to attract viewers with their attractiveness and gain credibility through interpersonal communication (Hilvert-Bruce et al. 2018; Wongkitrungrueng and Assarut 2020). Further, the continuous commenting in social media by viewers on influencers' site shows their strong interest and closer social bond (i.e., fanship) with their favorite influencer (Hudders and De Jans 2022; Yun, Rosenberger, and Sweeney 2021), which may affect their intention to spend more time on the live streaming channel and purchase products recommended by the influencer.

Despite these distinctive interactions in live streaming, few studies have focused on two-way social interactions between influencers and viewers on live streaming platforms (Chen and Lin 2018; Li, Li, and Cai 2021; Sun et al. 2019). Previous research on live streaming has explored gift-giving behaviors and the motivation of viewers to share experiences and knowledge in live streaming (Li and Peng 2021; Yu et al. 2018). However, these research focuses on the direct effect of live streaming itself on viewers' behavior and lacks an effective theoretical framework to understand the impact of the unique two-way interactions in live streaming on users' behaviors.

Therefore, this study investigates the effects of a two-way relationship on behaviors such as viewers' stickiness and purchase intention. Lou (2021) proposes a new theorization of the two-way parasocial relations in social media, so-called "trans-parasocial" relations. Trans-parasocial relation is defined as "collectively reciprocal, (a)synchronously interactive, and co-created relations" between influencers and their followers (Lou 2021). This notion is more suitable to explicate the current two-way relationship in live streaming. Hence, we delve into its effect on viewers' behavior along with the effect of fanship, another critical factor in influencer marketing, and aim to answer the following research questions:

- How do trans-parasocial relations impact viewers' stickiness and purchase intention on live streaming platforms?
- How does fanship toward influencers impact viewers' stickiness and purchase intention on live streaming platforms?
- Does viewers' fanship toward influencers mediate the relationship between trans-parasocial relations and viewers' stickiness and purchase intention?

Thus, this study fills a gap in the existing research on social media in the live streaming context beyond the general one-sided influencer-viewer relationships. Specifically, it contributes to prior research by applying the concept of trans-parasocial relations, crucial in the live streaming context. It also extends the literature on influencer marketing by examining the mediating role of fanship on user stickiness, which has rarely been studied in the context of live streaming platforms. Additionally, we offer practical implications for influencers on the beneficial effects of fans in enhancing wholesome relationships. Finally, our findings bring forward new strategies regarding consumer relationship management to influencers and companies: influencers should consider the fanship built by synchronously interactive experience, while live streaming services should make a concerted effort to provide collective reciprocity from captive followers.

2. Theoretical background

We focus on two critical constructs in live streaming (i.e., trans-parasocial relation and fanship) and two crucial live-streaming performance metrics (i.e., stickiness and purchase intention).

2.1. Trans-parasocial relation

Previous studies on social interaction introduced the concept of "parasocial relation"—illustrating enduring social relations with media persona on mass communication channels (e.g., traditional television, radio, film), including celebrities and media figures or influencers (Horton and Richard Wohl 1956). It is also known as a one-way or unilateral relationship, in which an individual (i.e., the viewer in live streaming) extends their interest and time to a persona (e.g., celebrities, television stars, or sports teams; Donabedian 2021; Kowert and Daniel 2021). The term "parasocial relations" along with the similar concept "parasocial interactions" have been used interchangeably (e.g., Dibble, Hartmann, and Rosaen 2016; Tsai and Men 2013). When the audience feels like they are consociating with the celebrity while watching a TV show, they experience parasocial interactions and build a parasocial relationship in the long run (Bond 2018; Lou 2021). Once audiences build a parasocial relationship with an influencer, they think they know the influencer well and believes they are good friends (Reinikainen et al. 2020).

Given that the original notion of parasocial relations put forward by Horton and Richard Wohl (1956) in the era of traditional media such as TV and radio, it has evolved with the development of new digital communication technologies over the

decades. In recent research on social media, the parasocial relations between influencers and followers in social media has been found to differ from those in traditional media in that influencers can also initiate interactions with followers and retain an impression of intimacy with followers (Abidin 2015). Thus, two-way interactions between influencers and followers frequently occur on social media and their relationship is no longer "one-sided" (Reinikainen et al. 2020; Yuan and Lou 2020). In this vein, Lou (2021) proposes a new theorization of the two-way parasocial relations, so-called "trans-parasocial" relations. Trans-parasocial relations are defined as "collectively reciprocal, (a)synchronously interactive, and co-created relations" between influencers and their followers (Lou 2021). This notion is more suitable to explicate the current two-way relationships.

Live streaming facilitates trans-parasocial relationships more by enabling influencer-viewer interactions in real time. Despite practical use of live streaming in marketing communication, there is limited research on trans-parasocial relationships in live streaming. As an exception, Kowert and Daniel (2021) explore the theoretical implications of the changes from a one-sided non-interactive relation with the media performer (i.e., one-to-many) to a more complex relation with interactions between influencers and viewers (i.e., many-to-many or one-to-one), specifically on the Twitch live streaming platform. However, they did not empirically investigate how trans-parasocial relations influence viewers' behavior such as channel stickiness and purchase intention. Therefore, we aim to contribute to the literature by proposing a conceptual model involving two-way interactions on live streaming platforms.

2.2. Fanship

Generally, fans are described as active, participatory audiences, like spectators at a stadium or television viewers at home (Gantz and Wenner 1995). Behavioral loyalty, so-called "fanship" has been used to describe the extent to which a person (e.g., a fan of a celebrity/influencer/sports start) has a deep interest in a particular area (Gantz and Lewis 2021). Further, fanship can be defined as an individual's psychological attachment to their interest or persona (Annamalai et al. 2021). Thus, the term "fan" can describe individuals devoted to various interests. From a psychological perspective, there has been a focus on sports and fashion fans (Pentecost and Andrews 2010; Reysen and Branscombe 2010), where fanship is considered a unique and complicated concept (Wenner 2013). Specifically, fans tend to identify with their favorite sports team/celebrity and think of themselves as part of the success of the team/celebrity. For example, among sports fans, when a team is winning, the individual (i.e., fan) feels like they too are winning, even though they are not actual players (e.g., Sloan 1989). Given fans' characteristics, Reysen and Branscombe (2010) compare past studies and prove that fans with various interests are very similar.

Earlier studies have established that fanship is correlated with positive outcomes and can generate pleasure and passion (Gantz and Wenner 1995). For instance, fans' fanship helps enhance the positiveness of group entitativity, strengthens identification among other fans, and brings collective happiness (Reysen and Branscombe 2010). More importantly, fanship is an individual's expression of various increasing levels of psychological attachment over time (Laffan 2021). This psychological attachment may lead to behavior modification and is a crucial factor affecting user participation and retention (Pentecost and Andrews 2010).

Recent literature on fanship has expanded the interest in celebrities or influencers in social media. Nowadays, influencers try to interact with fans more actively than before through digital media. Especially, live streaming allows influencers to interact virtually with their viewers in real-time, optimizing two-way communication. For instance, an influencer asks the viewers a question while streaming a live video; the viewers then send their answers via live chats, building friendships between influencers and viewers (Ham and Lee 2020). Consequently, live streaming has become one of the main communication tools for enhancing viewers' fanship for influencers. However, despite these recent changes, there is a paucity of research on understanding the simultaneous effect of trans-parasocial relations and fanship in live streaming on social media platforms.

2.3. Stickiness

User stickiness in marketing has been generally viewed as loyalty, indicating repeat purchases at a store. However, in a digital setting, stickiness indicates the time spent on a network platform during a visit (Li, Li, and Cai 2021). The term stickiness is a metric that measures the frequency or duration viewers spend on comments, browsing, and staying on a website or a social networking service (SNS), such as Instagram, YouTube, Facebook, and V Live (i.e., a live streaming platform; Lu and Lee 2010; Shao et al. 2020). In other words, from the online viewer perspective, "stickiness" represents the willingness to spend a significant amount of time on a live streaming platform or revisiting the website

consistently in the future (Lin 2007). Hence, users with high stickiness spend a long time or frequently visit the website (Li et al. 2006).

According to previous research on digital usage, various factors (e.g., age, gender, type of site, content, trust, entertainment, and attachment) influence visits to websites, blogs, and live commerce (Chen and Lin 2018; Lu and Lee 2010; Park and Lin 2020). For example, Danaher, Mullarkey, and Essegaier (2006) show that female users and older people spend much more time visiting a website. Furthermore, some researchers have studied the impact of channel trust and commitment as the main factors that help increase users' stickiness in streaming channel platforms, such as YouTube Live, e-sports, and video game streaming (Chen and Lin 2018; Li, Li, and Cai 2021).

In stickiness research, a strong relationship with websites or influencers is an important predictor of stickiness. Additionally, trust is a critical driver that influences stickiness, which affects the continuous use of online platforms (Shao et al. 2020). Once users have a psychological attachment to an object, they want to maintain and strengthen the relationship (Hu, Zhang, and Wang 2017). Thus, we also predict that viewers with a stronger relationship with live influencers will have a higher continuous watching intention on a live-streaming platform (Li, Li, and Cai 2021).

2.4. Purchase intention

Purchase intention is consumers' willingness to purchase a certain product or service (Lou and Kim 2019). Some previous studies have identified factors, such as behavioral intention, trust, attractiveness, and perceived usefulness, that influence an individual's online purchase intention (Park and Lin 2020; Zhang et al. 2021). Akar and Dalgic (2018), based their research on the theory of planned behavior (TPB) and social network theory, show a positive impact of social norms, behavioral attitudes, and perceived behavior control on online consumers' purchase intentions. In the live streaming context, both perceived immersion and social presence have positive and significant effects on consumers' purchase intention (Sun et al. 2019), in turn, it can reduce the psychological distance and perceived uncertainty during shopping (Zhang et al. 2020). Moreover, synchronicity in the live-streaming platform features significantly increases viewers' overall perceived value and engagement with the influencers, which, in turn, leads to viewers' high emotional connection experience (e.g., state of pleasure) and positive attitude toward the product

recommended by the influencers (Wongkitrungrueng and Assarut 2020; Zhang et al. 2021).

3. Hypotheses development

Given the characteristics of live streaming, users are encouraged to interact with their favorite media personalities, which contributes to greater intimacy and enhanced reciprocity between influencers and viewers (e.g., Hilvert-Bruce et al. 2018; Zhang et al. 2021). This synchronous and immediate interaction with the persona leads to emotional engagements and behaviors that are a key component impacting the relationship between the influencer and the viewer (Kowert and Daniel 2021; Yu et al. 2018). For example, viewers are more willing to spend time and stay with the influencer on a live streaming platform when they have strong simultaneous interactions and are collectively reciprocal to influencers (Lou 2021). Eventually, two-way interactions become an important antecedent of customers' stickiness. In other words, trans-parasocial relationship (i.e., two-way reciprocal parasocial relationship) between influencers and viewers may positively correlate with viewers' stickiness on live streaming platforms.

Similarly, purchase intention in live streaming is also distinctive and crucial in influencer marketing. Indeed, products promoted by influencers are trustworthy and included in the evoked set before making a purchase decision due to viewers' engagement on live streaming platforms (De Jesus 2021; Wongkitrungrueng and Assarut 2018; Zhang et al. 2021). Parasocial relation between readers and blogs is positively associated with greater persuasiveness (Colliander and Dahlen 2011). Therefore, trans-parasocial relations between followers and digital influencers would increase trustworthiness and persuasiveness of influencers, which may increase the followers' purchase intentions. Accordingly, we propose the following hypotheses:

H1. Trans-parasocial relations between the influencers and viewers positively affect viewers' stickiness on live streaming platforms.

H2. Trans-parasocial relations between the streamers and viewers positively affect viewers' purchase intention on live streaming platforms.

Viewers develop a fanship for influencers (e.g., celebrities, live streamers) based on their interests in the influencer or the content of the live streaming video. Parasocial interactions between viewers and influencers play an important role in attracting and

maintaining users (Kowert and Daniel 2021). For example, influencers can leverage live streaming services to demonstrate products to customers and communicate with and guide them, creating a conducive environment in which customers perceive trust and are eager to imitate influencers (Park and Lin 2020). Moreover, with the concept of uses and gratifications theory, when viewers (i.e., fans) feel a stronger relationship with the influencer, they are possibly having a greater satisfaction, which increases their interest in a particular influencer (e.g., streamer, celebrity, artist) or a live stream platform (Chen and Lin 2018; Scheibe et al. 2018). This may also increase viewers' attachment, which, in turn, increases the chances of viewers sticking to the live streaming video or maintaining it as a fan (Hu, Zhang, and Wang 2017; Li, Li, and Cai 2021). Thus, we hypothesize as follows:

H3. Trans-parasocial relations positively affect viewers' fanship.

Essentially, becoming a fan entails spending much time browsing photos and videos of celebrities and becoming enthusiastic consumers of influencers' content (Li, Li, and Cai 2021; Proctor 2021; Stever 2017). Accordingly, fanship, which encompasses consciousness and involvement with influencers, is likely to influence behavioral outcomes such as stickiness and purchase decisions (Kim and Choo 2019; Pentecost and Andrews 2010). For example, fanship has a significant positive relationship with viewing time or the level of involvement while watching a live streaming video (Ham and Lee 2020). Specifically, viewers with higher levels of fanship are more willing to watch live streaming and participate in video content constantly. Moreover, once viewers become fans with a psychological attachment to the influencers, they trust and follow the influencers and buy the products recommended by the influencer (Chen and Lin 2018; Park and Lin 2020). Thus, we suggest that fanship can explain users' behavior, such as user stickiness and purchase intention (e.g., live streaming engagement; Ham and Lee 2020; Hu, Zhang, and Wang 2017), better than satisfaction or loyalty. Therefore, we propose the following hypotheses:

H4. Viewers' fanship toward influencers has a positive impact on stickiness on live streaming platforms.

H5. Viewers' fanship toward influencers has a positive impact on purchase intention on live streaming platforms.

4. Methods

4.1. Survey instrument

To explore the impact of trans-parasocial relations in live streaming on viewer stickiness and purchase intention, we conducted a survey to measure four key constructs of our conceptual framework (i.e., trans-parasocial relation, fanship, stickiness, and purchase intention). More specifically, trans-parasocial relation captures the simultaneous interaction and collective reciprocity between social media influencers and online followers on social media or live streaming platforms (Lou 2021). The five items related to trans-parasocial behaviors were extracted from the previous studies on live streaming (Chen and Lin 2018; Lim et al. 2020; Lou 2021). The fanship measurement items allowed this study to determine the extent of viewers' interest in their favorite influencers. A 4-item measure developed by prior studies about fan behaviors (Ham and Lee 2020; Laffan 2021) was used to assess fanship. In addition, four measurement items were used to examine the viewers' stickiness on a live streaming platform—their interest in watching a live stream over time (Li, Li, and Cai 2021; Lu and Lee 2010). Finally, purchase intention on a live streaming platform was assessed using a 5-item scale derived from previous research (Sun et al. 2019; Zhang et al. 2021). All survey items were slightly modified to suit the context of this study and assessed on a 7-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree). The measurement items are presented in Table 1.

4.2. Participants and data collection

We collected data from Amazon's Mechanical Turk (MTurk), which provided a small reward. This survey draws on people around the world who have viewed a live stream video at least once on social media platforms. We created an English-only online questionnaire. To ensure that the participants had a clear and common definition of live streaming services, they first read a brief explanation and an example of a live streaming platform (see Appendix). Using live streaming videos from celebrities, we aimed to establish credibility in the information presented to the participants. A total of 439 samples were collected at the beginning; 55 samples were invalid, including two sample responses to a screening question (i.e., "never watched a live streaming video.") and 53 samples with incomplete

responses, respectively. Consequently, 384 valid samples were obtained (M_{age} = 29.5, SD = 3.03; N_{female} = 136, N_{male} = 248).

After exposure to live streaming service descriptions and examples, the participants answered questions on the experiences of live streaming services on a 7-point scale. The final part of the survey ended with questions regarding the respondents' characteristics and viewing behaviors in live streaming (Zhang et al. 2021). Participants were asked to answer questions about how often they watch, how long they spend on a live stream platform and the frequency of leaving comments while watching a live streaming video. The collected information was then used to interpret the findings. The frequencies and percentages of sample characteristics are listed in Table 2. More than half of the participants (66.9%) watched live streaming videos for more than three days a week, and 70.3% watched live streaming videos for more than an hour a day. Most participants (93.7%) tried interacting with influencers on live streaming videos at least once.

4.3. Results

Reliability and validity. To ensure overall consistency across measurements, reliability tests were conducted using Cronbach's alpha test developed by Cronbach (1951), and the measurements were tested following Cortina's (1993) criteria. We report the results in Table 3.

As shown in Table 3, all the four variables, trans-parasocial relation (Cronbach's alpha = 0.841), fanship (Cronbach's alpha = 0.836), stickiness (Cronbach's alpha = 0.836), and purchase intention (Cronbach's alpha = 0.914) all possess good reliability levels—a minimum Cronbach's alpha of 0.7 is generally considered reliable. This proves that the four variables in this study are reliable.

Next, to empirically validate the scale, a confirmatory factor analysis (CFA; Table 3) was conducted. The factor loadings should be at least 0.5 to be considered necessary items (Hair et al. 2019). All indicators were loaded onto the predicted factors, and the factor loadings ranged from 0.688 to 0.843. Furthermore, the ideal value of average variance extracted (AVE) should be $\geq$ 0.5 to suggest adequate convergent validity, and composite reliability (CR) should be 0.7 or higher to indicate adequate convergence or internal consistency (Hair et al. 2019). Table 3 shows that AVE is above 0.5 for all variables, and CR is greater than the threshold of 0.7. Therefore, the final CFA model fits well with the data.

Hypotheses testing. To test the hypotheses, we use structural equation modeling (SEM) because it

Table 1. Measurement items of key constructs.

Construct	Items		Reference
Trans-parasocial Relation	TPSR_1	I enjoy getting attention and praise from the streamer.	Chen and Lin (2018);
	TPSR_2	I feel excited when sharing something and getting feedback from the influencer.	Lim et al. (2020); Lou (2021)
	TPSR_3	I can feel the connection with the streamer when watching live streaming.	
	TPSR_4	Live streaming service allows me to connect with the streamer who shares similar interests as myself.	
	TPSR_5	I feel much closer to the influencer when I am watching live stream.	
Fanship	FANS_1	I have a passion for my favorite streamer.	Ham and Lee 2020;
	FANS_2	I know my favorite streamer's lifestyle.	Laffan (2021);
	FANS_3	I carefully follow what my favorite influencer does daily; compared to others, I know a lot more about the streamer than they do.	
	FANS_4	I often talk about my favorite streamer with my friends or family.	
Stickiness	STK_1	I usually spend a lot of time watching live videos on live streaming platforms.	Li, Li, and Cai 2021;
	STK_2	I intend to prolong my stays on live streaming platforms.	Lu and Lee (2010)
	STK_3	I find myself watching live streaming longer than I planned to.	
	STK_4	I would rather spend time on live streaming platforms than on TV.	
Purchase Intention	PI_1	I am willing to buy a product or service recommended by my favorite live streamer.	Sun et al. (2019) Zhang et al. (2021)
	PI_2	If I were buying a product or service on live streaming, the likelihood I would purchase it on my favorite influencer's live stream is high.	
	PI_3	I will consider purchasing on a live streaming platform as my first choice rather than in a physical store.	
	PI_4	I intend to purchase a product or service on a live stream.	
	PI_5	I expect to purchase a product or service on a live streaming platform.	

Table 2. Sample characteristics.

Criterion	n	%
Gender		
Male	248	64.6
Female	136	35.4
Age (years)		
18–24	40	10.4
25–34	201	52.3
35–44	78	20.3
45–54	46	12
55–64	15	3.9
65–74	4	1
Education Level (completed)		
High School	23	6
Bachelor's Degree	240	62.5
Master's Degree	121	31.5
Doctorate	0	0
Income (NTD/month)		
0-10,000	60	15.6
10,001–30,000	111	28.9
30,001–60,000	120	31.3
60,000–100,000	85	22.1
Over 100,000	8	2.1
Frequency of watching live streaming videos (weekly)		
Less than 1 day	17	4.4
1 or 2 days	110	28.6
3 or 4 days	144	37.5
5 or 6 days	63	16.4
7 days	50	13
Duration for watching live streaming videos (daily)		
Less than 15 min	30	7.8
Less than 30 min	84	21.9
Less than 60 min	141	36.7
Less than 90 min	58	15.1
Less than 120 min	33	8.6
More than 120 min	38	9.9
Participation in live streaming services (avg. # of messages sent per one time)		
Never	24	6.3
1-2 times	208	54.2
3-5 times	118	30.7
More than 5 times	34	8.9

allows us to examine the structural relationships among multiple independent and dependent variables simultaneously (Lu and Lee 2010) (see Fig. 1). The overall fit indices indicate an acceptable fit to the data ($\chi^2 = 264.316$, df = 130, $\chi^2/df = 2.033$) at a significant level (p = 0.000); the fit indices are within acceptable standards (IFI = 0.969, TLI = 0.964, CFI = 0.969, RMSEA = 0.052). Given the direct and indirect effects of the indicators (trans-parasocial relations and fanship) on the two dependent variables (stickiness and purchase intention), we use the 90% confidence interval and 1000 bootstrap samples to test the hypothesis. As shown in Table 4, the results indicate that trans-parasocial relations are positively associated with stickiness (H1: $\beta = 0.240$,

t = 2.101, p < 0.05) and purchase intention (H2: $\beta = 0.320$, t = 2.673, p < 0.01).

Moreover, fanship serves as a mediator in the structural model, with a strong relationship between the variables. Specifically, the path coefficients reveal that trans-parasocial relations positively impact fanship (H3: $\beta = 0.989$, t = 12.145, p < 0.001), while stickiness and purchase intention are positively affected by fanship (H4: $\beta = 0.710$, t = 6.702, p < 0.001; H5: $\beta = 0.782$, t = 7.114, p < 0.001). Finally, the indirect effects (i.e., TPSR→STK: 0.702 and TPSR→PI: 0.773) are significant and higher than the direct effects (i.e., TPSR→STK: 0.240 and TPSR→PI: 0.320). Consequently, we show that viewers' fanship partially mediates the relationship between trans-parasocial relations and viewers' stickiness and purchase intention on live streaming platforms.

5. Conclusion

Nowadays, social media live streaming provides a real-time experience for viewers to easily interact with influencers and engage with others without gathering in person. Given the increasing number of live streaming services in the industry, understanding the complex and subtle relationships between influencers and viewers is critical. Especially, two-way interactions between influencers and followers frequently occur on social media and foster trans-parasocial relationships (Lou 2021). Throughout the analyses, the findings of this study support all the predicted hypotheses. First, this study suggests a positive direct effect between trans-parasocial relations and viewers' stickiness and purchase intention on the live stream platform. Second, this study finds that the greater the trans-parasocial relations between influencers and viewers, the more likely viewers are to have a strong fanship toward the influencers. In addition, viewers' fanship toward influencers positively affects their stickiness and purchase intention. Lastly, we show that fanship partially mediates the relationship between trans-parasocial relations and viewers' behaviors on live streaming platforms.

5.1. Theoretical implications

Our study contributes to the literature on social media in several ways. First, our results deepen the understanding of parasocial relation (Hudders and De Jans 2022; Lou 2021; Yuan and Lou 2020) by investigating the two-way relationship between
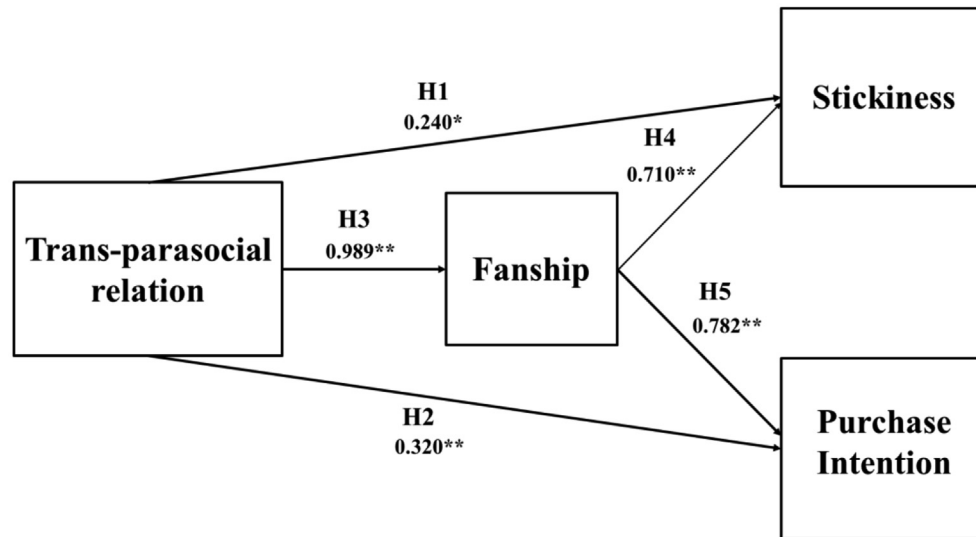
Fig. 1. Results for Structural Equation Modeling (SEM). (Note: The path coefficients are standardized path coefficients, **p < 0.01, *p < 0.05.).

Table 3. Results of reliability and validity.

Construct	Items	Mean	SD	Factor Loadings	CR	AVE	Cronbach's Alpha
Trans-parasocial Relation	TPSR_1	5.523	1.371	0.688	0.842	0.516	0.841
	TPSR_2	5.495	1.224	0.716			
	TPSR_3	5.492	1.283	0.765			
	TPSR_4	5.417	1.294	0.697			
	TPSR_5	5.432	1.268	0.727			
Fanship	FANS_1	5.349	1.395	0.785	0.838	0.566	0.836
	FANS_2	5.362	1.281	0.712			
	FANS_3	5.240	1.456	0.746			
	FANS_4	5.070	1.522	0.758			
Stickiness	STK_1	5.190	1.397	0.763	0.838	0.564	0.836
	STK_2	5.167	1.428	0.790			
	STK_3	5.438	1.307	0.746			
	STK_4	5.315	1.413	0.696			
Purchase Intention	PI_1	5.341	1.371	0.811	0.915	0.684	0.914
	PI_2	5.406	1.341	0.811			
	PI_3	5.266	1.480	0.837			
	PI_4	5.195	1.564	0.828			
	PI_5	5.117	1.524	0.843			

Note: CR=Composite Reliability, AVE = Average Variance Extracted.
$\chi2 = 257.244$, df = 129, p < 0.001, $\chi2$/df = 1.994, IFI = 0.971, TLI = 0.965, CFI = 0.971 and RMSEA = 0.051.

Table 4. Structural parameter estimates.

Hypothesis	Parameter Estimate	Estimate	SE	t-value	Conclusion
H1 (+)	Trans-parasocial Relation→Stickiness	0.240	0.114	2.101*	Support
H2 (+)	Trans-parasocial Relation→Purchase Intention	0.320	0.120	2.673**	Support
H3 (+)	Trans-parasocial Relation→Fanship	0.989	0.081	12.145**	Support
H4 (+)	Fanship→Stickiness	0.710	0.106	6.702**	Support
H5 (+)	Fanship→Purchase Intention	0.782	0.110	7.114**	Support
	Indirect effect of TPSR on STK	0.702	0.208	3.378**	
	Indirect effect of TPSR on PI	0.773	0.219	3.524**	
	Total effect of TPSR of STK	0.941	0.094	9.990**	
	Total effect of TPSR of PI	1.093	0.074	14.725**	

Note: * indicates p < 0.05, ** indicates p < 0.01.
Model Fit: $\chi2 = 264.316$, df = 130, p < 0.001, $\chi2$/df = 2.033, IFI = 0.971, TLI = 0.964, CFI = 0.969 and RMSEA = 0.052.
TPSR: Trans-parasocial Relation; PI: Purchase Intention; STK: Stickiness.

social media influencers and viewers, so-called trans-parasocial relations, in live streaming. The notion of trans-parasocial relations are more appropriate than one-sided parasocial relations to describe the current social interactions in social media, especially in live streaming services. For example, influencers in live streaming can fulfill viewers' requests immediately by responding and supporting collectively reciprocal and synchronously interactive experiences, which will influence viewers' behavior simultaneously. Hence, it is essential to understand the effect of two-way interactions and relationships between influencers and viewers in the live streaming literature. Second, our study theoretically fills the gap in the existing social media literature by examining the mediating effect of fanship in understanding the effect of trans-parasocial relations on viewers' behavior (i.e., viewing and purchasing) in live streaming services, enriching knowledge on celebrity and influencer marketing activities on social media. Third, we contribute to the related literature by focusing on two key performance metrics of influencer marketing—viewers' stickiness and purchase intention—in the context of live streaming. Due to cumulative interactions, viewers can build an enduring attachment to influencers, making them spend more time on the channel (e.g., Abidin 2015; Bond 2018; Li, Li, and Cai 2021; Yuan and Lou 2020). Our conceptual framework illustrates how trans-parasocial relations and fanship influence both viewer stickiness and purchase intention on live streaming platforms.

5.2. Managerial implications

Our results offer managerial implications for social media and live streaming businesses trying to better understand digital consumers. First, this research suggests that influencers can increase viewers' stickiness toward their social media channel and increase purchase intention of the products they promote by providing immediate feedbacks on viewers' messages and requests in live streaming. Second, influencers that have adopted live stream shopping should maximize the advantages of fanship. Keeping the crowd entertained and converting viewers into customers are primary concerns. Thus, they should have a strong rapport with their viewers and build a good reputation and credibility record among their viewers to maintain fans on their channels. Third, this study agrees with the call that firms operating live streaming channels must

consider both trans-parasocial relations and fanship. Our results provide a useful guideline for companies interested in influencer marketing in choosing the best influencers for their business. For example, a company should choose an influencer who tends to interact with viewers actively in live streaming and encourage more two-way interactions to increase purchase intention of its promoted product. Also, marketers should be tapping into the psychographic influences relating to fanship and ensuring that influencers regularly create opportunities for purchases that complement fans' needs.

5.3. Limitations and future research

Although the present study has yielded findings with both theoretical and practical implications, there are still some shortcomings. First, the content style of live streaming videos was not considered. Future studies can examine how various content styles and different kinds of live-streaming feeds influence trans-parasocial relation and viewers' behavior. Second, there are also various forms of interactions in live streaming, such as merely clicking on "likes" or "hearts", responding to viewers' chats immediately, and sending virtual gifts and receiving acknowledgements for it. Future research may consider which specific form of participation and interaction is more effective in increasing viewer stickiness and purchase intention. Third, viewing motives such as information sharing, entertainment, or shopping may also be an additional moderator for the relation between trans-parasocial relations between influencers and viewers and viewers' behavior. Fourth, the majority of participants (62.7%) in this study were aged 20−30 years, an age group likely to be interested in social media and celebrities. Therefore, future studies can evaluate whether outcomes differ among age groups unfamiliar with social media or celebrities. Lastly, the survey data represent self-reports that are open to recall bias. Thus, additional analysis based on log data or text and voice data collected in a live stream would provide valuable insights into content development for live streaming and influencer marketing.

Conflict of interest

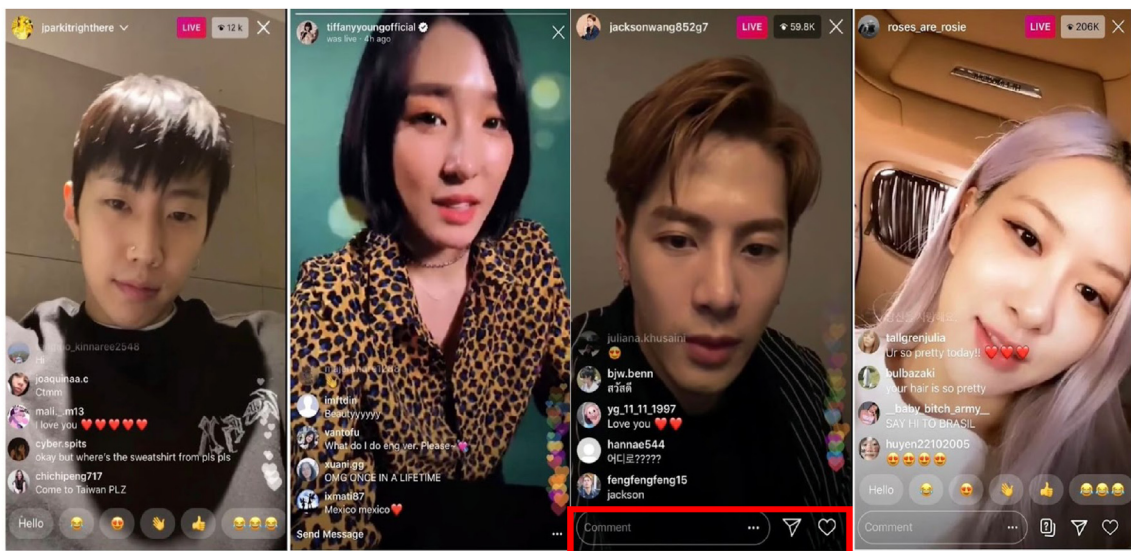The authors declare that there is no conflict of interest.

Appendix. Examples of Live Streaming Video
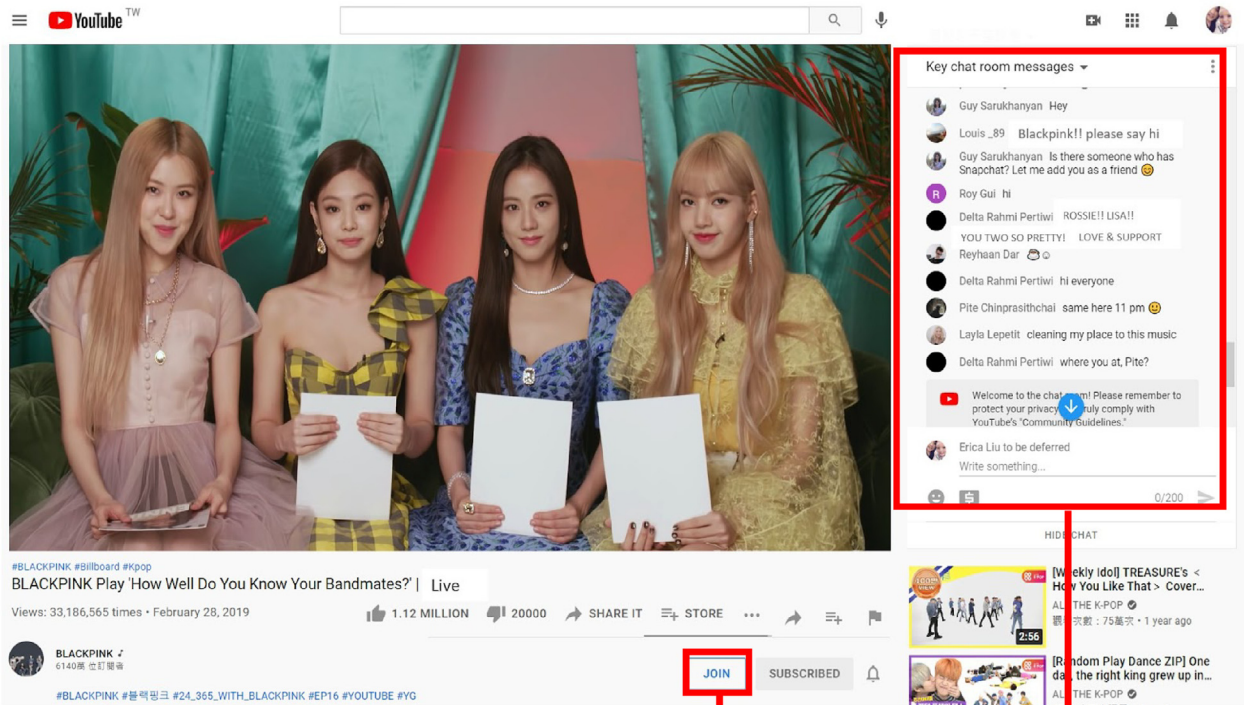
Join button for paid membership   Live chat room

Figure A1. -A: An example of a KPOP group on YouTube Live.

Live chat section & Heart button

Figure A1. -B: An example of celebrities on Instagram Live.

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