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Virtual influencer marketing: From social identification to parasocial relationship

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Abstract

The role of parasocial relationships in social media influencer research has garnered substantial attention, particularly in the context of virtual influencers. Drawing from social identity and parasocial relationship theories, this research examines how followers' social identification influences their perceived parasocial relationships with virtual influencers. An empirical analysis of survey data from 372 followers of virtual influencers reveals that both cognitive and affective identifications enhance followers' perceived parasocial relationships with virtual influencers, with affective identification exerting a more pronounced effect than cognitive identification. Moreover, the type of virtual influencer moderates these effects, with the impact of social identification on parasocial relationships being stronger for followers of human-like influencers compared to those of non-human-like ones.

Keywords: Virtual influencers, Social identity, Parasocial relationship, Influencer type, Social media

1. Introduction

In this digital age, social media influencers have become an active force in society, sharing information, shaping social trends, and influencing consumer behavior. Recently, the rise of virtual influencers, meticulously crafted, computer-generated personas that attract substantial followings (Arsenyan & Mirowska, 2021; Dabiran et al., 2024; Zhou et al., 2024), has garnered significant attention. Compared to their human counterparts, virtual influencers are versatile, completely controllable, and scandal-resistant, making them increasingly favored by marketers for product and brand endorsements (Thomas & Fowler, 2021; Xin et al., 2024). According to KBV Research (www.kbvresearch.com), the global virtual influencer market is expected to grow by an annual compound rate of 38%, reaching $37.8 billion by 2030.

Emerging research on virtual influencers has compared them with their human counterparts, outlining the respective pros and cons of each (Yan et al., 2024; Zhou et al., 2023). Generally, studies suggest that virtual influencers are less effective than human influencers in communication (Arsenyan & Mirowska, 2021; Byun & Ahn, 2023; Zhou et al., 2024); however, some research finds no significant differences between the two (Stein et al., 2024). Additionally, recent studies have begun to explore the effects of various features of virtual influencers, such as perceived authenticity (Li et al., 2023; Kim & Baek, 2023), anthropomorphism (Dabiran et al., 2024; El Hedhli et al., 2023), and perceived credibility (Dabiran et al., 2024; Kim et al., 2024; Riedl et al., 2014), on their communication effectiveness (Chaihanchanchai et al., 2024).

An intriguing topic in virtual influencer research pertains to parasocial relationships that followers perceive with these digital personas. Parasocial relationships refer to one-sided intimate relationships that audiences form with media personalities through repeated media encounters (Dibble et al., 2016; Farivar et al., 2021; Horton & Richard,1956). Parasocial relationships were initially observed and studied in the traditional communication domains (Giles, 2002; Horton & Richard, 1956). Extant studies on social media influencers have reported its prevalence and critical effect in influencer marketing (Bi & Zhang, 2022; Ferchaud et al., 2018). Interestingly, research on virtual influencers has found

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that audiences form parasocial relationships with virtual influencers similar to those with human influencers (Dabiran et al., 2024; Lim & Lee, 2023; Stein et al., 2024). Consequently, parasocial relationships stand as a prominent construct in influencer marketing research for human and virtual influencers alike.

Given the significance of parasocial relationships in influencer marketing, understanding their precedents is crucial. In the context of virtual influencers, several studies have explored the topic, suggesting that factors such as virtual influencers' anthropomorphism (Dabiran et al., 2024) and origin disclosure (Lim & Lee, 2023) affect followers' perceived parasocial relationships.

However, these studies focus on factors pertaining to individual virtual influencers and have not considered the social community/group setting in which followers engage with virtual influencers. Follower-influencer interactions are not one-to-one communication but occur in a social group where influencers amass a large number of followers who comment on influencer posts and share their information (Farivar & Wang, 2022; Stein et al., 2024). Followers' social identification with the follower groups significantly influences their attitudes and behaviors.

Drawing upon social identity theory (Hogg, 2016; Tajfel, 1974), we examine the effects of followers' social identification with a virtual influencer's follower group, encompassing cognitive and affective identifications, on followers' perceived parasocial relationship with the virtual influencer. Specifically, our research questions are:

(RQ1) Does and how does followers' social identification with a virtual influencer's follower group affect their perceived parasocial relationship?

(RQ2) How does the relationship between social identification and parasocial relationships vary across followers of different types of virtual influencers?

To answer these questions, we conceptualize a research model that theorizes the relationships between social identification factors and parasocial relationships. Additionally, we posit the variation of the effect of social identification on parasocial relationships across different types of virtual influencers, including humanlike and non-humanlike influencers. This research contributes to both theory and practice in social media influencer marketing, offering insights into psychological mechanisms at play and providing practical recommendations for leveraging virtual influencers in marketing strategies.

2. Theoretical background

2.1. Virtual influencers and parasocial relationship

Virtual influencers are rapidly emerging as a significant force in marketing communication, driven by advances in interactive and immersive media technologies (Byun & Ahn, 2023). A major stream of emerging research has compared virtual influencers with human influencers, providing insights for marketing strategies (Byun & Ahn, 2023). Generally, studies suggest that virtual influencers are less effective than human influencers in communication. For instance, Arsenyan and Mirowska (2021) found that humanlike virtual influencers elicit lower positive reactions compared to human influencers. Thomas and Fowler (2021) demonstrated that compared to human influencers, virtual influencers are perceived as more interchangeable with one another. Zhou et al. (2024) suggested that social media users have a lower emotional investment in virtual influencers than in human influencers, resulting in weaker endorsement effectiveness. However, given their controllability and versatility, virtual influencers present an economically viable option for marketers (Thomas & Fowler, 2021; Xin et al., 2024).

Pertaining to audiences' parasocial relationship, the findings are mixed. Stein et al. (2024) found no notable difference in audiences' parasocial responses to human influencers versus virtual influencers, despite perceiving virtual influencers as less mentally humanlike. Zhou et al. (2024), on the other hand, found that users develop less robust parasocial connections with virtual influencers compared to human influencers, resulting in lower endorsement effectiveness.

In addition to comparative studies, research has explored the features of virtual influencer communications and their impacts on marketing outcomes (Byun & Ahn, 2023; Chen et al., 2024; Miao et al., 2022). For instance, characteristics like perceived authenticity (Kim & Baek, 2023), anthropomorphism (Dabiran et al., 2024; El Hedhli et al., 2023), perceived credibility (Kim et al., 2024; Riedl et al., 2014), moral responsibility (Yan et al., 2024), emotional expressions (Lim & Lee, 2023), and transparency (Li et al., 2023) have been examined and found important in affecting virtual influencers' persuasion. To explain these effects, scholars often draw on the uncanny valley hypothesis, which suggests that audiences may react negatively to the uncanny resemblance of non-human entities to humans (Arsenyan & Mirowska, 2021), as well as the computers-are-social-actors framework, which posits that humans apply the same social heuristics used in human interactions to computer interactions when similar social attributes to humans are present (Dabiran et al., 2024).

An intriguing phenomenon in virtual influencer interaction is audience perception of parasocial relationships, which effect has been frequently discussed and confirmed in prior studies (Dabiran et al., 2024; Lim & Lee, 2023; Stein et al., 2024). For instance, Lim and Lee (2023) found that origin disclosure and emotional narratives impact virtual influencers' credibility by altering perceived levels of parasocial relationships. Given the importance of parasocial relationships in audience engagement with human and virtual influencers and the potential challenges of forming such relationships with virtual influencers compared to human ones (Zhou et al., 2024), it is crucial to explore the antecedents of parasocial relationships. Moreover, there is a paucity of empirical investigation into the effects of audiences' social identification with virtual influencers. To address this gap, our study aims to explain the formation of parasocial relationships with virtual influencers through the lens of social identity theory.

2.2. Social identity theory

Social identity theory, a seminal theory in social psychology, explains how individuals' self-conception is shaped by their membership in a community or group, affecting their social self, group processes, and intergroup behavior (Hogg, 2016; Tajfel, 1974). According to this theory, individuals who identify with a group define their social self through this group membership and tend to give preferential treatment to members of their ingroup (Davis et al., 2019; Tajfel, 1974).

Social identity theory is powerful in explaining individual responses in social settings and has been widely applied in business research, including organization management (Ashforth & Mael, 1989), computer-mediated communication (Wang et al., 2009), consumer-brand relationships (Mazodier et al., 2018), and international businesses (Guo et al., 2021). Particularly in information systems research, social identity theory guides studies involving user participation in virtual communities. For example, Kim et al. (2012) reported that identification with virtual communities and avatars played a key role in boosting members' efficacy and trust, consequently promoting ongoing engagement with virtual services. In the context of online gaming, Teng et al. (2023) found that gamers' social identity with their game community enhances their game loyalty.

In the context of human influencers on social media, social identity theory has been applied to explain gender effects (Hudders & De Jans, 2022; Leung et al., 2022) and influencer marketing effectiveness (Farivar & Wang, 2023; Hsieh, 2023). For example, Hudders and De Jans (2022) drew from social identity theory to study the same- versus other-gender follower-influencer interaction on Instagram. They reported that women users perceive higher similarity to a female influencer compared to a male influencer, but men are insensitive to the gender differences of influencers. Farivar and Wang (2023) reported that followers' social identity with an influencer's follower community enhances their purchase intention toward influencer-endorsed products.

Social identity theory has not been applied to examine virtual influencer marketing. Additionally, little is known about whether and how social identification may affect parasocial relationships.

3. Research model and hypotheses

This research investigates the antecedents and consequences of parasocial relationships in virtual influencer marketing through the lens of social identity theory. Specifically, we examine the effects of social identification, including cognitive identification and affective identification, on parasocial relationships. Additionally, we consider the moderation effects of virtual influencer type on these relationships. Figure 1 outlines our research framework.

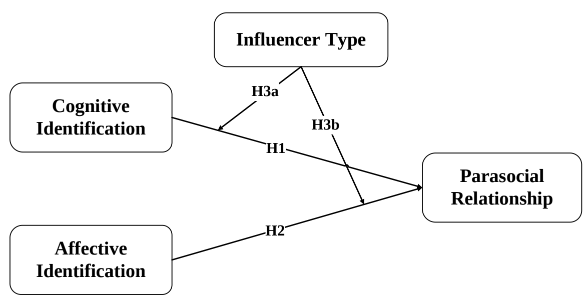


Figure 1. Research framework.

3.1. Social identity and parasocial relationships

Social identification comprises two essential components: cognitive identification and affective identification (Hsieh, 2023; Wolter & Cronin, 2016). Cognitive identification involves cognitively recognizing and classifying oneself as part of a group, aligning one's self-concept with the collective identity of the group (Johnson et al., 2012; Sguera et al., 2020).

Affective identification, on the other hand, entails positive emotional attachment and a sense of belonging to the group, reflecting internalized feelings of affinity and connection (Farivar & Wang, 2022; Johnson et al., 2012). In this study, we examine the respective effects of cognitive and affective identifications.

On social media, influencer-follower communication unfolds within a community context, i.e., an influencer community, comprising an influencer and a group of followers (Farivar & Wang, 2022). The community shares common interests and subjects, with the interactions often led by influencer posts and enriched by follower comments. Followers' participation in this community may lead to varying levels of cognitive and affective identifications. They may recognize their belonging to the influencer community and become emotionally involved with it to different extents (Mazodier et al., 2018; Qu & Lee, 2011).

Followers' social identification with an influencer community may contribute to their perception of a parasocial relationship with the influencer. Influencers serve as the most prominent and representative figures of their communities, around which follower groups are formed. Followers considering themselves as part of the follower group signifies their recognition of the group's shared norm, values, and knowledge. Consequently, they are more receptive to sharing and receiving information and experience from other followers (Farivar & Wang, 2022; Mazodier et al., 2018), which typically revolves around influencer posts. This identification with the follower group can enhance the intimate feeling a follower has toward the influencer. We propose:

H1: Cognitive identification with a virtual influencer community positively affects the audience's parasocial relationship with the virtual influencer.

H2: Affective identification with a virtual influencer community positively affects the audience's parasocial relationship with the virtual influencer.

3.2. Moderation of virtual influencer type

Virtual influencers, crafted through computer-generated imagery, display a diverse range of appearances and morphologies (Dabiran et al., 2024; Mouritzen et al., 2024). It is essential to consider these differences and their potential impact on communication effectiveness across various scenarios (Appel et al., 2020; Dabiran et al., 2024; Leung et al., 2022). In the burgeoning field of digital human research, several studies have explored different types of digital humans (Appel et al., 2020; Miao et al., 2022). For example, Miao et al. (2022) proposed a 2 x 2 taxonomy for avatars based on high versus low levels of form and behavioral realism. Mouritzen et al. (2024) categorized virtual influencers into four types based on their level of anthropomorphism in physical form and perceived virtuality versus mixed reality. Jiang et al. (2024) compared humanlike and anime-like virtual influencers, finding that humanlike virtual influencers are perceived as more credible and demonstrate higher endorsement effectiveness than their anime-like counterparts. These studies predominantly rely on appearance anthropomorphism for classification.

Our study investigates the moderation effect of virtual influencer type on the relationship between social identification and parasocial relationships. Following existing categorizations based on appearance anthropomorphism, we examine two types of virtual influencers—humanlike (e.g., mimicking human images) and non-humanlike (e.g., with images of animals, toys, and other non-human characters) (Arsenyan & Mirowska, 2021; Dabiran et al., 2023; Jiang et al., 2024).

We posit that the impact of social identification on perceived parasocial relationships is more pronounced among followers of humanlike virtual influencers compared to those of non-humanlike ones. The humanlike appearance of virtual influencers (e.g., Miquela Sousa, who assumes the image of a girl) can enhance audiences' feelings of familiarity and relatability. Followers can more easily perceive a humanlike virtual influencer as akin to their follower group (i.e., one of them), fostering a sense of integration between the virtual influencer and the follower group. Therefore, a follower's social identification with their group can more readily evolve into a parasocial relationship with the humanlike virtual influencer. Conversely, when a virtual influencer adopts a non-humanlike form (e.g., Nobody Sausage, a popular sausage with limbs), its novelty may captivate and retain audience interest (Alabed et al., 2022; Stein et al., 2024). However, it may be challenging for followers to regard non-humanlike influencers as one of their own groups. Consequently, a follower's social identification with the follower group may not easily translate to a parasocial relationship with a non-humanlike virtual influencer. We propose:

H3: Virtual influencer types moderate the relationship between (H3a) cognitive identification/ (H3b) affective identification and parasocial relationships, such that the relationships are stronger for followers of human-like influencers than for those of non-humanlike ones.

4. Methodology

To test the hypotheses, an online survey was conducted via Diaoyan001.com, a prominent online survey platform in China. The survey was designed to collect data from followers of virtual influencers. The questionnaire consists of questions on respondents' demographic information, measurement items for the constructs under study, and attention-check questions.

Survey items were adapted from established scales in the literature. Cognitive and affective identification were assessed using six items from Hsieh (2023), such as "My self-identity is partly based on being a follower of this virtual influencer," and "I feel happy to be a follower and part of this influencer's community." Parasocial relationships were measured using five scales from Reinikainen et al. (2020), including items like "I think the virtual influencer is like an old friend."

The measurement items were translated from English to Chinese by a bilingual researcher and then reviewed and refined by two additional bilingual scholars. To ensure measurement accuracy, the Chinese questionnaire was back-translated into English by another scholar and compared with the original items. This process helped identify and resolve any discrepancies that could arise from translation. We also considered potential biases introduced by the translation process, such as differences in cultural interpretations or meanings. To address these, the bilingual scholars carefully examined the translated items for cultural nuances, ensuring that the translations were accurate and appropriate within the Chinese context. Additionally, a pre-test involving 20 participants was conducted, and the questionnaire was refined based on the feedback received to ensure both question clarity and cultural appropriateness.

The survey was open to participants on Diaoyan001.com who met the selection criteria and were willing to participate. Before proceeding with the survey, potential respondents were provided a brief introduction to the concept of virtual influencers. Only those who confirmed their following and engagement with a virtual influencer were eligible to continue with the survey. Participants were asked to provide the name of the virtual influencer they followed and their reasons for following. A researcher later validated this information and categorized the virtual influencers as either humanlike or non-humanlike based on their images, which served as the moderator in this study. This process ensured that the data collected came from genuine followers of virtual influencers.

A total of 372 valid responses were received during a two-week data collection period. Table 1 presents the demographic and online activity information of our sample.

Table 1. Characteristics of the sample (n=372)

Characteristic	Number	Percentage
Gender		
Female	170	45.6
Male	197	52.9
Age		
< 18	1	0.2
18-25	236	63.4
26-30	108	29
31-40	24	6.4
> 40	3	0.8
Education		
Below Associate degree	12	3.2
Associate degree	28	7.5
Bachelor's degree	234	62.9
Master's degree	92	24.7
Doctor degree	6	1.6
Length of following		
Less than 1 month	41	11
1 ~ 6 months	69	18.5
7 ~ 12 months	64	17.2
13 ~ 18 months	83	22.3
19 ~ 24 months	29	7.7
25 ~ 30 months	42	11.2
31 ~ 36 months	19	5.1
More than 3 years	25	6.7
Interaction approach		
Like	353	94.8
Comment	273	73.3
Share	226	60.7
Collect	186	50
Coin	84	22.5

5. Results

5.1. Measurement model

Smart-PLS 4.0 and PROCESS macro in SPSS 27 were employed in data analysis. Firstly, we verified the reliability, convergent and discriminant validity of construct measurements and factor loadings. All Cronbach's alpha (α) values exceed 0.8, confirming the reliability of the construct measurements. The average variance extracted (AVE) for each construct exceeds 0.5, and the square roots of these values surpass their corresponding correlation coefficients, demonstrating good discriminant and convergent validity. All measurement items displayed factor loadings close to or above the 0.70 threshold (Sarstedt & Cheah, 2019), indicating the reliability of the construct scales. Additionally, the heterotrait-monotrait ratio (HTMT) was checked, and all the values were below the recommended threshold of 0.90 (Gold et al., 2001), further supporting the discriminant validity of the model. Table 2 shows the results.

We also assessed common method bias using two approaches. Firstly, the Harman one-factor analysis was employed, and the results showed that a single factor explained less than fifty percent of the variance (Podsakoff et al., 2003). Additionally, all variance inflation factor (VIF) values were found to be below 5 (Dabiran et al., 2024; Du et al., 2023; Hair et al., 2021). These confirm that the data model is acceptable.

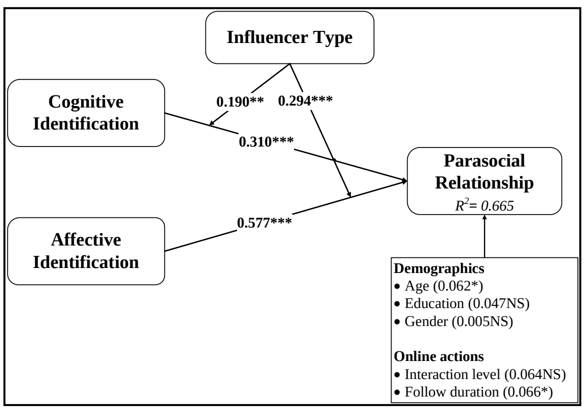
Table 2. Reliability and discriminant validity

Constructs	α	CR	AVE	1.	2.	3.
1. CI	0.87	0.92	0.79	**0.89**		
2. AI	0.87	0.92	0.79	0.47	**0.89**	
3. PR	0.85	0.90	0.63	0.60	0.76	**0.80**

CI=cognitive identification; AI=affective identification; PR=parasocial relationship.

5.2. Structural model

The structural model was tested with bootstrapping applied to 5,000 subsamples and bias-corrected 95% confidence intervals through Smart-PLS. Figure 2 illustrates the path analysis results.



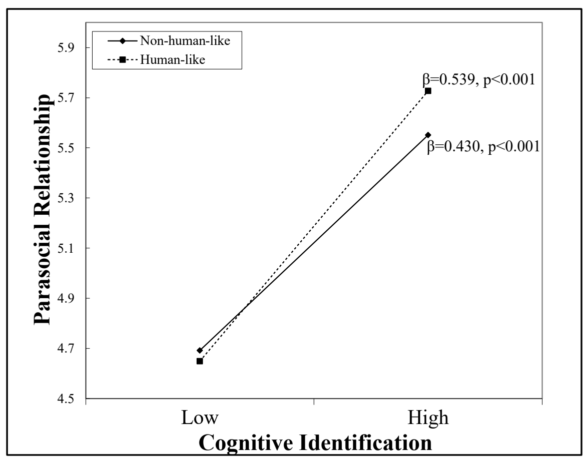
**** p<0.001; **p<0.01; *p<0.05; NS: Not significant*

Figure 2. Structural Model Results

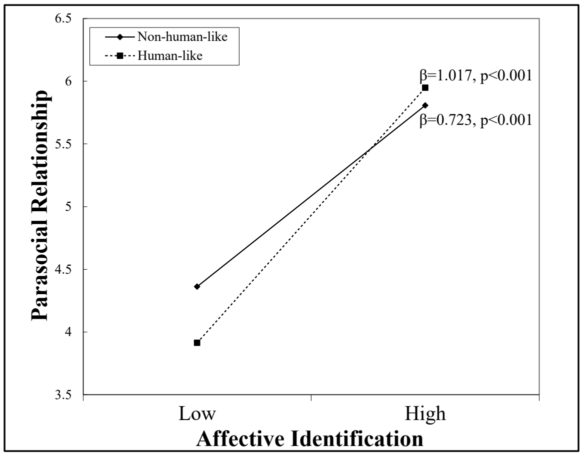
Both cognitive (β=0.310, p<0.001) and affective identifications (β=0.577, p<0.001) have significant positive effects on parasocial relationship. Therefore, H1 and H2 are supported. To further understand the role of the two sub-dimensions of social identification in fostering parasocial relationships, we examined the effect sizes (f^2) of the paths from cognitive and affective identifications to parasocial relationship. The results revealed that the effect size of the path from affective identification to parasocial relationship (f^2=0.614) was greater than that of from cognitive identification to parasocial relationship (f^2=0.200), indicating that affective identification has a more pronounced effect in bridging parasocial relationships between users and virtual influencers than cognitive identification.

The moderation analysis on H3a and H3b was conducted by PROCESS macro model 1 using SPSS. The estimate of the interaction term between the dummy variable of virtual influencer type and cognitive identification is significantly positive (β=0.190, p<0.01), indicating that the positive effect of cognitive identification on parasocial relationship is more pronounced for humanlike virtual influencers than non-humanlike ones. H3a is supported. The estimate of the interaction term between virtual influencer type and affective identification is also significantly positive (β=0.294, p<0.001), indicating that the positive effect of affective identification on parasocial relationship is more pronounced for human-like virtual influencers than non-human-like ones. H3b is supported.

To further understand the moderation effects, a simple slope analysis was conducted. As shown in panel A of Figure 3, compared with non-humanlike virtual influencers (β=0.430, p<0.001), cognitive identification of followers to human-like influencers has a more pronounced effect (β=0.539, p<0.001) on the parasocial relationship. Similarly, panel B illustrates that the effect of affective identification on parasocial relationship is more salient for followers of humanlike virtual influencers (β=1.017, p<0.001) than for those of non-humanlike ones (β=0.723, p<0.001).



(a). Effects of Cognitive Identification



(b). Effects of Affective Identification

Figure 3. Simple Slope Analysis

6. Discussion

This research investigates the effects of followers' social identification with a virtual influencer's community on their parasocial relationships with the influencer. Social identification is examined through two dimensions: cognitive identification and affective identification. The results reveal a significant positive relationship between both types of social identification and parasocial relationships. When followers identify with a virtual influencer community, their psychological connection facilitates the formation of unilateral relationships with the digital entity. Notably, affective identification has a more pronounced effect on parasocial relationships compared to cognitive identification. This reinforces the idea that parasocial relationships are deeply rooted in intimacy and emotional involvement (Farivar et al., 2021; Lim & Lee, 2023).

Our moderating analysis further reveals that the effect of social identification on parasocial relationships is stronger for followers of human-like virtual influencers than for those of non-human virtual influencers. This finding aligns with previous research showing that the anthropomorphism of virtual influencers enhances audience parasocial relationships (Dabiran et al., 2024).

6.1. Theoretical contributions

This research contributes to the extant literature on social media influencers, particularly in the emerging area of virtual influencers. As AI and immersive technologies continue to advance, virtual influencers are likely to become more lifelike, and their online communities more engaging. Moreover, as audiences become increasingly accustomed to interacting with virtual entities, the boundary between human and virtual influencers may blur further. As the gap between human and virtual influencers narrows, the ability to foster strong parasocial relationships could become a key differentiator in the effectiveness of virtual influencer campaigns. Against this backdrop, our study responds to Mouritzen et al.'s (2024) call to explore the psychological processes behind users' relationships with virtual influencers.

From a theoretical standpoint, our research delves into the psychological mechanisms that drive followers to form parasocial relationships with virtual influencers, pioneering the application of social identity theory within this context. Specifically, we emphasize the roles of both cognitive and affective identifications. This dual-dimensional approach enriches the theoretical landscape by illustrating the multifaceted nature of identification processes in the context of virtual influencers, thereby contributing a nuanced perspective that has been largely overlooked in previous research.

Additionally, our findings provide critical insights into how followers' psychological processes translate into parasocial relationships. Notably, the findings of the more prominent role of affective identification compared to cognitive identification in affecting parasocial relationships, and the stronger parasocial relationship formed with human-like virtual influencers, are novel to virtual influencer research. These insights enhance the interpretive framework for understanding parasocial bonds and enrich the theoretical discourse surrounding virtual influencers and parasocial relationships, laying a robust foundation for future research.

6.2. Practical implications

Our theoretical analysis and empirical findings offer valuable insights for design and operation teams of virtual influencers, as well as marketers aiming to improve their strategies by incorporating virtual influencers. This research highlights the importance of social identification in the formation of parasocial relationships. Practically, operators and managers of virtual influencers can benefit from focusing on nurturing and enriching the virtual influencer community, fostering fan activities, and encouraging deeper engagement. Moreover, our results indicate that affective identification plays a more significant role than cognitive identification. This implicates the importance of crafting fan communications that resonate emotionally. By engaging audiences with content that elicits affective identification, virtual influencer communities can strengthen fans' sense of belonging, leading to stronger relationships that could drive increased economic behaviors. Furthermore, operators of virtual influencer platforms might consider designing and offering AI tools to gauge and enhance audience activity and engagement.

When selecting virtual influencers for product and brand endorsement, marketing managers should carefully evaluate the available virtual influencers and their associated features. Our results suggest that followers are more likely to form parasocial relationships with humanlike influencers than with non-humanlike ones. Marketers can leverage these insights to choose the most suitable virtual influencers for their digital marketing strategies. Additionally, marketers should consider factors such as the characteristics of virtual influencer communities, the type of product being endorsed, and the congruence between the product and the influencer. A thorough marketing feasibility assessment can help ensure the success of a virtual influencer campaign and maximize the return on marketing investment.

6.3. Limitations and future research

First, this study relies on cross-sectional survey data, limiting our exploration of the formation and evolution of parasocial relationships. Future research could employ longitudinal designs to capture the dynamics of parasocial relationships over time. Additionally, this study exclusively focuses on the followers of virtual influencers, while their audience often includes non-followers. Future research could explore the variances in cognitive and emotional identifications between non-followers and followers. This comparison could provide a more comprehensive understanding of how different user groups interact with and perceive virtual influencers.

Moreover, while we categorized virtual influencers into humanlike and non-humanlike types and examined their moderation effect, existing literature suggests additional ways to categorize virtual influencers such as perceived reality-virtuality (Mouritzen et al., 2024) and scalability and controllability (da Silva Oliveira & Chimenti, 2021). Future research could delve deeper into the effects of different virtual influencer types, particularly their potentially varied audience relationship-building and persuasion mechanisms.

Additionally, the empirical study in this research involves an online survey with followers of virtual influencers in China. While this demographic is highly relevant, we acknowledge the limitation of conducting the study within a single cultural context. To validate the generalizability of the findings, future research could explore audience responses to virtual influencers across different cultural settings.

Furthermore, beyond parasocial relationship, it is worthwhile to study a broader range of audience responses. As new forms of social media influencers continue to emerge and gain traction, comprehending the full spectrum of user responses can offer deeper insights into how virtual influencers impact user engagement, loyalty, and interaction patterns. This understanding can help develop effective marketing strategies and enhance the overall impact of virtual influencers in the digital landscape.

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