The emergence of virtual influencers: a shift in the influencer marketing paradigm

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The emergence of virtual influencers: a shift in the influencer marketing paradigm

Anand Jhawar, Prashant Kumar and Sanjeev Varshney

Anand Jhawar,
Prashant Kumar and
Sanjeev Varshney are all
based at the Department of
Marketing, XLRI,
Jamshedpur, India.

Abstract

Purpose – *This study aims to gain insights into the rise of virtual social media influencers and identify the significant theories governing virtual influencers' (VIs) interaction with followers on social media platforms. Studies on VI being scarce in marketing literature, the authors attempt to propose a theoretical model to understand the acceptance of VIs by social media users (SMUs).*

Design/methodology/approach – *Using a structured literature review and a case study approach, a conceptual model is developed and propositions are offered.*

Findings – *Parasocial interaction (PSI) between the SMU and VIs builds up source credibility, thereby leading to the acceptance of VIs. Thus, the authors establish that PSI and source credibility theory combine to explain the acceptance of VIs by SMUs. Furthermore, similarity with the VI is another added dimension of source credibility, as suggested by this study. A comparative analysis of the growth of five major VIs elucidates that the fashion, electronic, tourism and health-care industries can use them for promotions and as influencers, especially for luxury products.*

Research limitations/implications – *VIs are a potent tool to achieve improved brand awareness and to target young consumers (especially Gen Y and Gen Z – millennials).*

Originality/value – *The emergence of VIs being recent; little is comprehended about their interaction with SMUs. Hence, it becomes important to delineate the foundations of VI–SMU interaction. Thus, this study addresses the gap in identifying the theoretical background and proposes a conceptual model elucidating VI acceptance by SMUs.*

Keywords *Virtual influencer, Influencer marketing, Social media, CGI, Millennials, Conceptual framework*

Paper type *Conceptual paper*

1. Introduction

Influencer marketing is a powerful branding and marketing tool to increase brand salience and attract social media users (SMUs; especially Gen Y and Gen Z – millennials) toward brands. Influencer marketing that includes stimulating social media influencers (SMIs) to post sponsored brand promotions has gained importance recently and is estimated to generate a revenue of approximately $33bn by 2027 (Giuffredi-Kähr *et al.*, 2022). However, human influencers (HIs) have faced new competition due to the rise of virtual influencers (VIs), mainly since 2016 (Zhou, 2020). Influencer marketing is a type of social media marketing where individuals who have a dedicated and substantial following or fanbase and are viewed as experts in their niche promote products and services (Kadekova and Holienčinova, 2018). The influencer's inherent characteristics – expertise, popularity and reputation are vital in driving consumers' brand awareness and purchasing decisions (Lou and Yuan, 2019). Influencer marketing is mainly carried out on social media platforms; hence, the target segment of both VIs and HIs are millennials who are active on Instagram, YouTube, Facebook, Twitter, etc. (Sokolova and Kefi, 2020).

VI on social media is a relatively new phenomenon that has gained many followers since 2018 (Moustakas *et al.*, 2020). VIs are computer-generated imagery (CGI) or artificial

intelligence (AI) based computer avatars with form and behavioral realism, trying to display real expressions (Sands *et al.*, 2022). These VIs have real human traits, characteristics and personalities, owing to which they have accumulated millions of followers on social media platforms like Instagram (Robinson, 2020). VIs are digital characters usually created by 3 D animations or CGI and can be controlled by companies (Mrad *et al.*, 2022) in the way Brud, a California-based company in the USA, governs the day-to-day life and activities of Lil Miquela – a 19-year-old American female with Spanish and Brazilian roots (Drenten and Brooks, 2020). On the other hand, VIs may also be controlled by an individual in the same way as Cameron-James Wilson initiated Shudu Gram (@shudu. gram) – a young African virtual supermodel as a creative project (Robinson, 2020). Another aspect in which these VIs differ from HIs and other VIs is the level of form realism. Some have more natural and genuine appearances and engage in more human-like activities, like Lu of Magalu (@magazineluiza), Lil Miquela (@lilmiquela), Shudu (@shudu. gram), Bermuda (@bermudaisbae), Imma (@imma. gram), and Blawko (@blawko22). In contrast, others are more digital and do not display human-like emotions and activities, like Kizuna AI (@a.i.channel_official), Noonouri (@noonoouri) and Istrikesart (@Istrikesart). The common thread is that most of these VIs are used by luxury apparel and cosmetics brands such as Chanel, Burberry, Dior, Prada, Versace, Marc Jacobs, Louis Vuitton and Calvin-Klien for promotions and, with time, as their presence on Instagram strengthens (refer Table 1). This motivated us to study the rise and importance of VIs for marketers.

VIs seek to engage consumers on social media platforms through storytelling about their personal lives, thereby trying to form an emotional bond with the followers (Ladhari *et al.*, 2020). The VI-audience interaction on social media follows the theory of parasocial interactions (PSIs) in psychology (Fu *et al.*, 2019), wherein the followers perceive the media personality (in our case, VIs) as a bosom conversational companion (Horton and Wohl, 1956). As VIs are characters created and controlled by humans, there are very little or no chances of errors on

Table 1	Summary of top 5 VIs on instagram				
Name	*Lu of Magalu*	*Lil Miquela*	*Shudu*	*Imma*	*Noonoouri*
Debut year	*2009*	*2016*	*2017*	*2018*	*2018*
Instagram account	@magazineluiza	@lilmiquela	@shudu.gram	@imma.gram	@noonoouri
Followers	5.9 million	3 million	2,39,700	3,60,000	4,01,000
Posts	2,427	1,204	106	655	1,397
Profile	Brazilian origin, 24 million followers on social media, digital specialist	19-year-old, Brazilian-American, living in Los Angeles, a liberal advocate	World's first digital supermodel, African origin	Japanese origin, virtual model living in Tokyo, interested in Japanese film, culture and art	19-year-old, living in Paris, passion for art and fashion, vegan
Area of expertise	Unboxing videos, product reviews and software tips, food, fashion, home, pets, sports and beauty	Fashion entrepreneur collaborating with brands, political and social activist, singer and model	Virtual supermodel endorsing luxury fashion brands	Virtual model partnering with luxury fashion brands, street style photoshoots	Fashion ambassador for luxury brands, environmentalist
Major Brand partnerships	Adidas, RedBull, iBlogTV and Magalu	Calvin-Klien, Prada, Samsung, Chanel	Fenty Beauty by Rihanna, Soul Sky, Ellesse, Samsung, Vogue Arabia, Tiffany's, Balmain, Oscar de la Renta, Hyundai	Amazon, IKEA, Dior, Puma, Nike, Calvin Klein, Magnum, and Burberry	Dior, Marc Jacobs, Versace, Siemens, Burberry
Major Magazine appearances or interviews	Virtualhumans, Propmark, Infomoney and Influency	*Vogue*, *V and Paper*, Buzzfeed, *The Guardian*, The Cut and Refinery29	*Vogue*, *The New Yorker*, *WWD*, Refinery29, *Cosmopolitan*, *Hindustan Times* and *Harper's Bazaar*	*Grazia*, *The Sun* (UK) and Influency	*Vogue*, *Forbes*, deutschland. de,L'Officiel

Source: Author's own work

their part, like the ones committed by HIs, owing to their arrogance, controversial comments or misbehavior (Jin *et al.*, 2019). Hence, millennials on Instagram and YouTube interact extensively with VIs as they relate more with VIs on the grounds of similarity, attractiveness (curiosity), expertness and trustworthiness (Zipporah and Mberia, 2014). Thus, following Source Credibility Theory (SCT; Ohanian, 1990), factors such as trustworthiness, attractiveness, expertise and similarity enhance the influence of VIs (Masuda *et al.*, 2022; Arsenyan and Mirowska, 2021). Despite increased recent media attention on the topic, there is a lack of literature in the field owing to the recency of the prominence of VIs (Sands *et al.*, 2022). Thus, given the expansion in the number of users of social media sites and the proliferation of VIs on social media networks, such as Instagram and Facebook, we believe that the acceptance conditions of VIs by young SMUs deserve further attention (Arsenyan and Mirowska, 2021). Moreover, this study addresses recent calls (Leung *et al.*, 2022; Masuda *et al.*, 2022) to comprehend consumers' perceptions of VIs and their interaction behavior.

Thus, to understand the factors leading to the acceptance of VIs by followers, we first review the existing literature on VIs and HIs and draw out the similarities and dissimilarities between them. Furthermore, we establish the theoretical background for the acceptance of VIs based on the PSI Theory (Rubin *et al.*, 1985) and SCT (Ohanian, 1990). This helps us build a relationship model leading to VI acceptance, and then, we lay down the propositions for the posited relationships.

2. Literature review

The fame of VIs or virtual celebrities or models, started in Japan and the USA, is spreading worldwide and in India with India's first virtual model, Nila (Prasad, 2020). SMIs, YouTubers, Bloggers or Video bloggers (Vloggers) used to be mainly human beings (HIs). However, in 2016, the trend of "virtual YouTuber" or "Vtuber" began, where virtual characters and avatars, with form and behavioral realism, started occurring in YouTube videos and live streaming (Miao *et al.*, 2022; Zhou, 2020). These VIs are emerging as internet celebrities disrupting definitions, meanings and values of the influencer marketing landscape, thereby bringing more and rapid investments into the area (Sands *et al.*, 2022). The most common motives to follow virtual SMIs might be curiosity, intrigue, perceived similarity, human-like connection and general life-related interests (Robinson, 2020). We would further synthesize the literature on HI and VI to present their similarities and differences.

2.1 Similarities between HI and VI

The HIs and VIs are similar on the following four grounds, based on which we can argue that VIs can be a potential substitute for HIs. First, both HIs and VIs have gained followers and become famous on social media platforms by satisfying the users' entertainment, interaction and information needs. Thus, they have achieved celebrity and influencer status due to social media activities rather than offline attractiveness and expertise (Casalo' *et al.*, 2020). Second, both HI and VI serve as diversion agents for followers by sharing their personal experiences, life events and various storylines, thereby providing the consumers with an escape route from their routine life (Arsenyan and Mirowska, 2021). Third, in the case of both HI and VI, the followers develop intimate associations as they interactively engage in continuous parasocial communications with the influencers (Hwang and Zhang, 2018). Fourth, both HI and VI form effective brand partnerships and are used by brands for advertisements and endorsement of products (Marwick, 2018; Djafarova and Rushworth, 2017). Brand managers leverage the large follower base of both influencers to increase brand awareness and purchase intentions (Breves *et al.*, 2019).

2.2 Differences between HI and VI

Following the context of our study, VIs may cause a shift in the influencer marketing paradigm because of their differences and advantages over HIs. VIs can be differentiated

from HIs in several ways. First, VIs are AI-based, entirely controlled by their parent agency and brands, and have no offline presence. Hence, there is no chance of them misbehaving in real time. Whereas HIs can be provided the advertising content by the brands, their offline behavior is not regulated by brand managers. Thus, if a HI's image is tarnished due to questionable comments or behavior, the negative effect also rolls down to the associated brand (Tan and Liew, 2020). Second, there is no skepticism over the authenticity of Vis, as it is evident to the consumers that the content they are posting is controlled and staged (Sands et al., 2022). VIs lure followers via their human-like features, story-sharing and audio-visual content despite being authentically fake. However, when HIs post sponsored content, consumers become skeptical and develop a negative attitude toward the influencer and the brand (Boerman et al., 2017). Third, VI is AI-based; unlike HI, they are always available for dyadic communication with followers. This makes followers feel the higher social presence and perceived similarity with VI compared to HI, increasing consumer engagement on social media (Ladhari et al., 2020; Stapleton et al., 2017). Fourth, VIs immerse their followers in an alternate reality, which mimics the real world, where they can speak out loud for social causes like "Black Lives Matter, reproductive rights, and LGBT causes" (@Lilmiquela on Instagram). On the other hand, HI might be wary of the consequences of comments and supporting posts on such social issues. Fifth, in the wake of the physical communication restrictions posited by the COVID-19 pandemic, VIs can provide an interesting opportunity. They could freely create advertising content for brands, as they are unaffected by isolation, uncertainty and anxiety. Also, their virtual nature allows them to be fictionally present anywhere without bypassing any laws. For example, Lil Miquela went to a deli for an advertisement during the pandemic (Arsenyan and Mirowska, 2021). On the other hand, HIs might be bounded by their influence due to these restrictions and uncertain situations.

Table 2 presents the literature review, laying the foundation for the theoretical background (Section 3) and relationship model (Figure 1).

3. Theoretical background

3.1 Parasocial interactions

PSI refer to the one-sided interaction by the audience or follower with a media person or celebrity (Dibble et al., 2016). Audiences or followers develop parasocial relationships with influencers based on empathy (or life stories), perceived similarity and physical attraction (Rubin et al., 1985). Prior research state that individuals develop a feeling of friendship and intimacy toward the influencers they like and follow based on the PSI on the media platform (Labrecque, 2014; Perse and Rubin, 1989). Previous studies consider PSI one-sided and nonreciprocal communication by media personae (Lueck, 2015; Tsiotsou, 2015). On the other hand, recent literature on influencer marketing recognizes the role of audience comments and a two-way interaction between influencers and followers (Reinikainen et al., 2020; Munnukka et al., 2019; Jin, 2018). Lee and Watkins (2016) elucidate that the audience develops trust and a sense of perceived similarity with the influencer due to increasing PSI. Because of this more powerful feeling of connectedness and acceptance of the influencers (in our case, VIs), consumers tend to consider their advice and suggestions (Usher, 2020).

Similar to HIs, VIs also endorses brands, discuss social issues (like #BlackLivesMatter by @Lilmiquela on Instagram) and post about daily routine activities such as hanging out with friends, going for a movie, working at the office, traveling, setbacks and personal issues (Sands et al., 2022; Robinson, 2020). Social media platforms such as Instagram, Facebook and YouTube, facilitate frequent user communication through image and video sharing, chats and comments leading to the development of PSI (Farivar et al., 2021). Thus, social media platforms strengthen young adolescents' PSIs with virtual media personae (i.e. characters and celebrities) and increase audiences' feelings of connectedness to these virtual personalities (Bond, 2016). According to Tian and Hoffner (2010), PSI impacts consumers' attitudes, behavior and identity. Consequently, we examine the development of

Table 2 Literature review on VIs

Article title	Author(s) (Year of study)	Journal	Type of study	Variables/ constructs	Consequence	Theory used	Key findings
Celebrity 2.0: Lil Miquela and the rise of a virtual star system	Drenten and Brooks (2020)	Feminist Media Studies	Conceptual	NA	NA	NA	1. A virtual culture – specifically, influencer culture is necessary for the sustenance of a virtual star 2. Virtual celebrities lack agentic spontaneity; hence, they are infallible which makes them more appealing for commercial means 3. Virtual stars, like Lil Miquela, can be anywhere, at any time, with anyone, giving brands risk-free control, only limited by budget
Instafamous and social media influencer marketing	Jin et al. (2019)	Marketing Intelligence & Planning	Empirical (survey)	Celebrity type, social presence, self-discrepancy	Trustworthiness, brand attitude and envy	Social presence theory, Meaning transfer and source credibility theory	1. Instagram personalities are effective in spreading messages about new products, starting and popularizing new trends and driving up sales 2. Instagram influencers can be more effective in resonating with audiences as they are perceived as more similar to regular audiences, have a higher likelihood of interacting with fans and are easier to associate or identify with then traditional celebrities
Towards an ontology and ethics of virtual influencers	Robinson (2020)	Australasian Journal of Information Systems	Conceptual	Moral responsibility, motivation and transparency	NA	Personal identity theory and agency theory	1. The lines between real life and online existence are becoming increasingly blurred as our engagement with platforms and online spaces deepens and becomes more ubiquitous 2. Two reasons why it may be important to draw distinctions between real and virtual influencers: motivation and moral responsibility

(*continued*)

Table 2

Article title	Author(s) (Year of study)	Journal	Type of study	Variables/constructs	Consequence	Theory used	Key findings
Following your "friend": social media and the strength of adolescents' parasocial relationships with media personae	Bond (2016)	Cyberpsychology, Behavior, and Social Networking	Empirical (survey)	Exposure to favourite media	Parasocial relationship strength	Performative intimacy	1. Results indicated a significant positive relationship between exposure to media personae on Twitter and strength of PSRs. 2. Computer-mediated communication with media personae may even have a greater impact on perceived intimacy than more traditional public appearances
Influencer marketing as a modern phenomenon creating a new frontier of virtual opportunities	Kadekova and Holienčinova (2018)	Communication Today	Empirical (survey)	Audience reach, affinity to brand	Influence	NA	1. The research findings confirm that there are significant differences between the Gen Y and Gen Z consumer generations in the area of impact of influencers on consumer behavior, which leads to different marketing opportunities 2. The majority of influencers fit into the following categories: celebrities, industry experts and thought leaders, bloggers or content creators and micro-influencers 3. Influencers are more affordable and inexpensive, and they are also an opportunity for medium-sized businesses to enrich their marketing by means of communication that are well known across the world
"Celebrity 2.0 and beyond!" Effects of Facebook profile sources on social networking advertising	Jin (2018)	Computers in Human Behavior	Empirical (experimental)	Endorser Type, Social identification with the celebrity	Parasocial interaction (PSI) with the celebrity	Warranting theory and source credibility model	1. There is a significant mediating effect of social identification with the celebrity in explaining the relationship between the source and PSI with the celebrity 2. Consumers' attitude toward and reaction to Facebook's sponsored advertisements depend on the source of the celebrity brand endorsement and the owner of the Facebook profile page 3. Social identification mediates the effects of the Facebook profile source on parasocial interaction with the celebrity

Table 2

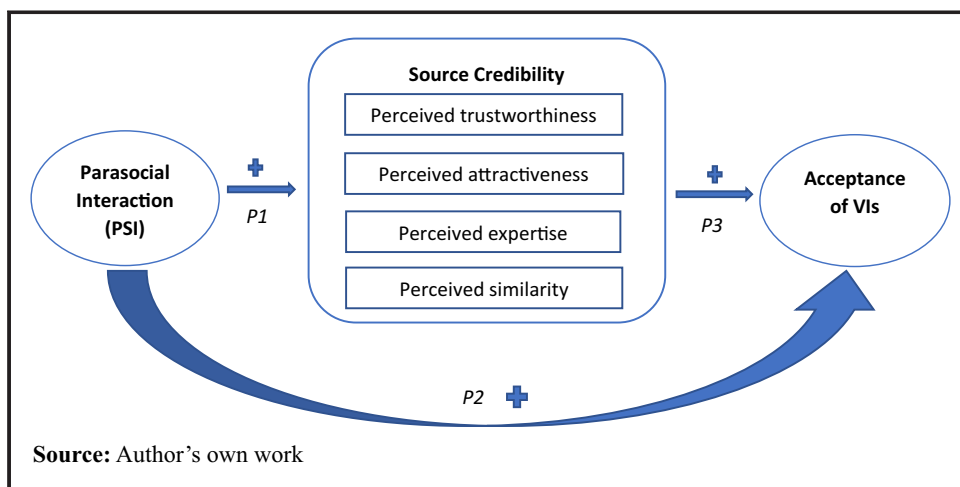| Article title	Author(s) (Year of study)	Journal	Type of study	Variables/ constructs	Consequence	Theory used	Key findings
Exploring the credibility of online celebrities' Instagram profiles in influencing the purchase decisions of young female users	Djafarova and Rushworth (2017)	*Computers in Human Behavior*	Qualitative analysis	NA	NA	Source credibility theory, Halo effect theory	1. Nontraditional celebrities such as bloggers, YouTube personalities and "Instafamous" profiles are more powerful, as participants regard them as more credible and can relate to these, rather than more traditional, celebrities 2. Celebrities' incentive for financial gain from endorsements did not seem to adversely affect participants' desire to purchase
Sense of community on Twitter and Instagram: exploring the roles of motives and parasocial relationships	Blight *et al.* (2017)	*Cyberpsychology, Behavior, and Social Networking*	Empirical (survey)	Expressive information sharing, Companionship, Social interaction	Sense of community	Uses and gratification theory, Parasocial interaction	1. Social interaction and expressive information sharing motives were directly positively associated with SOC (sense of community) for users of both sites 2. Parasocial relationships would mediate the association between motives for use and SOC on Instagram but not on Twitter
YouTube vloggers' influence on consumer luxury brand perceptions and intentions	Lee and Watkins (2016)	*Journal of Business Research*	Empirical (survey)	Physical attractiveness, social attractiveness and attitude homophily	Luxury brand perceptions and luxury brand purchase intentions	Para-social interaction (PSI) and social comparison theory	1. Luxury brand perceptions are significantly increased after watching vlog (video blogs) and increases were moderated by PSI with the vlogger 2. Luxury brand perceptions and purchase intentions for groups who watch vlogs reviewing luxury products are higher than groups who do not watch vlog 3. The more attractive a media personality is, the more likely the viewer is to think they hold similar beliefs leading to attitude homophily
Rethinking microcelebrity: key points in practice, performance and purpose	Usher (2020)	*Celebrity Studies*	Qualitative analysis	NA	NA	PSI	Performances across social media create sophisticated "repressive ambiences" for audiences, which perpetuate consumerism as liberation through deliberately fostering parasociality with audiences and directives to emulate

(continued)

Table 2

Article title	Author(s) (Year of study)	Journal	Type of study	Variables/constructs	Consequence	Theory used	Key findings
Influencers on Instagram: antecedents and consequences of opinion leadership	Casaló *et al.* (2020)	*Journal of Business Research*	Empirical (survey)	Instagram account characteristics (perceived originality, uniqueness, quality, quantity), opinion leadership perceived fit, online interaction propensity (OIP)	Consumer behavioral intentions (intention to interact, recommend, follow the advice)	Opinion leadership and theory of planned behavior	1. Perceived originality and uniqueness play a key role in developing opinion leadership on Instagram 2. Perceived quality or quantity are not the key factors that lead a poster to be perceived as an opinion leader in this social networking sites (SNS) 3. Online interaction propensity does not strengthen the influence of opinion leadership as most people may have routinized online interaction in their daily lives
Marketing through Instagram influencers: impact of number of followers and product divergence on brand attitude	De Veirman *et al.* (2017)	*International Journal of Advertising*	Empirical (experimental)	Number of followers, product divergence	Brand attitude	Theory of exclusivity	1. Instagram influencers with high numbers of followers are considered more likeable, mostly because they are considered more popular and may thus leverage the power of WOM at scale 3. Cooperating with influencers with high numbers of followers might not be the best marketing choice for promoting divergent products, as this lowers the brand's perceived uniqueness and consequently brand attitudes

Notes: PSRs = Parasocial relationships; WOM = word-of-mouth
Source: Author's own work

Figure 1 VI acceptance model (model illustrating the relation between the VIs and social media users)

Source Credibility
- Perceived trustworthiness
- Perceived attractiveness
- Perceived expertise
- Perceived similarity

Parasocial Interaction (PSI)

P1

P3

Acceptance of VIs

P2

Source: Author's own work

a parasocial relationship between followers and virtual SMIs to establish that the interaction between the audience and VIs are governed by the psychology of PSIs (Blight *et al.*, 2017).

3.2 Source credibility theory

Source credibility is the extent to which the target audience follows and believes the information source to gain cognition about the product/service (Teng *et al.*, 2014). Influencers' success depends on their opinion credibility and the amount of effort they successfully put into personal brand building to attract and retain followers. As per SCT, endorsers' credibility is based on the source's trustworthiness, expertise, attractiveness and similarity (Munnukka *et al.*, 2016; Ohanian, 1990). Source credibility is addressed here to explain the research objective of how the rise of VIs has changed the sphere of influencer marketing previously dominated by HIs or traditional celebrities. However, there are contrasting views regarding trusting VIs as credible sources. But the present generation of millennials seems to care less that VIs are not real and are content with the noncovert promotions by these VIs (Robinson, 2020). Thus, VIs are increasingly considered more credible sources compared to HIs.

4. Case studies

Case studies of two VIs (Lil Miquela and Shudu) are undertaken to delineate the approach to their acceptance by SMUs adopted by them (refer Table 3). The proliferation and influence of VIs suggested through case studies lay the foundation for the proposed model for VI acceptance by SMUs.

4.1 Lil Miquela

The major attraction of followers toward VIs came with Lil Miquela's introduction – a startlingly humanoid Brazilian-American musician on Instagram in 2016. She debuted as a charming 19-year-old singer, influencer and activist with her political opinions. She also supports social causes such as the "Black Lives Matters" movement and the LGBT community. A Los Angeles, California-based technology start-up Brud created the influencer. After much speculation, followers finally got answers about her origin in 2018, which raised the interest of many on Instagram and saw Lil Miquela rise to stardom with a

Attribute	Lil Miquela	Shudu
Table 3 Virtual influencer attributes		
Social media presence	Instagram, YouTube, Facebook	Instagram, YouTube, Facebook, YouTube
Influencer type	Mega (>1 million followers)	Macro (100 thousand–1 million followers)
Company name/ country	Brud/USA	The Diigitals/England
Positioning	19-year-old robot living in Los Angeles, singer, and activist	World's First Digital Supermodel
Campaigns	Black Lives Matter, LGBT campaigns, back-to-school and holiday campaigns	#blackisbeautiful, #melanin and #blackgirlsrock, modelling campaigns for digital supermodel agency "TheDiigitals.com"
Purpose	Brand-paid partnerships, digital promotions and social cause activation	Brand-paid partnerships, digital promotions and digital fashion modelling
Source: Author's own work		

flurry of followers (more than 3 million Instagram followers, @lilmiquela). She also has more than 3.6 million TikTok followers, 280 thousand YouTube subscribers and 1.2 million Facebook followers. This laid the foundation for other VIs to jump into the influencer game. Lil Miquela publishes pictures and videos of her life events (office, experiences, break-ups), recording studios and celebrity hangouts on Instagram, displaying her high fashion sense. Lil Miquela has promoted luxury brands such as Calvin Klien, Prada, Chanel, Samsung and others (refer Table 1). In 2018, Time Magazine ranked Lil Miquela among the Top 25 most influential people on the Internet, alongside former US President Donald Trump, Kanye West, Rihanna and Kylie Jenner (TIME, 2018).

4.2 Shudu

Shudu (@shudu.gram on Instagram) – a young African virtual supermodel in her mid-to-late 20 s, was created by British photographer Cameron-James Wilson in 2017. On her debut, Shudu instantly trended as one of the most beautiful models on Instagram and rose to fame as "The World's First Digital Supermodel." She has more than 239 thousand followers on Instagram, more than 129 thousand TikTok followers, above 41 thousand YouTube subscribers and above 2.7 thousand Facebook followers. She also looks real and endorses fashion and cosmetic products such as Fenty Beauty by Rihanna, Soul Sky, Ellesse, Pioneer Futures, Tiffany's, Samsung and Smart Car (refer Table 1). Shudu also signed a modeling contract with digital supermodel agency TheDiigitals.com and joined the Balmain family. She has been featured in a video experience at the Dubai Mall for Vogue Arabia. She has also been featured in premier magazines and articles such as Vogue, The New Yorker and Cosmopolitan. Her hologram was projected on the red carpet at the 2019 BAFTA Awards, owing to her rise to fame amongst Instagram users. The headline at the BAFTA Awards read, "For the first time ever, AI stylist Shudu brought BAFTA Film Awards red carpet fashion to the masses via EE's 5 G network and holographic technology." Shudu is a human-like, virtual supermodel who endorses luxury fashion brands.

5. Methodology and proposed conceptual model

Based on the above discussions on literature (Table 2), theoretical foundations (refer Section 3), and case studies (refer Section 4), we develop the following conceptual model (Figure 1) and propositions that illustrate that PSI and source credibility of VIs lead to their acceptance by followers. The relationships between the elements of this model, namely PSI with VIs, source credibility and VI acceptance, are discussed below.

5.1 Parasocial interaction and source credibility

As the participation of an SMU with the VIs content increases, the consumer gets more engulfed with the influencer. Owing to this higher self-investment, the follower forms an emotional connection with the VI and engages in a trusting, long-term parasocial relationship (Colliander and Dahlén, 2011; Horton and Wohl, 1956). Prior studies have evidenced that with increasing PSI, the credibility (perceived trustworthiness, perceived attractiveness, perceived expertise and perceived similarity) of influencers increases (Reinikainen *et al.*, 2020; Munnukka *et al.*, 2019; Djafarova and Rushworth, 2017). Hence, PSI with VI is anticipated as an antecedent to source credibility. With increasing PSI, the consumers also form a parasocial relationship (long-term association) with the VIs (Dibble *et al.*, 2016), which gives VIs the status of the credible source and opinion leaders. Thus, they become increasingly influential in promoting brands (Lou and Yuan, 2019). Based on these arguments, we propose that:

> *P1.* PSI between social media users and VIs has a positive effect on the source credibility of VIs.

5.2 Parasocial interaction and VI acceptance

SMUs form interpersonal bonds and a sense of liking for the VIs over short- and long term through continuous involvement (content viewing) (Reinikainen *et al.*, 2020). PSI keeps the consumer engaged with the social media content (posts, videos, photos, etc.) posted by VIs, thereby forming a parasocial relationship with them (Colliander and Dahlén, 2011). The level of acceptance of the VI can be gauged from the number of followers and the number of posts on their social media accounts (see Table 1). The more the number of followers, the more the PSI, which further enhances their acceptance on social media. Hence, we propose that:

> *P2.* The increase in PSI between social media users and VIs positively affects their acceptance.

5.3 Source credibility and VI acceptance

With greater PSI and higher source credibility of the VI, the audience will tend to be highly attracted to the VI and perceive them to be an expert and trustworthy source of information (Reinikainen *et al.*, 2020). This perceived credibility of the VI will percolate on to higher interactivity of consumers with them (Munnukka *et al.*, 2019). Thus, following the SCT (Munnukka *et al.*, 2016; Ohanian, 1990), we submit that higher credibility would lead to the acceptance of VIs by SMUs (Hu *et al.*, 2020). Hence, the VIs can effectively influence the follower's purchase intentions and overall brand equity of associated brands (Sokolova and Kefi, 2020). Thus, we propose that:

> *P3.* Source credibility of VIs positively affects their acceptance by social media users.

6. Discussion and conclusion

This study provides new insights into the next big thing in influencer marketing, i.e. VIs. In addition, it informs researchers and marketers about the primary theories of social psychology and credibility, which can form the base for consumer–virtual influencer interaction on social media. The above discussion also leads us to a better understanding of virtual digital influencers and the most prominent VIs, which marketers and organizations can leverage to increase brand salience and brand equity, especially in the case of luxury products/services brands.

The research on VIs in influencer marketing is in the nascent stage. Hence, little is known about VIs' interaction with SMUs and their acceptance. Thus, answering the research call

by several recent studies (for example, Leung *et al.*, 2022; Masuda *et al.*, 2022), this study attempts to conceptually illuminate that PSI with VIs build their credibility, thereby leading to their acceptance by SMUs.

The suggested VI acceptance model can serve as the initial foundation for brand managers to effectively promote their brand on social media platforms. As competition between traditional and social media intensifies, marketers face the challenges of molding their advertising strategies according to the changed consumer expectations. Partnering with promotion agents (such as influencers and bloggers) based on the attributes that meet consumers' priorities can help establish a better connection with the consumers. Thus, the proposed conceptual model elucidates that if the existing promotion strategies (i.e. promotion by HIs) become lesser accepted due to questions of authenticity and genuineness, brands could move to the next level (i.e. VIs who are free from human errors) of communication.

The near-looming possibility that human SMIs might soon be replaced by their virtual/digital counterparts like Lil Miquela and Shudu, makes it even more interesting to study the emergence of VIs (Deng and Jiang, 2023). The contemporary audience on digital media (especially the Gen Z) is immersed in virtual consumption, creative production and intense involvement with virtual or digital technologies, thereby providing a push to virtual innovations in marketing (Lam, 2016). Therefore, this article presents that millennial is the leading consumer segment attracted to VIs (Haenlein *et al.*, 2020).

Today's media consumers are unfazed by traditional mass media advertisements. Hence, brands must develop out-of-the-box promotional strategies or partnerships to attract the target audiences' attention. VIs interact with SMUs via content sharing. The increasing popularity of VIs among young consumers on social media shows that users hardly care about their commercial and mere virtual existence (Jerslev, 2016). Due to the success of VIs, brands are building their VIs to influence the target audience on social media platforms (Sands *et al.*, 2022; Thomas and Fowler, 2021). A higher amount of dyadic, reciprocal PSI with SMUs gives VIs an edge over HIs and celebrities.

Furthermore, VIs share their daily activities with SMUs, which helps build emotional connections and credibility. With the acceptance of VIs by followers across social media platforms (especially Instagram) (Djafarova and Rushworth, 2017), their acceptance as a credible source increase, leading to extended interactions with existing and new followers/ social media consumers (Deng & Jiang, 2023). However, despite gaining prominence and popularity on social media, there is also a point of caution for marketers. VIs could also be perceived as less trustworthy, as followers may consider their existence purely commercial and authentically fake (Riedl *et al.*, 2014). Hence, managers are suggested to establish high PSIs between VIs and SMUs.

6.1 Theoretical contributions

Several theoretical contributions of our study ascertain the evident shift in influencer marketing and contribute to the theory on VIs. First, on account of the ubiquitous proliferation of social media networks across the globe, our study proposes a relationship model between SMUs and VIs based on their social presence, parasocial connectedness and perceived credibility. Furthermore, this study explains that VIs can eclipse the bounds of practical and ethical restrictions faced by HIs, such as limited presence, less brand-control over HI responses and time-bound interaction with SMUs, owing to the anthropomorphic nature and higher amount of control by developing agencies. Hence, this study contributes to the extant influencer marketing literature by illuminating a paradigm shift such that VIs can potentially replace HIs for brand promotions and SMU interactions.

Second, the main theories which explain the relationship between VIs and social media followers are PSI (Rubin *et al.*, 1985) and SCT (Ohanian, 1990). This paper contributes to

the literature by being one of the first few studies to identify that PSI and source credibility constitute the phenomenon of acceptance of VIs. Our study presents the relationship model and researchable propositions to complement and extend the theories and constructs in the context of VIs. Based on PSI, communication with virtual social media personae may significantly impact followers due to higher perceived intimacy than traditional public appearances by HIs. The audience also gets attracted to the VIs due to their attractive social media profiles, build and perceived similarity, which makes them consider VIs credible and expert sources. Thus, the conceptual model confirms that prominent advertising theories such as PSI and SCT apply in the context of promotions by VIs, thereby advancing our knowledge in AI-based influencer marketing.

Third, the perceived uniqueness, perceived fit and perceived similarity of the VIs with the SMUs' personalities play a crucial role in strengthening the intention to accept and follow them. Hence, we challenge the traditionally accepted source credibility model (in extant advertising literature and the case of HIs), which consists of three dimensions (trustworthiness, attractiveness and expertise) (Breves *et al.*, 2019; Ohanian, 1990). We submit that SMUs are intrigued by the daily life posts of VIs (i.e. VIs' going to restaurants, malls, holidays, flaunting a common nail polish or T-shirt). SMUs are fascinated and enticed by the thought that they can also do or wear things similar to VIs. Hence, there is a sense of perceived similarity, which leads to the acceptance of VIs. Therefore, our study challenges the established source credibility model proposed by Ohanian (1990) and supports the inclusion of an additional dimension (i.e. perceived similarity), as suggested by Munnukka *et al.* (2016), in the context of influencer marketing. Thus, this study proposes the expansion of the source credibility scale from three dimensions (i.e. trustworthiness, attractiveness and expertise) to four dimensions (i.e. trustworthiness, attractiveness, expertise and similarity).

Fourth, we have identified that the PSI between SMUs and VIs results from the human-like connection, i.e. display of accessibility (24×7 online presence), online intimacy, human-like form and behavioral realism. These factors contribute to positive interpersonal and emotional connections between SMUs and VIs based on their social presence. Traditionally, human-computer interaction and social media literature has studied consumers' behavioral intentions to interact with online or AI-based agents based on technology adoption theories (Moriuchi, 2019), focusing on their perceived usefulness and ease of use. However, this study addresses the limitations of using only a single-sighted technology adoption approach to explain SMU-VI interaction through PSI and SCT theories. This study suggests that VI acceptance depends on the willingness to adopt technology and the relationships and credibility built between the SMUs and the virtual (or "human-like") agents.

Fifth, analyzing the fame of these VIs and their rise to virtual celebrity status on Instagram, it is clear that most of the followers are indifferent to the fact that VIs are not real humans but AI-run robots. To sum it up, our study opens up new avenues of interdisciplinary research in the human–CGI (or human–computer) interaction by proposing a relationship based on the theory of PSI psychology of technology users.

6.2 Managerial implications

This study aims to draw helpful insights for brand managers and organizations into virtual SMIs. First, brand managers are provided with the understanding that VIs can be as effective as HIs. VIs can foster effective brand partnerships and help garner faster brand awareness, recognition, association and positive emotions in the target audience, especially millennials on social media. This might work similarly to promotions via HIs but can be more effective due to the curiosity among followers and enhanced interaction with the audience. Hence, brands can complement their existing influencer marketing strategies with VIs as promotion agents. Second, several high-end luxury brands such as Chanel, Dior, Clavin-Klien, Burberry, Puma, Marc Jacobs, Versace, Samsung, Fenty Beauty and Adidas are working with VIs and using them in their campaigns. Hence, it is imperative that

VIs with a high following on social media (mainly Instagram) can be a potent influencing medium for brand managers, particularly in the fashion and accessories, clothing, electronics and hospitality industries (refer Table 1). Third, brand managers can leverage the vast number of followers to generate likeability for their brands, as the popularity of VIs leads to ascribed opinion leadership. Thus, Instagram can be an excellent medium to reach a mass target audience and capture mass attention. Fourth, VIs also provide brands with greater control over the influencer's behavior and content. Hence, they reduce the risk of "human errors" in their brand campaigns or the threat of offending consumers' sentiments by doing or saying something wrong or inappropriate, as in the case of HIs or celebrities. Fifth, owing to their 24 × 7 online presence, VIs can have higher WOM capabilities. This can be understood by the World Health Organization's (WHO) decision to engage VI Knox Frost for the COVID-19 campaign (Chen, 2020). Hence, owing to their ubiquitous presence, VIs can be potent for similar social and mass awareness campaigns. Lastly, consumers who seek a high level of uniqueness (such as Gen Z, hipsters or other unique subcultures) might be attracted to VIs. Thus, VI–consumer engagement can work well for brands creating products, services, or experiences for people who strive to be unique.

6.3 Limitations and future research opportunities

This study presents a picture of the rise of VIs and their influence on social media platforms and has certain limitations. First, the extant literature on VIs is minimal, so several academic theses, media articles and blogs have also been considered while conducting the literature review and gathering insights. Future research could make a more structured attempt at considering only published literature pieces to impose greater validity and reliability. Second, a further in-depth study can be done to identify the role of other antecedents or factors (such as perceived brand congruence and perceived similarity) that attract the audience to VIs. Third, this study presents a theoretical account of the rise of VIs; further research could include data collection and empirical analysis of the factors governing the relationship between VIs and followers. Fourth, future studies could present a comparative analysis of the presence of VIs on multiple social media platforms such as YouTube, Facebook, Twitter and TikTok. Fifth, the research could focus on a comparative analysis of VIs with regard to HIs on the parameters of PSI and source credibility. Sixth, this study is limited mainly to identifying the utility of VIs in promoting luxury fashion brands. It would be helpful for marketers if further studies could empirically test whether VIs can effectively promote promotions in other industries such as hospitality, food and beverages, medicine, tourism, entertainment and health care. In addition, future research could qualitatively or quantitatively gauge the effect of the uncanny valley, which is prominent in human-computer interaction when the human-like resemblance increases, on consumers' behavioral reactions in the context of VIs. Apart from these, there can be a plethora of research opportunities in this nascent domain as we seek to illuminate a marginally explored chapter in influencer marketing and branding.

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About the authors

Anand Jhawar is an FPM Scholar at XLRI, Jamshedpur, India. He holds a master's degree (Management) from Indian Institute of Management Raipur, India. He has corporate work experience in Godrej & Boyce Mfg. Co. Ltd. and Birla Gold Cement (Aditya Birla Group). He has presented paper in International Marketing Conference (ANZMAC, 2022). His research interests are in the domain of green marketing, anticonsumption, brand management and influencer marketing. Anand Jhawar is the corresponding author and can be contacted at: fb20003@astra.xlri.ac.in

Prashant Kumar is Assistant Professor (Marketing) at XLRI Jamshedpur, India. His work has been published in a number of peer-reviewed journals, including *European Journal of Marketing*, *Industrial Marketing Management*, *Journal of Retailing and Consumer Services*, *Australasian Marketing Journal*, *Marketing Intelligence and Planning* and *International Journal of Retail and Distribution Management*. He has presented papers in international conferences in Asia and Europe. He teaches courses such as Industry 4.0, Digital Marketing, Marketing Research, Business Marketing, Sales and Distribution Management, Business Forecasting and Environmental Management in business schools in India, Mexico and Thailand and UAE at graduate, postgraduate and executive levels.

Sanjeev Varshney is currently Professor (Marketing) at XLRI, Jamshedpur, India. A paper based on his thesis was awarded the best paper at COSMAR 2006 (a consortium of management researchers at IISC, Bangalore). He has international publications to his credit in peer-review journals, including *Journal of Consumer Marketing*, *Journal of Retailing & Consumer Services*, *Asia Pacific Journal of Marketing and Logistic*, *Journal of Business & Industrial Marketing* and *Journal of Nonprofit & Public Sector Marketing*. He has written several management cases and is a lead researcher in two Government (GoI)-sponsored research projects. He teaches courses such as Consumer BehavioPr, Marketing Research, Marketing Management, Sales and Distribution Management.