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Hidden Realities of Digital Faces: Examining the Evolution and Challenges of Virtual Influencers

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Abstract

This study examines the growing prominence of virtual influencers (VIs) in digital advertising, focusing on their defining characteristics, practical challenges, and ethical concerns arising from the use of artificial entities to influence consumer behavior on social networking platforms. Adopting a narrative review approach, the research synthesizes existing academic studies, industry reports, and conceptual discussions to provide a holistic understanding of the role and implications of VIs in contemporary marketing. The findings indicate that VIs offer several advantages over human influencers, including greater brand control, reduced bias, and enhanced creative flexibility, making them particularly effective in delivering brand-driven narratives that resonate with younger audiences. However, the study also highlights significant ethical and strategic challenges related to anthropomorphism, consumer trust, and transparency. By offering a comprehensive analysis of this relatively underexplored domain, the study contributes to digital marketing literature and provides valuable insights for marketers, researchers, and policymakers seeking to navigate the opportunities and ethical complexities associated with virtual influencers.

Keywords: Virtual Influencer, Influencer Marketing, Social Media, Anthropomorphism, Computer-generated

1. Introduction

Social media became increasingly popular for personal interactions, and businesses quickly realized it could also be used as an advertising tool. The unparalleled surge of social media platforms has revolutionized traditional marketing frameworks, giving birth to influencer marketing—a strategic approach where individuals wield influence over consumers to promote goods and services (Gretzel & Ge, 2018). Social media influencers, who are frequently regular

people, have emerged as potent agents that mould attitudes, opinions, and choices. Unlike conventional celebrities, they become well-known primarily through their internet presence, creating a distinct dynamic in the influencer marketing industry (Joshi et al., 2023). Influencers can change public opinion, making them essential resources for marketing companies looking to reach a large audience (Hui-wen Chuah, Ah, 2021). Unlike traditional celebrities, influencers gain popularity purely through their online presence on websites such as blogs, YouTube, and Instagram. The past ten years have witnessed an upsurge in visual content on social media platforms, especially Instagram, providing brands with an effective tool to creatively highlight their values and products.

This evolution in influencer marketing has given rise to a groundbreaking phenomenon—the emergence of VIs. These artificial intelligence-generated entities can only be discovered in digital spaces and can make an impact through marketing partnerships and social media campaigns (Conti et al., 2022). Characterized by their imitation of human characteristics, dispositions, and actions, VIs differ significantly from people in the real world. The technology underlying VIs is still proprietary, but their creation is complicated because 3D artists, motion capture, and computer-generated imagery are likely involved. VIs frequently depict modified digital representations or mashups of real and computer-generated elements. Many industries have embraced this new approach; well-known companies like Samsung, Prada, IKEA, and Renault have used digital avatars to blow up on Instagram, demonstrating a dedication to innovation and creativity (Smaraki, 2021).

The challenging COVID-19 pandemic and the emergence of VIs occurred simultaneously. While the global rise of human influencers slowed, virtual influencer marketing appeared to gain momentum during that period. VIs helped raise awareness about important topics like social distancing because they were not constrained by pandemic-related issues (Smaraki, 2021). Businesses have been partnering with VIs increasingly due to their resilience during this time, which further highlights their potential. Since the early 1990s, when animated cartoons began populating online spaces, virtual characters have played a recurring role in advertising. Originating in the mid-20th century, animation has been used in advertising because of its reputation for producing high viewer engagement. The introduction of virtual idols in Japan signaled the beginning of media performances that were not accompanied by live performers, and Kyoko Date became the first 3D computer-generated female model (Gretzel & Ge, 2018). The evolution persisted in 2016 with the rise of virtual YouTubers, or Vtubers, like Kizuna AI, and eventually with the appearance of VIs on Instagram and other platforms. According to Conti et al. (2022) and Robinson (2020), Lil Miquela, one of the earliest examples of VIs, gained prominence following her 2016 debut, eventually attracting millions of followers and earning recognition from *Time* magazine as one of the "25 Most Influential People on the Internet." Her success catalyzed change, resulting in the emergence of numerous other VIs.

Influencer marketing is becoming an immensely successful branding and marketing approach, with estimates of $33 billion by 2027 for both real and VIs (Varshney et al., 2023). The emergence of VIs has complicated the marketing environment, even as it has sparked discussions about how they differ from real-life influencers (HypeAuditor, 2020). There has been substantial debate over the possibility of distinctions between virtual and human influences. According to HypeAuditor (2020), VIs on social media platforms such as Instagram connect with their audience at least three times as frequently as human influencers.

The COVID-19 pandemic significantly changed traditional marketing methods, emphasizing the growing importance of VIs. VIs, unlike human influences, are not constrained by human safety considerations, giving them a significant edge in risky settings. Because of their ease of use, low cost, and controllability, they are crucial tools for businesses looking for unique and long-term marketing strategies (Smaraki, 2021). This study investigates key features of VIs, with an emphasis on customer feedback, brand engagement, and the expansion of influencer marketing. The goal of assessing the efficacy and consumer feedback of virtual and actual influencers is to give insight into the likely future advancement of this revolutionary phenomenon. The report also explores the ethical and regulatory implications of VI deployment, providing insight into the potential and hazards that businesses may face in this changing context.

1.1 Need and Objectives of the Study

The current study focuses on key aspects of VIs, such as customer response, brand participation, and the expansion of influencer marketing. The goal of evaluating the efficacy and consumer perceptions of virtual and real influencers is to give insight into the future course of this unusual phenomenon. In order to give insight into the possible benefits and problems that brands may face in this changing environment, the study investigates the ethical and regulatory implications of VI deployment.

2. Literature Review

VIs, also known as computer-generated personalities or online celebrities, originally became popular in the United States and Japan before expanding globally. Nila, India's first virtual model, ushered in the trend in India. Social media personality types include bloggers, vloggers, YouTube content creators, and influencers. Nevertheless, in 2016, the "virtual YouTuber" or "Vtuber" phenomenon emerged, typified by animated avatars and digitally produced personas that mimic human actions and physical characteristics in live streaming platforms and video material (Miao et al., 2022; Zhou, 2020). This marked the beginning of a paradigm shift. These VIs have quickly become digital-era superstars, revolutionizing influencer marketing conventions and conceptual frameworks, and garnering significant and prompt attention from investors and businesses (Sands et al., 2022). Robinson (2020) and Jhawar et al. (2023) claim

that factors like novelty, the sense of intrigue they arouse, perceived personal resonance, emotionally human-like interactions, and the allure of their digitally created everyday narratives are the main drivers of audience engagement with virtual influencers.

2.1. Emergence of Virtual Influencers

VIs are increasingly surpassing their human counterparts in terms of visibility and engagement across social media platforms. They are distinguished by having lifelike human faces produced through machine learning and computer graphics (Lee & Lim, 2023). Influencer marketing has been disrupted by the rise of VIs, which has resulted in more investments and collaborations with companies (Sands & Associates, 2022). Audience responses to virtual influencers tend to evolve in stages—starting with limited engagement toward 2D-animated figures, increasing with 3D-animated characters, and culminating in stronger reactions to more human-like digital personas, as observed by Xie-Carson et al. (2023). Among these, influencers employing 2D visuals tend to elicit the weakest levels of audience preference. However, Arsenyan and Mirowska (2021) note that even the most human-like virtual influencers generally attract significantly less favorable user feedback compared to real human influencers, a pattern that aligns with the predictions of the uncanny valley theory. After making her debut in 2016, Miquela became the first well-known virtual influencer, generating interest and research in the communication field that had previously been centered around human influencers (Tiffany, 2019; Kadekova & Holienciova, 2018). Corporations such as Samsung, Prada, IKEA, and Renault have actively embraced VIs as part of their promotional efforts. Notably, the COVID-19 pandemic did not impede the growth of this phenomenon; on the contrary, VIs played a significant role in disseminating awareness and maintaining brand visibility during the global health crisis (Conti et al., 2022).

2.2. Attributes and Qualities of Virtual Influencers

Artificially created human-resembling entities, commonly termed as VIs, exert significant control over their environments, thereby mitigating controversies and concerns for advertisers and partners (Batista & Chimenti, 2021). Like their human counterparts, VIs have an impact on communities and consumer intentions; however, their distinct advantage stems from their identity and sincerity as well as their digital nature (Uzunoğlu & Misci Kip, 2014; Robinson, 2020). They are more desirable to businesses because their content is tailored to their target audiences, which lessens the negative effects of real influencers (Robinson, 2020). Though VIs are confined to the digital sphere, it is possible to come across them in person.

Table I. Overview of studies on virtual influencer marketing

Authors (Year)	Focus / Objective	Research Approach	Key Findings
Angmo et al. (2025)	Explore the effect of VIs on audience engagement and buying behavior	Survey	VI content boosts purchase intention for SMEs, but the type of influencer doesn't significantly moderate the effect of endorser traits. Brands should evaluate VI traits before implementation.
Zourrig et al. (2025)	How HVI appearance affects attractiveness & purchase intention	Survey	Human-likeness, animism, warmth, competence ? social presence ? attractiveness ? purchase intention
Deng et al. (2024)	Examine differences in ad recognition and brand attitudes between VIs and human influencers.	Three experiments	VIs improve ad recognition more than human influencers, which mediates stronger brand attitudes; high sensory capacity reduces this effect.
Mehta et al. (2024)	Explore VI design through anthropomorphism and self-congruence	Grounded theory; 8 developer interviews	Human-like behaviors in VIs (natural speech, aesthetic narrative) improve trust, engagement & brand collaboration.
Ananda et al. (2024)	Impact of VIs on credibility, parasocial relationships, and purchase intent	Narrative literature review	Credibility, parasocial ties, and generational differences shape VI effectiveness; authenticity remains dual-edged
Dabiran et al. (2024)	Investigate the influence of anthropomorphism on followers' evaluation of virtual influencer personas.	Survey	Moral and cognitive anthropomorphism enhance credibility and parasocial relationships; appearance impacts only parasocial ties. Parasocial ties strongly influence purchase intention.

Due to their human-like characteristics, they can occasionally provoke political incorrectness or lead to boycotts of specific products or companies. Research on VIs is closely linked with advancements in human-robot/computer interaction (Xie-Carson et al., 2023). Złotowski et al. (2015) emphasize that anthropomorphism, a core psychological construct, reflects the predisposition of individuals to attribute human-like traits, emotions, and cognitive states to artificial or non-human entities, such as virtual influencers.

2.3. Challenges and Ethical Concerns

Despite their growing prominence and influence in digital branding strategies, the complexities associated with virtual influencers remain underexplored in scholarly discourse (Batista & Chimenti, 2021). The creation of VIs using advanced techniques like neural rendering raises concerns about anthropomorphism, uncanniness, and potential misuse by companies or brands (Seymour, Riemer et al., 2021). Moreover, deepfakes are produced via neural rendering. As artificial, digital human products like VIs are created, concerns about the artifact's inherent anthropomorphism and, therefore, its uncanniness, arise quickly (Seymour, Yuan et al., 2021). Trust is crucial for avoiding negative views and uncanniness in VIs, as well as for fostering parasocial interactions between influencers and consumers (Benbasat et al., 2010; Duffett et al., 2019). VIs' perceived reliability affects consumers' opinions of marketed companies and goods, yet ethical considerations are raised by their goals and sources (Xiang et al., 2016).

3. Discussion

The modern social media influencer marketing scene has seen a significant change as a result of the rise of VIs (Bansal & Pruthi, 2021; da Silva Oliveira, 2021). These virtual assistants (VIs) are computer-generated characters created using advanced visual design tools that may interact with large audiences on various online platforms (Conti et al., 2022). Through examples like Brazil's Casas Bahia and Japan's Kizuna AI, Cheung and Leung (2021) and Laszkiewicz and Kalinska-Kula (2023) demonstrate the adaptability of such digital entities and show how VIs are altering the scope and implementation of influencer-driven promotional campaigns. Although the efficacy of human influencers has been shown, Leung et al. (2022) assert that much more has to be discovered regarding the potential of VIs for companies.

Working with VIs offers several advantages, such as manageability, accessibility, and reduced public relations concerns (Ameen et al., 2023; Conti et al., 2022). Sands et al. (2022) and Robinson (2020) contend that VIs' timeless appeal and ability to transmit original and innovative tales promote the formation of effective brand communities. Consumers may prefer VIs to real ones based on factors such as expertise, relevancy, trust, and dependability. In accordance with Baklanov (2019) and Audrezet and Koles (2023), VIs, notably those having human-like traits, are more appealing to viewers, particularly younger people. Meanwhile, Xie-Carson et al. (2023) investigate the usage of VIs in the tourism sector and provide details on the

content and source factors that influence user engagement.

Lim and Lee (2023) provide fascinating insights on source disclosure and emotional discourses, demonstrating how these aspects influence VIs' perceived authenticity and the emergence of parasocial interactions. According to Brown et al. (2003) and Duffy & Hund (2019), as the sector expands, purchasers need greater authenticity, regardless of whether influencers are actual or virtual. Brown et al., Newman and Dhar, and Duffy and Hund (2003; 2014; 2019) discover that in today's consumer culture, both real and virtual influencers value authenticity. However, authenticity may be jeopardised, as stated by Koles et al. (2024), emphasising the necessity for a more complex strategy when introducing VIs into marketing efforts. These findings reinforce crucial components for effective engagement and long-term consumer trust in the age of VIs, when firms increasingly rely on social media influencers for authenticity. The current discussion provides a complete examination of the expanding area of virtual influencer marketing, emphasizing both the dynamic opportunities and inherent limitations of this rising digital trend.

4. Theoretical and Managerial Implications

With the development of digital marketing for retail companies during the COVID-19 pandemic, VIs emerged as a viable tool for marketers looking to use AI-powered endorsement in online contexts. Because VIs are computer-generated pictures, their look and lifestyle are completely customizable. Marketing managers may use this to create glossy endorsement content that encourages social media users to mimic the virtual influencer's look or lifestyle. VIs should interact with people to establish trust and appeal to a varied user base throughout social network platforms. To achieve successful and authentic endorsement, brand strategists must keep the virtual influencer's portrayed character compatible with the company's product image. By eliciting necessary emotions in the VIs' narratives, companies can concentrate on creating parasocial relationships between consumers and VIs to gain credibility. This perspective highlights that VIs can serve as a credible substitute for traditional celebrities and human social media influencers, provided that marketers possess the capability to craft engaging storytelling approaches that thoughtfully integrate the VIs' identity and origin.

Marketers need to carefully assess whether to disclose the artificial background of a VI, as such revelation may influence the strength of emotional attachment that audiences develop—an attachment that plays a pivotal role in cultivating meaningful parasocial relationships. When organizations cooperate with VIs, it is critical to select an influencer who understands their business and is willing to explore potential problems. Given the major concern about the validity of VIs, displaying them flexibly and engagingly may generate a more favorable user opinion. VIs are more likely to elicit positive feelings when delivered with dynamic video material rather than static visuals, because motion boosts the viewer's emotional resonance. As a result, marketing strategies should focus aggressively on video-based platforms and formats to

increase audience engagement and participation.

Despite the belief that the novelty element initially boosts traction and awareness, experts commonly voice concerns about the long-term effects on consumers and the practicality of employing VIs in marketing. Authenticity concerns, significant investment needs, legal restrictions, and the risk of losing popularity as a result of poor execution are among the factors that marketers consider when considering whether to collaborate with fictional characters on social media. Practitioners should create VIs with a wide range of body types and physical characteristics to reduce the risk of ethical quandaries while also preventing users from acquiring unrealistic expectations. Maintaining transparency about VI governance and design teams is critical for building audience trust, which improves the perceived authenticity and legitimacy of virtual identities. Marketers are urged to expose the identities of VIs by utilizing relevant hashtags and behind-the-scenes videos.

Because VIs are not intrinsically personality-driven, educated specialists may create customized VI personalities to appeal to certain target groups. Incorporating spontaneous or naturally formed visual information is also required to increase VIs' perceived authenticity and sincerity. This method helps clients who may be wary of professionally generated graphics to trust and connect with them. The findings highlighted the significance of transparency and openness in increasing VI strategic efficacy in modern marketing situations.

5. Conclusion

The advent of VIs is changing the marketing landscape as the digital world advances. The primary focus of this study's VI marketing research is on how firms employ computer-generated personas to promote their brands. VIs emulate real-life people, and due of their ongoing appeal on social media, firms are incorporating them into their advertising campaigns.

The blend of virtuality and reality highlights the intricacies of these influencers, challenging traditional notions of influence and prompting us to look at how artificial intelligence affects online interactions. Regarding concerns regarding authenticity, VIs have demonstrated versatility in engaging with audiences and adjusting to changing situations. They have the potential to drastically alter the present state of influencer marketing, demonstrating that this is not a transitory trend, but rather a continuous revolution in digital brand interactions.

VIs give brand managers total control over their brand image, increased engagement, considerable cost savings, and other advantages. However, questions about seeming inauthenticity and consensus should be handled with prudence. The virtual influencer should be chosen in accordance with the brand's values. To negotiate this evolving trend, authenticity must be handled appropriately, even in the virtual world. Audiences appreciate true relationships, and

more authentic interactions emerge when VIs associate their behavior and beliefs with the brand. Its innovative, original, and trend-neutral narrative ensures its popularity.

VIs, like their physical counterparts, excel in community building. In addition to giving useful information about client preferences, fostering cooperation and audience interaction boosts the virtual influencer's sense of belonging. In essence, implementing VIs necessitates striking a balance between community development, innovation, flexibility, authenticity, and data-driven decision-making. By combining these features into their marketing plans, organizations can fully use VIs' ability to interact and create connections with prospective consumers in the ever-changing world of influencer marketing.

6. Limitations and Scope for Future Research

Although the current study covers the qualities, challenges, and ethical dilemmas of VIs and highlights current perspectives on their construction, it contains a number of flaws that highlight areas that need more investigation. Future research on VIs should involve experimental and empirical investigations that look at the factors affecting the interaction among VIs and their viewers, in addition to theoretical analysis. Cross-cultural views, which provide insights into cultural differences that influence marketing effectiveness, may be used to understand how VIs are viewed and utilized in various international markets.

Comparative research on several online platforms, particularly Facebook, Instagram, YouTube, Twitter, and TikTok, might provide useful insights into how VIs are perceived and used in different technological contexts. The enormous potential that technological advancements like AI and AR/VR have for enhancing user experiences and creating virtual influencer connections serves as more evidence of the need for additional investigation in future studies. Furthermore, examining how the uncanny valley effect affects customer responses in the context of human-computer interaction offers an interesting direction for VI study. This study area has the ability to employ qualitative as well as quantitative methods. Further research might explore the new field of zoomorphic virtual assistants or compare user interaction between anthropomorphic and zoomorphic virtual environments. Such studies can yield important information on how to improve user engagement and acceptance of VIs in various marketing contexts.

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