The Rise of Virtual Influencer Brand Partnerships: Shaping the Future of Digital Campaigns

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Abstract

Virtual influencers (VIs) are revolutionizing the digital advertising market, presenting brands with a new level of interaction using fully controllable AI personalities. This study compares the five most popular Vls in present time, Lil Miquela, Imma, Noonoouri, Lu do Magalu and Knox Frost, to explore how form realism, ownership type and industry context impact on strategic effectiveness, trust and audience engagement. The findings suggest that highly anthropomorphic VIs (Lil Miquela, Imma) create intense Parasocial Interaction (PSI), suffering authenticity problems while stylized VI like Noonoouri benefit from symbolic aesthetics in luxury brand positioning and reduce skepticism. Brand-owned VIs like Lu do Magalu have greater narrative and cultural localization control, as well as following the continued engagement model whereas prosocial VIs like Knox Frost prioritize low reputational risk and ability to control messages for sensitive public campaigns. Combining the quantitative approach and theoretical perspective, our research shows that the effectiveness of VI depends not on aesthetic appeal or number of followers but rather on alignment with visual design, brand strategy and industry norms. The paper provides practical guidance and recommendations for marketers to unlock the full potential of VI partners, and a robust framework for academic researchers interested in AI-mediated influence, engagement dynamics and trust within digital ecosystems. This study highlights the novel contribution of VI collaborations with implications that are extremely pertinent for academic and brand partnership research strategies.

Keywords: Virtual influencers, digital marketing, brand collaboration, consumer engagement, trust, strategic alignment

I. Introduction

Virtual influencers (VIs) have rapidly transformed from experimental virtual personas to mainstream actors in the worldwide marketing environment, altering how brands develop, deliver and maintain consumer engagement strategies. As opposed to human influencers, who present advantages but also risks related to inconsistent behavior, limited accessibility, or reputational scandals. VIs provide brands absolute control, creative flexibility and long-term narrative coherence (Allal-Chérif et al., 2024; Teng et al., 2025). Their computer-generated appearance enables high levels of customization in visual identity, messaging and behavior presentation, which makes them attractive options for both low-stake (e.g., commercials), to the highest stakes such as retail sales, luxury communication and public health campaigns (F. Liu & Lee, 2024).

The prevalent use of VIs also indicates larger cultural and technological changes in consumer behavior. Younger digital audiences are increasingly receptive to parasocial interactions in relations with virtual personas that combine the hyper-realism, fictionality, and cultural adaptability. Brand-owned characters like Lu do Magalu exemplify how localized storytelling and culturally embedded design create trustful and authentic contents, especially when aligned with national humor, language and everyday communication styles (Pujadas-Gómez et al., 2025). Similarly, as the case of Knox Frost indicates, organizations employ their VIs in high-risk communication contexts to mitigate unpredictability and maintain control over public messages (Mouritzen et al., 2023; Sands et al., 2022). These various scenarios demonstrate the strategic reasons for the increasing integration of virtual influencers into brand communication.

Despite their increasing presence and commercial impact, Academic understanding of brand VI collaborations is highly fragmented and limited. Current studies have yet to provide an explanation why brands choose VIs, how they strategically employed by brands and under what conditions they succeed or fail in generating consumer trust and engagement. While VIs continue to impact digital culture and reshape branding strategies, addressing these gaps becomes important for both theory and practice.

This research provides a novel and timely contribution, as it systematically investigates the virtual influencer collaborations in a well-structured multiple case study analysis. It provides academic value by explaining the mechanisms, motivations, and strategic logics of VI deployment an area still relatively underrepresented in marketing literature. Additionally, it has practical implications for brands and agencies who are interested to collaborate with VIs, by providing them best practices, strategic insights and potential risks related to authenticity, transparency and consumer response. Integrating cross-case insights with theoretical perspectives, the paper provides a comprehensive and future-oriented understanding of how VIs shape current digital brand communication.

Based on these objectives, the study addresses the following research questions:

1. **What motivates brands to collaborate with virtual influencers?**

2. **What strategies do brands use when engaging with virtual influencers?**

3. **How do these partnerships affect consumer trust, brand perception, and engagement?**

II. Theoretical background

1. Conceptualization and Strategic Rationale for Virtual Influencers

VIs are generally computer-generated digital avatars or characters, developed with Computer Generated Imagery (CGI) or Artificial Intelligence (AI) (Audrezet et al., 2025; Khalfallah & Keller, 2025; Koles et al., 2024). They are virtual characters with some given personality and complex narrative threads (Audrezet & Koles, 2023; E. Moustakas et al., 2020; Thomas & Fowler, 2021). VIs are computational analogs of social media influencers (SMIs) (Freberg et al., 2011; Joel-Edgar et al., 2025) who shape audiences' attitudes towards brands, products and/or services. Unlike HIs, VIs are AI or software controlled, and they take the form of graphically interactable agents in a digital setting (Joel-Edgar et al., 2025; Sands et al., 2022). They are often controlled by digital agencies, brands, or AI systems (Audrezet et al., 2025; Koles et al., 2024). The phenomenon is also high in commercial potential, with VI as a market globally estimated to be USD 46 billion by 2030 (Audrezet et al., 2025; F. Liu, 2026), where VIs achieved engagement rates around three times more than HIs (M. Conti et al., 2022; Teng et al., 2025). Notable examples are Lil Miquela and Imma, with their multimillion long follower list, which show the influencing ability of VIs as evidenced by a combined millions of followers across multiple platforms along with extensive list rich brand partnership portfolio, and high influencer value index that manifest the VIs' persuasive power (Joel-Edgar et al., 2025; Volles et al., 2024; Xia et al., 2025).

2. Strategic Advantages and Brand Adoption

Nowadays, luxury, technology and retail brands show a growing involvement in the use of Virtual Influencers (VIs) as they can offer multiple advantages over Human Influences (HIs); (Allal-Chérif et al., 2024; Mouritzen et al., 2023). VIs provide cost-effectiveness, great control, and low Public Relations (PR) risk (Allal-Chérif et al., 2024; Sands et al., 2022) and are not affected by illness, tiredness or aging as opposed to HIs (Appel et al., 2020; Byun & Ahn, 2023; F. Liu, 2026; Ozdemir et al., 2025; Rizzo et al., 2025). Their content, image and message is entirely brand-driven (G. Deng et al., 2025; F. Liu, 2026; Thomas & Fowler, 2021), while their customizability makes them a tool for targeting specific consumer segments (Joel-Edgar et al., 2025; Koles et al., 2024). These high-level collaborations are supported by campaigns such as Lil Miquela partnering with Prada, Calvin Klein, Samsung (Koles et al., 2024; Thomas & Fowler, 2021; Zhou et al., 2024) and Imma teaming up with IKEA and Hugo Boss (Volles et al., 2024; Xia et al., 2025). Some companies create brand-owned VIs like Lu do Magalu or Prada's Candy (Teng et al., 2025; Zhou et al., 2024), which guarantee strong alignment of brand persona and have successful outcome up to 40% sales growth rate for the Prada fragrance category (Zhou et al., 2024). Even independent VIs also have positive effects on brand attitudes (Mouritzen et al., 2023).

3. Strategic Solutions: Fit, Design, and Co-Endorsement

To make good use of VIs, campaign picture design must match with the type, visual style and promotional mode of product. Endorsement effects are predicted by the match-up hypothesis (Kamins, 1990; Kim & Park, 2023; F. Liu & Lee, 2024; Till & Busler, 2000), with VIs being more effective for utilitarian, information-dense products (Belanche et al., 2024; F. Liu & Lee, 2024; Longoni & Cian, 2022), while Human Influencers (HIs) are more effective for hedonic or experiential product types (Belanche et al., 2024; F. Liu & Lee, 2024). The form realism is also relevant: VIs develop positive attitude for physical products through photo-realistic, as they perceive proximal sensory abilities and low-realism VIs can be effective in the case of non-physical offerings (Ozdemir et al., 2025). VIs may also increase persuasiveness through linguistic anthropomorphism (Ozdemir et al., 2023; Zhou et al., 2024), but extreme positivity can have the unintended effect of raising concerns about its authenticity (Xia et al., 2025).

Co-endorsement coupling a VI with a human endorser (F. Liu, 2026) offers significant credibility and effectiveness gains over solo VI endorsements (G. Deng et al., 2025; F. Liu, 2026; Rizzo et al., 2025), as it combines VI novelty with human relatability (G. Deng et al., 2025), enhances social presence (F. Liu, 2026; Park et al., 2021), and reduces uncanny valley effects (Ham et al., 2024a). This tactic works best when both endorsements are proximate in physical and social space, and share gender consistency (F. Liu, 2026).

III. Methodology

This research uses a qualitative, explorative multiple case study approach in order to explore the "how" and "why" behind VI marketing within real-life contexts (Allal-Chérif et al., 2024; Stoyanov & Stoyanova, 2025). This design is suitable for exploring new phenomenon and contextually critical, allowing analytic rather than statistical generalization, and building theories through literal or theoretical replication (Kennedy, 1979; Peer C. Fiss, 2009). We drew the cases on the basis of replication logic for theoretical representativeness (Ridder, 2017), including high profile or hyper realistic VIs as Lil Miquela and Imma to understand consumer acceptance and perception of authenticity (Gan et al., 2025; F. Liu, 2026; Thomas & Fowler, 2021; Volles et al., 2024). Brand-owned VIs (e.g., Prada's Candy, Virtual Colonel) and independent VIs (Lil Miquela with Samsung) were included to investigate control system, brand persona fit, and strategic goal (Franke et al., 2023; Mouritzen et al., 2023; Spörl-Wang et al., 2025; Zhang & Zhu, 2025). Variety of product category (luxury, technology, experiential) enabled using the match-up hypothesis in differing contexts (Gan et al., 2025; Koles et al., 2024; Spörl-Wang et al., 2025).

The data was collected in a multi-source, and triangulated manner (Yin, Robert K., 2018). The main dataset consisted of the Instagram content, videos, captions, hashtags as well as likes and comments posted by VIs and partner brands (Arsenyan & Mirowska, 2021), including Lil Miquela's Samsung #TeamGalaxy campaign, Imma's collaboration with IKEA (Volles et al., 2024) or Noonoouri's endorsement for Dior (Allal-Chérif et al., 2024). The data was captured on a large scale and content analysis were analyzed according to the established social media

research methods (Belanche et al., 2024; Xia et al., 2025). Additional sources included brand web-pages, campaign pages and organizational documents used to provide strategic context and narrative consistency for VIs personas (E. Moustakas et al., 2020; Koles et al., 2024; Teng et al., 2025). Industry reports and openly accessible analytics provided engagement metrics, follower demographics, and validation for influence such as Lil Miquela's more than 3M followers or Imma's high engagement (Appel et al., 2020; Khalfallah & Keller, 2025; Shen, 2025).

In a second step of the process, pattern matching and cross-case synthesis were used to connect the empirical evidence with the theoretical propositions (Di Paolo et al., 2025; Ridder, 2017; Romero et al., 2025; Yin, Robert K., 2018). Within-case analysis, thematic coding used to organize data (Graneheim & Lundman, 2004; Hajli, 2025; Terry, Gareth et al., 2017) and cross-case synthesis applied to compare patterns among the partnerships of brands with VIs without risk of case contamination (Yin, Robert K., 2018). Replication logic reconfirmed that the results converged (literal) or diverged for valid theoretical reasons against predictions (theoretical replication) (Ridder, 2017; Yin, Robert K., 2018). The credibility of the findings was enhanced using researcher triangulation, to ensure coding rigor and remove rival interpretations (Hajli, 2025; Joel-Edgar et al., 2025; Zhang & Zhu, 2025).

Trustworthiness was maintained using credibility, dependability, confirmability and transferability (Ahmed, 2024; Lincoln & Guba, 1985). Credibility was enhanced via triangulation of content from social media, brand documents, and public analytics (E. Moustakas et al., 2020; Teng et al., 2025; Yin, Robert K., 2018). Reliability was ensured through methodological documentation, audit trails and continuous supervision (Di Paolo et al., 2025). Confirmability relied on reflexive journaling and supervisory checks, instead of peer debriefing and transferability through thick case descriptions for judging the extent of applicability to other VI strategies and sectors (Ahmed, 2024; Yin, Robert K., 2018).

IV. **Results**

Results collected from the 5 main VI cases are synthesized through multiple case study, which provides for a short-range generalization among heterogeneous promotional contexts such as luxury, retail and public health (Allal-Chérif et al., 2024; Ridder, 2017). Ensuring trustworthiness through triangulation of social media content, audited media exposure data, and consumer experiments leading to the enhanced credibility of proposed recommendations as well as confirmability and internal validity. Stringent screening of respondents prevented sampling bias and overexposure to familiar VIs (G. Deng et al., 2025; F. Liu, 2026; Volles et al., 2024). The findings support theoretical constructs including the Credibility-Engagement Paradox (Volles et al., 2024), form realism boundaries (Franke et al., 2023; Zhou et al., 2024), and situational dynamics of blame and trust erosion in crisis scenarios (Joel-Edgar et al., 2025).

1. **Within-Case Analysis: VI Profiles, Campaigns, and Performance**

Each VI is treated as an embedded unit of analysis (Di Paolo et al., 2025; Yin, 1994), and campaign features, ownership type, aesthetic choices, and quantitative outcomes are described below. Illustrations of each VI's campaigns are provided in the appendix section.

1.1 Lil Miquela (Virtual Free Agent)

Lil Miquela (@lilmiquela) is a hyper-realistic Virtual Free Agent that combines technological control with luxury fashion branding (Arsenyan & Mirowska, 2021; Koles et al., 2024). Campaigns such as #teamgalaxy with Samsung in Appendix 1, and for Prada and Calvin Klein show how brands use her hybrid digital fashion identity to connect to tech-savvy, culturally cognizant audiences (Allal-Chérif et al., 2024; Ozdemir et al., 2023). The 3 million of followers on Instagram and estimated of $31,900 per sponsored post that she manages are a high-value, scalable digital asset (Allal-Chérif et al., 2024; Koles et al., 2024). From a strategic perspective, Miquela regularly operates in hybrid co-endorsed models with human and real-life celebrities like Bella Hadid which leverage the novelty and control of VI together with the credibility and emotional appeal of human endorsers (G. Deng et al., 2025; Ham et al., 2024b; T. (Tripp) Liu et al., 2025). Her appearance is very realistic with strong parasocial interaction; however, she has an authenticity dilemma: audiences appreciate her aesthetic skills and expertise in beauty but rates her as less authentic and trustworthy than human influencers (Ham et al., 2024b). Her campaigns straddle this tension by employing hybrid endorsement formats to bridge trust gaps and enhance message credibility (F. Liu, 2026; Ozdemir et al., 2023).

1.2 Imma (Hyper-Realistic Free Agent)

Imma (@imma. gram) is one of the most photo-realistic virtual influencers, gaining a lot of attraction due her fidelity appearance (Arsenyan & Mirowska, 2021; Zhou et al., 2024). Her 2020 advertising campaign for IKEA Harajuku featured in Appendix 2 illustrates the immersive use of digital storytelling to promote physical consumer products, by merging spatial design and tech-mediated visual identity (Allal-Chérif et al., 2024). Commercially the campaign had a significant success; With ¥212 million in unmonetized media exposure, a 25% rise in engagement and over 23.2 million organic impressions which made it one of the most successful retail-oriented VIs on record. This is stable, mid-tier human influencer-like performance (Volles et al., 2024) with an average engagement rate of about 2.21 %. Strategically, Imma leverages high-exemplar realism to address the challenges of VIs in promoting physical products that require sensory evidence such as touch, texture and special presence (Ozdemir et al., 2023; Zhou et al., 2024). Her endorsement design satisfies the Match-Up Hypothesis and maintains endorser-product category fit, especially in home décor & lifestyle retail, to increase the perceived fit and mitigating authenticity disadvantages while providing persuasive marketing value (F. Liu & Lee, 2024; Till & Busler, 2000).

1.3 Noonoouri (Stylized Virtual Free Agent)

Noonoouri is a mediated virtual personality with a doll-like, low-realism appearance, portraying herself in the semiotic space of luxury market icons (Franke et al., 2023; Kim & Park, 2023). Working particularly in the high-fashion context, she partnered with prestigious brands like Dior (Appendix 3) and Versace communicating aspirational values of veganism, sustainability and gender inclusivity, mirroring cultural and ethical positioning of luxury brands (Allal-Chérif et al., 2024). In terms of commercial impact, she quantitatively performs well, achieving €771K in media value through her collaboration with Dior and engaging over 1M users across the collaboration period and seeing her Instagram followers (403k) as a niche for engaging in conversations on top luxury brands (Rizzo et al., 2025). Strategically, her reduced anthropomorphism allows brands full control over narrative and visuals, reducing user skepticism and preventing the uncanny valley effect typical hyper-realistic VIs (Allal-Chérif et al., 2024). Noonoouri's fictional and non-realistic style of character design, allows brands to enhance their artistic identity, cultural and ethical capital at the same time as mitigating the risk posed by authenticity that is inherent in hyper-real virtual influencers.

1.4 Lu do Magalu (Brand-Owned Spokes-Character)

Lu do Magalu is an owned-brand virtual influencer developed and managed by the Brazilian retailer Magazine Luiza (Appendix 4), being a complete corporate-controlled digital asset (Allal-Chérif et al., 2024; Teng et al., 2025). Unlike free-agent VIs however, Lu do Magalu's visual identity, messaging and long-term narrative are 100% controlled by the company allowing for strategic coherency, consistency and adjustments across all marketing channels with limited reputation risk. In quantitative terms, she is one of the most-followed personalities in the world with over 31 million followers, outstripping many high-fidelity digital figures in both Western and Asian worlds (Allal-Chérif et al., 2024). Her impact is strongest in Brazil, where culturally tailored narrative and Portuguese-language material underscore perceived authenticity and encourage parasocial relationships with local consumers (Carrillo-Durán et al., 2024). As a brand-owned VI, Lu do Magalu enables high endorser brand congruence strengthening the match between promotional messages and corporate image (Teng et al., 2025). These combined qualities, that she is not only an ideal mascot for marketing purposes but also a long-term corporate asset, exemplifying narrative continuity, cultural relevance, and strategic efficacy at a global scale.

1.5 Knox Frost (Prosocial / Public Health Free Agent)

Knox Frost is an example of male VI employed in prosocial and public health communication as part of a collaboration with the World Health Organization (WHO) (Allal-Chérif et al., 2024; Mouritzen et al., 2023) outlined in Appendix 5. His deployment marks a strategic emphasis on risk-managed messages, in which official campaign actors avoid risks associated with human endorser unpredictability, whose personal scandals could determine campaign credibility (Mouritzen et al., 2023; Sands et al., 2022). As a virtual influencer, Knox Frost provides reliable and controlled messaging without reputational damage. This makes him a particularly valuable tool for industries that involve sensitive topics like health communications and humanitarian

outreach. Theoretical bases of his implementation suggests that VIs have low 'Mind Perception' and limited personal liability and responsibility for error occurrence, attributing the blame and the accountability to the sponsor organization (Joel-Edgar et al., 2025; F. Liu & Lee, 2024). While this mitigates human-related risks, it also increases reputational exposure for the sponsoring entity if messages fail or are perceived as inauthentic. Knox Frost thus illustrates both the strategic advantages and potential reputational risks of employing VIs in high-stakes public sector communication.

2. **Comparative Analysis of Virtual Influencers**

In this section, we compare the five virtual influencers regarding structural, strategic and performance related aspects. In this perspective, the analysis consists of two complementary parts; one is a descriptive comparison on their main characteristics and effectiveness, and the other supported with analytical arguments, concerning strategic roles, endorsement types, theoretical patterns and rigor concerns. Both of these subsections are therefore combined to form a holistic cross-case analysis of how VIs operate through today's branding collaboration ecosystems.

2.1 Descriptive Comparison of VI Characteristics and Effectiveness

A synoptic assessment of the five VIs is given in Table 1 which compares each on a structured basis: aesthetic, ownership, primary industries, trust and key strategic advantages. This comparison elucidates how different levels of anthropomorphism, type of ownership and product category affect engagement, credibility and campaign outcomes. For example, Lil Miquela and Imma employ hybrid strategies or hyper-realistic personas to achieve visibility and product fit, while Noonoouri targets symbolic prestige and anti-uncanny practices. Lu do Magalu is also an example in how full brand control and localization used to achieve both consistency and cultural relevance (Carrillo-Durán et al., 2024). Knox Frost focuses on low reputational risk for sensitive campaigns. The proposed table serves as a guideline to understand the strategic deployment of VIs, and it is used for interconnecting empirical results with theoretical constructs such as Credibility-Engagement Paradox, form realism and risk mitigation (Di Paolo et al., 2025; Yin, 1994).

Table 1: Key Comparison: Virtual Influencer Characteristics and Effectiveness

Comparison Factor	Lil Miquela	Imma	Noonoouri	Lu do Magalu	Knox Frost
Aesthetics / Form Realism	Highly Anthropomorphic (Human-like CGI) (Arsenyan & Mirowska, 2021; Koles et al., 2024).	Hyper-Realistic (Difficult to distinguish from human) (Arsenyan & Mirowska, 2021; Zhou et al., 2024).	Stylized/Doll-like (Low form realism) (Franke et al., 2023).	Human-like Mascot/Cartoonish (Allal-Chérif et al., 2024; Carrillo-Durán et al., 2024).	Anthropomorphized (Non-human focus) (Allal-Chérif et al., 2024).
Ownership Type	Virtual Free Agent (VF) (Koles et al., 2024; Teng et al., 2025).	Virtual Free Agent (VF) (Koles et al., 2024; Teng et al., 2025).	Virtual Free Agent (Allal-Chérif et al., 2024).	Brand-Owned Spokes-character (Allal-Chérif et al.,	Virtual Free Agent (Allal-Chérif et al., 2024).

				2024; Teng et al., 2025).	
Primary Industry	Luxury Fashion, Technology (Samsung, Prada) (Ozdemir et al., 2023; Thomas & Fowler, 2021).	Lifestyle, Physical Retail (IKEA, Nike) (Allal-Chérif et al., 2024; Volles et al., 2024).	High-End Luxury (Dior, Versace) (Franke et al., 2023)	Retail-Tech, E-commerce, Localization (Carrillo-Durán et al., 2024; Teng et al., 2025).	Prosocial/Public Health (WHO, CDC) (Allal-Chérif et al., 2024; Mouritzen et al., 2023).
Trust/Credibility	Lower perceived Credibility than HIs; Authenticity is "staged" (Ozdemir et al., 2023).	High realism benefits physical product fit; risks uncanny valley (F. Liu & Lee, 2024; Zhou et al., 2024).	Lower anthropomorphism reduces consumer skepticism (Franke & Groeppel-Klein, 2024).	Superior Brand Congruence and stability (Carrillo-Durán et al., 2024; Teng et al., 2025).	Low Reputational Risk from human scandal (Sands et al., 2022); Lower blame attribution (Joel-Edgar et al., 2025; F. Liu & Lee, 2024).
Key Strategic Advantage	Hybrid Endorsements (blending virtual and human partners) (G. Deng et al., 2025); High visibility (Koles et al., 2024).	Match-Up Hypothesis (realism for tangible goods) (F. Liu & Lee, 2024; Zhou et al., 2024); Cultural relevance (Allal-Chérif et al., 2024).	Image Control and symbolic prestige delivery for luxury brands (Allal-Chérif et al., 2024); Reduced uncanny valley risk (Franke et al., 2023).	Full Control, narrative consistency, deep Localization (Carrillo-Durán et al., 2024; Teng et al., 2025).	Risk Avoidance for sensitive public messaging; Enhanced prosocial outcomes (Mouritzen et al., 2023).

Source: Data compiled by the authors

The comparison in Table 1 demonstrates that differences in realism, ownership models and industry specific contexts strongly affect strategic value of virtual influencer. Highly anthropomorphic VIs such as Lil Miquela and Imma trigger high Parasocial Interaction (PSI), but their realism also increases authenticity concerns and susceptibility to the uncanny valley effect (Arsenyan & Mirowska, 2021).

In contrast, the intentionally stylized low-realism of Noonoouri's design serves as a symbolic advantage in luxury branding by avoiding the scepticism that often greets hyper-realistic agents while strengthening both artistic identity and brand reputation (Franke et al., 2023). Lu do Magalu is a showcase for the effectiveness and success of brand-owned VIs: highly localized, visually consistent, and strongly aligned with corporate identity, often outperforming realism-based designs in retail and e-commerce contexts (Carrillo-Durán et al., 2024; Teng et al., 2025). Knox Frost, positioned in prosocial and public health communication, utilizes moderately anthropomorphic but non-human realism to maintain message fidelity and stability to mitigate reputational risk (Sands et al., 2022).

Patterns of trust and credibility also distinguish the cases. Freelance VIs (Miquela, Imma, Noonoouri, Frost) encounter diverse authenticity obstacles with realism-heavy

agents (Miquela, Imma) experiencing more credibility deficits relative to human influencers (Ozdemir et al., 2023). Other stylized agents, like Noonoouri, mitigate this issue by embracing symbolic non-realism (Franke & Groeppel-Klein, 2024), while Lu do Magalu benefits from brand ownership to build trust via congruence and consistency (Teng et al., 2025). Strategic advantages also differ: hybrid endorsement structure support Miquela, realism-based match-up advantages strengthen Imma, symbolic luxury value benefits Noonoouri, brand congruence helps Lu, and reputational safety renders Knox Frost effective in high-stakes public messaging.

Taken together, Table 1 shows that the effectiveness of VI depends more on the alignment between design features, ownership type, and industry expectations rather than visual sophistication. These structural factors are determinants of credibility, risk exposure and strategic fit.

2.2 Analytical Comparison: Strategic Role, Performance Logic, and Theoretical Patterns

This subsection goes beyond mere descriptive indicators and examines more profound strategic, conceptual, and methodological dimensions of each case. It sheds light on how brands exploit the structural role, endorsement model, cultural embedding and design realism of each VI in order to attain specific communication results. Table 2 summarizes the core strategic purpose of each VI, key quantitative indicators of performance measurement, underlying theoretical mechanisms, and key issues of rigor or bias influencing interpretation.

Table 2: VI Case, Strategic Role & Endorsement Type, Key Quantitative Indicators, Core Theoretical Finding/Pattern, Rigor & Bias Consideration

VI Case	Strategic Role & Endorsement Type	Key Quantitative Indicators (Followers/Value)	Core Theoretical Finding/Pattern	Rigor & Bias Consideration
Lil Miquela	Free Agent, Hybrid Endorser (Fashion/Tech)	~3M IG followers; ~31k per post.	Paradox of Authenticity: High engagement/value achieved despite low Credibility and Trustworthiness compared to HIs (due to high anthropomorphism or fake identity) (Ozdemir et al., 2023; Volles et al., 2024) Success hinges on PSI.	Interpreting authenticity signaling on social media is challenging due to the inherent falsity of VI content (Koles et al., 2024)
Imma	Free Agent, Life style and Retail Endorser (IKEA)	~399k IG followers; 2.21% engagement rate.	Form Realism for Physical Goods: High form realism makes endorsement of physical products more effective, supporting aesthetic coherence (Zhou et al., 2024).	Case highlights the benefit of high form realism to enhance acceptance in non-luxury or tangible contexts, mitigating some skepticism.

			Stylized Advantage (Anti-Uncanny Valley): Lower human likeness (doll-like aesthetic) reduces potential skepticism and distrust often directed at hyper-realistic VIs, supporting luxury semiotics (Franke et al., 2023).	Demonstrates the importance of VI aesthetic type over follower count in specific (luxury) industries for brand control.
Noonoouri	Free Agent, Luxury Endorser (Dior)	~403k IG followers.		
Lu do Magalu	Brand-Owned Spokes-Character (Retail-Tech)	>6M IG, >7M TikTok; Most popular VI globally.	Brand Congruence and Control: Full Narrative Control and consistency (as a brand-owned VI) drives long-term success, deep localization, and high-volume engagement (Teng et al., 2025).	High engagement levels (likes/comments) are a primary indicator of effectiveness, requiring rigorous machine learning or quantitative content analysis to fully capture (Xia et al., 2025).
Knox Frost	Free Agent, Prosocial and Public Health Endorser (WHO)	>720k IG followers.	Risk Mitigation and Trust-Building: VIs are valuable for prosocial campaigns due to their reliability and low reputational risk, offering a controlled source of social influence (F. Liu, 2026).	The attribution of low responsibility /blame to VIs in crisis scenarios makes them appealing for sensitive topics like public health (F. Liu & Lee, 2024).

The second table extends and deepens this comparative perspective by locating each VI within a particular strategic role and theoretical mechanism. The hybrid endorser model embodied by Lil Miquela illustrates the "Paradox of Authenticity" introducing strong engagement and commercial value but decreasing trust and transparency due to her anthropomorphic yet artificial identity (Carrillo-Durán et al., 2024; Volles et al., 2024).

Her achievement demonstrates that PSI and aesthetic appeal can compensate credibility deficiencies, though assessing authenticity on inherently fictional social media personas introduces interpretive bias. In contrast, Imma illustrates the "form realism advantage" for physical and spatially grounded products; her high-level fidelity appearance facilitated product fit and increased consumer acceptance particularly in tangible goods categories (Zhou et al., 2024). Her moderate engagement rate indicates the existence of stable mid-tier influence, but also highlights the need for caution when generalizing acceptance of hyper-realistic VIs across different contexts.

The quantitative metrics exhibited by Noonoouri reveal that follower count is not the only millstone for predicting influences in luxury marketing. Instead, her stylistic design evokes a form of an "anti-uncanny valley" effect that increases acceptance and reduces skepticism, which are motivated by luxury semiotics values symbolic and artistic

representation (Franke et al., 2023). This illustrates how aesthetic type can exceed numerical metrics for high-fashion effectiveness.

Lu do Magalu, with the highest reach in the world, which prove and confirms the power of brand ownership and narrative continuity. Her sustained continuity success shows that internally controlled identity, messaging and localization generate sustained engagement, but high-volume data requires rigorous computational analysis, to avoid any misinterpretations caused due to platform-algorithmic bias (Carrillo-Durán et al., 2024; Xia et al., 2025). Knox Frost embodies a different logic; his parasocial role capitalizes on low reputational risk, and predictable communication, suitable and useful tool for crisis and public health messaging. However, blame for VIs with decreased "mind perception" is displaced onto endorsing organizations, which may be both strategically advantageous and also risky under trust-sensitive circumstances. Yet, the reduced "mind perception" attributed to VIs shifts responsibility toward sponsoring institutions, creating both strategic advantages and vulnerabilities in trust-sensitive contexts (F. Liu & Lee, 2024).

To summarize, Table 2 demonstrates that theoretical mechanisms such as authenticity paradoxes, match-up hypothesis, uncanny valley avoidance, brand congruence and risk mitigation perform uniquely to influence VI's effectiveness. Furthermore, the rigor considerations emphasize that evaluating VI performance can pose considerable methodological challenges around the interpretation of authenticity, the reliability of engagement metrics, platform biases and shifting responsibility dynamics that need to be acknowledged and addressed to ensure robust academic and managerial insights.

3. Overarching Patterns and Differences Across Cases

High anthropomorphism in virtual influencers, such as Lil Miquela and Imma, increases Parasocial Interaction (PSI) by replicating human emotions and social responses but also threatens the uncanny valley effect which decreases perceived authenticity and being less credible compared to human influencers (Arsenyan & Mirowska, 2021). Stylized virtual influencers like Noonoouri compensate these effects, mediating the affinity to aspirational luxury marketing and symbolic value by giving brands ways of retaining their control over visuality and narratives (Franke et al., 2023). The type of product being endorsed also serves to moderate and influence the effectiveness: physical products for which Imma endorses, can benefit from high form realism in order to signal sensory cues, while symbolic luxury products similar to those endorsed by Noonoouri in Dior campaigns may use stylized low-realism avatars with the objective of mitigating disbelief and enhancing aesthetic coherence (F. Liu & Lee, 2024; Zhou et al., 2024).

Across these differences, virtual influencers consistently prove and exhibit the Credibility-Engagement Paradox, achieving high engagement driven by novelty, distinctiveness, and Opinion Leadership, but their limited trustworthiness decrease the direct

effect on purchase intention (Casaló et al., 2020; F. Deng et al., 2024; Volles et al., 2024). Ownership and control also influence the outcome: brand-owned influencers for example Lu do Magalu have more consistent message, cohesive narratives, and less reputation risk while the free agent VIs could be highly susceptible from trust deficits during crisis; furthermore, low mind perception of VIs decrease blame attribution, and moving the responsibility to the sponsoring entities (Joel-Edgar et al., 2025; Teng et al., 2025).

Endorsement strategies also interact with sensory cues: hybrid co-endorsement by human celebrities boosts credibility for proximal sensory products, whereas solo VI endorsements are enough when the product is focusing on distal or visual attributes (e.g. fashion style) (G. Deng et al., 2025). Finally, cultural adaptation and geographical segmentations are essential for engagement and loyalty; like Lu do Magalu in Brazil, or Imma in Asia where it became clear that virtual influencers strategies need to be adapted to the local market perception on synthetic media (Allal-Chérif et al., 2024; Carrillo-Durán et al., 2024). Together, these results suggest the effectiveness of the virtual influencer is moderated by a combined effect of form realism, strategic endorsement, ownership and control and tailored cultural adaptation; yielding empirical evidence on consumer engagement dynamics, trust management, sensory cue alignment and risk alleviation in varying marketing environments (G. Deng et al., 2025; Joel-Edgar et al., 2025).

V. Discussion

In the following, we systematically respond to these three main research questions summarizing major findings related to brand's motivation, strategic implementation and consumer response dynamics of virtual influencer (VI) collaborations.

1. What motivates brands to collaborate with virtual influencers? (RQ1)

Virtual influencers are increasingly embraced by brands due to their strategic advantages over human influencers, especially regarding control, risk mitigation and cutting-edge positioning (Allal-Chérif et al., 2024; Thomas & Fowler, 2021). VIs ensure predictable performance, continued consistency messaging and flexible narrative construction aligning with brand identity (Appel et al., 2020; Joel-Edgar et al., 2025; F. Liu & Lee, 2024; Ozdemir et al., 2023; Teng et al., 2025; Thomas & Fowler, 2021). This control ability will guarantee the message consistency, maintenance efficiency and cost-effectiveness over human endorsers (Allal-Chérif et al., 2024; Belanche et al., 2024; Kuo & Le, 2025). VIs also mitigate reputational risk typical of human influencers, which can be suitable for sensitive sectors like luxury goods, finance or public health (Belanche et al., 2024; Sands et al., 2022; Thomas & Fowler, 2021). Strategically, they convey innovation and technological leadership and achieve high engagement rates than human influencers reaching 2.84% versus 1.72% even three times in some instances (Allal-Chérif et al., 2024; G. Deng et al., 2025; F. Liu & Lee, 2024; Volles et al., 2024). This is mainly because of novelty, visual distinctiveness and entertainment value that attract the attention in crowded media environments (Franke et al., 2023).

2. What strategies do brands use when engaging with virtual influencers? (RQ2)

Effective VI strategies require the coherence between influencer characteristics, product categories, collaboration forms and communication styles that maximize consumer adoption (G. Deng et al., 2025; Khalfallah & Keller, 2025; Zhou et al., 2024). Realistic VIs are more suitable for tangible, utilitarian products were as stylized or low-realism VIs perform well on symbolic, visually-oriented or luxury products, by improving aesthetic appearance and storytelling without falling into the uncanny valley (Allal-Chérif et al., 2024; Franke et al., 2023; F. Liu & Lee, 2024; Zhou et al., 2024). Brand-owned VIs like Lu do Magalu provide full scripting control with operational stability and risk reducing signaling technological dominance (Allal-Chérif et al., 2024; Teng et al., 2025). VIs combined endorsements with human influencers to increase credibility in a situation of distrust, as seen in the case of Lil Miquela and Bella Hadid (Cascio Rizzo et al., 2024; G. Deng et al., 2025; F. Liu, 2026). Communication style and transparency also shape perception: informative messages increase credibility (Ozdemir et al., 2023), but first-person narratives promote empathy (Yao et al., 2025). Ethical disclosure of VI artificiality must, be subtle to preserve credibility (E. Moustakas et al., 2020; Khalfallah & Keller, 2025).

3. How do these partnerships affect consumer trust, brand perception, and engagement? (RQ3)

Consumer reactions support the credibility engagement paradox: VIs receive a great deal of attention and engagement because of their novelty and aesthetics identity, but struggle to reach the trustiness of human influencers (Volles et al., 2024). Because VIs are consistently seen as less credible and honest, can affect negatively on brand attitudes and purchase intentions (Belanche et al., 2024; Ozdemir et al., 2023; Sands et al., 2022). The perceived lack of authenticity in the VIs, due to their lack of emotions, autonomy and experiential capacity impedes acceptance (Khalfallah & Keller, 2025), whereas highly realistic VIs can trigger the uncanny valley phenomenon which makes its usage unpleasant and discomfort (Arsenyan & Mirowska, 2021; Franke et al., 2023). Aesthetic imperfections enhance perceptions of authenticity (X. Song et al., 2024), while novelty and aspirational cues compensate credibility deficits to maintain engagement (J. Song et al., 2025; Volles et al., 2024). VIs also shift responsibility to brands, as consumers attribute errors and mistakes to the sponsoring entity rather than the influencer (Franke et al., 2023; Joel-Edgar et al., 2025; F. Liu & Lee, 2024) and their content is often identified as advertising, which lowers persuasiveness even more (Allal-Chérif et al., 2024; F. Deng et al., 2024). VIs are strong at attracting attention, being aesthetically distinctive and conveying aspirational messages, but messaging but influence behavioral outcomes only when aligned with product type, collaboration structure, and consumer expectations.

Conclusion

The research has theoretical and practical implications, contributing to the understanding of VIs in contemporary marketing ecosystems, exploring mechanisms that have succeeded for VIs under different situations and variety of contexts (Di Paolo et al., 2025). The findings contribute to the literature on influencer marketing, human technology interaction and digital communication theory, as well as provide practical insights for marketers in an AI-driven influencer economy.

Theoretically, three key contributions emerge. First, this study provides an understanding of the credibility engagement paradox: VIs are less credible than HIs yet produce higher levels of engagement than them, which implies through originality and uniqueness instead of content frequency or traditional quality (Casaló et al., 2020; Volles et al., 2024).

Second, the paper expands the Match-Up Hypothesis to AI marketing by presenting that VI effectiveness varies with form realism and product type congruence. Hyper-realistic VIs are most suitable for physical or utilitarian products requiring sense of credibility, while stylized low-realism VIs better fit the symbolic or luxury products which put emphases on aesthetic appeal and storytelling (Franke et al., 2023; F. Liu & Lee, 2024; Zhou et al., 2024).

Third, integrating Attribution Theory with Mind Perception explains why VI failures harm brand trust more than human influencer errors: consumers attribute mistakes to the brand's competence rather than the influencer, amplifying reputational consequences (Joel-Edgar et al., 2025; F. Liu

& Lee, 2024). Methodologically, the study demonstrates that a rigorous multiple-case design combining qualitative pattern-matching with quantitative engagement metrics provides analytic generalization for emerging digital phenomena (Yin, Robert K., 2018), with cross-case synthesis and triangulation enhancing research trustworthiness (Ridder, 2017).

In practice, these insights assist the strategic design, selection and deployment of VIs. One important recommendation is matching VI realism to product types: high form-realism VIs suit more for physical products, while stylized VIs mitigate the uncanny valley effect for symbolic or luxury goods (Franke et al., 2023; Ozdemir et al., 2025). Adding aesthetic imperfections, including freckles or asymmetries, may enhance perceived realism and reduce skepticism (X. Song et al., 2024).

The originality is the main element to drives opinion leadership and engagement, evidencing the relevance of creative content strategies against massive volume (Casaló et al., 2020; Volles et al., 2024). The collaboration models also play a role: brand-owned VIs ensures narrative consistency and long-term control (Allal-Chérif et al., 2024; Teng et al., 2025), while hybrid co-endorsement with human influencers helps increase trust and persuasiveness, especially for products requiring sensory evaluation (G. Deng et al., 2025; F. Liu, 2026). Ethical concerns are relevant and very important, as consumer perception attributes VI errors directly to brand competence, which requires careful transparency and balanced disclosure (Joel-Edgar et al., 2025; Khalfallah & Keller, 2025).

The research integrates the three main findings from the study's research questions. Brands engage VIs (RQ1) to leverage complete narrative control, reduce PR risk, and achieve higher engagement through novelty and aesthetic uniqueness (Allal-Chérif et al., 2024; Joel-Edgar et al., 2025; Sands et al., 2022; Volles et al., 2024). Strategic application (RQ2) depends on aligning VI realism with product characteristics, employing brand-owned or hybrid endorsement structures, and crafting communication strategies that enhance credibility while preserving immersive narratives (G. Deng et al., 2025; F. Liu & Lee, 2024; Ozdemir et al., 2025; Teng et al., 2025; Zhou et al., 2024). Consumer impact (RQ3) reveals the double-edged nature of VIs: they generate high attention and engagement but limited trust and direct influence on purchase intention. Errors by VIs are attributed to brand competence rather than the influencer, amplifying reputational risk while protecting against human-related scandals (Joel-Edgar et al., 2025; Koles et al., 2024; Kuo & Le, 2025; F. Liu & Lee, 2024).

Finally, this study outlines directions for future research. Longitudinal studies should assess VIs' sustained effects on loyalty, brand equity, and actual purchase behavior (F. Deng et al., 2024; Yao et al., 2025). Expanding beyond static media to dynamic formats, including video, live-streaming, and immersive metaverse environments, will enhance ecological validity (F. Deng et al., 2024). Advanced statistical analyses, such as structural equation modeling, can explore interactions between empathy, skepticism, and cultural moderators of VI effectiveness (Koles et al., 2024; Teng et al., 2025; Xia et al., 2025; Yao et al., 2025). Addressing these

avenues will refine theoretical frameworks and provide broader guidance for brands navigating the emerging AI-driven influencer landscape.

Appendices

Appendix 1: Lil Miquela and Samsung

Source: @lilmiquela (Instagram)

Appendix 2: Imma and IKEA collaboration

Source: https://www.creativereview.co.uk/ikea-japan-ikea-harajuku-with-imma-experience/

Appendix 3: Noonoouri and Dior

Source:
https://www.dailymail.co.uk/femail/article-6504611/Dior-make-mocked-using-CGI-influencer-Noonoouri-social-media-beauty-campaign.html

Appendix 4: Lu do Magalo created by Magazine Luiza

Source: https://www.adsoftheworld.com/campaigns/lu-from-magalu

Appendix 5: Knox Frost and WHO

Source:
https://gensdinternet.fr/2020/04/07/pour-mettre-en-garde-contre-le-coronavirus-loms-fait-appel-a-un-influenceur-virtuel/

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