# VIRTUAL INFLUENCERS: A WIN FOR BRANDS OR A DILEMMA FOR HUMAN CREATORS

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**Abstract**

*This study investigates the perception of human content creators about virtual AI influencers and their impact on influencer marketing. The research explores how virtual AI influencers affect purchase intentions compared to human influencers, considering factors such as perceived realism, human-like qualities, product involvement levels, and consumer trust. The study employed a quantitative research design with a sample of 258 respondents, using a structured questionnaire and statistical analyses including correlation, paired t-tests, and regression.*

*Key findings reveal a strong positive correlation between perceived realism of AI influencers and consumer trust. Virtual AI influencers were found to be more effective in influencing purchase intentions for low-involvement products, while human influencers were more effective for high- involvement products. Interactivity, content quality, and brand image significantly impact consumer purchase intentions for AI influencers.*

*The research highlights the distinct yet complementary roles of virtual and human influencers in modern marketing. While virtual influencers offer advantages like control and cost-effectiveness, human influencers provide authentic, personal connections. The study concludes that the effectiveness of influencers varies based on product type and consumer perceptions, emphasizing the importance of strategic selection in influencer marketing campaigns. These insights contribute to understanding the evolving digital marketing landscape and offer practical strategies for leveraging both virtual and human influencers effectively.*

***Key factors:*** *Virtual AI Influencers, Content creators, Purchase intention of consumers, Consumer trust, Product Involvement Level, Digital Marketing, AI Influencer Marketing.*

## Introduction

Sophia, a humanoid AI robot developed by Hanson Robotics, represents a significant milestone in Human-AI collaboration since its creation in 2016 (Varun B. L. & Rohan B. L., 2019). Advancing beyond humanoid robots, the digital marketing landscape now features virtual AI influencers— computer-generated personas designed to mimic human traits and behaviors. These virtual influencers have revolutionized influencer marketing by providing brands with innovative ways to engage consumers while maintaining consistent and controllable brand representation. However, their rise raises critical questions about their effectiveness compared to human influencers, particularly in areas such as consumer trust, brand credibility, and purchase intentions. This research explores

the impact of virtual and human influencers on key marketing metrics, including consumer trust, brand perception, product engagement, and purchasing behavior.

The degree to which virtual influencers resemble humans plays a crucial role in their acceptance and effectiveness. Ma and Li (2024) suggest that more human-like virtual influencers encourage heightened mindful anthropomorphism, fostering stronger para-social interactions (PSI), which in turn lead to more favorable brand attitudes. PSI refers to the one-sided emotional connections audiences develop with media figures and is a vital component of influencer marketing. When virtual influencers closely resemble real humans, they can evoke similar levels of psychological engagement (Dondapati & Dehury, 2024). However, Ma and Li (2024) also caution against the "uncanny valley" effect, where overly human-like features may trigger discomfort or skepticism among audiences. Existing research highlights authenticity as a critical factor in building consumer trust (Audrezet et al., 2020).

One prominent virtual influencer, Miquela Sousa, widely known as Lil Miquela, exemplifies this phenomenon. Created in 2016, she is a 19-year-old Brazilian-American virtual persona with over 3 million Instagram followers and has participated in major campaigns for brands such as Calvin Klein and Prada. In India, virtual influencers like Naina and Kyra have gained substantial Instagram followings, focusing on fashion and lifestyle. These influencers use unique AI technologies to craft their personas and visual content. Notably, 64% of Indian brands allocate between 5% and 20% of their annual marketing budgets to influencer marketing.

The unique nature of virtual influencers challenges traditional notions of authenticity and credibility. This study builds upon previous research by comparing the strengths and limitations of virtual and human influencers in shaping consumer behavior and brand perception. Addressing existing research gaps, it provides both theoretical insights and practical strategies to help marketers effectively utilize these influencers in the rapidly evolving digital marketing environment.

**Literature Review**

Influencers have become a powerful tool in digital marketing, with human influencers (HIs) traditionally leading the space. However, the rise of virtual influencers (VIs)—computer-generated personas with curated digital presences—has introduced a new dynamic. Virtual influencers are reshaping marketing strategies by offering a unique blend of authenticity and creativity, enabling brands to engage consumers in more personalized and effective ways (MDPI, 2023). As a result, virtual influencers have emerged as key figures in shaping consumer behavior, driving brand engagement, and interacting with digital social groups in increasingly sophisticated ways (Sookkaew & Saephoo, 2021). However, the authenticity inherent in HIs' lived experiences provides them with an edge in establishing trust and relatability (Belanche et al., 2024).

A key concept in the effectiveness of VIs is anthropomorphism, where human-like characteristics are attributed to non-human agents. Anthropomorphism can be mindful (conscious recognition of human traits) or mindless (unconscious attribution of

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sociability) (Epley et al., 2007; Kim & Sundar, 2012). The level of human likeness in VIs significantly affects consumer responses. Moderately human-like VIs effectively engage consumers without triggering the discomfort associated with the uncanny valley—an effect where overly realistic virtual figures are perceived as unsettling (Mori et al., 2012).

The product type further influences the effectiveness of VIs and HIs. Utilitarian products, which satisfy practical needs, align well with VIs due to their perceived objectivity and precision (Belanche et al., 2024). Conversely, HIs are better suited for hedonic products, which cater to emotional and experiential desires, as their authenticity and relatability foster stronger emotional connections (Lou et al., 2022; Babin et al., 1994). This underscores the importance of aligning influencer type with product characteristics to maximize marketing effectiveness.

Para-social relationships (PSRs), defined as one-sided relationships between audiences and media figures (Horton & Wohl, 1956), are crucial to influencer marketing. HIs excel in building PSRs through authentic interactions and relatable narratives, enhancing consumer trust and loyalty (Ma & Li, 2024; Lee & Watkins, 2016). The credibility and value of messages delivered by social media influencers significantly affect consumer trust in branded content. Lou and Yuan (2019) demonstrated that influencer marketing can be highly effective in building trust with audiences, particularly when the message is perceived as credible and valuable.

While both VIs and HIs have unique strengths, their strategic value lies in their appropriate deployment. Future research should explore how anthropomorphism, PSRs, and evolving AI technologies can optimize the use of VIs in marketing.

## Materials and Methods

### Methodology

#### *Research Design*

The study employs a descriptive research design to assess consumer perceptions of virtual AI influencers versus human influencers in influencer marketing and its impact on consumer purchase intentions.

#### *Sample*

Data was collected from 384 respondents using a structured questionnaire designed to evaluate various dimensions including perceived realism, human-like qualities, product involvement, brand image, interactivity, content quality, consumer trust and consumer purchase intentions. After data cleaning process 258 responses were taken using simple random sampling.

#### *Data Collection*

The questionnaire gathered information on participants' views regarding virtual AI influencers' effectiveness, focusing on their ability to foster trust and influence purchase intentions for both low-involvement and high-involvement products through 5-point likert scale asking respondents about their level of agreements with the statements given.

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The questionnaire got a Cronbach's Alpha value of 0.904 which ensured the reliability of the instrument in measuring the intended dimensions. The data was collected for 30 days through google form by posting it on various social media platforms.

***Data Analysis***

Statistical methods including frequency analysis was used for analysis of demographic variables and correlation analysis, paired t-tests, and regression modeling were utilized to test the hypotheses.

**Scope of the Study**

This study examines how virtual AI influencers compare to human influencers in the realm of influencer marketing, focusing on their effectiveness and consumer perceptions. It evaluates their influence on critical marketing metrics such as consumer trust, purchase intentions, and brand image. The research also delves into how aspects like perceived realism, human-like characteristics, interactivity, and content quality shape consumer behavior. Furthermore, it explores the varying effectiveness of these influencers across different levels of product involvement, identifying situations where either virtual or human influencers have a greater impact. Employing a quantitative methodology with a sample of 258 respondents, the study provides valuable insights into the complementary roles of both types of influencers. These findings aim to equip marketers with strategies for optimizing the use of virtual and human influencers in the dynamic digital marketing landscape.

**Limitations**

The study was confined to shorter period of data collection which is also only the researcher's connections in the social media. The study was conducted only with Indian respondents and the sample size is relatively small.

**Objectives**

1) To find out the influence of perceived realism and human-like qualities of AI influencers on consumer trust and credibility.
2) To explore the effectiveness of Human influencers and AI influencers for low-involvement and high involvement products among consumers.
3) To examine the impact of interactivity, content quality of AI influencers and brand image on consumer purchase intentions.

**Hypotheses:**

**Hypothesis 1:**

$\mathbf{H_{01}}$: Perceived realism and human-like qualities of AI influencers do not have a significant positive influence on consumer trust.

$\mathbf{H_{11}}$: Perceived realism and human-like qualities of AI influencers have a significant positive influence on consumer trust.

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**Hypothesis 2:**

**$H_{02}$**: There is no significant difference in the effectiveness of virtual AI influencers and human influencers in influencing purchase intentions for low-involvement and high-involvement products.

**$H_{12}$**: Virtual AI influencers are more effective in influencing purchase intentions for low- involvement products while human influencers are more effective for high-involvement products.

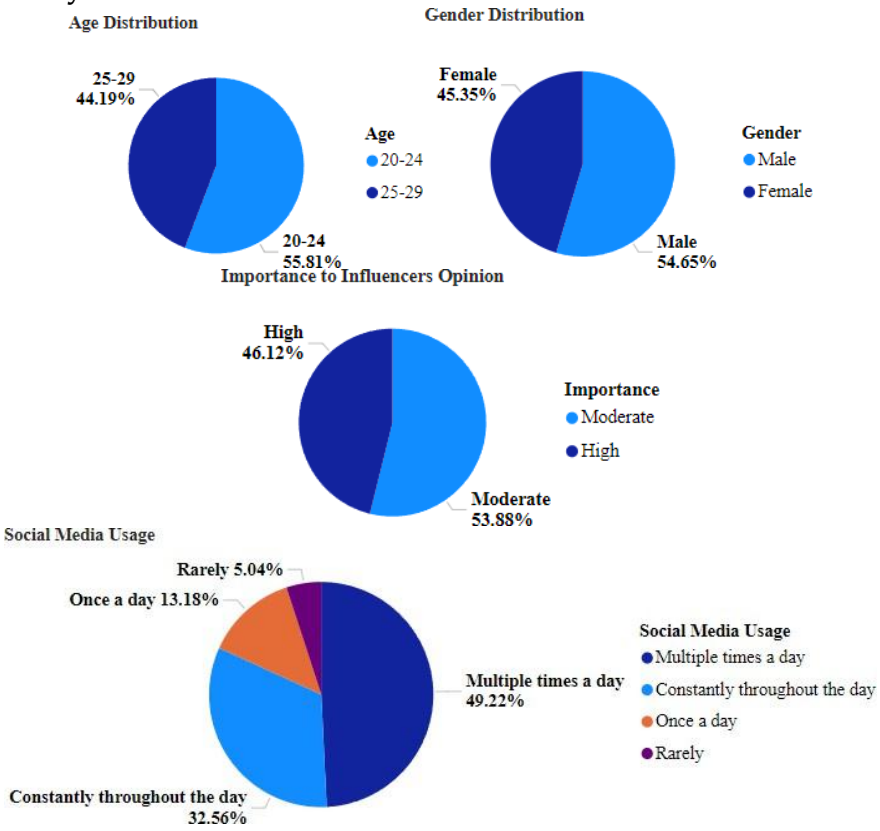
**Hypothesis 3:**

**$H_{03}$**: Interactivity, content quality of AI influencers, and brand image do not have a significant positive impact on consumer purchase intentions.

**$H_{13}$**: Interactivity, content quality of AI influencers, and brand image have a significant positive impact on consumer purchase intentions.

**Interpretation and Discussion:**

**Frequency Analysis:**




**Hypothesis 1:**

$H_{01}$: Perceived realism and human-like qualities of AI influencers do not have a significant positive influence on consumer trust.

$H_{11}$: Perceived realism and human-like qualities of AI influencers have a significant positive influence on consumer trust.

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**Table 1.1**

| Correlations | | | |
|---|---|---|---|
| | | **Perceived Realism** | **Consumer Trust** |
| Perceived Realism | Pearson Correlation | 1 | .921** |
| | Sig. (2-tailed) | | 0 |
| | N | 258 | 258 |
| Consumer Trust | Pearson Correlation | .921** | 1 |
| | Sig. (2-tailed) | 0 | |
| | N | 258 | 258 |

**Correlation Coefficient (r = 0.921):**

- From Table 1.1, the Pearson Correlation between **Perceived Realism** and **Consumer Trust** is **0.921**, indicating a **very strong positive relationship**.
- The p-value is less than 0.01, confirming that the observed correlation is **statistically significant** at the 99% confidence level.
- This means that as consumers perceive an AI influencer as more realistic, their trust in the influencer significantly increases.
- So, null hypothesis (H01) is rejected and alternate hypothesis (H11) is accepted.

**Hypothesis 2:**

$H_{02}$: There is no significant difference in the effectiveness of virtual AI influencers and human influencers in influencing purchase intentions for low-involvement and high-involvement products.

$H_{12}$: Virtual AI influencers are more effective in influencing purchase intentions for low-involvement products while human influencers are more effective for high-involvement products.

**Table 1.2**

| Paired Samples Test | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | **Paired Differences** | | | | | **t** | **df** | **Sig. (2-tailed)** |
| | | **Mean** | **Std. Deviation** | **Std. Error Mean** | **95% Confidence Interval of the Difference** | | | | |
| | | | | | **Lower** | **Upper** | | | |
| Pair 1 | PI1 Low - PI2 Low | -1.973 | 0.651 | 0.041 | -2.053 | -1.893 | -48.701 | 257 | 0 |
| Pair 2 | PI4 High - PI5 High | 2.008 | 0.678 | 0.042 | 1.925 | 2.091 | 47.596 | 257 | 0 |

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- From Table 1.2, the mean difference of **-1.973** indicates a significant increase in purchase intentions for **PI2 Low** compared to **PI1 Low**.
- The **p-value (0.000)** is less than **0.05**, indicating the result is **statistically significant**.
- The negative t-value reflects the direction of the difference.
- The mean difference of **2.008** indicates a significant decrease in purchase intentions for **PI5 High** compared to **PI4 High**.
- The **p-value (0.000)** is less than **0.05**, confirming the result is **statistically significant**.
- So, null hypothesis (H02) is rejected and alternate hypothesis (H12) is accepted.

**Hypothesis 3:**

$H_{03}$: Interactivity, content quality of AI influencers, and brand image do not have a significant positive impact on consumer purchase intentions.

$H_{13}$: Interactivity, content quality of AI influencers, and brand image have a significant positive impact on consumer purchase intentions.

**Regression Analysis:**

**Table 1.3**

| Model Summary | | | | |
|---|---|---|---|---|
| **Model** | **R** | **R Square** | **Adjusted R Square** | **Std. Error of the Estimate** |
| 1 | .987[a] | .974 | .973 | .59961 |

Predictors: Brand Image, Interactivity and Content Quality

- From Table 1.3, **R = 0.987** indicating a very strong positive correlation between the predictors and the outcome variable.
- **R Square = 0.974**, meaning that **97.4%** of the variance in consumer purchase intentions can be explained by the model.
- **Adjusted R Square = 0.973**, which accounts for the number of predictors, suggesting a highly accurate model.
- So, null hypothesis (H03) is rejected and alternate hypothesis(H13) is accepted as there is very strong positive correlation between Brand Image, Interactivity, Content Quality of AI Influencers(predictors) and Consumer Purchase Intentions(outcome).

**Findings**

1. There is a **strong positive relationship** between perceived realism and consumer trust which means that as consumers perceive an AI influencer as more realistic, their trust in the influencer significantly increases.

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2. For **low-involvement products**, purchase intentions significantly increased for AI influencers compared to human influencers which means consumers go with opinions of virtual influencers while considering purchase of low involvement products.
3. For **high-involvement products**, purchase intentions significantly decreased for AI influencers compared to human influencers which shows that consumers go with opinions of human influencers while considering purchase of high involvement products.
4. There is a **very strong influence** on Consumer Purchase Intentions by Brand Image, Interactivity and Content Quality which indicates consumers purchase intentions are significantly influenced by brand image, interactivity and content quality of AI influencers.

**Suggestions**

Based on the findings of the paper, the suggestions are:

- **Develop Realistic Virtual Influencers:** Brands should create virtual influencers with relatable, human-like traits to build trust and engagement.
- **Align Influencers with Product Types:** Virtual influencers can be used for low-involvement products and human influencers for high-involvement products where authenticity is key.
- **Focus on Quality Content:** Brands should focus on producing visually engaging, interactive content for virtual influencers to captivate audiences effectively.
- **Combine Influencer Strengths:** Brands should integrate virtual and human influencers in campaigns to balance scalability with emotional connection.
- **Track and Refine Campaigns:** Brands should monitor performance metrics such as trust and engagement to optimize strategies and outcomes.

**Results & Conclusion**

The findings of this research highlights that the perceived realism and human-like characteristics of AI influencers play a crucial role in building consumer trust, emphasizing the need to design virtual influencers that closely resemble human traits. The findings indicate that virtual AI influencers are particularly effective in driving purchase intentions for low-involvement products, whereas human influencers excel in high-involvement product categories, where authenticity and trust are essential. Additionally, factors such as interactivity, content quality, and brand image significantly influence consumer purchase decisions, accounting for a large portion of purchase behavior variance. The study underscores the complementary strengths of virtual and human influencers in digital marketing. Virtual influencers offer cost-efficient, scalable solutions ideal for low-involvement products, while human influencers provide authentic connections, making them better suited for high-involvement purchases. By strategically

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utilizing both types, brands can enhance their effectiveness across diverse product categories and marketing goals.

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