

## Consumers' Responses to Virtual vs. Human Influencers: Sentiment Analysis Approach

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### Introduction

Influencer marketing has been on the rise due to its proven effectiveness on building brand recognition and viral sensation (Mostashari, 2022). Influencers are opinion leaders who can present the brand's image and products while “naturally” approaching and engaging with consumers. Recently, virtual influencers (VIs), “Computer-Generated Imagery influencers that look human but are not (Appel et al., 2020)”, have become a trend in digital marketing as brands try to shield themselves from scandals and other limitations of human influencers (Oliveria & Chimenti, 2021). VIs are particularly effective in reaching new audiences, increasing awareness and sales, positive publicity, and willingness to engage (Thomas & Fowler, 2021). However, many consumers question their trustworthiness (Kuzminov, 2023) and brands wonder if VIs are as effective as human influencers (Bringé, 2022). Thus, it is timely to investigate whether consumers respond to VIs and human influencers differently. Using a text analysis, this study aims to investigate consumer sentiments toward virtual and human influencers.

### Literature review

This study is guided by Source Credibility Theory which has shown its explanatory power in the context of consumer-generated media (Aye, 2015). Consumers are influenced by how they perceive the source (e.g., influencer) of information. Numerous studies showed that the characteristics and perception of the source (e.g., attractiveness, expertise) increase persuasiveness (Baudier et al., 2023). Several antecedents of source credibility have been identified in the literature such as influencer-self congruence (Ong et al., 2022), physical and social attractiveness (Masuda et al., 2022), and authenticity (Kim & Kim, 2021). Similarly, a comprehensive review of (human and non-human) influencer marketing studies revealed that followers are attracted to certain aesthetic attributes of influencers such as beauty, talent, style, and sensuality (Oliveria & Chimenti, 2021). While computer-generated images can be extremely attractive, the knowledge that the VIs are not real humans is likely to reduce consumers' perception of similarity and attractiveness. Moreover, it was reported that consumers did not perceive VIs as authentic as human influencers (Arsenyan & Mirowska, 2021). Followers usually argue that “virtual robots don't really exist and therefore cannot be authentic as a human” (Oliveria & Chimenti, 2021). Taken together, the literature so far suggests that VIs will not be perceived as positively as successful human influencers. Therefore, it is hypothesized that *VIs would receive more negative comments related to their fake nature than human influencers* and

that *the overall sentiment of the comments would be more negative than that of human influencers.*

### Methods

This study examines the comments from YouTube videos of two well-known human influencers, Alyssa Howard (227,000 followers) and Coco Chinelo (229,000 followers), and of one most-recently rising virtual influencer, Miquela Sousa (282,000 followers). These influencers were selected based on their similarity in the number of followers and the themes of their contents (e.g., lifestyle, beauty, and fashion). Also, they were all currently active and enjoyed a good amount of engagement (i.e., comments). As of March 2022, Alyssa, Coco, and Miquela posted 95, 299, and 71 videos, respectively. To examine the contents and sentiments of the comments, we selected 4 videos (2 human influencer, 2 VI videos) that are comparable in their contents and the number of comments (Alyssa: 155,000 views, 537 comments; Coco: 33,600 views, 74 comments; Miquela video 1: 770,173 views, 714 comments; video 2: 286,948 views, 159 comments). The comments were scraped from the webpages and comments from Alyssa and Coco were combined to represent human influencer comments. Then, using Python, frequency analysis and sentiment analysis were performed to extract keywords and quantify the audience's sentiments. Using nltk package and Bing Liu's lexicon, we extracted the most common positive and negative words for human and VIs, and calculated the sentiment score for the overall comments of human influencers and VIs.

### Results, Discussions, & Implications

The frequency analysis revealed that viewers frequently use similar positive words for both human and VIs (e.g., 'love', 'good', 'great', 'happy', 'beautiful'). Yet, harsher negative words (e.g., 'weird', 'creepy', 'hate', 'problem') were observed among VI video comments. The word "robot" was the most frequently used (repeated over 200 times) to describe Miquela and was closely associated with negative connotations/emotions. The sentiment score ranges from -1 (negative) to 1 (positive). The sentiment analysis result indicated the sentiment score was higher for the human influencers (0.0068335) than for VI (0.0001756). Thus, the findings support our hypotheses.

This study explored how consumers respond to emerging VIs in comparison with human influencers and enhanced our understanding of consumer responses to the novel VIs. The findings suggest VIs may be as effective as human influencers in engaging viewers, and that they share most favorable positive traits with human influencers. However, there are polarizing views as evidenced by the lower sentiment score and stronger negative words in the comments. The negativity towards VIs stems from confusion and anger at the "unreal" nature of VIs. Brands need to be aware of this controversy and the fact that some consumers feel uncomfortable with the idea of VIs yet. A more positive sentiment towards human (vs. virtual) influencers may imply higher preferences, perceived trust, and especially, appreciation for authenticity and

transparency for human influencers. However, it is important to note that our finding does not suggest human influencers are always superior to VIs. Because the positive responses to human and VIs were similar, VIs can be very attractive to many consumers, especially once consumers get used to this new type of influencer and overcome the initial apprehensions. Moreover, the number of views and comments per video seems to be higher for VI videos, proving their value for increasing engagement. Thus, depending on the nature of the campaign, most importantly brand marketing and engagement goals, VIs can be a superior alternative to human influencers.

### **Limitations & Future Research Suggestions**

The current study is exploratory and analyzed a very limited number of videos. It is important to note that the analysis of comments from the four videos does not represent general consumer's opinions and feelings towards human versus AI-generated influencers. For future research, expansion of the number and the breadth of the source to other social media platforms overcome this limitation. We eliminated emojis from the analysis as they are not text. As emojis were meant to convey emotions and feelings, using emojis in addition to text in analysis may provide additional insights. Lastly, the analysis was limited by the capacity of the lexicon used for analysis. As VIs' followers are mostly Gen Z and Millennials, a more up-to-date dictionary to accurately capture and interpret these young audience's comments will be hugely beneficial.

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