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Publication metadata

Title: Computer-generated influencers: the rise of digital personalities

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Journal: Marketing Intelligence & Planning

DOI/Link: <https://doi.org/10.1108/MIP-12-2021-0423>

How to cite this post-print from LAUR:

Mrad, M., Ramadan, Z., & Nasr, L. I. (2022). Computer-generated influencers: the rise of digital personalities. *Marketing Intelligence & Planning*, DOI, 10.1108/MIP-12-2021-0423, <http://hdl.handle.net/10725/14780>

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Computer-Generated Influencers: The Rise of Digital Personalities

Structured Abstract

Purpose: The purpose of this study is to identify the key components pertaining and governing a Computer-Generated Influencers (CGIs) identity and explores and analyzes the ensuing relationship between the CGI and its digital environment.

Design/methodology/approach: This study follows an exploratory approach using in-depth interviews of CGI followers. 37 in-depth interviews were then analyzed using an inductive thematic approach to steer data coding.

Findings: CGIs are considered as brand entities that have a combination of components under their overall perceived identity. This study encompasses the different relational dimensions, whether from a followers-followers, CGI-followers, CGI-Human Influencer, or CGI-endorsed brands perspective.

Originality: This research contributes a seminal work in the field of virtual influencers.

Keywords: CGI; virtual influencers; social media; relationship; AI

Introduction

The value of influencer marketing has attracted the attention of both researchers and marketing professionals over the past decade. To reach a greater audience, brands have been progressively leveraging social media influencers (Woodroof, et al., 2020). Influencer marketing allows companies to appeal to consumers' interest and increase traffic to the brand's online stores (Srivastava, 2021). Besides human influencers, some brands started to showcase computer-generated influencers (CGIs) in their communication on social media platforms (Miao *et al.*, 2021). These influencers, driven by the power of AI, can captivate a considerable amount of followers on social media (Thomas and Fowler, 2020). An example of top popular virtual influencers are Lil Miquela, Bermuda, and Blawko, which are created by Brud, a Los Angeles startup company. These CGIs are currently ranked in the top Instagram Virtual Influencers list (Baklanov, 2019). Virtual influencers' images are fabricated; some perceive them as fully computer generated while others think that their images are partially digitally disfigured (Robinson, 2020). Furthermore, the content of their posts, personality, and history are still indefinite. Although it is plausible that they are formed by machine learning and algorithms, it is more likely that their content and identity do not involve machine learning.

It is reported that CGIs direct three times more engagement to brands than their real-life influencers (Klein, 2020). Although CGIs provide distinctive benefits to brands (e.g., content

control, flexibility, low cost), they generate possible risks as well (Miao *et al.*, 2021; Thomas and Fowler, 2020). These benefits may be misconceptions, as HypeAuditor earlier reported that CGIs do usually have a higher cost than their human counterparts (Baklanov, 2019; Thomas and Fowler, 2020) and may also be prone to scandals (Thomas and Fowler, 2020). For example, 61% of consumers surveyed by Influencer Intelligence indicated that relatable authentic content is the foremost appeal of human social media influencers, while only 15% of virtual influencers' fans reported them as credible (Lou, 2021; Miao *et al.*, 2021).

As the development of CGIs and their use in marketing is somewhat new (e.g., Miao *et al.*, 2021; Thomas and Fowler, 2020), a limited number of studies have explored the outcomes of adopting virtual influencers. Accordingly, there is a dire need today to answer the researchers' call to advance the understanding of social influencers (e.g. Appel *et al.*, 2020) and more specifically to examine virtual influencers' personal life and perceived identity (Thomas and Fowler, 2020). In fact, researchers have yet to examine the distinctive benefits, risks, and operative mechanics linked with computer-generated influencer marketing (Miao *et al.*, 2021).

In sum, while the field of CGI marketing, and more particularly its relational aspect has been growing exponentially in practice, it is virtually non-existent in the academic literature. Accordingly, this research's objectives are two-folds: (1) to identify the key components pertaining and governing a CGI's identity, and (2) to explore and analyze the ensuing relationship between the CGI and its digital environment.

Literature Review

Social Media Influencers

Social media influencers are described as people who “*have the potential to create engagement, drive conversation, and/or sell products/services with the intended target audience; these individuals can range from celebrities to more micro-targeted professional or nonprofessional peers*” (Interactive Advertising Bureau, 2018). These micro-celebrities are considered to be regular users of social media who build up a nearly large number of followers on such platforms and blogs through providing visual and written description of their own lives and lifestyles (Ye *et al.*, 2021). They engage with their followers and monetize them by including a form of advertisement into their social media or blog posts (Lou, 2021; Ye *et al.*, 2021). As a form of promoting brands on social media, influencers post content and share their experience about events held by brands (Kim *et al.*, 2021). Furthermore, they endorse products and act as spokespersons in order to increase engagement and awareness among consumers (Ye *et al.*, 2021). Different terms representing social media influencers emerged following the digital platforms. Examples of such terms are influencers (Breves *et al.*, 2021), bloggers (Jin *et al.*, 2019), vloggers (De Jans *et al.*, 2018), YouTubers (Gannon and Prothero, 2018), and Instafamous (Djafarova and Rushworth, 2017).

Influencers rely on brands to establish their social capital by branding themselves as specialists in certain areas across social media (Appel *et al.* 2020). Influencer marketing has been growing in importance as a main element of companies' digital marketing plans and is deemed to be crucial

in reinforcing brand engagement on online platforms (Ye *et al.*, 2021). Even though firms have started to identify the importance of engaging influencers as a distinctive marketing tool, yet it is important to understand what type of influencer would be most suitable and relevant for brands to use. Indeed, current research on influencers and their related endorsements is still in its infancy stage and is yet to be fully understood (Thomas and Fowler, 2020).

Computer Generated Influencers

The origin of Artificial Intelligence (AI) can be presumably traced back to 1942 and was first termed in 1956 (Michael and Kaplan, 2019). AI is denoted as the increased machines' tendency to use rationale and language, rely on prior experiences, plan hypothetical ideas to offer solutions for problems, progress alone, and be intelligent (Ramadan, 2021). AI will alter marketing strategies and consumers' behaviors as current technologies are improving and new ones are emerging (Davenport *et al.*, 202). For instance, AI has offered consumers a new kind of experience by enabling brands to communicate between themselves in a new form through building distinct points of contact (Ramadan *et al.*, 2021). In the fashion industry, famous brands have launched their chatbots to drive customer engagement by tailoring suggestions, sharing notifications about upcoming events, and allowing consumers to preplan orders (Youn and Jin, 2021).

Marketers are starting to use virtual endorsers besides bots and spokespersons as different ways of integrating AI into their endorsement plans (Thomas and Fowler, 2020). In this context, Miao *et al.* (2021, p.20) referred to virtual influencers as “3D and computer-generated personalities”, whereby CGIs offer distinctive benefits to brands such as controlled content and flexibility, which do not come without possible risks. Lately, there has been a transcending trend to utilize CGIs in influencer marketing (Hudders, *et al.*, 2020). With technological advancement, CGIs can appeal to a substantial fan base on social media. One of the most popular computer-generated influencers is Lil Miquela with approximately 3 million followers on Instagram (Miao *et al.*, 2021). Similar to human influencers, Lil Miquela shares with her followers' base a glimpse of her daily activities such as outings with other CGI friends. She actively engages with them by reacting and replying to their comments on her posts (Hudders, *et al.*, 2020). Lil Miquela was ranked as a top virtual influencer by HypeAuditor in 2019 and was recognized as one of the most influential people on the net by TIME magazine (Thomas and Fowler, 2020). Furthermore, she was considered as a style icon, endorsing luxury brands such as Kenzo, Prada, and Balenciaga, in addition to partnering with Calvin Klein and Supreme (Thomas and Fowler, 2020).

Lil Miquela is a musician that has a number of pop songs and is also a social activist for several social causes such as Black Lives Matter and the LGBTQ+ community (Robinson, 2020). While she is considered unreal, she is building significant para-social relationships with her followers (Hudders *et al.*, 2020). Para-social Interaction (PSI), which is defined as illusion of personal relationship with a media persona, plays an important role in influencer marketing (Jin and Ryu, 2020). Through PSI, media users engage with media personas mentally and emotionally in a two-way direct communication and form a reciprocal relationship (Labrecque, 2014). In the

anthropomorphism literature, para-social relationships are linked to positive results, such as positive attitudes and behaviors that are demonstrated by consumers (Kim, et al., 2021).

Anthropomorphization is denoted as “*the extent to which an image looks human*” (Nowak and Rauh 2005, p. 154). In the extant literature, almost 70% of the articles indicated that anthropomorphic representation is essential for the development of virtual characters since it provides clues to its social existence (Miao *et al.*, 2021; Pelau *et al.*, 2021). Research indicates that the more anthropomorphic the virtual character is, the more credible and proficient it will be perceived (Miao *et al.*, 2021). Individuals interact with objects that have human-like presence in a different way from lifeless ones (Breves *et al.*, 2021). They are inclined to ascribe similar societal rules to computer technology that has humanlike appearance despite being completely conscious that they are interacting with a machine (Miao *et al.*, 2021). Anthropomorphic presence elicits individuals’ basic societal scripts such as politeness and reciprocity, which leads to emotional, cognitive, and societal reactions with machinery (Breves *et al.*, 2021). Past research demonstrates that perceived human similarity of the nonhuman partner is a crucial prerequisite for para-social interaction to happen, which makes it real rather than fictitious (Whang and Im, 2021). The development of para-social relationships depends on the counterpart’s level of authenticity, reality, or credibility (Lou, 2021; Whang and Im, 2021). The para-social relationship theory has been utilized to define social relationships between individuals and nonhuman representatives such as avatars and robots (Whang and Im, 2021).

Methodology

The study seeks to develop a better understanding of CGIs through exploring the experiences and perceptions of their followers. Consequently, this research uses in-depth interviews with active followers of virtual influencers in order to obtain insights from their various followers on Instagram. As research in the existing literature on CGI is still scant, an exploratory approach was considered appropriate in the present research context. Followers of CGIs were contacted online through Instagram, as this is the main social platform virtual endorsers use. Accordingly, 37 in-depth interviews were conducted with CGIs’ followers with an age bracket ranging between 18 and 56. Each interview lasted on average 50 minutes. Data saturation was achieved by the 33rd interview, nonetheless, the fieldwork continued with an additional four interviews in order to confirm that no additional insight was missed (see also Creswell, 1998).

For those who agreed to participate in the study, interviews were conducted with them individually either through Zoom, Webex or Skype. The interviews were audio-recorded after the approval of the interviewee, and all the data was anonymously reported. The data was then transcribed and analyzed through the NVivo 12 software by means of an inductive thematic method in order code, categorize, evaluate, and come up with the relevant themes (Braun and Clarke, 2006).

The in-depth interviews were analyzed using an inductive thematic approach whereby the themes were identified based on what emerged from the data coding. The recursive interpretation of the data steered further themes. Two researchers, individually, completed the data coding by

exploring and cross-checking the analyzed texts. The researchers then jointly identified the themes, cross-checked, and reconciled the extracted themes.

Creswell and Miller's (2000) proposed validation techniques were also followed. First, the methodical sorting of in-depth interviews was ensured by conducting a triangulation between the provided data resources, which permitted the extraction of common themes across the in-depth interviews. The verbatim transcripts were then shared with the interviewees for validation of content accuracy.

Discussion of the findings

This study's findings derived two key areas pertaining to the CGI virtual community, whereas the research showed that the interaction between the virtual influencer and its followers is firstly governed by a blend of different identity perceptions that would then form cognitive and emotional relationship with the CGI itself, leading to positive or negative outcomes. The theoretical framework is depicted in Figure 1.

Insert here: Figure 1: Theoretical Framework

CGI perceived identity

The CGI's identity is characterized by four key forms: (1) as a generated content, (2) as a company led persona, (3) as a person, and (4) as a virtual imagery.

Starting with the generated content identity type, the interviewees converged on that the CGI is mainly viewed and interacted with through its intangible creations and brand endorsements. Relevant generated content led to an increasing interest from followers to virtually consume and follow the created music, fashion trends, endorsements, and non-fungible token (NFT) promotions. Indeed, the results indicate that followers were interested in CGIs due to the relevance of the shared content and the ability to receive information that match their personal desires, passion and interests allowing them to relate with.

"I followed her for how she behaves, someone who goes out with her friends, have fun, taking pictures and you know? I like her voice, too. That's what makes me follow her on Instagram". (Male, 56 years old)

"The authenticity of this influencer and of course to me is that it provides value to followers. So, virtual influencers that deliver valuable and relevant content." (Female, 22 years old)

In line with prior research, as influencers keep creating textual and graphical stories of their lives, followers find these narratives as ones that arouse their curiosity or interest. Furthermore, CGIs are seen as representatives of social and cultural trends through these generated contents that usually go viral. These contents have boosted the level of entertainment amongst CGI followers, leading to a greater involvement with this fictitious character.

“I'm just excited to see her and the wonderful work that her production team is doing for the sake of entertainment and perhaps for advertising as an art. (Male, 33 years old)”

“Today is planet earth day. They write about it and it's always entertaining when they're put side by side with real actors or creative directors. There was a photo with Noonouri with Donatella Versace, it's cute, entertaining, and pleasing for the eyes (Female, 25 years old)”

The results also indicated that the CGI identity is driven by the company or developers behind the virtual influencer. Indeed, followers of CGIs reflected on the fact that they are conscious and aware of the presence of a company behind the virtual influencer. These developers are perceived as the ones controlling the CGIs in a discreet way.

“For Noonouri and Shudu you know who is the creator behind the account. You know it's a real person. For Lil Miquela and her other friends like Bermuda you don't know who's behind. They show mysteriously and you just want to know more.” (Female, 23 years old).

“It's definitely a large team. Everything she does has to be checked and signed off on by somebody. Lil Miquela will never take the same risks as she is like a commercial product in a way she can't take risks and do things that a human does.” (Male, 33 years old).

While the leading CGI (Lil Miquela) has a direct relationship with its followers, some other virtual influencers are characterized by a rather direct interaction between the developer and the CGI followers. The findings reveal that followers were interested in discovering the creators (developers) behind the CGI and the person sharing posts on social media on behalf of the virtual influencer. Some respondents seemed to form stronger relationships with CGIs whose developer was not hidden. This is the example of Noonouri. This form of transparency seems to provide stronger emotional connection between the followers and the virtual influencer.

“I still applaud the creator and would love to understand how he separates his own personality from the character he created. It's more being curious about the person behind the screen rather than the actual figure Noonouri.” (Female, 25 years old).

“I would want to know a little more about the creators of CGIs. They recently started revealing themselves behind the curtains”. (Male, 27 years old).

Furthermore, participants were cautious about how ethical are the developers behind the CGI and what kind of activities they perform when it comes to being socially responsible. Interviewees consistently highlight on the importance of the morals and values system when it comes to developers while seeming very reluctant to engaging with virtual influencers whose creators are unethical.

“Noonoouri is not only selling products but a vision and a mission. She is making use of her power to share thoughts and awareness about charity and good believes.” (Female, 23 years old)

Interestingly enough, the CGI’s identity was also perceived as a real person with a rounded personality. Its virtual social practices reveal the real meaning of being human which incorporate a combination of values and ethics. One interesting finding was also related to authenticity. While individuals expect influencers to be authentic, our results indicate that followers of CGIs consider them to be authentic even though they were perceived as having a perfect image and life.

“She’s fun! She’s attractive. She’s digitally sexy! She’s cute! She’s vivacious! She’s entertaining. Her comments are fun and her replies are fun!” (Male, 56 years old).

“Was immediately shocked about her virtual personality and the way she looks and how real she was because at first I thought she is real person but when I look more into it I understood that she wasn’t.” (Female, 23 years old)

Furthermore, virtual influencers were perceived as fashion icons, trend setters and motivators. Indeed, they have integrated themselves in the world of fashion through the development of their own apparel line. Moreover, they are perceived as animated characters that have a “real and digital life” and lifestyle that merits to be followed.

“CGI influencers are made up creations which are used as a marketing instrument. But how can they show human experience to real humans when they never have that experience?”. (Female, 23 years old).

“It’s so unique to every one of them, every one of them, like have a kind of character. Bermuda is the type of girl that cares about sports and social welfare”. (Female, 18 years old)

Interviewees also stated that there is nothing apparent that differentiates these influencers from their human counterparts. However, this incapability to isolate the ‘virtual’ and the ‘real life’ aspects has sparked some inner conflicts among participants.

“At first it was quiet frightening she looks so insane real. It’s weird that it is something so real which is not real. I think it crosses the line by being artificial and being real. Some

people feel frightened about them and others feel inspired by them". (Female, 23 years old)

Lastly, visual imagery was shown to be a key CGI identify attribute. Indeed, these virtual influencers have a core visual identity linked to their digital presence on the different social platforms. The graphic persona is at the essence of the influencer's virtual identity which consists of an animated character that blends humanity with technology in order to create digital experiences.

"Building relationships with CGIs feels more superficial, and I would expect perfection. It resembles a person but a more perfect version. Noonouri, isn't created with stretchmarks. Why aren't they created with body hair or something like that?". (Female, 20 years old)

"I really like their style. Noonouri is my favorite, she's adorable. She looks like a computer generated doll. She has a real life. What I like most is that they establish real relationships, and connections with individuals, brands, and fashion community" (Female, 20 years old)

CGI relationships

The results of this study identified several forms of relationships within the CGI realm: CGI-Human Influencer, CGI-endorsed brands, followers-followers, and CGI-followers.

Starting with the CGI-Human Influencer relationship, it is clear that CGIs are trying to become integrated into the real world through collaborating, sharing photos while hanging out with real life celebrities and stars. Such practices by the creators of the virtual influencer seem to be driving the realistic environment of CGIs as part of an overall well studied storyline.

"All her human friends seem really cool. She sometimes tags others in a post which seems realistic and becomes exciting for us to watch. They seem really interesting and live in a cool location. It's really cool to see real people hanging out with Lil Miquela!" (Female, 21 years old)

"This computer generated influencer has a lot of real relationships. So this is something I feel like they interact daily, like other influencers with people, with individuals." (Female, 20 years old)

As for the CGI-endorsed brands relationship, brands seem to be highly interested in thinking outside the box and hence marketing in a futuristic set. Indeed, CGIs might be able to provide companies and brands with a competitive advantage as they tap into the potential of this fast growing community. Nonetheless, some interviewees stressed on the importance of relevance when it comes to using CGIs for one's brand.

"The endorsement of certain brands should be done properly. I think it would be very weird to have such an artificial figure. You really need to know what your brand aesthetics are and what you stand for." (Female, 23 years old)

“Lil Miquela is modeling for Gucci and Calvin Klein which very good clothing. She is bringing attention to those brands without a doubt”. (Female, 21 years old)

Followers-followers relationship is based upon a close bonding of the participants in this online community. Apparently, following CGIs is becoming an effective strategy to get in touch with people who have common interest and be able to form virtual friendships. Heavily engaged followers of virtual influencers were seen to be aiming to be part of a wide group that they were seeking to enlarge by attracting other like-minded people who are interested in CGIs and other common topics.

“Having a worldwide community of people that I might not have met but I speak to every day is so interesting. Digital influencers will definitely grow as a trend and influence us.” (Male, 33 years old)

“There's a community around her. When I follow an influencer I get few follows from people with similar interests. This is a powerful cultural force.” (Male, 33 years old)

“I usually interact with communities that follow the influence more than the influencer himself.” (Female, 21 years old)

Lastly and most importantly, the CGI-follower came to be the key relational type that this industry thrives on. Indeed, this relationship type was described using human-like ascriptions, whereby followers stated that they valued their friendship with virtual influencers, which is driven by their “fanship” and continuous engagement.

“She is a friend; I like her being my friend.” (Female, 21 years old)

“A family member hell no, we could be friends if I meet her in person and I see who she is. Maybe we can be, I can't say we can't.” (Female, 29 years old)

The relationship between the CGI and its followers was mainly driven by the anthropomorphization of the virtual influencer. Indeed, interviewees attributed a number of human characteristics to the CGIs. Furthermore, the integration of real-life celebrities with CGIs made followers speculate whether these were human beings or not. They are described as humans who have feelings and a personal (namely emotional) and social life. CGIs were actually perceived as blurring the lines between the real and the unreal.

“It's like creating their own persona. It's like a real person. Their interactions are very human-like even if it's a computer”. (Female, 20 years old)

“She is convincing. It would be savage of me saying she is not. There is no way Lil Miquela is going to make a video on Instagram unless she's real”. (Female, 29 years old)

“She’s trying to be like a normal person or influencer. She wants us to think that she’s normal, she has a normal life. She tripped to Brazil and took lot of photos with other celebrities. She had an ex-boyfriend. (Male, 24 years old)

Followers connect with CGIs once they start to personify them and are thus compelled by the anthropomorphic appeal of the virtual influencer. In fact, such anthropomorphization ascribed cognitive and emotional states to the CGI-followers relationship driven by the rationalization of the virtual influencer’s behavior on digital platforms.

The congruence of human traits with CGIs encompasses feelings, friendliness, longing and accessibility that allow followers to heighten their experience with the virtual influencer. Results indicate the presence of more complex interpersonal connections between followers and the CGI, which for some of them surpasses only liking the CGI, and engaging more in forms of love to the CGI. In sum, there appears to be an emotional attachment between the CGI and the follower given the expressions that were used by followers who described their relationship with CGI based on friendship and feeling of bonding with them and the hybrid social community.

“I would say that I love it, I love the idea of them. I think that they're cool. I think that there is a lot more that can be done with them”. (Male, 27 years old)

“I love Lil Miquela, it’s cool that there are people working behind her, it’s really interesting. The fact that she has a personality is creative.” (Female, 21 years old)

“I really love Noonouri because I like her style, her aesthetic. I like her Instagram posts. I like how she interacts with people.” (Female, 20 years old)

The fact that virtual influencers continuously generate unique relevant content that arouses followers’ curiosity and/or interest, secures better relationships with followers. For instance, our results indicate the extent to which the stories that are shared by CGIs do satisfy their followers’ curiosity about virtual influencers’ fictitious/real digital life. This rationale is based on the social penetration theory (SPT), which states that self-disclosure, such as discretionally sharing personal emotions and conceptions with followers, strengthens the development of relationships (Kim and Song, 2016). As followers share similar interest with CGIs, it cultivates anthropomorphic cognition among followers who are mentally stimulated through the thrill of such innovations.

“What drives me? Curiosity, intrigue and fascination. Where will she go next? I’m really curious on how she will progress in advertising, film, and television shows”. (Male, 56 years old)

“CGIs show feelings, emotions, and it really intrigues me. I want to know more about it because it feels like an unrealistic world and experience. This is what makes this phenomenon thrive”. (Female, 23 years old)

Trust has been widely reported by interviewees during this study. Our research showed mixed findings when it comes to trusting a CGI. While some interviewee considered virtual influencers

as trustful entities concerning the collection of information and content communicated with them, others believed that they can trust a CGI that is trying to influence and persuade them to buy certain goods and services.

“I think they are hundred percent credible mostly because they have created a business around Lil Miquela.” (Male, 27 years old)

“No I don’t trust them. Because they are fabricated and artificial and there’s someone controlling them. I can’t trust someone that I can’t see”. (Male, 18 years old)

Relational outcome

In line with the literature (e.g., Hollebeek and Belk, 2021), the positive emotions that interviewees expressed throughout their experience with CGIs such as feeling happy, enjoying and feeling the awe all seem to have positively impacted their wellbeing. Nonetheless, our results demonstrated mixed feelings when it came to the impact of the CGI on followers’ well-being. While some interviewees reflected on the rather favorable impact on their wellbeing, others were concerned that CGIs could also erode it.

“The body image of Lil Miquela, it’s kind of unattainable standards. This is severely making somebody feel negative about themselves”. (Female, 21 years old)

“Pictures affect you emotionally. If I see them laughing, having a good day outside at the beach, that makes me feel good. I’m more of an introvert, so I like to see when people are extrovert and have fun. Especially now with COVID I’m staying home, it’s good to see people socializing. Influencers helped me feel inspired.” (Male, 27 years old)

Interviewees were inspired by other followers and the CGIs themselves given that they shared similar interests and passion, which helped converge them into one single collective identity, permitting them to satisfy numerous social needs. The social benefits were one of the most highlighted themes when it comes to CGIs. Consumers perceived the CGI account on social media platforms as giving them a sense of belonging to a social community and allowing them to be connected with new friends and online community, which strengthened their relationship with other people and helped improve their wellbeing. As consumers’ wellbeing is subtle when it comes to social relationships, this may have considerable impact through the engagement in social media.

“What they’re saying is important to me. They aren’t sharing hate which lot of people do on Instagram. I like to follow someone who has good vibes.” (Male, 27 years old)

“With Lil Miquela, because she has to be credible, honest, and entertaining - I think her impact is positive. She can teach love not hate, she can teach acceptance of all colors and nationalities. She can influence others to get vaccinated, to study hard, and succeed in life.” (Male, 56 years old)

Interviewees considered the virtual influencers to be ethical and more human than their human counterparts since they perform in good ways through trying to influence the virtual community in the form of adopting social partaking and acting in a socially responsible way and continuously post social claims which is valuable in bringing more self-acceptance among the most disadvantaged groups.

“CGIs can use the platform for a positive impact. I also feel like it's really interesting to look into these technologies to make the fashion industry less wasteful.” (Female, 23 years old)

“CGIs always tackle environmental issues. They are advocates and activists for all things out to protect Mother Nature.” (Female, 25 years old)

Nonetheless, some interviewees expressed how jealous they felt from CGIs given that they cannot afford to live their lifestyle. Some of the negative impacts are connected with the fact that some followers viewed virtual influencers as ones that were revealing unauthentic lifestyles, making them more jealous and feel bad about themselves since this characterizes wealth imbalance.

“Sometimes they share unrealistic lifestyles which you may sometimes admire and may sometimes makes you jealous. For example, the influencer who post pretty picture with everything being perfect is really annoying. You don't have the money to buy such expensive clothing or have expensive dinner, so this sometimes triggers our jealousy. I try to remind myself that social media doesn't reflect real life”. (Female, 23 years old)

“If a younger person looked at them as being perfect, they might feel negative about themselves.” (Female, 45 years old)

Some interviewees have raised concern over the perfection of CGIs and their high influence. They consider this to pose a threat on people's behavior, leading to a blurring life of what is real and unreal. This can dangerously affect both the physical as well as the psychological well-being of people. Indeed, some participants raised a crucial concern on the hacking possibility of CGIs which might lead to dire consequences on the social community.

“Their usage in the future might have many negative impacts on society. When it comes to Lil Miquela, Meta humans implemented in various platform can completely change the way of interacting with humans” (Male, 26 years old)

“We're talking about social influencing. If the company goes into bankruptcy or the Instagram account is hacked, they can make Lil Miquela say bad things or entice people to do harm like in the blue whale challenge! When Lil endorses something, some followers might actually act upon it.” (Male, 26 years old)

Implications

Theoretical Implications

From a scholarly perspective, this study fills a major gap in the literature pertaining to virtual influencers and their effect on followers. This research responds to the latest call for papers on better understanding computer generated influencers (e.g., Miao *et al.*, 2021; Thomas and Fowler, 2020; Robinson, 2020), how these influencers allow brands to look more human (Jin *et al.*, 2019), and exploring the various benefits, risks, and operative mechanics that are linked with computer generated influencer marketing. Furthermore, while some research have examined the identity of digital influencers (Hu *et al.*, 2020), no studies to date have emphasized the exploration of computer generated influencers' identity perception and the ensuing relationship types.

In addition, although a number of studies have been performed on technological transformation, none of them has focused on the behavioral and social outcomes of these forms of technology. This study shows that CGIs are brand entities that have a blend of components under their overall perceived identity. These blended perceptions were shown to drive and govern different relational aspects within the social community that CGIs were present in. While relationship marketing has been extensively studied in the marketing literature, however, its focus was mainly either from a B2B perspective (e.g. Ndubisi and Natarajan, 2016), business to consumer (e.g., Fournier, 1998) and consumer-to-consumer perspectives (e.g., Bacile *et al.*, 2018; Abdul-Ghani, *et al.*, 2019), retailer-consumer (Farah *et al.*, 2019), technology-consumer (Ramadan, 2019) perspective. However, none of them have looked into the relationship between a computer-generated influencer and different entities. Accordingly, this study demonstrates the different relational dimensions, whether from a followers-followers, CGI-followers, CGI-Human Influencer, or CGI-endorsed brands perspective, encompass a relatively extended sphere of influence. In sum, this research contributed a seminal work in the yet heavily under-researched field of virtual influencers.

The focus of this paper is on the computer to follower relationship. What makes such relationships more unusual is the anthropomorphization of CGIs through their interactive activities on their platforms. One specific emerging array is the non-human real life virtual influencer and the way it is converging the virtual landscape. CGIs seem to be deeply anthropomorphized in the minds of followers as they repeatedly attribute human-like features whenever they talk about them. This study demonstrates that the more anthropomorphic the virtual influencer seems with a non-hidden creator, the more authentic and trustworthy it is.

Managerial Implications

The managerial implications are sizeable on brands and CGI developers alike. Indeed, consumers who build para-social relations with CGIs, would be expected to develop strong bonding with them as well as with the endorsed products (see Kim and Song, 2016). Consumers repeatedly endow brands with personality traits and think of brands as if they were celebrities by associating them with their own selves (Fournier, 1998). The same can be applied to CGIs as this study showed that their active engagement with their followers infuses human personality traits into that relationship. It is noteworthy to reflect on the fact that the core CGI experience is mainly driven by the anthropomorphization stimuli. Such an experience and relationship are governed by feelings,

fantasies, and entertainment. Through this, the CGI will own a unique and identifiable personified character, which will be reinforced by its visual imagery and posted content on social platforms. Creators of the CGIs are thus recommended to keep responding to followers' queries and posts in order to retain the relationship's intensity between the CGI and its followers. This would be done through entertaining and socially impactful content. Following this study, it is therefore recommended to further emphasize on the para-social relationship phenomenon in managing CGIs, as this will provide a more profound understanding of consumer behavior.

Indeed, the CGI-follower relations are centered around multifaceted components that comprise trust, image, association, and likeability, which are impacted themselves by social factors. Prominent anthropomorphization of virtual influencers makes the CGI-followers' relations more distinctive on social media through the CGI's behavioral conducts. One interesting pattern that might further develop this field is the nonhuman CGI-CGI and CGI-human relationship. In this context, CGIs can generate more enthusiasm and personal stories, blending even further the real and the unreal by appearing in real social events and collaborating with real life influencers.

Furthermore, this research demonstrated that CGIs as influencers can eventually be perceived as trustworthy and credible. Given that followers raise some credibility concerns in relation to the CGI's creator's visibility, developers of virtual influencers are advised to be more overt in revealing their identities. This would instill higher trust between the CGIs and their followers and therefore allow individuals to be further involved and invested in that relationship. Indeed, the level of influence is thought to be so high that it would be expected to generate impulsive buying behaviors. This would generate a growing interest by brands to increase their collaborations with CGIs. Such collaborations between brands and CGIs can be deliberately tailored depending on the product type. For instance, followers have shown interest in trying products that are innovative by nature and have avoided trusting beauty care products that were recommended by CGIs. Developers are nonetheless advised to focus on a CGI identity that is based on a consistent, coherent and relevant storytelling. Indeed, an over-use of brand endorsements might lead to a saturation effect by followers who would grow skeptical of the commercial facet of the CGI. To bolster awareness and engagement, brands can implement a hybrid type of influencers' strategy whereby they incorporate human influencers and CGIs for bigger reach while targeting different age groups and geographical areas. Furthermore, this study is important for digital marketing practitioners as it focuses on the value of some CGI influencers that can be used in their branding campaigns.

CGIs have been shown to have a particular effect on one's self-esteem and well-being. Accordingly, creators of CGIs are recommended to continuously provide positive vibes and encouraging messages built around self-acceptance. Furthermore, CGIs could help drive socially responsible brands through leveraging the virtual influencer's equity. The positive impact of CGIs cannot only be restricted to brands. In fact, governments can also partner with CGIs to disseminate an important national message that is related to the community welfare.

Conclusion and future research

This study is amongst the first to set and propose an identity system for virtual influencers. The relationships that govern this particular digital world were explored and discussed from both cognitive and emotional perspectives. The ensuing impact of such relationships were also presented from social and personal standpoints, leading to a blend of suggested strategies and implications for brands as well as developers of CGIs to adopt. While para-social relationships seem to be associated with positive effects in the relationship literature, our results showed that negative outcomes might emanate from that relationship, which would require further examination. This study bridges a gap in the literature by presenting different outcomes in an area that has been under-researched in the marketing literature (Kim et al., 2021), and which to date has not been identified in the context of relationships with computer generated influencers.

As is the case with all studies, this research is not without limitations. Indeed, this study took the exploratory route due to the novelty of the topic and its under-researched nature, which could limit its generalizability. Furthermore, it focused on one single social platform, Instagram, given the number of CGI followers there. Accordingly, future studies could continue with an empirical quantitative approach while also measuring followers' sentiments vis-à-vis CGIs across different social platforms. Future research could also explore additional motives that may drive followers to engage with CGIs. Studies may also examine whether CGIs gender, country of origin, and other lifestyle related factors would affect followers' behavior and relationship with the virtual influencer. Finally, future research can be directed into examining the perspective of the company in charge of the AI, which would add a better understanding of CGIs from a broader viewpoint. This could include customization, interactivity, and enjoyment variables from the perspective of the AI.

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