



Virtual Influencers in Social Media Marketing: Toward a Systematic Understanding of Their Impact

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Abstract

Objectives: This study examines the growing trend of "virtual influencers"—computer-generated avatars that mimic human appearance, personality, and behavior—in influencer marketing. It aims to analyze their role on platforms like Instagram as alternatives to human influencers and to identify key themes and gaps in the existing literature.

Methods: A systematic mapping study was conducted to collect, classify, and analyze research on virtual influencers. This approach provided a structured understanding of current trends and insights within the body of knowledge.

Results: The study identified 22 relevant research articles, revealing a notable rise in academic interest over the past three years. Key themes include ethical considerations, challenges in deploying virtual influencers, and factors influencing their effectiveness in marketing communication.

Conclusions: Virtual influencers are emerging as transformative tools in digital marketing, yet unresolved challenges remain. This study highlights the need for further research into ethical concerns, their impact on consumer behavior, and strategies to optimize their integration into marketing. The findings underline their potential to revolutionize digital marketing while providing a foundation for future research.

Keywords: Virtual influencers, Social media marketing, Systematic mapping study, Digital marketing, Consumer behavior.

المؤثرون الافتراضيون في التسويق عبر وسائل التواصل الاجتماعي: نحو فهم منهجي لتأثيرهم

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ملخص

الأهداف: برز صعود "المؤثرين الافتراضيين" - وهم شخصيات رمزية مولدة بواسطة الكمبيوتر تحاكي المظهر والشخصية والسلوك البشري - كاتجاه بارز في تسويق المؤثرين. تستكشف هذه الدراسة دور المؤثرين الافتراضيين الذين تستخدمهم الشركات على منصات، مثل إنستغرام كبديل للمؤثرين البشريين ضمن مشهد التسويق الرقمي. الهدف الأساسي هو التحليل الشامل للأبحاث الحالية حول المؤثرين الافتراضيين، وتحديد الموضوعات الرئيسية والفجوات في الأدبيات.

المنهجية: تم إجراء دراسة تخطيطية منهجية لجمع وتصنيف وتحليل الأبحاث ذات الصلة بالمؤثرين الافتراضيين. أتاح هذا النهج تحديد اتجاهات الأبحاث وفهمها فهماً منظماً للمعرفة الحالية في هذا المجال.

النتائج: حددت التحليلات 22 مقالاً بحثياً ذا صلة، مما كشف عن ارتفاع ملحوظ في الاهتمام الأكاديمي خلال السنوات الثلاث الماضية. وتشمل الموضوعات الرئيسية الناشئة عن هذه الدراسات: الاعتبارات الأخلاقية، والتحديات المرتبطة بالمؤثرين الافتراضيين، والعوامل المؤثرة في فعاليتهم في التواصل التسويقي.

الاستنتاجات: تؤكد النتائج على الأهمية المتزايدة للمؤثرين الافتراضيين كأدوات تحويلية في التسويق الرقمي، مع تسليط الضوء على الحاجة إلى مزيد من الأبحاث لمعالجة المخاوف الأخلاقية، ودراسة تأثيرهم على سلوك المستهلك، وتحسين دمجهم في استراتيجيات التسويق. تسلط هذه الدراسة أيضاً الضوء على الإمكانيات الكبيرة للمؤثرين الافتراضيين في إحداث ثورة في التسويق الرقمي، مع تحديد التحديات غير المحلولة، وفرص البحث المستقبلية.

الكلمات الدالة: المؤثرون الافتراضيون، التسويق عبر وسائل التواصل الاجتماعي، دراسة تخطيطية منهجية، التسويق الرقمي، سلوك المستهلك.

Introduction

According to a 2019 report by Business Insider Intelligence, spending on influencer marketing was projected to double, rising from \$5 billion in 2018 to \$10 billion by 2022. Influencer marketing is a strategy that involves identifying, engaging, and supporting individuals who have a significant influence over conversations about companies with their audiences (Andersson & Sobek, 2020). An influencer possesses social influence, capable of shaping people's behaviour through their words and actions, both online and offline. However, "influencer" is most commonly associated with social media platforms like Snapchat, Instagram, and Facebook (Xie-Carson et al., 2021).

A new trend has emerged within influencer marketing: "virtual influencers." These computer-generated avatars resemble humans in their personality, attitude, and appearance. Developed by robotics companies, virtual influencers are used for marketing and promotion. They have garnered large followings on popular social media platforms like Instagram, with millions tracking their accounts. These virtual influencers often collaborate with high-end brands to endorse products and cultivate their unique personalities and lifestyles; Moustakas et al. (2020); Arsenyan and Mirowska (2021). Miquela Sousa is one of the most well-known virtual influencers, "Lil Miquela". TIME magazine listed her among the top 25 most influential online people for 2018. Lil Miquela was created in 2017 by Brud, a startup specialising in robotics, artificial intelligence, and their applications in media industries (Robinson, 2020). Lil Miquela, presented as a 19-year-old, has a distinct personality and lifestyle. She is depicted as an arts and music student living in Los Angeles who supports causes like breast cancer awareness and the Black Lives Matter movement. Despite being a fictional character identifying as a robot, she conveys human emotions through her Instagram posts and interactions with nearly 3 million followers. Additionally, she generates significant revenue by promoting brands like Calvin Klein, Samsung, and Prada through advertising (Robinson, 2020; Moustakas et al., 2020).

Virtual influencers are increasingly being used as alternatives to human influencers in marketing. Companies often prefer virtual influencers because they can fully control their content and behaviour, reducing the risk of errors that human influencers might make (Andersson & Sobek, 2020). Furthermore, research by Arsenyan and Mirowska (2021) suggests that people respond to virtual influencers socially, emotionally, intellectually, and behaviorally in ways similar to how they react to human influencers. However, some view virtual influencers as untrustworthy due to their robotic nature and the fact that their content is controlled by humans, often featuring fabricated material. This lack of authenticity is seen as a novel method of advertising and generating revenue (Moustakas et al., 2020). This study aims to comprehensively analyse the current research on virtual influencers through a systematic mapping study. Through answering the following questions:

1. What are the publication types and sources of studies on virtual influencers?
2. What are the publication trends in research on virtual influencers?
3. Which countries are leading in research on virtual influencers?
4. What research methods are being used in studies on virtual influencers?

LITERATURE REVIEW

The literature on virtual influencers has rapidly expanded in recent years as this phenomenon has gained traction in marketing (Wibawa et al., 2022). Virtual influencers, defined as computer-generated avatars that emulate human behaviour, have emerged as a novel tool for brands looking to engage with digital audiences in new and innovative ways (De Brito Silva et al., 2022). This section reviews the key themes and findings in the existing literature on virtual influencers, focusing on their effectiveness, ethical considerations, and impact on consumer behaviour. In 2019, several studies explored and expanded our understanding of virtual influencers (Darner & Arvidsson, 2019; Molin & Nordgren, 2019). In their study, Molin and Nordgren examined the para-social interactions between virtual influencers and their followers on Instagram, focusing on the role of credibility in these relationships. Their study highlighted that while virtual influencers can mimic the para-social interactions seen with human influencers, consumers tend to respond more favourably to human influencers, perceiving them as more authentic. The study pointed out that the lack of transparency and authenticity—stemming from the fact that these virtual personas are owned and controlled by companies—undermines their credibility. However, virtual

influencers remain appealing due to their accessibility and how they engage with consumers.

Similarly, Darner and Arvidsson (2019) conducted a study on the interactions and operations of virtual influencers on Instagram. Their research aimed to identify the critical factors in developing virtual influencers, emphasising the importance of balancing realism and evident unrealism in these digital creations. The authors suggested that followers are drawn to virtual influencers' captivating content, eagerly anticipating more from these digital personas. By 2020, further research had been conducted to deepen our understanding of virtual influencers (Andersson & Sobek, 2020; Moustakas et al., 2020; Robinson, 2020). Robinson (2020) focused on the ethical aspects of virtual influencers, arguing that virtual and human influencers may appear indistinguishable in their content and follower engagement, but virtual influencers face unique challenges. Their primary objective—generating profits for their creators—raises questions about their motivation, moral accountability, and the transparency of their content moderation, especially since those responsible for their actions remain anonymous.

Moustakas et al. (2020) evaluated the effectiveness of virtual influencers in marketing, discussing the obstacles and opportunities they present. The authors noted that while virtual influencers can lack the relatability and authenticity of human influencers, their controlled and consistent content, which aligns with their carefully crafted personalities, is a significant draw for brands. This controlled environment mitigates the risks associated with the unpredictable nature of human influencers. The ability of virtual influencers to tell compelling stories and consistently produce engaging content makes them attractive to followers and brands alike. Andersson and Sobek (2020) explored how consumers perceive the legitimacy of virtual influencers by examining factors such as continuity, purpose, and personality. Their research suggested that the perceived authenticity of a virtual influencer increases when these factors are clear and consistent, making the virtual persona appear more human-like and relatable. Two thousand twenty-one more studies emerged, further examining virtual influencers (Da Silva Oliveira & Chimenti, 2021; Rönnhed & Wiksborg, 2021). Da Silva Oliveira and Chimenti (2021) analysed the role of virtual influencers in marketing communication, identifying the challenges and opportunities they present. The study emphasised that while virtual influencers face issues related to authenticity, they also offer benefits such as appeal, manageability, and the ability to exhibit anthropomorphic traits. Rönnhed and Wiksborg (2021) investigated the ability of virtual influencers to form para-social relationships and act as opinion leaders. They found that virtual influencers face challenges in establishing credibility and forming these para-social connections, largely due to people's reluctance to accept them as robots and negative attitudes towards their creators. Choudhry et al. (2022) examined the impact of virtual influencers on their followers, focusing on user engagement and interpretation of interactions. The study highlighted that the captivating and innovative content, the enigmatic and curious nature of virtual influencers, their promptness in engaging with followers, and their visual appeal are key drivers of follower engagement.

Effectiveness of Virtual Influencers

Research has shown that virtual influencers can be highly effective in marketing campaigns. According to Moustakas et al. (2020), virtual influencers often achieve engagement rates comparable to, or even exceeding, those of human influencers. Their digital nature allows for greater control over content and messaging, reducing the risk of off-brand behaviour or controversy, which can sometimes be a concern with human influencers (Andersson & Sobek, 2020). Additionally, virtual influencers can be designed to perfectly align with a brand's image and values, further enhancing their appeal to target audiences.

Ethical Considerations

However, the rise of virtual influencers also brings ethical questions to the forefront. One of the primary concerns is the authenticity of virtual influencers. As companies are entirely fabricated and controlled by companies, some consumers view them as less trustworthy than human influencers (Moustakas et al., 2020). This lack of authenticity may lead to scepticism among audiences, particularly if they become aware that the content is artificially created rather than organically generated by a real person (Robinson, 2020). Moreover, the blurring of lines between reality and fiction raises questions about transparency in marketing and the potential for misleading consumers.

Impact on Consumer Behavior

Despite these concerns, virtual influencers have been found to impact consumer behaviour significantly. Senyan and Mirowska (2021) discovered that people often respond to virtual influencers in similar ways to human influencers, both emotionally and behaviorally. This suggests that virtual influencers, much like their human counterparts, can effectively influence purchasing decisions and brand perceptions. The ability of virtual influencers to engage with audiences on social media platforms, coupled with their unique and often intriguing personas, makes them a powerful tool in modern marketing strategies.

Research Gaps and Future Directions

While the existing literature provides valuable insights into the role of virtual influencers in marketing, several gaps remain. For instance, more research is needed to fully understand the long-term effects of virtual influencers on brand loyalty and consumer trust. Additionally, studies need to explore the cultural differences in how virtual influencers are perceived and their effectiveness across different markets. As virtual influencers continue to evolve, future research should also consider the implications of advancements in artificial intelligence and how these developments might further blur the lines between virtual and human influencers.

In summary, most studies agree that virtual influencers face numerous challenges related to ethical concerns, such as motivation, relatability, moral responsibility, and transparency. They also struggle with issues of authenticity, reliability, and reputation. However, the consensus is that virtual influencers offer significant prospects for success due to their appeal, capacity to engage, storytelling abilities, production of intriguing content, controllability, and uniqueness. The literature highlights the potential and challenges of virtual influencers in social media marketing. As this trend continues to grow, it will be essential for researchers and practitioners alike to critically examine the implications of virtual influencers on consumer behaviour, brand strategy, and the broader marketing landscape.

METHODOLOGY

This systematic review follows the PRISMA guidelines to ensure a transparent, structured, and comprehensive approach to identifying, screening, and selecting studies, Figure (1).

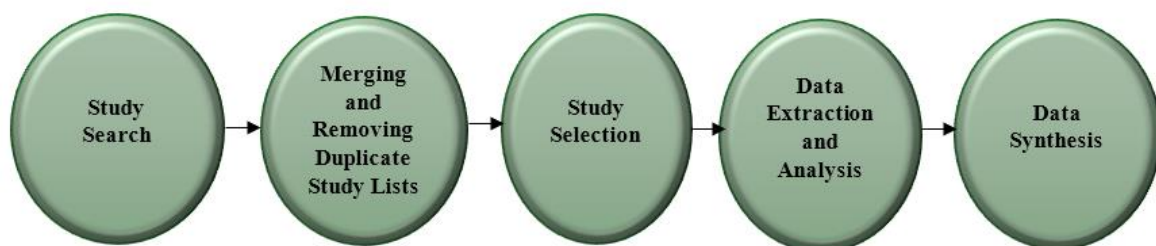
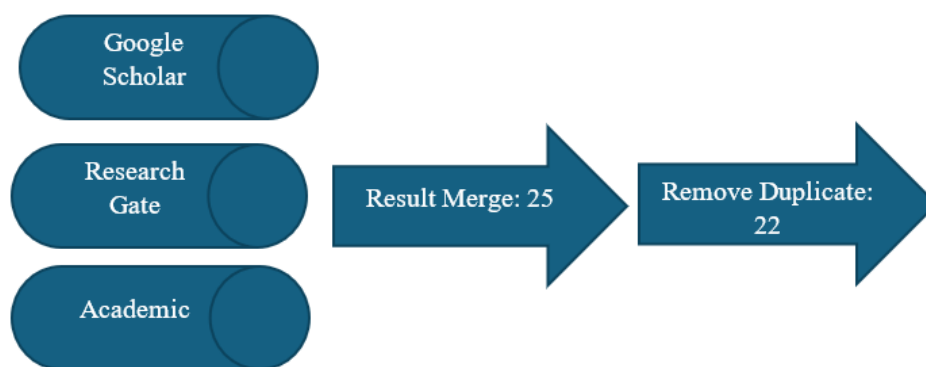


Figure 1: Mapping Study Steps

The review concentrates on literature published between 2019 and 2022 that explores virtual influencers. This review aims to summarise existing research trends, methods, and the geographic distribution of studies on this emerging topic. The review began in Figure (2) with an automated search of three electronic databases: Google Scholar, Academia, and ResearchGate. These platforms were chosen for their extensive coverage of scholarly literature, including management, marketing, and digital communication.



The search was limited to studies published between 2019 and 2022 to ensure the inclusion of the most recent research on virtual influencers. The research strategy employed keywords relevant to virtual influencers and their role in social media marketing. Keywords such as "virtual influencers," "digital influencers," "virtual influencers and social media," and "virtual influencers on social media" were used to retrieve relevant studies. Filters were applied to ensure that only peer-reviewed articles published within the specified date range were included. As a result, the research retrieved 24 unique studies from the three databases: 14 from Google Scholar, two from Academia, and six from ResearchGate. The study selection process followed the PRISMA-recommended Identification, Screening, and Eligibility steps. During the identification stage, all citations retrieved from the databases were imported into a reference management tool to remove duplicates. A total of 3 duplicate entries were excluded from the initial 25 records, leaving 22 unique studies for further review. These remaining studies were screened based on the titles and abstracts, and only those that met the predefined inclusion criteria were retained. The inclusion criteria required that the studies focus on virtual influencers, have full-text access, and address one or more research questions. Conversely, the exclusion criteria eliminated studies written in languages other than English or lacking full-text availability. In the eligibility stage, the full texts of the remaining studies were examined in detail to ensure they aligned with the research objectives of this systematic review. Any studies that did not meet these objectives were excluded from the final analysis.

Once the final selection of studies was completed, data extraction was carried out systematically using a predesigned data extraction form. The key data points extracted included the names of the authors, the title of the study, the year of publication, the language of the study, the electronic database from which the study was retrieved, the research method employed, the country where the research was conducted or focused, and the publication source. This structured extraction process facilitated the classification and analysis of the studies according to various dimensions, such as publication year, research method, and geographic distribution. The classification scheme provided a foundation for analysing trends within virtual influencer research. Each study was critically evaluated using PRISMA's risk of bias assessment tools to minimise the risk of bias. This assessment considered potential sources of bias, including selection, reporting, and publication. The studies were reviewed for methodological transparency and rigour, and any biases identified were noted in the results.

The included studies' results were synthesised through quantitative and qualitative approaches. The studies were categorised by publication type (e.g., journal articles, conference papers, theses, and book chapters), publication year, country of focus, and research methods employed. This allowed for identifying key trends in the literature, such as the noticeable increase in publications in 2020 and the predominance of qualitative research methods in the field. Additionally,

a thematic analysis was conducted to explore recurring research themes, such as the ethics of virtual influencers, their role in marketing communication, and their impact on user engagement.

RESULTS

The selected studies were classified based on publication type and source, revealing a distribution across different categories. Most studies were published in academic journals, accounting for nine papers, while five were presented at conferences. Seven studies were identified as theses, and one was a book chapter. Detailed information about each study, including the authors, title, year of publication, language, electronic database, research method, country of focus, and publication source, is provided in Appendix A. This comprehensive breakdown helps contextualise the scope of the research across different publication mediums.

The studies were further analysed according to their publication year, covering 2019 to 2022. The data indicated varied research activity on virtual influencers across these years. In 2019, three studies were published, reflecting initial scholarly interest in this emerging topic. The number of studies saw a significant increase in 2020, with eight publications, which could be linked to the growing visibility and use of virtual influencers in marketing during that year. This trend remained stable in 2021, with another eight studies published. By 2022, as of the current date, three studies have been published. The steady rise in publications in 2020 and 2021 highlights the increasing importance of virtual influencers in academic discourse during this time.

Geographic analysis of the studies revealed the global nature of virtual influencer research. The United States emerged as the leading contributor, with five studies originating from or focusing on this region. South Korea and Sweden each produced four studies, demonstrating their strong engagement in the topic. Australia contributed three studies, while Brazil was represented by two. Other countries, including France, Indonesia, the Netherlands, and the United Arab Emirates, each had one study. This geographic diversity underscores the wide-reaching interest in virtual influencers across different cultural and regional contexts, highlighting their relevance in both developed and emerging markets.

In terms of research methods, most studies employed qualitative approaches. Sixteen studies adopted qualitative methods, reflecting the nascent stage of research on virtual influencers and the need for in-depth, exploratory analyses. Qualitative methods were deemed particularly suitable for understanding the nuances of this emerging topic, as noted by Moustakas (2020). In contrast, only three studies utilised quantitative methods, suggesting that quantitative analyses are still underexplored in this area. Additionally, three studies conducted systematic literature reviews, further demonstrating this field's limited but growing body of knowledge. The predominance of qualitative methods emphasises the need for future research to incorporate more quantitative approaches to complement the existing qualitative insights and provide a more holistic understanding of virtual influencers' impact on marketing.

CONCLUSION AND FUTURE WORK

The systematic review revealed a growing body of literature on virtual influencers, with predominant qualitative studies. Research is mainly concentrated in regions such as the United States, South Korea, and Sweden. Future research should explore quantitative methods to assess the influence of virtual influencers on consumer behaviour marketing outcomes and expand into underrepresented regions. Research on virtual influencers in social media has witnessed notable growth over the past four years, with a considerable focus on the ethical challenges surrounding their emergence and their role in influencing marketing communication and user engagement. Studies have explored key factors that shape how audiences interact with virtual influencers, shedding light on the dynamics of this evolving phenomenon. However, while significant strides have been made, numerous areas remain ripe for further investigation.

One critical direction for future research is examining consumer behaviour more deeply, particularly concerning how virtual influencers shape attitudes and purchase intentions. Understanding the psychological mechanisms behind followers' trust and loyalty toward these influencers could offer valuable insights for marketers and brands. Moreover, while some research has looked at the types of content produced by virtual influencers, more detailed studies are needed to assess what

specific kinds of content generate the highest levels of engagement. This would provide practical insights into the strategic use of virtual influencers in various marketing campaigns. The creators' perspectives, including the motivations, strategies, and challenges faced by those who design and manage virtual influencers, also warrant further exploration. These insights could illuminate the creative process behind virtual influencer development and help predict future trends in this domain. Much of the existing research has also concentrated on developed countries, leaving a gap in understanding how virtual influencers resonate with audiences in less-studied locations. Expanding research to include more diverse geographic and cultural contexts could yield fresh perspectives and identify region-specific trends or challenges.

Another pressing need for future research is the incorporation of more quantitative methods. Given the predominance of qualitative studies, there is a clear opportunity to apply quantitative approaches that could provide more robust, empirical assessments of virtual influencers' authenticity and effectiveness in marketing strategies. Quantitative studies could also help measure the financial impact of virtual influencers on brand equity and consumer decision-making processes, offering concrete data for marketers. Furthermore, ethical considerations surrounding virtual influencers, including concerns about transparency, manipulation, and blurring boundaries between the virtual and real worlds, remain crucial for the investigation. As virtual influencers become more integrated into digital marketing strategies, developing ethical guidelines and standards for their use will be essential to maintain public trust.

In summary, while virtual influencer research has made considerable progress, future work should aim to broaden the scope of the investigation. Researchers can better understand this digital marketing phenomenon by incorporating quantitative methods, expanding geographic focus, examining consumer and creator perspectives, and addressing ethical concerns. The ongoing evolution of virtual influencers presents both challenges and opportunities, and continued research will be essential in guiding their future role in social media and beyond

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