

Virtual Identities in Cosmetic Industry: Scientific Mapping of Consumer Trust and Influencer Authenticity

Shraddha Choudhary¹, Dr. Shubha Johari²

¹ Research Scholar, Jaipuria Institute of Management, Jaipur

² Associate Professor, Jaipuria Institute of Management, Jaipur

Abstract

In the field of beauty and cosmetics, virtual influencers are introducing a paradigm shift and challenging the authenticity and consumer trust that is upheld by traditional influencers. But in the beauty and cosmetics industry, virtual influencers (VIs) are challenging the norm and the authenticity and consumer trust traditionally upheld by influencers. This study explores the evolution of research on virtual influencers through a bibliometric analysis of existing literature, mapping the field's intellectual structure, tracing its thematic evolution, and introducing research directions. After screening using a protocol guided by the PRISMA guidelines and analysis with the bibliometrics R package and its BiblioShiny interface to highlight influential authors, high-impact publications, leading journals, and collaborative networks driving this area. The results show that these elements - authenticity, credibility, parasocial interaction and consumer trust - are prominent and recurring theoretical themes, and that there is a growing body of research about artificial intelligence, anthropomorphism, and brand endorsement, which are all key to the current trend of using digital personas in beauty and cosmetics marketing. The study also highlights the geographic and disciplinary focus of the research production and identifies some specific gaps in the design of study of the beauty and cosmetics context, particularly in terms of the longitudinal and cross-cultural research designs. This paper represents a strategic reference for the researchers and cosmetics entrepreneurs to comprehend the impact of digital personas on consumers' perceptions, and also suggests new research aspects to explore in the future in the area of AI.

Keywords: *Virtual Influencers, Consumer Trust, Cosmetic Industry, AI Generated Personas*

Introduction

The first academic study of virtual influencers dates back to the late 2000s when average users started to establish and profit from a niche or community and maintain a close connection with their audience online (Senft 2008; Turner 2010). This early work was based on many older theoretical foundations in the fields of celebrity and endorser research: source credibility model (Ohanian 1990) which suggests that the perceived expertise and trustworthiness of the source, or endorser, is what makes their endorsement effective; meaning transfer model (McCracken 1989) which describes the symbolic transfer from a celebrity to a brand, and then from the brand to the consumer; match-up hypothesis (Kamins 1990) which posits that the attributes of the endorser must match that of the endorsed product; and persuasion knowledge model (Friestad and Wright 1994) which outlines how consumers develop coping mechanisms once they are aware that they are being persuaded. This profession was subsequently encapsulated into a definition of the influencer marketing by Sammis, Lincoln and Pomponi (2016, 7): “the art and science of engaging people who are influential online to share brand messaging with their audiences in the form of sponsored content”. This, in turn, became the foundation for more than a decade of research looking at the credibility of social media influencers and their impact on consumer perception. (Freberg et al. 2011).

Many of these literatures relied on a theory of parasocial interaction (PSI), which was first founded by Horton and Wohl (1956) to explain the one-sided relationship between media audiences and TV personalities. When it comes to social media, this theory might explain how people feel connected or “friendly” towards an influencer they have never met and why that feeling, not fame, is what makes many of the top influencers so persuasive. They reviewed 76 articles between 2011 and 2019 to provide the first comprehensive bibliometric mapping of the broader literature on social media influencers, celebrity endorsements, and Instagram marketing, which found celebrity endorsement and social media influencers as the dominant early themes of this field, while source credibility, purchase intention, and brand engagement were identified as its key constructs.

The most impactful trend has been the rise of virtual influencers (Lil Miquela, Imma), and the parallel growth of generative-AI tools that enable brands to create synthetic endorsers without the “reputational risk, scheduling, or cost structure of real people” (Sands, Campbell, Plangger, and Ferraro 2022; Thomas and Fowler 2021). The earlier literature assumes that viewers/readers will view the human sender as trustworthy, credible, and authentic and that they will take the human sender for granted, rather than contemplating whether a fully virtual persona can ever be viewed as trustworthy, credible, and authentic, or under which conditions this might be possible. This

question brings up some other theoretical apparatus that was not central to the previous SMI literature, such as the anthropomorphic concept (i.e. giving an agent human-like qualities, intentions or emotions) and the uncanny valley (Mori, 1970), where entities that are nearly, but not quite, human can evoke discomfort or distrust, rather than affinity.

This transformation is not just conceptual but technological and industrial, as well. Thanks to the advancements in 3D rendering, motion capture and most recently generative AI, the practice has shifted from just a few, well-funded, early-adopting brands (including the creators of Lil Miquela) to a wider range of brands, including beauty and cosmetics, that have their own virtual influencers, and agencies that create them. Beauty and cosmetics marketing present many of the same dilemmas as virtual influencers, as the industry always has required a level of close engagement between the endorser and the consumer's image of him or her—and now requires this to be present with a virtual face, one that may not even be a real face at all (Djafarova and Foots 2022; Kim and Park 2023).

Second, the category is known for stereotyped and impossibly perfect looks, and the emergence of an entirely synthetic, artificially photo-editable avatar throws new challenges into the body image, self-comparison and mental health equation that's not as apparent in other segments. Third, although beauty and cosmetics brands have been especially quick to jump on the virtual influencer marketing bandwagon, in practice (just as we've seen with other forms of influencer marketing, such as cosmetics brands with their own virtual influencers or when the brands partner with independent virtual influencers), academic research hasn't kept up with real-world applications, as this review reveals: there are more industry case studies than academic publications to draw from when considering virtual influencers and beauty.

Third, a claim that is credible for a virtual influencer promoting a beauty product, such as, for example, a reduction in fine lines, would not be as credible for a virtual influencer promoting a consumer electronics product or a claim in a financial services product. This raises questions regarding the credibility perception of a beauty-focused virtual influencer and whether parasocial bonds with a beauty-focused virtual influencer are formed, strengthened, or strengthened to a greater degree compared to the others (Lim and Lee 2023).

The research questions for this study are as follows:

RQ1: How do the most important sources, authors, countries and documents in the literature of the virtual-influencer and influencer-marketing area perform beauty and cosmetics marketing?

RQ2: What are the conceptual areas or clusters in the field and where is authenticity, credibility and consumer trust in them?

RQ3: What is the best explanation for the major findings of the field and their implications for beauty and cosmetics, particularly in terms of the mechanisms proposed to explain the findings (source credibility, parasocial interaction, anthropomorphism, and the uncanny valley)?

Methodology

Data Collection, Screening, and Selection

A keyword-based approach wherein we have used a string of keywords to identify bibliographic records from Scopus focusing on the concept of influencer marketing and other related constructs such as social media influencers, digital influencers, and virtual/AI influencers. There were no duplicates in the first search, which returned 1,087 records. Following the PRISMA framework.

“Figure 1. PRISMA diagram with filters applied.”

		PRISMA Protocol		
Ident ification		Records identified with keywords Scopus (1087)	>>>>>	Records removed before screening: Duplicate records removed (n = 0)
		↓ ↓ ↓		
Screening		Reports sought for retrieval (n = 1087)	>>>>>	Reports excluded: Document type (n=409), Language (n=56), Source type (n=1), Publication Stage (59) and Subject Area (n = 88),
		↓ ↓ ↓ ↓ ↓		
		“Reports sought for retrieval (n = 474)”	>>>>>	“Reports not retrieved (n = 0)”
		↓ ↓ ↓ ↓ ↓		
Include d		Studies included for bibliometric analysis (n = 474)		

“Table 1. PRISMA-guided identification and screening process.”

Stage	Description	n
“Identification”	“Records identified via keyword search in Scopus”	“1,087”
“Screening - excluded”	“Document type (non-article)”	“409”
“Screening - excluded”	“Language (non-English)”	“56”
“Screening - excluded”	“Source type”	“1”
“Screening - excluded”	“Publication stage (not final)”	“59”
“Screening - excluded”	“Subject area (unrelated fields)”	“88”
“Included”	“Studies included in the final dataset”	“474”

Descriptive Analysis

The main characteristics of the dataset are summarized in Table 2. The number of articles published in the 220 sources ranged from 0 in 2018 to 233 in 2026, a growth rate of 51.15% per year. The average document is 1.77 years old, with an average of 32.41 citations; this is a much faster citation rate than is typical for an established literature, and it is comparable to that of a field still in its rapid growth stage. Only 44 articles are single-authored (9.3%), and the average number of co-authors per article is 3.08, while 26.79% of them are co-authored globally, reflecting a rapidly expanding and highly collaborative internationalized research community.

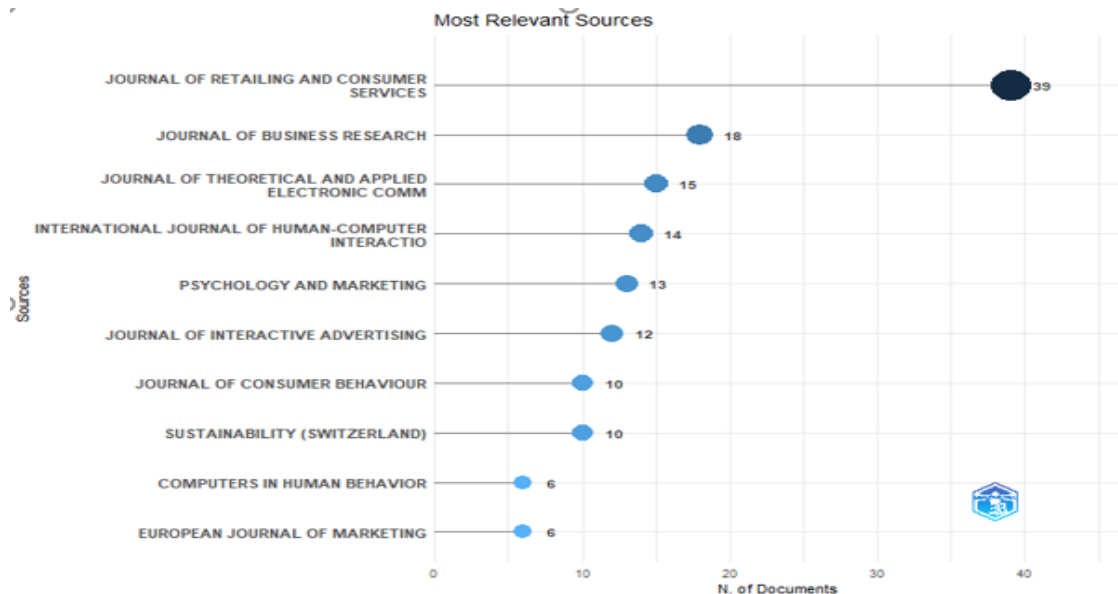
“Table 2. Main information about the dataset”

Description	Results
“Time span”	“2018–2026”
“Sources Journals”	“220”
“Documents”	“474”
“Annual growth rate (%)”	“51.15”
“Document average age (years)”	“1.77”
“Average citations per document”	“32.41”
“References”	“28,160”
“Keywords Plus (ID)”	“711”
“Author's Keywords (DE)”	“1,402”
“Authors”	“1,187”
“Single-authored documents”	“44”
“Co-authors per document”	“3.08”
“International co-authorship (%)”	“26.79”
“Document type”	“Article (474)”

Based on Sources

Sources most likely to produce a yield are listed in Table 4. “The Journal of Retailing and Consumer Services” leads in the number of articles (39), followed by “Journal of Business Research (18), “Journal of Theoretical” and Applied Electronic Commerce Research” (15), “International Journal of Human-Computer Interaction (14)”, and “Psychology and Marketing (13)”. Beauty and cosmetics applications are especially interesting because, as a domain, they still have outlets dedicated to both retail and consumer behavior. These areas include purchase behavior, the role of self-perception, and psychological constructs. This bottom five reflects the shift of the field: Human-computer interaction research is increasingly in the domain of marketing and the communication aspect of the HCI scholarship; Credibility evaluation of a virtual influencer is not only a communications problem, but also a design and interface problem.

“Figure 2. Most productive sources (top 14).”



Applying Bradford's Law to the source distribution identifies 13 core sources (Zone 1) that concentrate the literature's core output, with 54 sources in Zone 2 and 153 in Zone 3, out of 220 sources overall. This concentration, however, around 6% of sources represent the Zone-1 core, suggests a relatively dispersed, but still recognizable core literature, typical of an interdisciplinary, but still consolidating research area rather than a group of few specialists.

Based on Source Impact (H-Index)

Table 5 shows the h-index of the top sources, which represents productivity and impact of these sources on the data set. As in previous years, the most productive journals have the most impact on citations, with the "Journal of Retailing and Consumer Services" again topping the list (h = 15), followed by the "Journal of Business Research" (h = 14) and "Psychology and Marketing" (h = 10) this is not always the case in emerging areas, as the number of publications and the impact on citations are not always correlated.

"Table 3. Source impact: h-index (top 15)."

Source	h-index	Total citations	Articles
"JOURNAL OF RETAILING AND CONSUMER SERVICES"	"15"	"1697"	"39"
"JOURNAL OF BUSINESS RESEARCH"	"14"	"1068"	"18"
"PSYCHOLOGY AND MARKETING"	"10"	"727"	"13"
"INTERNATIONAL JOURNAL OF HUMAN-COMPUTER INTERACTION"	"9"	"294"	"14"
"INTERNATIONAL JOURNAL OF HUMAN-COMPUTER INTERACTION"	"8"	"657"	"12"
"JOURNAL OF THEORETICAL AND APPLIED ELECTRONIC COMMERCE RESEARCH"	"8"	"155"	"15"
"SUSTAINABILITY (SWITZERLAND)"	"8"	"284"	"10"
"COMPUTERS IN HUMAN BEHAVIOR"	"6"	"784"	"6"
"JOURNAL OF CONSUMER BEHAVIOUR"	"6"	"370"	"10"
"JOURNAL OF ADVERTISING"	"5"	"1178"	"6"
"JOURNAL OF PRODUCT AND BRAND MANAGEMENT"	"5"	"162"	"6"
"TECHNOLOGICAL FORECASTING AND SOCIAL CHANGE"	"5"	"228"	"6"
"ASIA PACIFIC JOURNAL OF MARKETING AND LOGISTICS"	"4"	"35"	"5"
"EUROPEAN JOURNAL OF MARKETING"	"4"	"615"	"6"
"JOURNAL OF RESEARCH IN INTERACTIVE	"4"	"107"	"4"

Source	h-index	Total citations	Articles
MARKETING			

Based on Documents: Most Globally Cited Articles

Table 9 lists the most cited documents in the dataset. Cotter's (2019) study of how digital influencers and platform algorithms jointly negotiate visibility on Instagram is the most cited article by a wide margin, followed by Thomas and Fowler's (2021) study of AI influencers as brand endorsers and Jiménez-Castillo and Sánchez-Fernández's (2019) study of digital influencers' role in brand recommendation. Notably, several of the fifteen most-cited articles concern virtual or AI influencers specifically and bear directly on authenticity and trust — this paper's central theoretical concerns — including work on virtual-influencer “falsity” (Sands, Ferraro, Demsar, and Chandler 2022), origin disclosure and parasocial credibility (Lim and Lee 2023), and the “uncanny or deceiving” evaluative tension consumers experience when confronted with a synthetic endorser (Franke, Groeppel-Klein, and Müller 2023).

“Table 4. Most globally cited documents (top 15).”

Authors	Year	Source	Citations
“Cotter K.”	“2019”	“New Media and Society”	“730”
“Thomas V.L.; Fowler K.”	“2021”	“Journal of Advertising”	“428”
“Jiménez-Castillo D.; Sánchez-Fernández R.”	“2019”	“International Journal of Information Management”	“414”
“Lou C.; Kiew S.T.J.; Chen T.; Lee T.Y.M.; Ong J.E.C.; Phua Z.”	“2023”	“Journal of Advertising”	“380”
“Sands S.; Campbell C.L.; Plangger K.; Ferraro C.”	“2022”	“European Journal of Marketing”	“367”
“Franke C.; Groeppel-Klein A.; Müller K.”	“2023”	“Journal of Advertising”	“319”
“Torres P.; Augusto M.; Matos M.”	“2019”	“Psychology and Marketing”	“317”
“Djafarova E.; Foots S.”	“2022”	“Young Consumers”	“275”
“Sands S.; Ferraro C.; Demsar V.; Chandler G.”	“2022”	“Business Horizons”	“271”
“Kim H.; Park M.”	“2023”	“Computers in Human Behavior”	“266”
“Zhou X.; Yan X.; Jiang Y.”	“2024”	“Journal of Marketing”	“200”
“Lim R.E.; Lee S.Y.”	“2023”	“Computers in Human Behavior”	“200”
“Koles B.; Audrezet A.; Moulard J.G.; Ameen N.; McKenna B.”	“2024”	“Journal of Business Research”	“187”
“Mouritzen S.L.T.; Penttinen V.; Pedersen S.”	“2024”	“European Journal of Marketing”	“178”
“Xie-Carson L.; Magor T.; Benckendorff P.; Hughes K.”	“2023”	“Tourism Management”	“173”

Keyword Analysis

The summary of author keywords suggests that the keyword family (221 occurrences of singular and plural) is virtual influencer(s) followed by influencer marketing (73), social media (65), purchase intention (41), digital influencers (39), anthropomorphism (36), Instagram (35), and artificial intelligence (34). This is a significant change from the 2011-2019 data set, which included no reference to virtual/AI influencers and only listed social media influencers, influencer marketing, and social media as the top three. This is because the most salient keywords that appear in the field will show that the primary query that is being asked is whether and under what conditions consumers will respond to non-human endorsers as they will do to human endorsers — a central issue in the adoption of virtual influencers in beauty and cosmetics marketing that makes the relationship between the influencer and appearance and self-presentation a key component of the product being sold.

Conceptual Structure: Thematic Map and Clusters

The author keywords (250, min freq = 2) were used to build a keyword co-occurrence network, which was then segmented using the Louvain clustering algorithm. Four thematic clusters were identified and summarized in Table 10 and explained in detail below.

“Table 5. Thematic clusters derived from the author-keyword co-occurrence network (Louvain algorithm).”

Cluster	Representative keywords (occurrences)
1 Virtual influencer	“virtual influencer (130); purchase intention (44); anthropomorphism (36); virtual reality (29); authenticity (20); trust (17); AI influencer (16); commerce (13)”
2 Social media	“social media (115); virtual influencers (97); influencer marketing (73); artificial intelligence (54); digital influencers (39); Instagram (33); source credibility (21); digital marketing (17)”
3 Marketing	“marketing (76); advertising (30); consumption behavior (29); perception (22); electronic commerce (16); parasocial interaction (15); digital humanities (11); media role (11)”
4 Consumer behavior	“consumer behavior (22); human (16); article (14); social media influencer (12); social media marketing (11); brand endorsement (9); parasocial relationship (9); adult (9)”

Cluster 1: Virtual Influencer, Authenticity, Anthropomorphism and Trust

The concepts explain why and when virtual and AI-generated influencers can replace real-world influencers, as well as virtual/augmented-reality contexts as a delivery environment, constitute Cluster 1, which is the largest and most internally coherent cluster in the network. This cluster is of particular importance to this paper because it is the cluster where Authenticity and Trust research takes place, and it is the cluster that is the natural home of beauty- and appearance-related applications of virtual influencers as anthropomorphic and physical attractiveness judgments are closely tied to how a beauty-focused digital persona is evaluated (Kim and Park 2023). The combination of these constructs with virtual reality also means that the virtual try-on and augmented-reality concept in beauty and cosmetics marketing is conceptually fluid with the virtual-influencer literature, and not an altogether new phenomenon.

Cluster 2: Social Media Integration with Broader Digital Marketing Ecosystem

The virtual influencer related keywords were not confined to a specific niche in the literature, as is evident from Cluster 2; virtual and digital influencers were instead connected with the larger social-media-marketing and artificial-intelligence literatures, and this was not the case in the previous cluster period, where the social-media-marketing related keywords were comparatively self-contained. For beauty and cosmetics marketers, it is a practical matter: virtual-influencer campaigns should be measured by the same overall toolbox of source-credibility and digital-marketing-effectiveness measures that other marketing activities are measured by, and not as a separate unique class of marketing that calls for new and distinct ways of measuring.

Cluster 3: Marketing Advertising Ecosystem and Parasocial Interaction

Cluster 3 is the continuity of basic concepts from the advertising and consumption-behavior literature, such as parasocial interaction, that survive into the new world of the virtual influencer. The finding of parasocial interaction in this cluster, but not in Cluster 1 with authenticity and anthropomorphism, is informative, though, because it implies that the way in which people form relationships with virtual figures is being researched in ways that are still largely borrowed from human-influencer and celebrity studies (Horton and Wohl 1956), while it is researched via the frameworks built specifically for synthetic endorsers that is not the case (a tension that is discussed below).

Cluster 4: Consumer Behaviour Influencer Literature

The themes of the 2011–2019 dataset are carried on by the themes found in Cluster 4, which reflect the more traditional literature around the social media-influencer and brand literature, a smaller but still separate cluster of themes within this thematic structure. The fact that it is still seen in its own, smaller group suggests that the field of virtual influencers is not replacing the human influencers literature – it is just catching up with them in the number of studies it receives, rather than displacing them.

Discussion

Performance Analysis Highlights

The data validate this field's status as a fast-growing one, with 51.15% growth per year, an average document age under two years, and already large citation numbers for recently published scientific documents. Majorly journal publications are the primary outlet, in which 220 sources are involved and only 13 (around 6%) are the Bradford core. The current core has expanded from the 2011–2019 review, which featured “International Journal of Strategic Communication”, “International Journal of Advertising” and “Journal of Interactive Advertising” as key sources, and now includes journals on retailing, business and human computer interaction, which are the other key areas of interest that have become part of the field's growing, and diversifying, focus beyond advertising and communication departments into consumer-behaviour and technology-design scholarship, all of which have direct

relevance to the evaluation of beauty-tech applications such as virtual try on, AI skin analysis and avatar based product recommendation.

Source Credibility and the Human: AI Substitutability Debate

The single most obvious conclusion of this review is the role of the virtual and artificially created influencers in current research and that the basis of the research is essentially an extension of the classical source-credibility model (Ohanian 1990) into the realm of an endorser whose existence is not embodied, whose biography is not lived, and whose expertise is not real. Some key foundational studies are those by Thomas and Fowler (2021), who distinguished between AI influencers and human endorsers; by Sands et al. (2022), who conceptualized the opportunities and risks of “falsity” with virtual influencers; and a series of comparative studies that evaluated whether virtual influencers could outperform human influencers in terms of trust, attractiveness, and purchase intention outcomes (Kim and Park 2023; Franke, Groeppel-Klein, and Müller 2023). The overall trend from this body of literature is that virtual influencers can create similar, if not better, levels of engagement and purchase intention as human influencers, but that this is highly dependent on perceived authenticity, product-endorser fit and type of product being endorsed (Kim and Park, 2023), which has direct implications in the context of beauty and cosmetic marketers where product-endorser fit may be more difficult to obtain than in categories where the product's own body or appearance is not as central to the claim being made.

Parasocial Interaction and the Borrowed Theory

Thematic clustering shows that the concept of parasocial interaction, which was initially used to describe how audiences relate to human actors on TV (Horton and Wohl 1956), is present in Cluster 3 as well, alongside the concepts of the media of advertising and consumption behavior, not as part of the virtual-influencer-specific Cluster 1. This placement is actually revealing since in most instances, researchers continue to use a framework suitable for close human-human connection and extrapolate that onto the human–AI relationship without creating a parasocial framework for synthetic personas. The study by Lim and Lee (2023) on revealing or concealing the artificiality of a persona and emotional narratives is an important contribution to such a native system, as it demonstrates that the method and timing of disclosure of a personae's artificiality has an impact on parasocial relationship strength and credibility ratings that does not straightforwardly align with the disclosure literature produced under the rubric of sponsored human-influencer content. For beauty marketing in particular, this poses an under-studied question: does a parasocial connection to a virtual beauty influencer grant a similar level of trust in claims about the effectiveness of the products they promote as a human beauty influencer would? Or does the virtual nature of the source limit the degree to which parasocial connection can replace experiential trust?

Future Research Direction

The above discussion indicates a set of research lines. They are introduced by the following thematic areas: theory development, beauty and cosmetics specific applications, disclosure and regulation, cross cultural geographic research, methodological innovations and the well-being of the consumers.

Theoretical Development: Toward a Native Theory of Synthetic Parasocial Relationships

The theory of parasocial interaction (Horton and Wohl 1956) is still being used on virtual influencers, with the theory as applied to human media personalities as discussed above. Future research is needed to determine if the process of becoming involved in a relationship with a known artificial persona is different from becoming involved in a relationship with a known human persona. Notably, it would be useful for researchers to investigate if the scales of anthropomorphism already in existence, mostly developed for physical robots and voice assistants, are suitable to measure the human-likeness of a purely visual, social-media-native persona, or if beauty- and appearance-specific anthropomorphism scales exist.

Specific Applications: Beauty and Cosmetic

Clearly, a next step for this review is a focused bibliometric and content-analytic investigation that is limited to beauty and cosmetics contexts, as planned for this review with the combination of Scopus and Web of Science. In the special literature, there are certain questions worth addressing. First, researchers need to investigate whether the sensory-specificity effect found by Zhou and colleagues (2024) can be replicated within the beauty category, for instance, by comparing the effectiveness of virtual influencers for color cosmetics with that of texture-, scent-, or efficacy-dependent products like anti-aging or skin-barrier products. Second, there is a need for research to investigate how consumers perceive a virtual influencer's implicit claim to “expertise” in a category in which “expertise” is typically substantiated by a visible, personal transformation (a human influencer's own skin, their own visible results) which can only be simulated by a human, not a synthetic persona. Third, the credibility dynamics between brand-owned virtual personas (where the persona is created and controlled by a single cosmetics brand) and independent virtual influencers (who work across various brands) needs to be compared, as the former may have a different credibility dynamic than the latter, reflecting a long-standing debate in human-influencer literature regarding perceived autonomy and promotional motives.

Disclosure, Ethics, and Regulation

Future studies should more explicitly investigate the relationship between the disclosure of virtual influencers and the current laws governing beauty advertising with regard to idealized appearance and image editing. Specifically, research should be conducted to assess how origin-disclosure presented in various formats, such as a persistent visual cue, a one-time bio disclosure, a verbal disclosure within the content, impacts trust and purchase intent for the more sensitive category of beauty and cosmetics claims, adaptable from Lim and Lee's (2023) origin-disclosure findings to this higher-stakes category. Likewise, the ethics of what a virtual influencer says about a product's efficacy have not yet been sufficiently explored, especially as this is an area that would, at least in theory, allow a "real" influencer to substantiate with personal use and experience, and in which younger consumers have higher ethical standards, as identified by the authors of Sands et al. (2022) and Djafarova and Foots (2022).

Cross Cultural and Geographic Research

Analyzing the literature above the country level reveals that the prime countries contributing to this literature are China, the United States, India, South Korea and the United Kingdom, but the most salient theories that appear in this field (such as the source credibility model, parasocial interaction model, celebrity endorsement transfer and uncanny valley) were first developed in western contexts and have not been systematically tested with cultural boundary conditions in beauty specific applications.. It is well established that beauty standards, appearance norms, and the processes of trust formation are culturally different; future studies can directly compare the authenticity and trust judgment of the virtual-influencers in different markets, such as comparing the beauty markets in East Asia that have been a significant driver of commercial virtual-influencer use with the beauty markets in the West in which many theory-building studies have taken place. This research could also provide insights into whether the uncanny valley is culturally bound (due to differing cultural norms and expectations in entertainment and commerce) and whether it's in relation to the extent of prior exposure with virtual 'faced' in different cultures.

Methodological Innovation

The literature so far has been dominated by single-exposure experimental and survey designs as mentioned in the Discussion. Three methodological extensions would benefit future research. There is much more evidence that can be obtained from longitudinal (monthly, yearly) research on actual consumers' trust, parasocial attachment and purchases over time with a virtual beauty influencer rather than from inferences derived from one-exposure lab research. Second, to complement the evidence base based on surveys and experiments would be platform-level and technical approaches, such as analyzing engagement and sentiment data at scale across multiple virtual beauty personas. Third, it will be helpful to develop the native theoretical vocabulary of the above-mentioned to be used in the development of mixed-method designs that use both quantitative trust measures to a known-synthetic beauty endorser rather than to test constructs borrowed from other contexts or settings.

Consumer Well-Being and Body Image

Virtual influencers are, by construction, digitally perfect in ways no human body can be, future research should directly examine the well-being implications of beauty category virtual influencers for body image, appearance comparison, and self-esteem, extending existing concerns about idealized imagery in social media (Djafarova and Foots 2022) in the context where the idealized image belongs to an entity that never had an unedited state to begin with. This is a very significant gap given the documented effects of the beauty and cosmetics industry in exacerbating social comparison related to appearance, and the overwhelming literature focus on the positive marketing effectiveness outcomes of this technology (trust, credibility, purchase intention) with few studies on the psychological cost side.

Limitations

This review has a few limitations. Most importantly, the underlying data set here is a broad sampling of the literature, not only beauty-related terms and keywords, but a wide-ranging search that includes all other types of literature; a follow-up study using a more restricted set of terms and keywords (as originally proposed in this paper's abstract) would have yielded a more finely-mapped literature. The set is also limited to journal articles published in English and indexed in Scopus; the reference to Web of Science data in the abstract does not form a part of the set, but should be added to the set by an extra extraction from Web of Science data, if the need is to provide an analysis that includes Web of Science data. The four-cluster thematic solution is the result of the keyword-normalization and clustering process, and is not definitive, but rather a reasonable solution only. Finally, the apparent deceleration in the last annual data point is not considered to reflect a true slowdown in the field's growth because 2026 data are partial in that they only include articles that are indexed up to the date the data was collected.

Conclusion

The past six years of research on virtual and AI influencers and the greater influencer-marketing body of literature that underlies the contemporary literature on digital personas in b2c marketing is a recent, high-cited stream that has been a major contributor to the development of the field since the initial review, but one that is not necessarily continuous with it. Authenticity, anthropomorphism, and trust have become new constructs in addition to purchase intention and engagement, and the theoretical framework designed for human endorsers is clearly being stretched, adapted, and in some cases strained to address a phenomenon for which it was not originally created. These are exactly the constructs as well as exactly the tensions that are most important to beauty and cosmetics brands when they are considering whether, and how, and if, to have a digital persona. It is likely that the marketing scholars as well as beauty practitioners will continue to have to deal with the issues raised in this literature: authenticity, disclosure, anthropomorphism and the substitutability of human and artificial influence, as their main concerns, and they are bound to increase in number as generative-AI tools become increasingly easier to use and generate synthetic endorsers.

References

1. Aria, M., and C. Cuccurullo. 2017. "Bibliometrix: An R-Tool for Comprehensive Science Mapping Analysis." *Journal of Informetrics* 11 (4): 959–975.
2. Cotter, K. 2019. "Playing the Visibility Game: How Digital Influencers and Algorithms Negotiate Influence on Instagram." *New Media & Society* 21 (4): 895–913.
3. Djafarova, E., and S. Foots. 2022. "Exploring Ethical Consumption of Generation Z: Theory of Planned Behaviour." *Young Consumers* 23 (3): 413–431.
4. Franke, C., A. Groeppel-Klein, and K. Müller. 2023. "Consumers' Responses to Virtual Influencers as Advertising Endorsers: Novel and Effective, or Uncanny and Deceiving?" *Journal of Advertising* 52 (4): 523–539.
5. Freberg, K., K. Graham, K. McGaughey, and L. A. Freberg. 2011. "Who Are the Social Media Influencers? A Study of Public Perceptions of Personality." *Public Relations Review* 37 (1): 90–92.
6. Friestad, M., and P. Wright. 1994. "The Persuasion Knowledge Model: How People Cope with Persuasion Attempts." *Journal of Consumer Research* 21 (1): 1–31.
7. Horton, D., and R. R. Wohl. 1956. "Mass Communication and Para-Social Interaction: Observations on Intimacy at a Distance." *Psychiatry* 19 (3): 215–229.
8. Jiménez-Castillo, D., and R. Sánchez-Fernández. 2019. "The Role of Digital Influencers in Brand Recommendation: Examining Their Impact on Engagement, Expected Value and Purchase Intention." *International Journal of Information Management* 49: 366–376.
9. Kamins, M. A. 1990. "An Investigation into the 'Match-Up' Hypothesis in Celebrity Advertising: When Beauty May Be Only Skin Deep." *Journal of Advertising* 19 (1): 4–13.
10. Kim, H., and M. Park. 2023. "Virtual Influencers' Attractiveness Effect on Purchase Intention: A Moderated Mediation Model of the Product–Endorser Fit with the Brand." *Computers in Human Behavior* 143: 107703.
11. Koles, B., A. Audrezet, J. G. Moulard, N. Ameen, and B. McKenna. 2024. "The Authentic Virtual Influencer: Authenticity Manifestations in the Metaverse." *Journal of Business Research* 176: 114588.
12. Lim, R. E., and S. Y. Lee. 2023. "'You Are a Virtual Influencer!': Understanding the Impact of Origin Disclosure and Emotional Narratives on Parasocial Relationships and Virtual Influencer Credibility." *Computers in Human Behavior* 148: 107887.
13. Lou, C., S. T. J. Kiew, T. Chen, T. Y. M. Lee, J. E. C. Ong, and Z. Phua. 2023. "Authentically Fake? How Consumers Respond to the Influence of Virtual Influencers." *Journal of Advertising* 52 (4): 481–500.
14. McCracken, G. 1989. "Who Is the Celebrity Endorser? Cultural Foundations of the Endorsement Process." *Journal of Consumer Research* 16 (3): 310–321.
15. Mori, M. 1970. "The Uncanny Valley." *Energy* 7 (4): 33–35.
16. Mouritzen, S. L. T., V. Penttinen, and S. Pedersen. 2024. "Virtual Influencer Marketing: The Good, the Bad and the Unreal." *European Journal of Marketing* 58 (13): 1–29.
17. Ohanian, R. 1990. "Construction and Validation of a Scale to Measure Celebrity Endorsers' Perceived Expertise, Trustworthiness, and Attractiveness." *Journal of Advertising* 19 (3): 39–52.
18. Sammis, K., C. Lincoln, and S. Pomponi. 2016. *Influencer Marketing for Dummies*. Hoboken, NJ: Wiley.
19. Sands, S., C. L. Campbell, K. Plangger, and C. Ferraro. 2022. "Unreal Influence: Leveraging AI in Influencer Marketing." *European Journal of Marketing* 56 (6): 1721–1747.

20. Sands, S., C. Ferraro, V. Demsar, and G. Chandler. 2022. "False Idols: Unpacking the Opportunities and Challenges of Falsity in the Context of Virtual Influencers." *Business Horizons* 65 (6): 777–788.
21. Senft, T. M. 2008. *Camgirls: Celebrity and Community in the Age of Social Networks*. Vol. 4. Bern, Switzerland: Peter Lang.
22. Tanwar, A. S., H. Chaudhry, and M. K. Srivastava. 2022. "Trends in Influencer Marketing: A Review and Bibliometric Analysis." *Journal of Interactive Advertising* 22 (1): 1–27.
23. Thomas, V. L., and K. Fowler. 2021. "Close Encounters of the AI Kind: Use of AI Influencers as Brand Endorsers." *Journal of Advertising* 50 (1): 11–25.
24. Torres, P., M. Augusto, and M. Matos. 2019. "Antecedents and Outcomes of Digital Influencer Endorsement: An Exploratory Study." *Psychology & Marketing* 36 (12): 1267–1276.
25. Turner, G. 2010. *Ordinary People and the Media: The Demotic Turn*. Thousand Oaks, CA: Sage Publications.
26. Xie-Carson, L., T. Magor, P. Benckendorff, and K. Hughes. 2023. "All Hype or the Real Deal? Investigating User Engagement with Virtual Influencers in Tourism." *Tourism Management* 98: 104766.