



Building the Influence of Virtual Opinion Leaders: An Analysis Based on Multidimensional Structure and Situational Dependency

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Abstract. With the advent of the digital age, a new generation of virtual key opinion leaders (VKOLs) has emerged, wielding significant influence over their fan bases and deepening public understanding of the diverse landscape of opinion leaders. This study employs Myers and Robertson's multidimensional structure of opinion leaders and situational contingency as its analytical framework to examine the current state of virtual opinion leaders. It delves into the impact of algorithmic technology on the construction of influence among virtual opinion leaders. The study focuses on virtual opinion leaders in commercial and cultural spheres, highlighting that their influence is deeply intertwined with platforms and algorithmic recommendations. Their role has evolved from information intermediaries to emotional organizers and advocates for prosocial actions.

Keywords: Opinion leaders, virtual opinion leaders, algorithms, prosocial actions

1 Introduction

The concept of “opinion leaders was proposed by scholars such as Lazarsfeld to describe individuals who are active within interpersonal communication networks, frequently providing information and viewpoints to others while exerting influence over them. Myers and Robertson (1972) [16] and other scholars shifted the theoretical research focus from static individual traits to the dynamic process of influence generation by revealing the multidimensional structure and situational dependence of opinion leaders' influence. In the digital age, the composition of opinion leaders has become increasingly diverse, with virtual influencers such as virtual idols and AI bloggers continuously emerging (Hung 2025)[14]. Algorithms have reshaped information flow pathways, deepening public understanding of the influence wielded by opinion leaders.

This study adopts a qualitative research method and, based on the multi-dimensional structure framework of opinion leaders proposed by Myers and Robertson (1972), systematically explores the influence construction mechanism and context dependence of virtual opinion leaders (VKOL). The study follows the theoretical sampling principle

proposed by Yin (2018)[31] and strictly sets the case selection criteria: first, the research subjects must be clearly defined as virtual idols, virtual bloggers, or virtual endorsers in media or academic literature; second, they must have a fan base of over one million or high topic exposure on mainstream social media platforms such as Instagram, Weibo, Bilibili, and Douyin, and possess typical opinion leader communication characteristics; third, they must cover both realistic and non-realistic image styles, as well as diverse vertical fields such as fashion, music, culture, public welfare, and park IPs, to ensure the diversity and representativeness of the cases; fourth, they must have sufficient traceable public research data, including platform post content, user interaction data, media reports, and brand cooperation announcements. Based on these criteria, this study ultimately selects Lil Miquela, Luo Tianyi, Lingna Belle, and Tianyu as core analysis cases, and introduces Knox Frost and AYAYI as auxiliary comparison cases to enhance the comprehensiveness and robustness of the research analysis.

In terms of data collection, the data sources of this study are mainly divided into three categories: first, the publicly available text and video content posted by each research case on mainstream social media platforms from 2020 to 2025, as well as user interaction data such as likes, comments, and shares; second, relevant reports from mainstream media such as The Paper and BBC, as well as authoritative industry research results such as the "China Virtual Digital Person Influence Report"; third, academic literature related to virtual opinion leaders included in core databases such as Web of Science and CNKI. The overall data collection period of this study is from November 2025 to May 2026.

2 Origins and Development of Opinion Leader Theory

The origins of the Opinion Leader theory can be traced back to the "Two-step Flow of Communication" proposed by Lazarsfeld, Berelson, and Gaudet. This theory posits that media information does not flow directly to the public, but rather first reaches opinion leaders, who then convey viewpoints to their followers through interpersonal interactions, thereby exerting a process of public opinion guidance (Katz & Lazarsfeld 2017)[15].

In the 1960s, as academic research expanded into the field of marketing, scholars realized that the influence of opinion leaders was highly topic-specific. Against this backdrop, Myers and Robertson (1972) proposed a multi-dimensional measurement framework to overcome the singularity and cross-topic insufficiency of earlier research. Their findings also strongly supported the contextual view that opinion leaders may be influential in similar thematic areas but not across all domains. The influence of opinion leaders is highly situation-specific, typically confined to specific thematic areas.

In the development of opinion leader theory, Everett Rogers (1962) [20] provided a theoretical synthesis of opinion leaders within the framework of "innovation adoption" in his work *Diffusion of Innovations*. This positioned opinion leaders within a more specific dynamic process—functioning as 'legitimizers' and "bridging communicators." To explain the role of opinion leaders in innovation diffusion, researchers at the

time proposed two complementary pathways. The first is the individual attributes pathway, which focuses on the intrinsic characteristics of individuals. Research indicates that opinion leaders are typically individuals with high self-confidence, strong self-efficacy, and a keen interest in information within specific domains. These internal motivations drive them to pioneer the adoption and actively disseminate innovations (Myers & Robertson 1972)[16]. The second is the network structure pathway, where opinion leaders often occupy central positions within networks, possessing extensive connectivity and abundant social capital (Coleman 1966)[4].

However, in the digital age, measuring the influence of opinion leaders faces new challenges. On one hand, non-observable data related to influential behaviors—such as private messages, offline discussions, and browsing histories—remain difficult to fully capture through algorithms or social network analysis (Case 2004)[1]. On the other hand, analysis may encounter the dilemma of unresolved causality. While social network analysis can describe network structures and node positions, it struggles to clearly distinguish whether an opinion leader's influence stems from their central position or whether they become central because they already possess influence (Shoham & Ruvio 2008)[22]. This issue is particularly pronounced in analyzing the influence of virtual opinion leaders. At the same time, scholars recognize that due to the complexity and multifaceted nature of opinion leaders on social media, no single theory can fully explain their influence comprehensively. Consequently, theories such as the Source Credibility Theory, the Knowledge of Persuasion Model, the Consistency Theory, the Pseudo-Social Interaction Theory, the Similarity-Attraction Theory, and the Two-Step Flow Model have been successively introduced (Smith & Boster 2009)[23]. These analytical dimensions are equally applicable to virtual opinion leaders.

3 The Emergence and Rise of the Virtual Opinion Leader Concept

Virtual Key Opinion Leaders (VKOL) are characters created using computer-generated graphics technology, also known as “virtual opinion leaders,” “virtual influencers” (VIs), or “virtual YouTubers” (VTubers) (Hung 2025)[14]. This concept originates from the notion of “Key Opinion Leaders” (KOLs), referring to experts possessing specialized knowledge in specific fields who, through their influence on social media, can shape audience decisions, behaviors, and attitudes (Cheng & Wang 2025)[3]. The introduction of “Virtual Opinion Leaders” inspires the development of a more multidimensional framework for understanding opinion leader roles in the digital age (Zhang & Gosline 2023)[33].

The initial audience for virtual idols was Japan's otaku subculture. This group is passionate about subcultures, disconnected from daily life and society, and predominantly male. From the perspective of fundamental human needs, connecting with society and gaining a sense of belonging are core human traits (Feng & Jiang 2020)[10]. Prolonged loneliness or disconnection from one's surroundings may lead individuals to feel overwhelmed by conventional interpersonal communication, prompting them to seek con-

nection with non-human “agents” (Guldemon et al., 2022)[11]. Since anthropomorphic objects are often perceived as more reliable and approachable, they may provide a sense of security and comfort, thereby partially substituting for real-life interpersonal relationships (Guldemon et al., 2022)[11].

Currently, influential virtual leaders have emerged across fields such as fashion, music, and gaming, often possessing dual commercial and cultural attributes from their inception. For instance, Shudu Gram, the world's first digital supermodel, debuted as a Black woman, advocating for inclusive beauty and cultural diversity through cultural expression, garnering global attention. Meanwhile, virtual pioneer Lil Miquela, with 3 million Instagram followers, has been shown to significantly boost sales for brands she endorses. Virtual opinion leaders generate substantial traffic for brands by integrating their expertise with product features, while also enhancing brand reputation (Shen & Yu 2025)[21]. Projections indicate that the number of virtual influencers will continue to grow substantially in the future, with their importance in digital marketing becoming increasingly prominent (Zhang et al., 2023)[34]. Research suggests that virtual influencers are forming a new type of appeal, effectively guiding audience behavior and intentions (Edwards 2025)[7].

4 Controversies and Disagreements in the Theory of Virtual Opinion Leaders in the Digital Age

The influence of virtual opinion leaders is rooted in algorithm-driven mechanisms, data modeling, and platform recommendations, and can be regarded as a quintessential manifestation of “algorithms as collective opinion leaders” (Zhang & Huang 2024)[32]. In recent years, whether hyper-realistic virtual influencers like Lil Miquela and Ling or non-realistic virtual idols such as Luo Tianyi and AYAYI, have demonstrated a unique contextual dependency in the digital age, carving out distinct communication pathways unlike traditional opinion leaders. Yet numerous controversies persist: Where exactly does their influence originate? To what extent can they shape fans' consumption habits and cultural perspectives? Do they merely wield influence within niche communities, or have they ascended to become broader societal leaders?

4.1 Social Capital Dependency and Algorithmic Logic

Research indicates that the influence of opinion leaders is often highly dependent on a specific context (Myers & Robertson 1972)[16]. In the digital environment, does the influence of virtual opinion leaders rely on traditional social capital pathways, or is it highly dependent on the attention allocated by algorithms?

The influence of some virtual digital humans still relies on existing social resources and communication channels, such as leveraging celebrities, classic animated characters, and popular KOLs for empowerment. Research has demonstrated that classic animated characters can stimulate consumers' nostalgia, thereby enhancing their perceived value and trust (Callcott & Phillips 1996)[2]. Lingna Belle is one of Disneyland's self-designed virtual ambassadors. While lacking an official animated or film backstory, she

has cultivated a distinctive persona through in-park live interactions, parades, and merchandise. On social media, topics related to Lingna Belle have garnered over 100 million views, with video content approaching one billion views, demonstrating her formidable fan appeal.

Meanwhile, some virtual idols rely on algorithmic logic, leveraging unique personas to gain traffic and attention. Lil Miquela is a globally renowned virtual influencer whose online persona is a 19-year-old musician, model, and social activist residing in Los Angeles. Her most counterintuitive trait lies in blurring the lines between virtual and reality. For instance, she posts “check-in” photos from real-world locations, photoshopped images of herself “interacting” with real figures like Trump and Musk, and even stages romantic storylines with real-life influencers. She also voices opinions on social issues such as immigration. Her approach has sparked waves of intense public debate while driving explosive fan growth, establishing formidable influence over public discourse.

In reality, whether it's virtual idols in the broad sense or contextual leaders specializing in specific vertical fields, their influence relies to a certain extent on the recommendation and amplification provided by platform algorithms (Taddicken & Reif 2025)[26]. Therefore, the “personas” of virtual opinion leaders are not absolutely stable but undergo dynamic changes.

4.2 Information Broker and Emotional Organizer

Although internet celebrities serve as nodes for various information, boasting massive fan bases and excelling at fan engagement, their primary focus remains self-promotion. In contrast, virtual opinion leaders concentrate more on sustained content creation to shape audience behavior and intentions (Hunt & Gruszczynski 2024)[13].

Similar to online celebrities, virtual opinion leaders also exhibit certain social interaction cues, such as physical interactions and verbal dialogue. These social interaction cues are referred to as anthropomorphized “Elicited Agent Knowledge” (Epley & Cacioppo 2007)[8]. Through storytelling and anthropomorphic interactions, virtual opinion leaders have transcended their role as mere “information dissemination nodes” to become “emotional organizers,” thereby serving as objects of audience emotional projection (Harff & Schmuck 2023)[12]. *The 2021 China Virtual Digital Human Influence Survey Report* reveals that in the virtual anchor sector, over 60% of users prioritize virtual idols' “appearance” and “content quality”; 66% focus on virtual anchors' “hosting style”; while 69% value their “distinctive personality traits” and “character concept.” Key drivers for audience acceptance include perceived technological novelty, perceived credibility, perceived anthropomorphism, and perceived agency. Of course, due to technological limitations and public acceptance, their anthropomorphic social interactions remain constrained compared to real humans, such as the absence of eye contact. Yet this does not alter the fact that the influence base of virtual opinion leaders extends beyond expertise alone. They can equally shift toward building content and emotional resonance, evolving from mere information intermediaries into potential organizers of collective meaning and emotional bonds (Podschuweit & Geise 2024)[18].

The support and passion of fan communities for virtual idols form the foundation for mutual co-creation of emotional value. Within virtual idol culture, fans continuously produce videos, images, music, and other content related to these idols, enriching their personas and narratives. Community management has thus become a crucial lever for amplifying the influence of virtual idols (Tao 2020)[27]. For instance, fans created self-styled adaptations of Luo Tianyi's hit song "Dala Beng Ba" on Bilibili, producing cover versions like the "Failed Exam Edition," "Math Edition," and "Gikyu Edition," sparking an online frenzy.

4.3 Proponents of Prosocial Action and the Absent Players in Reality

Currently, some virtual opinion leaders have demonstrated a certain degree of "moral influence" by participating in social welfare projects such as environmental protection, anti-bullying initiatives, and cultural heritage preservation (Fan 2025)[9]. Within the framework of prosocial opinion leadership, opinion leaders not only disseminate information and perspectives but also mobilize and guide community members to engage in prosocial behavior (Richey 2008)[19].

Unlike Lasswell's "5W model," which focuses on "who communicates what to whom through which channel," scholars like Schramm further inquire into "why communication succeeds." This leads to the proposition that a "shared meaning space" constitutes the implicit prerequisite for communication to occur. Virtual opinion leaders possess the capacity to transcend linguistic and geographical barriers, often serving as cultural "new incarnations" or "intermediaries" that become conduits for certain social issues (Yang & Qi 2024)[30]. In today's era of diverse fashion culture and youth trends, virtual influencers often better align with the aesthetic preferences and technological imagination of younger generations in traditional cultural spheres. Knox Frost, a virtual sports icon from the United States, previously collaborated with the World Health Organization (WHO) to promote COVID-19 prevention measures among Millennials and Generation Z, generating significant influence.

Within China, the practices of virtual opinion leaders in the cultural sphere—particularly in promoting cultural "going global" initiatives—deserve attention. For instance, the virtual digital human "Tianyu," modeled after the celestial maidens of Dunhuang, served as the prototype for the short drama series "Tracking the Lost Treasures." Created using AIGC technology, the series centers on the quest to locate lost Dunhuang artifacts. Leveraging short-video platform algorithms, it transforms Dunhuang culture into a popular narrative more accessible to global audiences. By establishing a "cultural guardian" persona, it evokes emotional resonance among audiences regarding the return of cultural relics and heritage preservation, thereby emerging as a vertical opinion leader in the cultural heritage domain (Song & Gao 2025)[25]. For instance, in the realm of traditional culture dissemination, Jiangsu's Su Xiaomei, Zhejiang's Gu Xiaoyu, Tibet's Gesang Mei duo, and Shanxi's Jin Yiyi have adopted youthful national-style personas to engage young audiences. Through sustained content interaction, they have progressively forged deep connections—evolving from an emotional community to a community of shared interests and ultimately an ecological community (Deng & Wang 2022)[6].

Research suggests that due to the controllability of negative news, virtual opinion leaders appear to possess an inherent advantage in shaping prosocial leadership personas. However, it is equally important to note that digital personas generated through technological tools further blur the boundaries between reality and fiction (Peng 2024)[17]. Other studies contend that prosocial actions must occur authentically within real-world contexts to possess genuine persuasive power (Cui 2023)[5]. This makes the interaction between virtual ambassadors and the physical world an ongoing topic requiring sustained exploration.

4.4 Contextual Leaders and Broad-Spectrum Leaders

Based on the above analysis, it can be seen that most VKOLs have a clear context-dependent nature. Luo Tianyi's influence is highly concentrated in the Bilibili music section and fan secondary creation communities; Lina Belle's appeal is almost entirely tied to the offline experience and peripheral consumption of Disneyland; Tianyu, as a cultural inheritor, has her discourse power confined to vertical topics such as Dunhuang and the return of cultural relics. These cases confirm that opinion leaders find it difficult to become broad-spectrum leaders across all fields.

However, Lil Miquela seems to be an exception. From her inception, she has simultaneously involved herself in multiple fields such as fashion, music, immigration politics, and social issues, and can spark discussions in each. But a closer examination reveals that her cross-field visibility does not stem from her professional knowledge in each field, but rather from the cross-field distribution of "controversial content + high interaction rate" by platform algorithms. In other words, algorithms may artificially create the appearance of "broad-spectrum influence". In the past two years, as Lil Miquela's content maintaining her daily persona has become increasingly branded and her genuine emotional expression has decreased, her topic popularity and public discussion have significantly declined, with a noticeable drop in interaction rates.

Therefore, this study argues that in the algorithm-driven digital environment, the influence boundaries of virtual opinion leaders are no longer solely determined by their own knowledge span and personality traits, but are also subject to the redistribution by platform recommendation logic. True cross-context broad-spectrum leaders remain rare, but algorithms can enable the content of a contextual leader to "spill over" into other contexts, creating a perceived broad-spectrum influence (Soffer, 2019)[24].

5 Conclusion

Based on the multi-dimensional structure and context-dependent theory of Myers and Robertson, this paper systematically examines the construction logic and role evolution of the influence of virtual opinion leaders in the digital age. The research shows that the influence of virtual opinion leaders does not stem from a single personal trait or network position, but is the result of the combined effect of multiple factors, including technological empowerment, personified interaction, and context adaptation.

Compared with traditional opinion leaders, the role of virtual opinion leaders has expanded from information mediators to "emotional organizers" and "advocates of pro-social actions", etc. However, the source of their influence remains controversial. On the one hand, the algorithm recommendation mechanism may reconstruct or even dominate the traditional path of social capital dependence; on the other hand, the "absence" of virtual entities in real prosocial actions weakens the foundation of their moral persuasiveness. Thus, it can be seen that the multi-dimensional structural model and contextualized perspective not only provide an empirical basis for the deepening of opinion leader theory, but also contribute a beneficial perspective to understanding the influence of virtual opinion leaders in the digital age (Wallace& Buil 2025)[28]. Virtual opinion leaders are still an emerging phenomenon and are in a dynamic evolution along with technological updates.

Future research should not only focus on the dynamic mechanisms of "algorithmic empowerment" in the digital environment but also conduct a careful examination of it in combination with the philosophy of technology and communication ethics. With the maturation of generative artificial intelligence and metaverse technologies, virtual opinion leaders may become an indispensable node in the human-machine collaborative communication ecosystem. As a comprehensive product of technological development, trend culture, aesthetic trends, and fashion concepts, the role and value of virtual opinion leaders in promoting social responsibility in public actions, cultural "going global", and guiding public issues urgently need continuous attention and in-depth exploration.

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