Mapping the Roles of AI in Advertising: Development of a 4C Typology

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Abstract

Based on established theoretical frameworks in communication technology and AI-driven persuasion, this study proposes a 4C typology (AI as creators, conversors, curators, and connectors) to conceptualize the diverse roles AI plays in the advertising process. Guided by this framework, we conducted a systematic review of empirical research on AI advertising. The review discovered that AI's distinct roles shape consumer responses in different ways by activating varying psychological mechanisms, which are further conditioned by various moderating factors. By offering an integrated framework that captures AI's multifaceted roles in advertising, this study addresses a significant gap in the literature. Our findings demonstrate that the role AI assumes in the advertising process is pivotal in determining consumer responses, generating important implications for both scholars and practitioners.

Keywords: AI Advertising, Systematic Literature Review, Conceptual Paper

Introduction

Artificial intelligence (AI) is rapidly transforming advertising practice and scholarship. AI advertising refers to "brand communication that uses a range of machine functions that learn to carry out tasks with the intent to persuade with input by humans, machines, or both" (Rodgers 2021, 2). Recent work has examined AI in advertising from multiple perspectives, including consumer experience, algorithmic processes, societal implications, and industry practices (Huh, Nelson, and Russell 2023). Despite this growth, the literature remains fragmented. Most studies focus on specific applications, such as AI-generated ads or virtual influencers (VIs), without providing a holistic picture of how AI functions within the advertising process. As AI increasingly acts not only as a tool but also as a communicator and distributor of persuasive messages, it is necessary to understand its distinct roles in advertising.

To address this gap, this study conducts a systematic review of empirical research on AI in advertising. Drawing on Berlo's (1960) Source–Message–Channel–Receiver model of communication and the MAIN model of technological affordances (Sundar 2008; Sundar and Lee 2022), we develop a 4C typology that conceptualizes four primary roles AI plays in the advertising process: creators, conversers, curators, and connectors. We further link these roles to four key AI advertising applications identified in the literature, including AI-generated advertising, conversational agents, programmatic advertising, and VIs. Using this framework, we synthesize existing empirical studies to examine how consumers respond to AI across these roles. Accordingly, this review addresses two research questions: **What roles does AI play in the advertising communication process? How do consumers respond to the different roles of AI identified in current literature?**

A 4C Typology of AI in Advertising

To theorize AI's roles in advertising and brand communication, we ground our conceptual model in Berlo's (1960) classic S-M-C-R model of the communication process. It posits communication as a process in which a sender (S) encodes a message (M), transmits it through a channel (C) to receivers (R) who decode it (Berlo 1960). This model has guided extensive communication research and serves as a useful framework for conceptually identifying key factors that shape the persuasive communication process (Wilkinson 2005). Building on Sundar and Lee's (2022) argument that AI can function either as a source or as a channel in persuasive contexts, our conceptual model, shown in Figure 1, identifies four roles of AI in advertising: creators, conversers, curators, and connectors. Each role corresponds to a distinct set of AI advertising applications.

[Insert Figure 1 here]

Creators. When AI acts as a creator, it generates advertising content such as visuals, copy, or video, functioning as the source of the message. This role corresponds to the growing use of **AI-generated advertising**, also referred to as *synthetic advertising* (Campbell et al. 2022). In these applications, AI is integrated into the creative process to generate or modify ad content, thereby automating and streamlining ad production (Qin and Jiang 2019; Wu, Dodoo, and Wen 2025). AI tools allow advertisers to rapidly produce visuals, scripts, and video variations for campaigns. Although AI facilitates ideation and visualization, human oversight remains important for refinement, quality control, and adherence to legal and ethical standards (Cui, Liu and Yuan 2025). Thus, in the creator role, AI operates as the source of persuasive messages within the advertising communication process.

Conversers. When AI acts as a converser, it interacts directly with consumers and

delivers persuasive content through real-time two-way interactions. In this role, AI also functions as the source of the message. This application is evident in **conversational AI agents**, including chatbots (e.g., ChatGPT), voice assistants (e.g., Alexa), and recommendation agents (e.g., Stitch Fix). These systems use AI algorithms to facilitate interactive two-way communication, enabling them to gather user information and needs, respond to customer service inquiries, and provide personalized recommendations (Ahn, Kim and Sung 2024; Kim, Kang, and Bae 2022). Widely adopted in e-commerce and retailing, conversational agents act as shopping assistants that facilitate purchase decisions and as brand representatives that help build consumer-brand relationships (Ahn, Kim and Sung 2021; Ahn et al. 2024; Kim et al. 2022). They are particularly effective for engaging consumers seeking safety, stimulation, or comfort, who tend to respond with more positive attitudes, higher value, and stronger use intentions (Kim et al. 2022).

Curators. When AI acts as a curator, it determines how and where advertising messages are delivered. In this role, AI functions as the channel by structuring exposure, personalization, and distribution (Araujo et al. 2020; Ha et al. 2021; Watts and Adriano 2021). This role is exemplified by **AI-delivered programmatic advertising**. Digital advertising has shifted from traditional media buying models, such as fixed subscriptions or cost-per-mille purchases, to automated programmatic systems powered by AI, including real-time bidding and algorithmic ad placement (Qin and Jiang 2019; Feng 2025). These systems analyze large datasets to optimize ad delivery and targeting. AI can create contextual advertising by analyzing topic relevance, sentiment, and consumer involvement rather than relying solely on personal data (Häglund and Björklund 2024). Research in computational advertising further examines the digital ecosystem supporting programmatic ad placement (Araujo et al. 2020), including models that detect mismatches between visual and textual content (Ha et al. 2021) and context-aware databases

designed to prevent inappropriate placements, such as placing a beer advertisement next to an article about drunk driving (Watts and Adriano 2021). In this curator role, AI structures the distribution and exposure of advertising messages within digital media environments.

Connectors. Finally, AI can act as a connector, a hybrid role that combines characteristics of both source and channel. This role is most evident in **virtual influencers (VIs).** Virtual influencers are digital personas with social media presences (Sands et al. 2022) either controlled by humans or powered by computer algorithms (Byun and Ahn 2023; Tian, Hu, and Chen 2025). They appear in a range of forms, from highly realistic human-like avatars (e.g., @lilmiquela) to cartoon-like characters (e.g., @barbie) and non-human personas (e.g., @nobodysausage) (Yan et al. 2024). The most advanced AI-powered influencers leverage technologies such as machine learning, natural language processing, speech recognition, and image recognition to enable autonomous interaction with followers (Sun and Tang 2024).

As connectors, virtual influencers function as sources when they directly interact with audiences through posts, comments, or messages, consistent with source credibility theory (Hovland and Weiss 1951; Ohanian 1990). At the same time, they function as channels when they disseminate branded content developed in collaboration with firms, mediating communication between organizations and consumers. This dual role reflects the logic of the two-step flow of communication model, in which opinion leaders transmit information from organizations to audiences (Katz and Lazarsfeld 1955). Virtual influencers' dual role also aligns with the MAIN model of computer-mediated communication, which proposes that technological agents can function both as social actors and as communication infrastructures (Sundar 2008). From an advertising perspective, virtual influencers offer several advantages, including greater controllability, customizability, and creative flexibility (Byun and Ahn 2023), as well as reduced

risk of scandals compared with human endorsers (Thomas and Fowler 2021).

Method

Search Strategy

Following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Moher et al. 2009), we conducted a structured literature search combining AI-related and advertising-related keywords. Examples include "AI ad*," "AI influencer*," "virtual influencer*," "AI generated," "AI chatbot," "AI recommendation agent," "AI conversational agent," "AI delivered," "programmatic ad*," "deepfake," and "synthetic advertising." We limited the search to English-language, peer-reviewed publications published from 2018 onward.

Article Selection and Eligibility

Studies were only included if they 1) examined advertising or brand communication contexts involving AI-enabled advertising technologies, 2) focused on four applications of AI advertising including AI-generated advertising, AI or virtual influencers, conversational agents (e.g., AI chatbots and AI conversational agents), AI recommendation agents, or AI-driven targeting or programmatic advertising), and 3) reported empirical consumer data examining responses to these technologies. Figure 2 presents the flow chart of the article selection. After removing duplicates and accessing full papers, the final sample consisted of 42 articles published between 2019 and 2025. The selected studies were published not only in the five advertising journals but also in *Journal of Retailing and Consumer Services*, *Journal of Business Research*, *International Journal of Consumer Studies*, *Internet Research*, *European Journal of Marketing*, *Journal of Consumer Behaviour*, *Journal of Research in Interactive Marketing*, and *Telematics and Informatics*. Data extraction and coding were conducted in January 2026.

[Insert Figure 2 here]

Findings

Consumer Responses to AI as Creators. In this role, AI functions as the source of persuasive messages. The source shift from human creatives to non-human AI alters how consumers interpret the source and credibility of the ad. Consumer responses are largely shaped by cues that signal and justify AI involvement in the creative process. While some studies show that disclosures of AI use can increase online engagement with AI-generated ads (Hanson, Carlson, and Pressler 2025), a substantial body of research documents *AI aversion,* defined as a tendency to distrust or devalue AI-produced work (Feng 2025). Disclosure can increase perceived falsity (Aljarah, Ibrahim, and López 2025; Arango et al. 2023), reduce perceived creative effort (To et al. 2025), lower ad credibility (Baek, Kim, and Kim 2024), and ultimately harm ad attitudes, brand authenticity, donation intentions, purchase intentions, and engagement (Hanson et al. 2025; Sands et al. 2025; Whittaker et al. 2025; Baek et al. 2024).

Current literature identifies several boundary conditions. First, when consumers perceive the AI as more human-like, negative responses toward AI-generated advertising are attenuated (Baek et al. 2024). Second, the *timing and framing of disclosure* matters. Negative responses are attenuated when disclosure is used after exposure (Whittaker et al. 2025), when AI is framed as a creative partner rather than a servant in the ad creation process (Chen et al. 2024), and when AI is used under extraordinary circumstances such as disaster communication (Arango et al. 2023). Third, *advertising and brand cues* matter. Negative responses are weaker when the ad content is of high quality (Whittaker et al. 2025), uses agentic (vs. communal) appeals (Chen et al. 2024), highlights ethical motives (Arango et al. 2023), or when brands emphasize responsible initiatives (Sands et al. 2025).

Consumer Responses to AI as Conversers. In this role, AI also functions as the source of persuasive messages while interacting with consumers in two-way conversations**.** Because persuasion occurs through dialogue rather than static message exposure, the anthropomorphic design of the conversational agent becomes a key factor shaping how consumers interpret the communicator and evaluate the message, including visual and verbal cues that make AI appear more human-like. Human-like designs increase perceived similarity and reduce (increase) psychological distance (closeness), enhancing persuasion effectiveness and willingness to donate (Ahn et al. 2021; Baek et al. 2022). Combining gender and expertise cues, such as adopting a "female-doctor" persona, enhances cognitive and emotional trust in AI (Jin et al. 2025).

Yet excessive anthropomorphism can backfire. Highly human-like chatbots may evoke privacy concerns through an uncanny valley of mind effect (Kim, Ryoo, and Choi 2024) and increase attributions of ethical responsibility to the AI agent when misconduct occurs due to perceived freewill (Ahn et al. 2024). These negative effects can be attenuated. Providing algorithmic disclosure about data handling reduces privacy concerns associated with highly anthropomorphic chatbots (Kim et al. 2024). In addition, communication strategy matters. In crisis communication, an accommodative communication strategy is more effective when AI's freewill (anthropomorphism) is high, while a defensive communication strategy is more effective when AI's freewill is low (Ahn et al. 2024).

Consumer Responses to AI as Curators. In this role, AI functions as the channel of persuasive messages and shapes which ads consumers encounter and how relevant they are. Current literature focuses on algorithmic personalization and ad targeting, which influence persuasion through perceptions of relevance, privacy, and persuasion knowledge (Araujo et al. 2020; Deng et al. 2019**;** Lv and Huang 2024).

Personalization can enhance advertising effectiveness. For example, consumers sometimes prefer personalized advertising copies generated by smart systems over human-created ads on retail platforms (Deng et al. 2019). However, personalized advertising may also trigger concerns about manipulation, surveillance, or reduced autonomy. In charity advertising, personalized recommendations can backfire by diminishing perceived autonomy and lowering donation intentions (Lv and Huang 2024). Current research suggests these competing perceptions create a nonlinear effect, where moderate levels of personalization produce the most favorable consumer attitudes as perceived benefits outweigh perceived threats (Sun, Xie, and Sun 2025). These effects further depend on consumer characteristics. For instance, algorithm literacy, attitudes toward AI, perceived surveillance, gender bias, and social media motivations shape how female users interpret and misestimate AI ad targeting (Zhang and Zhang 2025).

Consumer Responses to AI as Connectors. In this role, AI functions as an intermediary that connects brands and audiences through virtual influencers (VIs). VIs have attracted large scholarly attention with several systematic reviews in advertising and marketing journals (Thomas et al. 2025; Tian et al. 2025; Byun and Ahn 2023; Laszkiewicz and Kalinska-Kula 2023). One research stream examines consumer perceptions of VIs and shows that anthropomorphism, attractiveness, luminary, quality, trendiness, and robophobia shape endorsement effectiveness of VIs (Feng, Chen, and Xie 2023). While some studies show support for human-like over cartoon-like VIs (Park, Chu, and Chung 2025), highly realistic designs may activate uncanny valley effects. Highly realistic virtual influencers trigger perceptions of fakeness and weaken parasocial bonds that ultimately reduce purchase intention (Lou et al. 2023). Similarly, mimic-human virtual influencers can generate weaker emotional attachment and social presence than animated or non-human virtual influencers (Yan et al. 2024).

The other research stream examines differences between human and virtual influencers in advertising campaigns, crisis, and live streaming contexts (Franke et al. 2023; Thomas and Fowler 2021; Chang, Wang, and Guo 2025; Wan and Jiang 2023). However, much of this literature focuses on human-controlled VIs or uses disclosure manipulations (Vranken, Kaňková, and Matthes 2025), leaving the effects of truly AI-powered, autonomous virtual influencers largely unexplored (Vranken et al. 2025).

Conclusion

This paper shows that consumer responses to AI advertising depend not simply on the technology itself, but on how they interpret AI's communicative role within the advertising process. The proposed 4C typology clarifies these roles by identifying four ways AI participates in brand communication: as a creator, converser, curator, or connector. Each role activates distinct cues and psychological mechanisms that shape persuasion outcomes.

When AI acts as a **creator**, consumer responses center on the credibility, authenticity, and creative legitimacy of a nonhuman message source. When AI functions as a **converser**, persuasion depends on anthropomorphism and perceived social presence in two-way interactions, generating both relational benefits and privacy concerns. When AI functions as a **curator**, responses reflect a personalization tradeoff between perceived relevance and concerns about surveillance and reduced autonomy. Finally, when AI serves as a **connector**, consumer responses are shaped by how virtual influencers are evaluated as endorsers, including perceptions of authenticity, social presence, and parasocial relationships.

Across these roles, consumer responses often reflect a tension between perceived benefits and perceived threats**.** While AI can enhance relevance, interactivity, and trust, it can also trigger concerns about authenticity, privacy, manipulation, and autonomy. By organizing fragmented

findings around the 4C typology, this review clarifies how AI reshapes persuasion across different applications of AI advertising and identifies key research gaps, particularly the limited attention to autonomous AI agents and cross-role comparisons. The framework offers conceptual guidance for future research examining how AI persuades consumers in brand communication.

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Figure 1. A 4C Typology of AI and Its Applications in AI Advertising

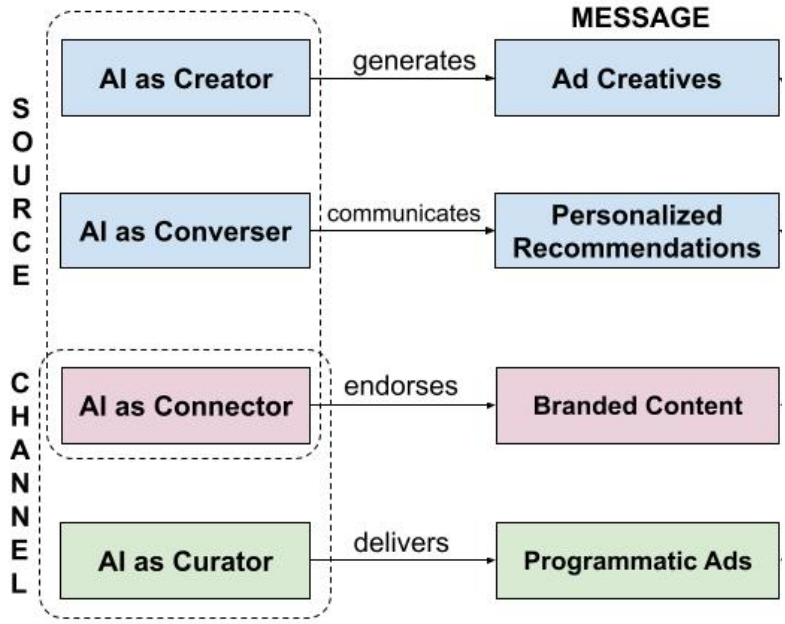

Figure 2. PRISMA Flow Chart

