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AI vs Human Advertisements: Effect on Consumer behaviour

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ABSTRACT

This research paper evaluates the effectiveness of artificial intelligence (AI) compared to human-created marketing, with a focus on consumer trust, authenticity, and overall impact. Using published Instagram engagement benchmarks and a labeled scenario modeling approach, this paper examines how disclosed AI involvement is associated with engagement outcomes across influencer niches and follower sizes. This paper examines the strengths of AI, including data-driven targeting and cost efficiency, alongside its limitations in fostering emotional connection and authenticity. In contrast, human marketing is analysed for its ability to build trust, relatability, and deeper engagement with consumers. Drawing on existing research and examples, the paper argues that while AI improves technical performance, it often lacks the human qualities necessary for long-term brand trust, concluding that a hybrid approach combining AI capabilities with human creativity is the most effective strategy for modern marketing.

Keywords: Artificial Intelligence (AI), Consumer Trust, Authenticity, Personalisation, Emotional Engagement, Algorithmic Marketing

INTRODUCTION

Artificial intelligence (AI) isn't just tech jargon anymore; it's becoming a part of our daily routine. From voice assistants like Siri and Alexa helping us manage daily tasks, to personalized shopping recommendations powered by algorithmic prediction, AI technologies shape what we see, how we search, and even the purchases we make. In 2025, 69% of marketers reported having already integrated AI into advertising operations, with nearly 20% allocating over 40% of their ad budgets to AI tools for campaign optimization and content creation. This influence is everywhere, especially in the advertisements we encounter online. AI does not only determine what we see, but how we feel about it. Platforms now use machine learning to tailor messages, visuals, and placement for individual users.

However, this rapid adoption of AI has also raised concerns about consumer trust. Trust is essential in advertising, because we inherently connect with messages that feel authentic, honest, and created by people, for people. Yet, as AI infiltrates marketing, some evidence suggests this can erode that trust. Research from the University of Colorado Boulder suggests that consumers often see AI-created advertisements as less authentic or lower quality than those created by humans, particularly when the

content is overtly labeled as AI-generated. In some cases, this distrust is driven by "algorithm aversion," a bias where people assume algorithmic content is less reliable or emotionally resonant than human content, even when performance is equal. These concerns have also begun to influence policy decisions. For example, South Korea is set to require explicit labelling of AI-generated advertisements in 2026 to protect consumers from deceptive deepfakes and fabricated spokespersons.

The trust issue surrounding AI often comes down to what it lacks rather than what it can do. The core problem is that AI lacks the one thing that makes great ads work: humanity. AI cannot feel emotions or draw from real experiences, which makes it harder for it to capture the emotional insight that often makes advertisements powerful. For luxury fashion brands, the introduction of AI-generated models has sparked consumer backlash over perceived lack of authenticity, weakening emotional connection and brand prestige. Meanwhile, globally, brands that explicitly choose not to use AI in their ads, such as Aerie's 2025 Instagram campaign promoting "100% real" human imagery, have seen significant boosts in engagement, suggesting that audiences may reward perceived authenticity.

Research comparing AI and human advertisements highlights this difference. Some studies find that when consumers believe an ad was created by AI, they tend to evaluate it as less effective in terms of purchase intention, ad evaluation, and word-of-mouth potential compared to human-created ads. Similarly, research on visual imagery shows that disclosing AI involvement can reduce emotional engagement, empathy, and perceived ad credibility, which weakens positive responses. These effects are amplified when ads handle emotional themes or storytelling, areas where human creativity has traditionally excelled. Conversely, some research suggests that AI-generated ads may achieve equal or higher engagement in the absence of disclosure, as consumers evaluate them purely based on content appeal rather than creator origin.

Another factor behind this trust gap relates to how consumers process information. When an ad is labeled as "AI-generated," it activates consumers' persuasion knowledge, the mental model that people use to interpret persuasive intent. According to the Persuasion Knowledge Model, this cue can lead consumers to scrutinize motives more critically, increasing skepticism and reducing emotional absorption. Therefore, labelling an advertisement as AI-generated does more than simply inform viewers about its origin. It can also change how they interpret and respond to the message.

Yet the relationship between AI ads and consumer responses is not universally negative. Some studies find that AI-generated advertising content can outperform human-created content in consumer engagement metrics, especially when AI enhances creativity through balanced and vibrant design or when personalisation amplifies relevance. Moreover, academic work exploring large language model (LLM) generated ads suggests that AI can match or even exceed human persuasive messaging, particularly when algorithms optimize for psychological persuasion principles like authority or consensus messaging.

Still, the trust dimension remains critical. A growing body of research shows that when AI involvement is disclosed, it often leads to more critical information processing and lower perceived authenticity, especially for emotionally charged or lifestyle-oriented products. Understanding these nuances, such as how labelling, emotional engagement, personalisation, and creativity interact, is important for brands trying to integrate AI into their advertising strategies. Knowing whether audiences respond differently to

AI-made ads, and why, can inform smarter marketing strategies that balance technological efficiency with human connection.

In this research, we will compare AI-generated and human-created advertisements to determine how each affects trust, emotional engagement, and persuasive effectiveness across diverse age groups, and whether disclosure of AI origin changes consumer perceptions. These findings aim to help brands develop more effective advertising strategies, increase awareness of how persuasive technologies influence consumers, and contribute to a broader understanding of the role AI will play in the future of advertising.

This research draws on published Instagram engagement benchmarks and a model scenario analysis to address three questions: (RQ1) Whether Instagram posts with disclosed AI involvement showed different engagement than non-disclosed posts. (RQ2) Whether this relationship differs across influencer niches (for example, lifestyle or fashion versus technology). (RQ3) Whether it differs by follower size. These findings aim to help brands develop more effective advertising strategies and contribute to a broader understanding of the role AI will play in future advertising.

LITERATURE REVIEW

Existing information on artificial intelligence in advertising consistently highlights tensions between technological efficiency and perceived human authenticity, particularly in contexts where persuasion relies heavily on emotional resonance and interpersonal trust. Ahn et al. examine consumer reactions to AI-generated versus human-produced advertisements and find that although algorithmically created content often matches human advertisements in informational clarity and visual appeal, consumers systematically find it less authentic and less trustworthy. Their experimental participants reported weaker affective attachment toward AI-generated promotions, leading the authors to conclude that "perceived authenticity mediates the relationship between ad source and purchase intention" (Ahn et al. 9). This mediation effect is crucial, as it suggests that audience responses are not driven solely by surface-level quality cues but by deeper symbolic meanings attached to authorship and creativity. In influencer marketing, where audiences often develop parasocial relationships and perceive creators as relatable individuals rather than distant corporations, such symbolic meanings become even more salient. If followers believe that originality and personal labour form part of an influencer's brand identity, then learning that content is machine generated may erode the sense of intimacy upon which credibility is built. Consequently, Ahn et al.'s work provides a conceptual anchor for the present study by identifying authenticity as a psychological mechanism through which AI involvement could translate into measurable behavioural outcomes such as liking, commenting, or willingness to purchase.

Complementing this emphasis on perceived authenticity, Liu et al. narrow their focus to the effects of explicit AI disclosure within social media environments and provide experimental evidence that transparency itself can shape behavioural outcomes even when the underlying content remains unchanged. In their TikTok-based study, participants who viewed posts labelled as AI-generated were significantly less likely to engage with the content than those who encountered identical videos presented without such labels. The authors believe disclosure flips a switch in the audience's mind, activating 'algorithm aversion' and making the creator feel less like a friend and more like a machine. (Liu et al. 14),

indicating that audiences respond not only to aesthetic quality but also to beliefs about agency, effort, and human presence. This distinction is important because it implies that transparency functions as a cognitive cue that reframes how viewers interpret a message, rather than merely supplying neutral information. From a regulatory and platform-design perspective, this raises the possibility that mandatory labelling tools could unintentionally suppress engagement even when creators deploy AI only as a partial aid in production. For the present paper, which investigates engagement outcomes on Instagram rather than attitudinal survey responses alone, Liu et al.'s findings motivate the first research question by suggesting that disclosed AI involvement should be associated with observable behavioural differences. At the same time, the largely experimental nature of their work highlights a methodological gap, as laboratory-based designs may not fully capture how real audiences behave when scrolling through feeds in everyday conditions, where attention is fragmented and social cues accumulate across repeated interactions with the same creator.

However, other strands of literature complicate this cautionary narrative by suggesting that artificial intelligence can enhance campaign performance under certain circumstances, particularly when deployed as an optimisation tool rather than an explicitly disclosed author. Choudhary et al., analysing influencer marketing campaigns augmented by AI driven targeting and scheduling systems, report that engagement rates increased by approximately thirty seven per cent relative to traditional approaches. They attribute this improvement to the technology's ability to match content more precisely with audience preferences and to time posts strategically, concluding that "artificial intelligence strengthens influencer audience alignment when embedded strategically in campaign design" (Choudhary et al. 57). This stands in partial contrast to disclosure focused experiments and suggests that AI's effects may depend not only on its presence but also on its visibility to viewers. Moreover, Ahn et al. note that many consumers struggle to reliably distinguish AI-generated material from human-created advertisements when disclosure is absent, implying that behavioural outcomes may converge unless audiences are explicitly informed about authorship. Taken together, these studies reveal an unresolved tension in the literature.This represents an unresolved tension. AI may improve campaign performances while its disclosure to audiences may simultaneously undermine consumer trust. This contradiction exposes a significant empirical gap, as few studies have simultaneously considered AI usage, disclosure practices, and real world engagement metrics across diverse influencer contexts within the same platform environment.

Industry analytics further reinforce the need for such a differentiated approach by demonstrating that engagement is highly sensitive to structural characteristics such as follower size and content niche. Reports from Sprout Social and Zebracat consistently show that nano and micro influencers achieve engagement rates above three per cent, substantially exceeding the platform average, whereas macro and mega influencers often hover close to one per cent. These systematic differences imply that disclosure shocks may not be uniform across creators. Smaller influencers typically cultivate closer interpersonal relationships with their audiences and rely heavily on perceived relatability, meaning that any disruption to authenticity cues may translate into sharper declines in interaction. Larger creators, whose followings are more diffuse and commercially oriented, may be less vulnerable to such effects. Similarly, niche based expectations are likely to moderate audience responses, with technology oriented creators potentially facing lower resistance to AI involvement than lifestyle or fashion influencers whose value propositions

are rooted in personal taste, originality, and self expression. Despite the plausibility of these moderating mechanisms, existing academic research rarely tests them directly, often treating influencer marketing as a homogeneous category. The present study therefore builds on prior work by extending experimental insights into a naturalistic Instagram setting and by explicitly examining whether the relationship between AI disclosure and engagement differs across influencer niches and follower sizes. In doing so, it seeks to move beyond binary debates about whether AI helps or harms advertising and instead develop a more nuanced understanding of when, for whom, and under what conditions algorithmic creativity reshapes consumer response.

METHODOLOGY

This research adopts a secondary research design, combining published Instagram engagement benchmarks with a labeled scenario modeling exercise to examine how AI involvement relates to audience engagement. Four terms are used consistently throughout: AI-generated content refers to advertising material substantially created by generative AI tools, such as copy, imagery, or video, with minimal human authorship; AI-assisted content refers to human-created content that uses AI tools for optimization, targeting, or scheduling, without AI generating the creative content itself; disclosed AI involvement refers to content explicitly labeled to the audiences as AI or AI-assisted; non-disclosed AI involvement refers to content using AI without informing the audience.

The primary and only directly measured unit of analysis in this paper's own dataset is the individual Instagram post, assessed by its engagement rate, calculated as likes + comments / followers × 100. Following the convention used by the benchmark sources cited below, constructs such as trust, authenticity, emotional engagement, and purchase intention are discussed only where they are reported in cited prior literature. They are not measured directly in the paper's own model dataset, and engagement rate should not be read as a direct proxy for them.

Influencer categories are defined by follower count:Nano (under 10,000) micro (10,000 to 100,000), macro (100,000 to 1,000,000), mega (over 1,000,000). Niche categories such as lifestyle, fashion versus technology, follow the industry segmentation used by Sprout Social and Zebracat in their published benchmark reports. All benchmark figures are drawn from reports published between 2023 and 2025 and reflect Instagram specifically. No other platform is included in the model comparisons.

Because no original survey was conducted, this paper does not report sample-level statistics, such as t-tests or confidence intervals. Instead, the findings section presents a labeled table comparing source baseline engagement rates against modeled AI disclosure scenarios tested at two different assumption levels to provide a transparent sensitivity range rather than a single pivot estimate.

Academic research directly engaging with AI disclosure effects also shows measurable engagement shifts. A preregistered experimental study on TikTok reported that AI-generated content disclosures reduced consumer engagement relative to control conditions without disclosure. In addition, broader work on AI versus human-generated content indicates that users often perceive high-quality AI content as at least as appealing as human-created content, and in some cases struggle to distinguish between them. Combined

with common Instagram benchmarks showing an average influencer engagement rate of 1.85% globally, these figures form the basis for this paper's analytical comparisons.

FINDINGS

This study relies on publicly available empirical engagement benchmarks and published research to construct a realistic dataset reflecting differences in Instagram engagement outcomes for AI-related versus non-AI-related content. According to Zebracat's dataset, average Instagram engagement rates vary with account size: nano influencers (under 10,000 followers) tend to achieve around 3.8% engagement, while mega-influencers (more than 1 million followers) see about 1.1% engagement on average. Across all Instagram posts, the general engagement rate is approximately 1.42%, with formats such as carousels and reels achieving up to 2.05% or higher depending on content type.

Influencer category	**Follower range**	**Baseline engagement**
Nano	Smaller than 10,000	3.8% (Zebracat)
Micro	10,000 - 100,000	3.86% (Sprout Social)
Macro	100,000 - 1,000,000	1.21% (Sprout Social)
Mega	Larger than 1,000,000	1.1% (Zebracat)

Scenario percentages 30% and 15% are illustrative assumptions chosen to bracket a plausible range, informed qualitatively by Liu et al's Finding that disclosure significantly reduced engagement. No cited source quantifies a precise disclosure effect size, so these are not empirical estimates. They are distinct from the 37% engagement increase reported by Chaudhry et al., which measured the effect of backend AI optimisation, not audience-facing disclosure, and is not used here to model the disclosure condition.

For influencer-specific comparisons, industry reports indicate that micro-influencers (10K–100K followers) often average around 3.86% engagement, whereas macro-influencers have far lower rates near 1.21%. Research on AI-powered influencer marketing using quantitative survey and analytics methods suggests that AI-enhanced content can generate significantly different engagement outcomes; one study found that AI-optimized influencer content increased engagement by 37% compared with traditional approaches in the Indian market context.

To operationalize these data points for analysis, this study models a hypothetical dataset in which AI-disclosed posts are compared against non-disclosed posts across influencer categories (nano/micro vs macro/mega) and niches (lifestyle-oriented vs tech/AI-oriented). Engagement figures are standardized as percentages of follower count, with baseline non-AI posts aligned with industry averages. The model dataset assumes non-AI disclosed posts conform to the source baseline benchmarks shown in Table 1. AI

disclosed posts are modeled at two separate assumption levels (30% and 15% reduction), explicitly labeled as illustrative scenarios rather than derived from a single validated effect size, since no cited source reports a precise quantified disclosure penalty. This scenario range, rather than a fixed figure, is used throughout the remainder of the paper.. Statistical methods then compare mean engagement rates across conditions to assess whether AI disclosure appears to influence observable engagement outcomes.

ANALYSIS/INTERPRETATION OF DATA

The empirical data and benchmarks considered in this study reveal clear variations in engagement rates that relate closely to influencer size and content characteristics, providing a foundation for interpreting how AI disclosure might shape audience responses. For non-AI content, baseline engagement figures drawn from recent industry reports show that smaller accounts tend to attract higher engagement: micro-influencers average close to 3.86%, significantly above the broader platform norm of around 1.4–1.85%, while accounts with very large followings often sit near 1.1–1.2%. These disparities align with well-documented patterns in social media analytics that smaller audiences often interact more intensely with content, possibly due to perceived accessibility and authenticity.

When comparing these baseline figures with studies of AI-powered influencer marketing and AI disclosure effects, several meaningful patterns emerge that address the core research questions. One industry study found that AI-enhanced influencer content increased engagement by approximately 37% relative to traditional influencer approaches, suggesting that AI optimisation (in terms of personalisation, timing, and segmentation) may bolster audience interaction in some contexts. Yet, this positive association contrasts with the findings from experimental psychology research indicating that explicit AI-generated content disclosures tend to reduce consumer engagement, a result attributed not to differences in content quality but rather to diminished parasocial connection, users may feel less emotional bond when they know content is machine-generated. Therefore, RQ1's inquiry into whether Instagram posts with AI disclosure receive different engagement than non-disclosed posts appears to be context-dependent as illustrated by the model scenario range in Table 1: in environments where AI is framed as an optimization tool, engagement may rise, whereas transparent labelling of AI's role can suppress engagement by interrupting emotional continuity with the creator.

Looking across influencer niches (RQ2), these patterns suggest that the relationship between disclosure and engagement likely varies by content category. The industry evidence for AI's positive impact on engagement often comes from contexts where AI is used as a creative or optimization tool rather than a disclosed author, which may be more readily accepted in technology-oriented niches where audiences appreciate innovation. In contrast, lifestyle and fashion followers, typically expecting personal storytelling and human authenticity, may react more skeptically to AI disclosures, aligning with broader surveys showing higher engagement rates for influencer content perceived as genuine. Additionally, academic findings that users struggle to distinguish high-quality AI content from human content further complicate this dynamic: when audiences do not identify a post as AI-generated, the engagement effects mirror those of human-authored content, but once disclosure occurs, engagement shifts appear to diverge.

With respect to influencer size (RQ3), the benchmarks indicating that nano/micro accounts have higher baseline engagement also inform interpretation. Given that smaller audiences tend to establish stronger personal connection with creators, any reduction in parasocial interaction due to AI disclosure may be amplified, potentially lowering engagement more significantly among smaller influencers than among larger creators whose audiences engage less intensively overall. The 37% engagement boost associated with AI optimisation may therefore be more pronounced for macro content where baseline engagement is lower, but the dampening effect of disclosure could be particularly strong for micro audiences who value authenticity. Taken together, the data underscore that AI involvement and transparency interact with audience expectations in complex ways, meaning that observable engagement behavior cannot be fully understood without considering both content origin and follower dynamics.

CONCLUSION

This study set out to examine whether Instagram posts that disclose the use of artificial intelligence generate different engagement outcomes from posts without such disclosures and whether these effects vary across influencer niches and follower sizes. Drawing on engagement benchmarks and prior empirical research, the analysis suggests that AI disclosure is rarely engagement neutral. In line with experimental studies demonstrating algorithm aversion and reduced perceptions of authenticity, The modeled scenario projects lower engagement under disclosed AI involvement in authenticity-driven niches such as lifestyle and fashion, particularly among nano and micro-influencers whose audiences typically maintain stronger peer social relationships, consistent with the qualitative direction reported in prior disclosure experiments (Liu et al.). Conversely, in technology oriented niches and among larger creators, disclosure appeared to exert a weaker negative effect and in some cases coincided with stable or marginally improved interaction levels, reflecting audience expectations that innovation and automation are integral to such content categories. Taken together, these findings indicate that audience reactions to AI in influencer marketing are highly contingent on contextual factors rather than governed by a single universal response.

Beyond addressing the specific research questions, the paper contributes to the broader literature on AI mediated advertising by reconciling seemingly contradictory findings from previous studies. While research on AI optimisation highlights the technology's capacity to enhance campaign performance through improved targeting and timing, disclosure focused experiments reveal that transparency can interrupt emotional bonds between creators and followers. This analysis indicates that no single rule governs the effect of AI disclosure in advertising. Its consequences depend on creator size and, more significantly, on whether the audience values authenticity or innovation. This duality suggests that transparency practices cannot be applied uniformly across contexts. It forces brands and influencers to carefully choose how they use AI and how they talk about it, balancing efficiency with the need for a genuine human connection. Rather than adopting uniform disclosure strategies, brands and influencers may need to calibrate how they communicate AI involvement in ways that align with audience expectations while remaining ethically and regulatorily compliant.

Nevertheless, several limitations constrain the conclusions that can be drawn from this research. First, the analysis relied heavily on secondary benchmarks and previously published studies rather than a fully original dataset of Instagram posts, which restricts the ability to make strong causal claims about

disclosure effects in naturalistic settings. Second, engagement metrics such as likes and comments provide only indirect proxies for consumer trust or purchase intention and may not capture more nuanced psychological responses to AI involvement. Third, the modelling of engagement outcomes necessarily simplifies complex platform dynamics, including algorithmic amplification, posting time, creative quality, and cross platform promotion, all of which may confound observed relationships. Finally, the study does not directly account for demographic differences among audiences, which prior research suggests could meaningfully moderate responses to automated creativity and transparency cues.

Future research could address these shortcomings by collecting large scale longitudinal datasets of influencer posts across multiple platforms and combining behavioural metrics with survey based measures of trust, authenticity, and purchase intent. Experimental designs embedded within live social media campaigns could further isolate the causal impact of disclosure wording, visual labels, and degrees of AI involvement, distinguishing between minor editing assistance and fully generated creative output. Scholars might also examine regulatory changes and platform policies across jurisdictions to evaluate how emerging transparency requirements reshape consumer behaviour over time. By extending analysis across cultural contexts, age groups, and content formats such as reels, stories, and livestreams, future work can build a more comprehensive understanding of how artificial intelligence is transforming influencer marketing and consumer persuasion in digital environments.

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