


Authorship disclosure and consumer perception of AI-generated graphic design

ABSTRACT

The increasing integration of artificial intelligence (AI) into graphic design and advertising has raised pressing questions about the role of authorship, trust and aesthetic judgement. This study examines how consumers perceive AI-generated versus human-created advertising visuals in the context of jewellery advertising. Two online surveys (n = 127) were conducted to compare participants' preferences under the conditions of disclosed and undisclosed authorship. The results show that while AI-generated visuals were sometimes rated favourably when authorship was hidden, human-created content was clearly preferred overall – especially when authorship was disclosed. A gender analysis revealed that female participants were especially sensitive to authorship cues, favouring human-created visuals. Logistic regression further confirmed that authorship disclosure, gender and design features such as human presence and serif typography were significant predictors of preference. Qualitative responses suggest that while AI visuals are technically competent, they lack emotional authenticity and narrative resonance. These findings emphasise the importance of transparency, emotional design and collaboration between humans and AI in visual communication. The study contributes to ongoing debates about machine creativity, aesthetic value and ethical disclosure, and offers practical implications for designers and marketers using AI in emotionally-driven contexts.

KEY WORDS

artificial intelligence, graphic design, photography, consumer perception, advertising, authorship disclosure

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Introduction

The increasing integration of artificial intelligence (AI) into the creative industry has triggered an intense debate about the role of human authorship, aesthetic value and authenticity in visual communication. Generative AI tools such as Midjourney, DALL·E 2, Adobe Firefly and Stable Diffusion enable users to create complex, high-resolution visual content from textual prompts within seconds.

These tools are transforming workflows in advertising, design and media production — traditionally human-dominated spaces where emotion, intuition and storytelling are valued as core assets.

While these technologies offer unprecedented access to scalable content creation, they also raise critical questions about audience perception. How do viewers respond to visuals generated by machines rather than human designers? Does knowing the origin of a visual — AI or human — alter its perceived authenticity, appeal or emotional value? These questions are central to understanding the limits and possibilities of machine-generated content in contexts where aesthetics intersect with persuasion and meaning.

Some researchers and practitioners are increasingly sceptical about AI-generated content in emotionally sensitive areas.

This reluctance seems particularly acute in visual advertising, where the emotional connection between brand and viewer is often mediated by subtle design choices. As generative AI tools improve, so does the need to understand not only their technical capabilities, but also their psychological and cultural reception.

This study contributes to this understanding by investigating how consumers perceive AI-generated versus human-created advertising visuals, specifically in the jewellery sector. Two online surveys were conducted with 127 participants who were shown pairs of images of AI and human designs, with authorship either disclosed or undisclosed. In addition to the quantitative preference data, participants provided qualitative insights into their decisions, allowing for a deeper interpretation of underlying motivations.

In visual communication, authorship operates as a meta-textual message — part of the semiotic system through which viewers interpret meaning and intent. Disclosure of artificial intelligence (AI) authorship functions not only as factual information but also as a symbolic cue that shapes perceptions of authenticity, creativity, and emotional value. Authorship can influence not only what audiences see but also how they relate to the creative process behind the image. As AI increasingly permeates the creative industries, researchers have intensified their focus on how audiences perceive AI-generated visuals, particularly in the fields of advertising, branding and communication design. Two parallel streams of research dominate the literature: a technical one, which traces the development of generative systems, and a psychological one, which examines the cognitive, emotional and social impact of machine-created content.

From a technical perspective, the fundamental development of Generative Adversarial Networks (GANs) (Goodfellow et al. 2014) marked a decisive change in the capabilities of AI in image creation. GANs introduced the adversarial training method, which enabled models to simulate increasingly realistic images. More recently Dhariwal & Nichol (2021) introduced diffusion models that outperform GANs in generating naturalistic visuals, particularly in terms of texture and lighting fidelity.

These advances have enabled designers and marketers to produce high-quality visuals with unprecedented efficiency. However, technical fidelity does not automatically equate to viewer trust or emotional engagement.

A growing body of research shows that audience reactions to AI-generated content depend significantly on whether authorship is disclosed or not. Gangadharbatla (2021) found that participants who were told that an artwork was generated by an AI received lower ratings in terms of creativity and emotional value than when authorship was not disclosed.

Similar effects were reported by Bauer et al. (2024), who demonstrated that disclosure of generative AI triggered cognitive dissonance and reduced creative ratings. Kučinskas (2025) also confirmed that explicit AI attribution reduces perceived brand authenticity and consumer intention in advertising contexts.

The importance of authorship framing is further confirmed by institutional research. A study by Musitić & Varga (2024) found that even minimal information about authorship significantly changes the interpretation of and trust in graphic media messages. Messer (2024) and Tigre Moura, Castrucci & Hindley (2023) emphasised that works created in collaboration with AI were perceived more positively than those produced solely by algorithms, supporting the idea that emotional resonance and narrative coherence are still perceived as human characteristics.

In response to such prejudices, researchers have explored hybrid creative frameworks that combine human and AI contributions. Haupt, Freidank & Haas (2024) argued that positioning AI as a collaborator rather than an autonomous creator helps to reduce aversion to algorithms in content creation. Lee & Kim (2024) came to similar conclusions in fashion design, where consumers viewed AI-assisted outputs more favourably when human oversight was made explicit. These results emphasise the potential of framing strategies to restore trust in AI-mediated design.

Demographic factors, particularly gender, also influence responses to AI-generated content. Groundbreaking research by Meyers-Levy & Sternthal (1991) as well as Fugate & Phillips (2010), found that women respond more strongly to emotional and narrative dimensions in visual content. In a recent AI context, Černáková & Comová (2024) reported that female respondents evaluated AI-generated marketing content less favourably, suggesting that emotional resonance remains an important factor in gender-specific aesthetic preference.

Beyond cognitive framing and gender, perceptual research offers further insights. Ahtik (2023) compared AI-generated gaze heatmaps with actual human eye-tracking data. While the AI was relatively successful at predicting generalised zones of attention, it struggled to identify emotionally salient regions, supporting the argument that AI lacks the nuanced understanding of context that human perception brings. Califano & Spence (2024) similarly found that human-labelled food images were consistently rated higher in terms of visual appeal, even when the AI images were more technically polished.

On a broader psychological level, aversion to algorithms remains a persistent barrier. Castelo, Bos & Lehmann (2019) defined “task-dependent algorithm aversion” to describe the public’s distrust of AI in domains that

require subjective judgement or emotional sensitivity. This is particularly relevant in marketing and advertising, where storytelling and authenticity are central to brand trust. Pieters, Rosbergen & Hartog (1996) added that visual attention and repetition are critical components of advertising effectiveness, both of which can be undermined if AI-generated visuals fail to establish emotional engagement. Arvaj, Šubic & Ahtik (2025) confirmed that viewers are more critical of AI-generated product images when emotional or cultural relevance is essential, such as in the case of meat product advertising.

Overall, the literature reviewed emphasises that while AI-generated visuals has made considerable progress in terms of technical execution, it still faces perceptual and emotional challenges in real-world applications.

Authorship transparency, human co-creation, demographic sensitivity and psychological framing all play a crucial role in how such content is received. These findings form the conceptual foundation of this study, which aims to empirically investigate the influence of authorship disclosure and participant identity on consumer preferences for AI- and human-generated visual advertising.

Materials and methods

The research utilised a mixed-methods experimental design involving the creation and evaluation of advertising materials created using both artificial intelligence (AI) tool and traditional graphic design techniques.

The aim was to assess how the different origin of visual content affects consumer perception and preference, especially when the authorship of the content is either disclosed or undisclosed. This section outlines the methodological framework, including the creation of the stimuli, the structure of the survey, participant demographics, and analytical procedures.

Stimuli Design

The experimental material consisted of 24 pairs of advertising visuals for the same jewellery product — Calla Lily earrings by designer Ekart Katarina. Each pair featured two images: one designed using traditional graphics tools (Adobe Photoshop 26.7.0, Adobe Lightroom 14.3.1 and a Nikon D5300 DSLR camera) and one created using ChatGPT 4o in combination with DALL-E. The images differed systematically in four visual variables (Table 1):

- Composition (central or top-bottom layout),
- Background (plain or textured),
- Typography (serif, sans-serif, or handwritten),
- Presence of a human model (yes or no).

Table 1

Combinations of variables used for preparing advertising visuals

No.	Composition	Background	Typography	Human model
1	central	plain	serif	yes
2	central	plain	serif	no
3	central	plain	sans-serif	yes
4	central	plain	sans-serif	no
5	central	plain	handwritten	yes
6	central	plain	handwritten	no
7	central	textured	serif	yes
8	central	textured	serif	no
9	central	textured	sans-serif	yes
10	central	textured	sans-serif	no
11	central	textured	handwritten	yes
12	central	textured	handwritten	no
13	top-bottom	plain	serif	yes
14	top-bottom	plain	serif	no
15	top-bottom	plain	sans-serif	yes
16	top-bottom	plain	sans-serif	no
17	top-bottom	plain	handwritten	yes
18	top-bottom	plain	handwritten	no
19	top-bottom	textured	serif	yes
20	top-bottom	textured	serif	no
21	top-bottom	textured	sans-serif	yes
22	top-bottom	textured	sans-serif	no
23	top-bottom	textured	handwritten	yes
24	top-bottom	textured	handwritten	no

Each combination of these variables was applied to both AI-generated and human-designed visuals to ensure comparability. All visuals had an aspect ratio of 9:16 and were exported in high-resolution PNG format.

AI Generation Process

The AI-generated visuals were created through iterative prompting using ChatGPT 4o with integrated DALL-E functionality. Each prompt specified the desired visual features (e.g. background type, composition, text, presence of a model) and included the Calla Lily earrings as a reference.

The generative model demonstrated the ability to learn from the correction prompts and improve fidelity and consistency across multiple iterations. Nevertheless, due to platform limitations, it was not possible to use real product photos alongside the generated human figures to avoid potential misinformation. The final advertising visuals we generated are shown in Figure 1.

Conventional Visual Creation

The human-designed ads were developed using professional photography and Adobe Creative Suite tools. The photos of the models wearing the Calla Lily earrings were taken under controlled lighting conditions with a Nikon D5300 DSLR camera. The images were edited in Adobe Lightroom (only basic light and colour corrections were needed to process the RAW data captured by the camera) and finalised in Adobe Photoshop, with typography and layout matching the parameters used for the AI-generated counterparts. This ensured a controlled comparison where only the method of content creation differed. The final advertising visuals that were created are shown in Figure 2.

Survey Structure

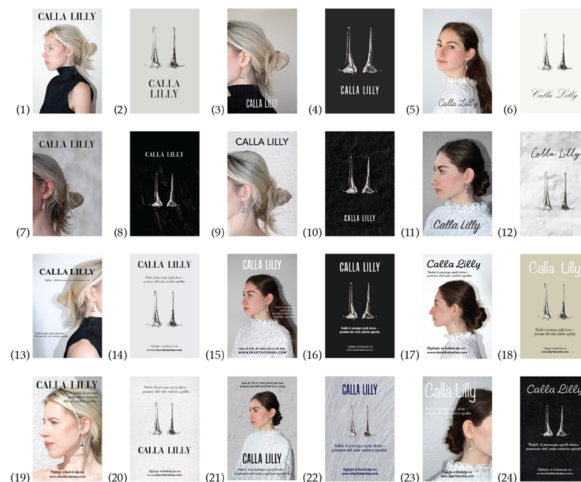
Two separate online surveys were created via the platform Fototeka.si, developed for subjective testing of digital image materials:

- Survey A (Undisclosed Authorship): Participants viewed 24 pairs of ads without being told which ones were AI-generated. They were informed that one image in each pair was AI-generated, but the specific identity of each image was not disclosed.
- Survey B (Disclosed Authorship): Participants were shown the same ad pairs, but each AI-generated image was clearly labelled as such.

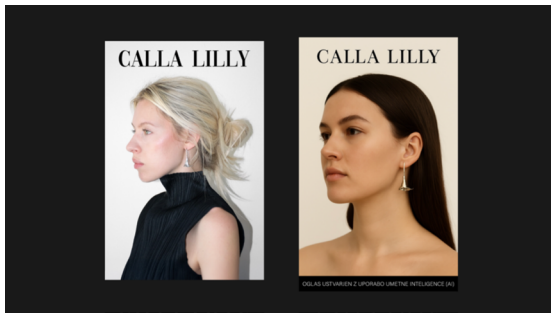
In both surveys, participants were asked to select the more aesthetically appealing advert from each pair. The order of ad presentation (left/right) was randomised to eliminate position bias (Figure 3). Each participant completed only one version of the survey to avoid learning or comparison effects.



» **Figure 1:** Advertising visuals generated using ChatGPT 4o (see Table 1 for description of used variables for each image)



» **Figure 2:** Advertising visuals designed from photographs (see Table 1 for description of used variables for each image)



» **Figure 3:** An example of image pair presented in a Survey B where the authorship was disclosed (translation of the text on the right image: “advert has been generated using artificial intelligence (AI)”)

Participants

A total of 127 valid responses were collected:

- Survey A: 57 in total, 48 female and 9 male participants,
- Survey B: 70 in total, 38 female and 32 male participants.

Participants were recruited via social media platforms and university mailing lists. All respondents confirmed their consent and voluntary participation.

Results and Discussion

In both surveys participants were shown visual pairs of images featuring jewelry products—each pair consisting of one AI-generated and one human-generated image—and asked to select the image they perceived as more appealing. Preferences were recorded as either AI-generated or human-generated images.

Results are presented and analysed in various ways, where the influence of gender, age and disclosure of authorship are closely observed.

Demographics

The participant pool consisted of a total of 3,048 responses (127 respondents) gathered through two survey variants—Survey A (undisclosed authorship) and Survey B (disclosed authorship). The participants were predominantly from Slovenia and were approximately 67.7% female and 32.3% male. The respondents represented a wide age range. Survey A had a gender breakdown of 48 females and 9 males. The median age among females in Survey A was 32.9, while males had a median age of 33.8. In Survey B, there were 38 female and 32 male respondents. The median age for females in this group was 28.8, and for males, it was significantly higher at 41.1.

Most of the responses came from people aged between 20 and 39, who made up more than 65% of the total sample. This demographic structure provides a representative basis for understanding generational and gender-specific trends in the perception of visual content.

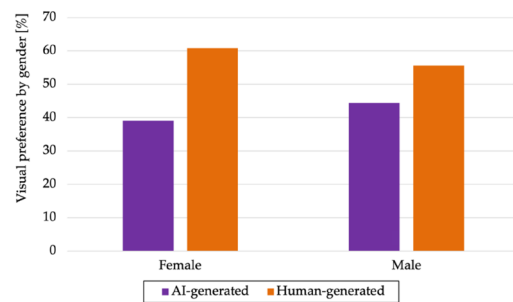
Although the sample tended to include younger and female participants—which limits generalisability - this group also represents the primary target group for the advertised products. Therefore, the results remain relevant for sales-orientated design evaluation, although future studies should include more balanced samples to strengthen external validity.

Overall Preferences

Of the total 3,048 comparisons, 1,250 (41.0%) indicated a preference for AI-generated images, while 1,798 (59.0%) favoured images created by a human designer. This indicates a clear overall preference for human-generated content, although a significant proportion of the sample expressed a positive preference for AI images.

Gender-Based Preferences

When disaggregated by gender, female respondents (n = 86) chose AI-generated visuals in 830 cases (40.2%) and human-generated visuals in 1,234 cases (59.8%). Male respondents (n = 41) chose AI visuals in 420 cases (42.7%) and human visuals in 564 cases (57.3%). These results indicate that both genders tend to favour human visuals, but men show a slightly greater openness to AI-generated content (Figure 4).

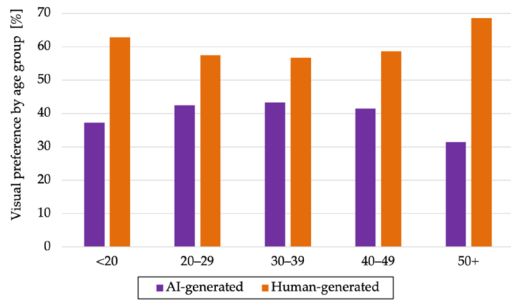


» **Figure 4:** Visual preference distribution by gender

Preferences by Age Group

An age-related breakdown shows that the percentage preference in the different age groups was relatively stable and ranged between 38 and 44% AI preference depending on the group.

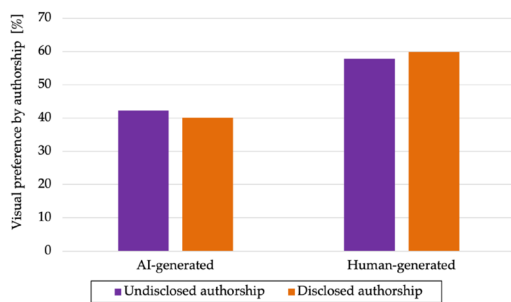
This is consistent with the regression results and supports the interpretation that age does not significantly influence visual preference. This distribution is summarised in Figure 5.



» **Figure 5:** Visual preference distribution by gender

Authorship disclosure

Survey A (in which the authorship of the images was not disclosed) resulted in 577 AI preferences (42.2%) and 791 human preferences (57.8%). In Survey B (where authorship was disclosed), respondents indicated 673 AI preferences (40.1%) and 1,007 human preferences (59.9%). This slight decrease in preference for AI visuals when authorship was disclosed supports the hypothesis that transparency about generative origin can influence audience favourability. The distribution of preferences by authorship disclosure is shown in Figure 6.



» **Figure 6:** Visual preference comparison by the effect of authorship disclosure

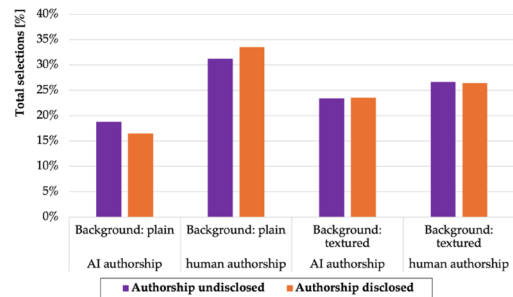
Influence of Visual Features on Preference

To assess how specific visual design characteristics affected participant choices between AI- and human-generated visuals, we analysed responses based on four main features: Background, composition, presence of a human model, and typography. Each variable was further broken down by authorship (AI or human) and authorship disclosure (Survey A: undisclosed vs. Survey B: disclosed).

Background Texture

The selection proportions based on background type (plain vs. textured), authorship and disclosure conditions is shown in Figure 7. The results show a clear and consistent trend: human-authored images with a monochrome background were selected most frequently

in both versions of the survey, peaking at 33.3% in the disclosed version. Conversely, AI-authored images with a plain backgrounds had the lowest selection rates, particularly under the disclosure conditions (16.2%). Interestingly, textured backgrounds showed a more balanced distribution between AI and human visuals, suggesting less bias due to authorship.

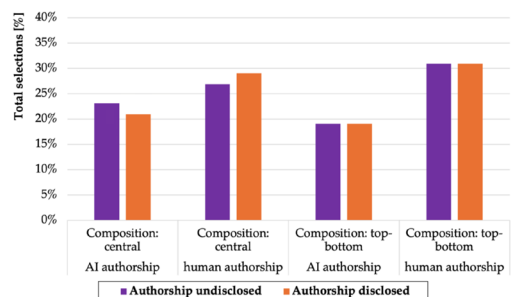


» **Figure 7:** Preference distribution based on background style and authorship, comparing disclosed vs. undisclosed conditions

Composition Style

Top-bottom compositions by human authors were selected most often, with a selection rate of over 30% in both surveys. In contrast, AI-generated top-bottom compositions consistently received the lowest selection (~18%).

For centrally composed visuals, human-authored images were again ahead in both surveys, although AI-generated central compositions performed slightly better in undisclosed conditions (22.7%) than in disclosed conditions (20.6%). These results indicate a perceptual advantage for human-created compositions — especially for traditional vertical layouts (Figure 8).

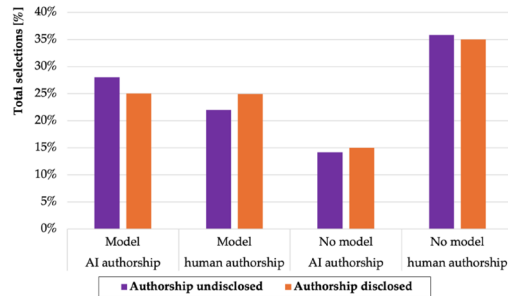


» **Figure 8:** Total selection rates by image composition (central vs. top-bottom), authorship, and disclosure

Presence of Human Model

A strong preference for visuals that included a human model, particularly when paired with human authorship, is observed in Figure 9. Notably, AI-generated images featuring a model were more accepted than AI images without a model, especially in the undisclosed survey (27.7% vs. 13.6%).

This confirms earlier statistical analysis showing a significant association between model presence and AI preference. Across both surveys, human-authored images with no model were selected most often—suggesting a base-level preference for minimalism or product focus when origin is trusted.

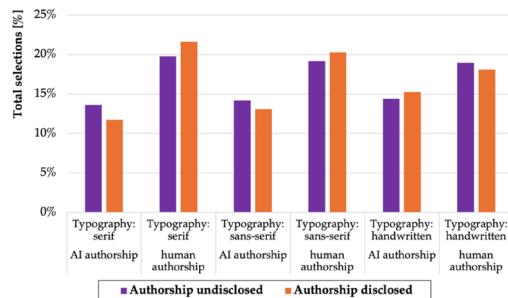


» **Figure 9:** Percentage of image selections grouped by model presence, authorship, and disclosure condition

Typography Style

The findings reveal a modest but notable inclination toward human-authored serif visuals, especially in the disclosed version (21.7%). AI-authored visuals with serif fonts performed worst when authorship was revealed (11.9%).

Sans-serif and handwritten fonts produced more balanced results, with human-authored handwritten visuals achieving the second-highest selection rate overall (~19.4%). This may suggest that handwriting and modern sans-serif elements signal authenticity and design intent more strongly than AI typically conveys (Figure 10).



» **Figure 10:** Selection percentages by typography type and authorship/disclosure condition

Interaction Effects

This section explores how gender, age group, authorship disclosure, and now visual design features interact to influence participant preferences for AI- versus human-generated visuals.

Gender × Authorship disclosure: Female participants were more sensitive to disclosure. Their AI preference decreased from 42.4% (undisclosed) to 37.5% (disclosed).

In contrast, male respondents slightly increased their preference from 41.2–43.1%.

Age × Authorship disclosure: Notably, the age group 40–49 exhibited the highest AI preference under undisclosed conditions (50.4%) but dropped to just 32.3% when authorship was revealed. Meanwhile, the 30–39 group showed relatively high AI acceptance in the disclosed version (45.8%).

Gender × Survey Interaction: As previously observed, female participants were more sensitive to authorship disclosure: their preference for AI-generated visuals declined from 42.4% in the undisclosed Survey A to 37.5% in the disclosed Survey B. In contrast, male respondents slightly increased their AI preference from 41.2–43.1% when authorship was disclosed. This indicates a potential gender-based difference in how trust or familiarity with AI is processed—possibly linked to perceived risk, confidence in technology, or aesthetic priorities.

Age × Survey Interaction: Participants aged 40–49 showed the strongest aversion to AI when disclosure was present, with AI preference dropping from 50.4% (undisclosed) to 32.3% (disclosed). By contrast, younger participants aged 20–29 maintained relatively stable AI preference across survey types, suggesting a generational shift toward normalizing AI-generated content. The 30–39 age group was the only one to increase AI selection under disclosure (from 39.8–45.8%), indicating potential segmentation in consumer openness by age and media literacy.

Visual Features × Disclosure × Authorship Interaction:

→ Figures 7–10 introduce additional nuanced interactions between visual characteristics and participant behavior:

- **Background** (Figure 7): Human-authored visuals with plain backgrounds dominated preferences, regardless of disclosure. However, when authorship was revealed, AI-generated visuals with textured backgrounds outperformed AI visuals with plain backgrounds—suggesting that texture may act as a compensating design element, softening negative effects of AI attribution.
- **Composition** (Figure 8): Top-bottom compositions by human authors were consistently favored, whereas AI-authored versions were less accepted, particularly when authorship was disclosed. Interestingly, centrally composed AI visuals were more competitive when authorship was not disclosed, indicating that composition layout interacts with both authorship and transparency in shaping perceptions.
- **Human Model** (Figure 9): This figure highlights a strong three-way interaction. While human presence boosted visual preference across the board, AI visuals featuring models were notably

more accepted under undisclosed conditions. Conversely, AI visuals lacking a human model were substantially penalized, especially under disclosure. This suggests that human presence may be interpreted as a cue for design intentionality or emotional appeal, which counters AI skepticism.

- **Typography** (Figure 10): Among typography styles, serif fonts enhanced credibility of human-generated visuals, particularly under disclosure, while AI-generated visuals with serif fonts were least trusted when authorship was revealed. Sans-serif and handwritten styles showed more balanced performance, suggesting these may be perceived as more neutral or contemporary, and therefore less risky for AI authorship.

These insights highlight a complex interaction between visual design, authorship, and audience characteristics.

Participants do not evaluate visuals solely on stylistic grounds or authorship, but based on how specific visual cues align (or conflict) with expectations of authenticity, emotional engagement, and artistic control. Disclosure appears to activate these judgments, especially in visuals where style implies intentionality (e.g., serif fonts, model inclusion).

This study, based on more than 3,000 survey responses, demonstrates that the perceived origin of visual content significantly shapes audience judgment in advertising and design. Human-generated visuals were consistently preferred (59.0%) over AI-generated alternatives (41.0%), and this preference was even stronger when authorship was disclosed.

These findings confirm that evaluation goes beyond surface aesthetics to include authenticity, emotional resonance, and perceived creative intent. At the same time, the relatively high acceptance of AI visuals indicates that audiences are increasingly tolerant of machine authorship, pointing toward an evolving visual literacy that is reshaping expectations of creative production.

Demographic analysis further revealed subtle but meaningful differences. Female respondents showed a stronger bias toward human-created visuals, whereas male respondents were somewhat more receptive to AI content. These results align with prior research in visual psychology and consumer behavior, suggesting gender differences in sensitivity to visual cues and trust in automated systems.

Such patterns indicate that audience demographics may influence how AI-generated content is received, and that creative strategies will need to account for these distinctions if they are to resonate effectively across diverse groups.

Another central finding concerns the role of disclosure. In line with previous studies, transparency about AI authorship slightly reduced acceptance, lowering preference for AI visuals from 42.2% to 40.1%. Though modest, this effect highlights the ongoing challenge of authenticity in AI-assisted creativity. It also reflects the double-edged nature of disclosure: while ethically necessary and aligned with responsible communication practices, transparency may lower engagement unless it is balanced by strong design, clear narrative coherence, or an emphasis on the human role in guiding the creative process.

Conclusions

This study offers valuable insights for the creative industry as generative artificial intelligence reshapes design workflows and aesthetic expectations. Although AI has become a powerful tool for visual creation, it should be used carefully in contexts where identity, emotion, and authenticity are central to audience trust. Designers must consider not only the technical quality of AI outputs but also the visual rhetoric present in composition, style, and human presence. Presenting AI use as co-creation rather than replacement may help strengthen credibility and preserve emotional connection, especially in domains where human oversight and artistic intention are still valued. Acceptance of AI-generated content will likely vary by context: utilitarian and high-turnover environments such as e-commerce may embrace automation, while emotionally charged or luxury sectors will continue to prioritize human authorship.

From a theoretical perspective, this study connects creative practice and empirical perception testing by showing that authorship disclosure serves as a psychological framing device influencing perceived authenticity and aesthetic trust. Methodologically, it introduces a controlled comparative design that isolates visual and demographic variables, providing a replicable framework for future studies of audience response to AI-generated visuals.

The findings provide practical guidance for designers and marketers integrating generative AI into creative production. In addition to output quality, compositional and stylistic choices – such as including human figures, textured backgrounds, or hand-drawn typography – can reduce skepticism toward AI-generated visuals. When disclosure of AI involvement is required, it should be accompanied by strong emotional or narrative framing that emphasizes human intentionality in the creative process.

An important open question arising from this research is whether AI can develop a distinct and recognizable visual style that audiences perceive as authentic in its own right. Currently, generative systems tend to emulate human aesthetics rather than display a coherent, autonomous style.

As these technologies advance, future studies should examine whether an identifiable “AI aesthetic” emerges one that audiences value as an independent creative language, not merely as a derivative of human design.

Overall, the results support a multidimensional understanding of visual judgment, where perception is shaped by image quality, authorship, disclosure, and audience characteristics. Future research should examine cross-cultural and contextual differences, as well as experimental techniques such as eye-tracking or biometric measurement, to reveal the cognitive and emotional mechanisms underlying visual preference. Although AI has not replaced human designers in areas requiring narrative depth, emotional credibility, or authenticity, it is becoming an increasingly influential collaborator. As audiences grow more accustomed to generative visuals and as AI tools become more responsive to human nuance, the boundaries between machine and human creativity will continue to blur, ushering in a hybrid creative paradigm. Understanding where, why, and for whom authorship continues to matter will be essential to navigating this evolving landscape of visual communication.

Funding

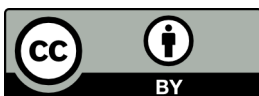
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