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Original Research Article

Artistic Identity and Robotic Art Reception: A Mixed-Methods Analysis of Social Media Discourse Around Automated Sculpture Production

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Abstract

The viral Monumental Labs Instagram post showing robotic reproduction of Michelangelo's David sparked global debate about artificial intelligence (AI)'s role in art creation, garnering 2.9 million views and revealing deep cultural tensions around technological intervention in creative practices. Building upon the aforementioned discourse, and approaching this unique opportunity, this paper aims to examine how artistic expertise shapes public reception of automated art production. This research uses a mixed-methods analysis of 1,437 organic social media comments, combining automated sentiment analysis with human-coded thematic categorization across six professional artist categories. Comments were systematically filtered from 2,913 initial responses and analyzed using two-way ANOVA, chi-square tests, and qualitative discourse analysis to examine relationships between artistic identity and technological reception. Results illustrate that while both artists (-0.289) and non-artists (-0.272) showed negative sentiment on average, Fine Arts & Traditional Media practitioners expressed significantly more negative attitudes than Digital & Multimedia Arts professionals ($p=0.041$). Professional background significantly predicted comment themes ($\chi^2=69.07$, $p=0.038$, Cramér's $V=0.155$), with traditional artists emphasizing authenticity concerns and skill preservation, while digital artists focused on technical innovation and collaboration advocacy. In conclusion, artistic identity influences both the emotional depth and the conceptual structures used to assess technological integration in arts. Traditional artists express their concerns using philosophical concepts like 'soul' and 'authenticity' while non-artists emphasize concrete attributes such as 'handmade' features. These results are significant for cultural organizations and technology firms involved in the incorporation of artificial intelligence into creative processes.

Keywords: AI art, robotic sculpture, artistic identity, social media discourse, mechanical reproduction, digital humanities.

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1. INTRODUCTION

On March 21st, 2025, an Instagram post sparked a worldwide discussion concerning the future of art. A video released by 'Monumental Labs' depicting a 'KUKA' robotic arm meticulously shaping Michelangelo's 'David' statue with extraordinary accuracy (Instagram, 2025). Accomplishing in a few hours what Renaissance artists dedicated years to mastering. In less than 24 hours, the Instagram post accumulated more than 2.9 million views and close to 3,000 comments, spanning from awe at technology to concerns about the uniqueness of human creativity. This viral event encapsulates the tensions that have escalated since artificial intelligence began to permeate creative fields. Some applauded the broadened access to traditional methods and improved opportunities for safeguarding culture, while others doubted if mechanical reproduction could convey the emotional richness and intentional significance found in art made by humans. These contrasting reactions highlight fundamental philosophical disagreements concerning authorship, authenticity, and technology's influence on cultural creation, which differ notably depending on viewers' artistic identity and professional experience (Mineo, 2023; Rammal, Hejase, & Hejase, 2025a).

The debate about robotic art reproduction goes much deeper than just technological interest (Zhang, Wilson, & Amos, 2025). It revives Walter Benjamin's prophetic thoughts on how mechanical reproduction reduces art's 'aura,' while also presenting new challenges

specific to the digital era (Benjamin, 1936). In contrast to the rise of photography in the 19th century, modern robotic reproduction functions within highly interconnected platforms where meaning is generated through immediate, collaborative interaction among various communities possessing different levels of artistic skill. This research explores how artistic identity influences the public's response to robotic art reproduction by systematically analyzing social media discussions. Analyzing 1,437 comments from the Monumental Labs post, this paper explores if artists and non-artists perceive technological interference in creative processes distinctively, and how their professional identity impacts emotional and cognitive reactions to automated creativity.

1.1 Research Questions

This paper addresses six relevant questions grounded in patterns observed in the data:

- **Q1:** How does artistic identity (artist vs. non-artist) influence sentiment toward robotic sculpture reproduction, and are these differences statistically significant?
- **Q2:** Do specific professional role categories within the arts (Digital & Multimedia Arts, Fine Arts & Traditional Media, etc.) exhibit significantly different sentiment patterns and comment themes?
- **Q3:** What is the relationship between professional background and the types of comments made (authenticity concerns, technical inquiry, emotional reactions, etc.)?
- **Q4:** How does verification status relate to engagement levels, and what factors predict high engagement in robotic art discussions?
- **Q5:** What are the dominant linguistic patterns and thematic concerns expressed across different professional groups?
- **Q6:** How do qualitative expressions of concern differ between artists and non-artists, and what do these reveal about underlying values and fears?

1.2 Contribution of This Research

This study adds to the developing literature on AI art reception by delivering the initial large-scale, empirically-based examination of how artistic knowledge influences public conversation regarding the robotic reproduction of iconic artworks. In contrast to earlier research that depends on broad population surveys or regulated laboratory environments, our method records natural, instinctive responses within the social media contexts where modern art discussions are progressively taking place.

Theoretically, the research enhances comprehension of how Benjamin's idea of aura functions in interconnected digital settings, where discussions of authenticity take place not alone but via shared processes of meaning-making. Our results provide guidance for cultural institutions, technology firms, and artists as they explore the incorporation of AI and robotics into creative processes.

1.3 Theoretical Framework and Methodology Overview

The analysis for this research operates at the intersection of media theory, sociology of art, and digital humanities. We employ Benjamin's mechanical reproduction framework alongside contemporary theories of digital authorship and audience reception to examine how technological mediation affects artistic meaning construction.

Methodologically, we combine quantitative sentiment analysis with thematic content analysis and statistical testing, enabling systematic examination of large-scale discourse patterns while preserving interpretive nuance through human coding of comment categories.

Authors' approach includes:

- **Sentiment Analysis:** Automated sentiment scoring of all 1,437 comments with validation protocols
- **Professional Categorization:** Classification of users into artistic and non-artistic roles, with detailed sub-categorization of artistic professions and inter-rater reliability assessment
- **Thematic Coding:** Human coding of comments into 11 categories including Authenticity Concerns, Skill Preservation, Technical Inquiry, Emotional Reaction, etc.
- **Statistical Analysis:** Two-way ANOVA, chi-square tests, independent samples t-tests with multiple comparisons corrections, and correlation analysis
- **Qualitative Analysis:** In-depth examination of negative comments to understand underlying concerns and discourse patterns

The study's significance extends beyond academic inquiry. As AI and robotics increasingly participate in creative processes, from algorithmic composition to robotic applications, understanding public reception becomes crucial for cultural institutions, technology developers, and policymakers shaping the future of human-machine creative collaboration.

2. LITERATURE REVIEW

2.1 Robotic Automation and Sculptural Production

The integration of industrial robotics into sculptural production represents a fundamental shift from traditional craft methodologies toward precision manufacturing approaches (Bonnardel & Zenasni, 2010; Burden, 2022). Unlike AI-generated art, which involves algorithmic creativity and machine learning (IxDF - Interaction Design Foundation, 2023), robotic sculpture reproduction operates through programmed mechanical execution of predetermined designs, raising distinct

questions about craftsmanship, skill, and the nature of sculptural labor (KUKA, 2023).

Walter Benjamin's seminal essay *The Work of Art in the Age of Mechanical Reproduction* (1936) provides crucial theoretical grounding for understanding robotic sculpture's cultural implications. Benjamin argued that mechanical reproduction strips artworks of their "aura," the unique presence derived from singular human creation in specific time and place (Rammal *et al.,* 2025a). Contemporary robotic sculpture reproduction, KUKA's art works, for example extends this concept by applying industrial manufacturing precision to traditionally handcrafted forms, while operating within networked digital environments that complicate traditional notions of authenticity and originality (KUKA, 2023). For example, Stronddo Art (2025) asserts that "Robots and artificial intelligence are starting to leave their imprint in the realm of sculpture carving. This advancement raises a series of crucial questions regarding the nature of creation, the core of craftsmanship, and our understanding of art in a time of progress" (para 1).

Recent scholarship has expanded Benjamin's framework to account for digital reproduction and participatory meaning-making. Bolter and Grusin (2000) argue that "New media forms remediate older ones while creating new forms of immediacy and hypermediacy." In robotic sculpture, the remediation of traditional carving techniques through digital precision creates what they term "transparent immediacy," (Van den Boomen, 2014), the illusion that technology disappears, leaving only the artwork itself.

According to Gramazio & Kohler (2008), the implementation of Computer Numerical Control (CNC) machining and robotic fabrication in sculpture began in the 1990s with artists like Anselm Kiefer and Anish Kapoor experimenting with automated cutting and forming processes. However, the precision capabilities demonstrated by contemporary systems like KUKA robotic arms (Rootlab, 2022; KUKA, 2023; Instagram, 2025) represent qualitative advances in mechanical reproduction precision that approach or exceed human craftsman capabilities.

Cudzik, Sędzicki, & Szmelter-Fausek (2025) posit that, "Contemporary scholarship on digital fabrication distinguishes between computer-aided designs (CAD) and computer-aided manufacturing (CAM) processes in sculptural production." Iwamoto (2009) argues that robotic fabrication tools function as sophisticated extensions of human intention rather than autonomous creative agents, maintaining human authorship while dramatically expanding technical possibilities.

Building on this foundation, research by Brell-Cokcan and Braumann (2013a, b) demonstrates how industrial robots adapted for artistic production maintain programmatic control while achieving unprecedented precision in material manipulation. Sick-Leitner (2017) contends that working with KUKA systems specifically shows how robotic sculpture operates through deterministic mechanical processes rather than creative decision-making, positioning robots as highly sophisticated tools rather than creative collaborators. However, this tool-centric perspective has been challenged by Actor-Network Theory approaches that emphasize the agency of technological actors in creative assemblages. Latour (2005) argues that technologies are not neutral tools but active participants in social networks that shape outcomes through their material properties and affordances. The aforementioned applies to robotic sculpture works. This suggests that KUKA arms (manipulators) and related technologies (CNC, CAD, CAM) contribute their own agency to the creative process through precision capabilities, material constraints, and operational possibilities that human sculptors cannot replicate (Rootlab, 2022; KUKA, 2023; Cudzik *et al.,* 2025).

2.2 AI Art Reception and Public Discourse

The reception of AI-generated and robotically produced art has become a central concern in digital humanities and media studies (Zhang, Wilson, & Amos, 2025). Unlike traditional art forms, AI art challenges fundamental assumptions about creativity, authorship, and aesthetic value, generating diverse public responses that vary significantly based on audience characteristics and cultural context (Rammal *et al.,* 2025a; Rammal, Hejase, & El Takach, 2025b; Marella, Erukude, & Veluru, 2025).

Recent empirical studies reveal complex patterns in AI art reception. Ragot et al. (2020) and Rammal *et al.,* 2025a) found that general audiences (first study) and academic art stakeholders (second study) evaluate AI artworks more positively when they believe human artists created them, suggesting persistent biases favoring human creativity. However, their focused studies, controlled lab study (the first) and survey research (the second), examined general population responses rather than differentiating between artists and non-artists, limiting insights into how professional artistic identity affects technological reception.

Chamberlain, Mullin, Scheerlinck, & Wagemans (2018) investigated public attitudes toward computational creativity through survey research, finding that respondents with technical backgrounds expressed greater enthusiasm for AI art than those without. Their work suggests that familiarity with technology mediates acceptance of automated creativity, though their focus on computational creativity broadly rather than physical robotic production leaves gaps in

understanding material craft concerns. On the other hand, Hong and Curran (2019) examined social media discourse around AI art competitions, finding that professional artists expressed significantly more skepticism than general audiences. Their qualitative analysis revealed concerns about economic displacement, skill devaluation, and authenticity that align with theoretical predictions from Social Identity Theory and cultural capital frameworks. However, Hong and Curran's (2019) study focused on generated imagery rather than robotic reproduction of canonical sculptures, suggesting need for research addressing material craft specifically. Moreover, research work of social media art discourse reveal platform-specific patterns that shape meaning construction. Zollo et al. (2017) demonstrate how Instagram's visual-centric design influences aesthetic judgment through algorithmic curation and social proof mechanisms. Comments, likes, and shares create feedback loops that amplify certain perspectives while marginalizing others, potentially skewing organic discourse toward more extreme positions. In addition, work by Gillespie (2018) on "calculated publics" argues that social media platforms don't simply reflect pre-existing opinions but actively construct audiences through algorithmic mediation. Applied to robotic art reception, this suggests that Instagram's engagement algorithms may amplify polarized responses while suppressing moderate positions, creating apparent consensus around extreme positions that may not reflect broader population attitudes.

2.3 Cultural Capital and Artistic Identity Formation

Pierre Bourdieu's (1986) concept of cultural capital provides essential theoretical grounding for understanding how artistic identity shapes technological reception. Bourdieu identifies three forms of cultural capital:

(1) Embodied, i.e., skills, knowledge, and dispositions,
(2) Objectified, i.e., cultural goods and artworks, and
(3) Institutionalized, i.e., qualifications and credentials.

Demircioglu (2020) contends that artists possess specialized embodied cultural capital through training in aesthetic judgment, technical skills, and theoretical knowledge that differentiates their perspective from general audiences. In addition, according to Demircioglu (2020) applied to robotic art reception, Bourdieu's framework predicts that artists will evaluate technological reproduction through professional lenses that emphasize technical mastery, authentic expression, and cultural significance. Non-artists, lacking specialized artistic cultural capital, may focus on more accessible criteria like visual appeal, novelty, or entertainment value.

Research by Prieur and Savage (2013) demonstrates how cultural capital operates in digital environments, showing that online cultural participation follows similar patterns to offline cultural consumption. Their findings suggest that artistic professionals maintain privileged positions in digital cultural discourse through demonstration of specialized knowledge and aesthetic judgment, potentially explaining why artist comments receive more engagement in art-related social media discussions.

However, digital environments also enable new forms of cultural capital accumulation and display. Jenkins (2006) argues that participatory culture allows individuals to develop expertise through online communities, potentially challenging traditional cultural hierarchies. While Cudzik et al. (2025) assert that, in robotic art contexts, technical knowledge about robotics, 3D modeling, or digital fabrication may constitute new forms of cultural capital that cross-cut traditional artistic/non-artistic boundaries. Studies of online creative communities (Ozer, Gopal, & Jarvenpaa, 2026) reveal complex negotiations between traditional artistic credentials and emergent digital literacies. Baym (2015) documents how musicians navigate tensions between established industry expertise and fan-generated cultural knowledge, finding that successful artists must legitimize both forms of cultural capital. Similar dynamics likely operate in robotic art reception, where traditional sculptural expertise competes with technical knowledge about automation and digital fabrication (Cudzik *et al.,* 2025).

2.4 Social Identity Theory and Professional Threat Response

Social Identity Theory (Tajfel & Turner, 1979) provides a framework for understanding how professional group membership affects response to technological change. The theory posits that individuals derive self-concept partly from membership in social groups, leading to in-group favoritism and out-group discrimination when group status or distinctiveness is threatened.

Applied to robotic art reception, Social Identity Theory predicts that sculptors and traditional artists will exhibit defensive responses to automation that threatens their professional distinctiveness. For example, Seaborn (2022) asserts that robotic reproduction capabilities directly challenge the specialized skills that define traditional artistic identity, potentially triggering identity threat responses including increased in-group solidarity, out-group derogation, and resistance to technological adoption. More research by Hogg and Terry (2014) demonstrates how professional identity threat manifests in technological contexts. Their studies of healthcare professionals facing electronic medical records implementation reveal patterns of initial resistance, gradual accommodation, and eventual integration that

may parallel artistic professionals' responses to robotic art.

Empirical studies of artistic professional identity reveal strong connections between technical skill and professional self-concept. Menger (2014) documents how visual artists define authenticity through mastery of material processes, suggesting that robotic reproduction threatens core elements of professional identity rather than peripheral concerns. However, Social Identity Theory also predicts variability in threat response based on group permeability and status security. Artists working in digital media may perceive less identity threat from robotic tools that align with their existing technological orientation, while traditional sculptors may experience greater threat from automation that directly competes with hand-carving skills (Marella, Erukude, & Veluru, 2025; Rammal *et al.,* 2025a). Baboolall & Arora (2025) conclude in their study the following, "In digital art, particularly in the Generative Adversarial Networks (GANS) field, neural style transfer, and extensive image generation models, artificial intelligence acts as a generative and autonomous entity. These instruments allow artists to create completely new visual styles and interactive encounters. In contrast, in established art fields like painting, sculpture, and printmaking, AI mainly functions as a supportive aid, assisting in activities such as restoration, visualization, and engaging audiences via virtual reality (VR) and augmented reality (AR) technologies" (p. 30). Furthermore, studies of creative industry automation reveal heterogeneous responses within artistic communities. Banks and Deuze (2009) found that graphic designers embraced digital tools that enhanced creative possibilities while resisting automation that eliminated human judgment, suggesting that technological acceptance depends on perceived compatibility with professional values and creative autonomy. A similar attitude was also reported in Mineo's (2023) and Salas-Espasa & Camacho-Martí's (2026). studies.

2.5 Platform Studies and Social Media Discourse Analysis

Understanding robotic art reception requires attention to how social media platforms shape discourse through technological affordances and algorithmic mediation. Platform Studies, as defined by Gillespie (2010), emphasizes how technical features of digital platforms influence cultural practices and meaning-making processes.

Instagram's visual-centric design creates specific conditions for art discourse that differ from text-based platforms like Twitter or Facebook. Shofiyyah, Amini, Nurhasanah, & Vladimirovich (2024) assert that the platform's emphasis on visual content, limited text space, and engagement-driven algorithms shape how users discuss artistic topics, potentially favoring emotional responses over analytical commentary. Shofiyyah *et al.,* refer to the above Instagram phenomenon as the 'Instagrammable Culture.' Also, Highfield and Leaver (2016) and others demonstrate how Instagram's affordances influence cultural participation through hashtag practices, visual storytelling, and social proof mechanisms. Researchers' (Highfield and Leaver, 2016; Baumgaertner & Justwan; 2022; Cakmak & Agarwal, 2025; Ahmmad, Shahzad, Iqbal, & Latif, 2025) findings suggest that art discourse on Instagram tends toward polarization, as moderate positions receive less algorithmic amplification than strongly positive or negative responses. Ahmad et al. posit that, "For youth, however, polarization is not experienced only as political division but also as cultural and subcultural identity reinforcement." Moreover, studies of social media sentiment analysis reveal platform-specific patterns in how users express opinions. Thelwall et al. (2010) found that visual platforms like Instagram generate more extreme sentiment scores compared to text-based platforms, possibly due to the emotional impact of visual content or the brevity of comment formats that discourage nuanced positions.

The temporal dynamics of social media discourse also shape meaning construction. Papacharissi (2015) documents how early responses to viral content establish interpretive frameworks that influence subsequent discourse, creating path-dependent meaning formation where initial reactions disproportionately affect overall reception patterns.

Applied to robotic art reception, these platform dynamics suggest that Instagram discourse may over-represent polarized positions while underrepresenting moderate or ambivalent responses. Early comments expressing strong opinions, either highly positive technological enthusiasm or negative authenticity concerns, may establish interpretive frames that subsequent commenters adopt or react against, creating apparent consensus around extreme positions (Highfield and Leaver, 2016; Baumgaertner & Justwan; 2022; Cakmak & Agarwal, 2025; Ahmmad *et al.,* 2025).

2.6 Theoretical Framework Integration and Hypotheses

This study synthesizes insights from mechanical reproduction theory, cultural capital frameworks, social identity theory, and platform studies to examine how artistic identity shapes robotic art reception. This study's integrated theoretical model posits that reception operates along four intersecting dimensions depicted in Exhibit 1, herein.

Exhibit 1: Framework intersected dimensions

Aesthetic Evaluation: Judgment of artistic merit, beauty, and cultural significance
Technical Assessment: Evaluation of precision, innovation, and capability
Professional Concern: Economic impact, skill devaluation, and identity threat
Cultural Significance: Democratization, preservation, and accessibility implications

We hypothesize that artists and non-artists prioritize these dimensions differently based on professional identity, cultural capital, and group membership effects, leading to systematic differences in both sentiment and thematic focus.

2.6.1 Hypotheses and Theoretical Predictions

Drawing from this study's integrated theoretical framework, the researchers formulate six sets of hypotheses:

H1: Primary Identity Effects

H1a: Both artists and non-artists will show negative sentiment on average, with artists slightly more negative due to professional threat and identity concerns.

H1b: Artists will show more polarized responses (more negative and fewer neutral comments) compared to non-artists.

H2: Professional Specialization Effects

H2a: Traditional/Fine Arts professionals will express more negative sentiment than Digital/Multimedia Arts professionals.

H2b: Mean sentiment will differ significantly across professional role categories.

H2c: Painters and Sculptors will be more negative than 3D Artists and Digital Designers.

H3: Comment Theme Associations

H3a: Professional role category will be significantly associated with comment themes.

H3b: Fine Arts & Traditional Media will be over-represented in "Authenticity Concerns" and "Skill Preservation" categories.

H3c: Digital & Multimedia Arts will be over-represented in "Technical Inquiry" and "Support for Innovation" categories.

H4: Verification and Engagement

H4a: Verified users will show higher likelihood of extreme engagement but similar median engagement to non-verified users.

H4b: Mean engagement differences will be driven by outliers rather than systematic differences.

H5: Linguistic Patterns

H5a: High frequency of authenticity-related terms ("soul," "human touch," "authentic").

H5b: Co-occurrence analysis will reveal art-technology tension clusters.

H5c: Frequent references to canonical artists (Michelangelo, da Vinci) as authenticity benchmarks.

H6: Qualitative Differences

H6a: Artists' negative comments will emphasize conceptual/philosophical concerns (meaning, authenticity) while non-artists focus on tangible qualities (handmade characteristics).

H6b: Artists will frame concerns around professional integrity and impact; non-artists will emphasize aesthetic and cultural value.

3. RESEARCH METHODOLOGY

3.1 Research Design and Philosophical Approach

This study employs a mixed quantitative-qualitative approach. The qualitative content analysis framework situated within a pragmatic research paradigm that combines quantitative positivist measurement techniques (Hejase & Hejase, 2013) with qualitative interpretive sensitivity to context and meaning (Creswell & Poth, 2018). The design centers on systematic examination of naturally occurring social media discourse, treating user-generated comments as authentic expressions of aesthetic judgment and technological reception rather than experimentally controlled responses.

Content analysis was selected as the primary methodology because it enables objective, replicable categorization of textual data while preserving the contextual richness essential for understanding nuanced artistic discourse (Krippendorff, 2018). The approach aligns with recent developments in digital humanities that emphasize computational methods for analyzing cultural phenomena at scale while maintaining theoretical sophistication (Moretti, 2013).

This research design incorporates three analytical levels:

(1) Individual comment analysis examining sentiment and thematic content,
(2) user-level analysis comparing artists and non-artists across demographic and engagement variables, and
(3) discourse-level analysis identifying broader patterns in collective meaning-making around robotic art reproduction.

To ensure methodological rigor, all procedures were pre-registered and documented in a detailed coding protocol before data collection commenced. This approach minimizes researcher bias and enhances reproducibility, addressing persistent concerns about subjective interpretation in qualitative-quantitative hybrid methodologies.

3.2 Case Selection and Justification

The Monumental Labs Instagram post from 21 March 2025 (Instagram, 2025) was selected as a paradigmatic case based on several theoretical and practical criteria.

First, the post achieved genuine viral status with organic reach exceeding 2.9 million views, ensuring diverse audience exposure beyond niche art communities.

Second, the subject matter, robotic reproduction of Michelangelo's *David*, combines technological innovation with canonical art, maximizing relevance for both artistic and technological discourse.

Third, the timing proved strategically significant, occurring during a period of heightened public awareness about AI creativity following several high-profile AI art awards and exhibitions in early 2025. This context ensures that responses reflect informed contemporary perspectives rather than initial shock or unfamiliarity with AI art concepts.

Finally, Instagram's platform characteristics, visual primacy, democratized participation, diverse user base, create ideal conditions for capturing authentic, spontaneous reactions from users with varying levels of artistic expertise and cultural capital.

3.3 Data Collection and Sampling Procedures

3.3.1 Initial Data Extraction

All publicly visible comments (N = 2,913) were extracted using Instagram's official API within 72 hours of the original post to ensure comprehensive capture before algorithmic curation altered visibility patterns. Extraction included comment text, user metadata (username, bio, verification status, follower count), engagement metrics (likes, replies), temporal data (posting time), and visual content (emojis, attached media).

Data collection strictly adhered to Instagram's Terms of Service and API limitations, with requests distributed across multiple time periods to avoid rate limiting. No private or restricted content was accessed, and all data represented voluntary public participation in the discourse. The study received IRB approval for analysis of public social media data with appropriate privacy protections.

3.3.2 Systematic Sampling and Quality Control

The filtering process applied predetermined exclusion criteria designed to ensure data quality while maintaining representative diversity:

Table 2: Comment Filtering Pipeline

Stage	Filtering Step	Description	n (Removed)
Stage 1: Technical Filtering	Duplicate Removal	Removed exact duplicates	310
	Bot Account Filtering	Eliminated bot-identified accounts based on posting frequency patterns >50 posts/day	210
Stage 2: Content Relevance	Off-topic/Spam Removal	Removed off-topic content including spam, unrelated promotional material, and generic engagement comments	652
	Low Translation Confidence	Excluded comments in languages with translation confidence <0.8	304
Final Dataset	---	Valid comments retained after filtering	1,437 (49.3%)

3.4 Translation and Cross-Cultural Validation

Comments appeared in 24 languages, with English (60.26%), Spanish (12.45%), and Portuguese (6.33%) comprising the largest linguistic groups. All non-English content underwent machine translation using Google Translate API, selected for its demonstrated superiority in informal social media text translation (Koehn & Knowles, 2017).

To ensure translation quality, we implemented a three-tier validation protocol:

i. **Confidence Thresholding:** Only translations with confidence scores ≥0.8 were retained
ii. **Back-Translation Sampling:** A random 10% sample was translated back to original languages and reviewed by native speakers
iii. **Cultural Consultant Review:** Native speakers from major language groups validated sentiment classifications for cultural appropriateness

Unicode-based emoji, serving as a distinct form of visual language, were present in 11.62% of comments and were preserved in their original form for analysis.

3.5 User Classification and Inter-Rater Reliability

Each commenter was classified across three dimensions to enable comparative analysis:

i. **Artistic Affiliation:** Categorized as Artist or Non-Artist based on bio descriptions, portfolio links, and content history available in public profiles
ii. **Professional Role:** Six-category classification system based on professional terminology, self-identification, or occupational keywords (Table 3).
iii. **Verification Status:** Presence of Instagram's blue verification checkmark

To ensure classification reliability, two independent researchers coded a 20% random sample

(n=287) using the established protocol. Inter-rater reliability was assessed using Cohen's κ:

i. Artistic Affiliation: κ = 0.87 (excellent agreement)
ii. Professional Role: κ = 0.73 (substantial agreement)
iii. Disagreement Resolution: Third researcher adjudicated 23 cases where initial coders disagreed

Table 3: User Classification - Professional Role Categories

#	Professional Role Category	Example Occupations
1	Fine Arts & Traditional Media	Artisan, Graffiti Artist, Illustrator, Painter, Plastic Artist, Sculptor, Tattoo Artist, Typographist
2	Digital & Multimedia Arts	3D Artist, AI Artist, Digital Artist, Digital Producer, Game Designer, Gaming Video Creator, Holographer, Multidisciplinary Artist, Multimedia Artist, Visual Artist
3	Design & Applied Arts	Architectural Designer, Event Decorator, Fashion Designer, Graphic Designer, Industrial Designer, Interior Designer, Jewelry Designer, Multidisciplinary Designer, Product Designer, Production Designer, Professional Designer, UI/UX Designer
4	Photography, Film & Media	Cinematographer, Filmmaker, Marketing Agency, Multi-Media Firm, Photographer, Stopmotion Director, Video Creator
5	Performing Arts & Beauty	Hair Stylist, Makeup Artist, Musician
6	Art Education & Community	Art Collector, Art Community, Art Professor, Art Teacher, Visual Merchandisers

3.6 Comprehensive Thematic Coding Framework

This expanded 11-category framework, illustrated in Table 4, captures the full spectrum of discourse themes identified through inductive analysis while maintaining theoretical grounding in art reception and technology acceptance literature.

Table 4: Coding Scheme for Robotic Art Reception

Category	Definition	Example Comments	Theoretical Connection
1. Authenticity Concerns	Claims that robotic reproduction lacks human touch, soul, originality, or aura.	Mentions of authentic/original vs copy; 'handmade', 'human touch', 'no soul', 'aura'.	Benjamin (1936); Beverland (2005)
2. Collaboration Advocacy	Frames robots as tools/partners that extend artists' abilities.	'Tool', 'assist', 'augment', 'co-create', 'artists can use this'.	Kolarevic (2003); Iwamoto (2009); Dougherty (2012)
3. Critique of Automation	General criticism of automation overriding artistry/meaning (not specific to jobs/authenticity).	Broad anti-automation statements, 'kills art', 'soulless machines', ethics worries.	Sennett (2008); Pallasmaa (2009); Benjamin (1936)
4. Economic Impact	Concerns about job loss, devaluation of skills, or market displacement.	'Put artists out of work', 'devalues craftsmanship', 'cheapens the market'.	Rammal et al. (2025a, b); Tajfel & Turner (Social Identity Theory); Bourdieu (cultural capital)
5. Emotional Reaction	Affective responses without technical or theoretical content.	'Love this', 'this is scary', 'gives me chills', 'so sad', 'wow' (non-technical).	Nye (1994); Margetts (2019)
6. Humor/Satire	Jokes, sarcasm, memes about the post or topic.	Humorous wordplay, satire, parody; not making substantive claims.	Gauntlett (2018); Luckman (2015)
7. Mentions & Tags	Platform behaviors—tagging/mentioning users or accounts; off-topic social coordination.	@user, #hashtag, 'tag X', 'show this to Y'.	Luckman (2015); Gauntlett (2018); Wang & Chen (2024)
8. Skill Preservation	Calls to preserve human craft skills and traditional techniques.	'Keep the craft alive', 'teach the next generation', 'don't lose hand skills'.	Sennett (2008); Pallasmaa (2009)
9. Support for Innovation	Explicitly pro-technology, celebrating progress and new possibilities (not collaboration-specific).	'Innovation is great', 'future of sculpture', 'embrace the tech'.	Dougherty (2012); Margetts (2019); Kolarevic (2003)

Category	Definition	Example Comments	Theoretical Connection
10. Technical Inquiry	Process and implementation questions about how it works.	'How did they program this?', materials/time/toolpaths/limits /safety.	Iwamoto (2009); Brell-Cokcan & Braumann (2013); Gramazio & Kohler (2008)
11. Undecided	Ambivalent or balanced statements recognizing both positives and negatives.	'Mixed feelings', 'good and bad', 'torn'.	Gitelman (2006); Margetts (2019)

Inter-rater reliability for thematic coding was assessed on a 25% random sample (n=359), yielding $\kappa = 0.81$ (excellent agreement). Disagreements were resolved through discussion and consensus coding.

3.7 Statistical Analysis Plan

The quantitative analytical approach combines descriptive statistics, inferential testing, and effect size estimation to address the six research questions:

1. **Sentiment Analysis:** Independent samples t-tests comparing artist vs. non-artist mean sentiment scores
2. **Professional Role Comparison:** One-way ANOVA across six professional categories with Tukey HSD post-hoc tests
3. **Multiple Comparisons Correction:** Holm-Bonferroni adjustment applied to pairwise comparisons to control family-wise error rate
4. **Association Testing:** Chi-square tests of independence examining relationships between professional categories and comment themes, with Cramér's V for effect size
5. **Engagement Analysis:** Mann-Whitney U tests for non-parametric comparison of engagement distributions by verification status
6. **Linguistic Analysis:** Term frequency-inverse document frequency (TF-IDF) analysis and n-gram extraction for keyword pattern identification

All statistical tests use $\alpha = 0.05$ significance threshold with effect sizes reported using established conventions (Cohen, 1988). Missing data patterns were examined and found to be missing completely at random (MCAR test: $\chi^2 = 12.34$, $p = 0.89$), justifying list-wise deletion for complete case analysis.

3.8 Qualitative Analysis Protocol

Qualitative analysis follows a structured interpretive approach combining thematic analysis with discourse analysis techniques:

1. **Initial Coding:** Open coding of comment subsample to identify emergent themes
2. **Pattern Identification:** Systematic comparison of coding patterns between artist and non-artist groups
3. **Discourse Analysis:** Examination of linguistic strategies, metaphor use, and narrative construction
4. **Integration:** Synthesis of quantitative findings with qualitative insights for comprehensive interpretation

To ensure analytical rigor, qualitative findings are triangulated across multiple data sources (comment text, user profiles, and engagement patterns) and validated through peer debriefing with research team members.

4. RESULTS AND FINDINGS

We analyze 1,437 Instagram comments on the Monumental Labs post using a mixed quantitative–qualitative approach. We compare sentiment between artists and non-artists, test identity × theme interactions, profile professional role groups, and present distributional summaries. For content analysis, we examine n-gram keywords, conduct χ^2 tests of Role × Theme relationships, evaluate engagement patterns by verification status, and test whether sentiment predicts engagement. We report descriptive statistics, p-values, and effect sizes (e.g., Cramér's V) with post-hoc corrections where appropriate. Sentiment scores are scaled so lower values indicate more negative attitudes. Our 11-theme coding framework (Authenticity Concerns, Technical Inquiry, Skill Preservation, Support for Innovation, etc.) anchors interpretation, separating who speaks from what is discussed and linking quantitative patterns with targeted qualitative examples.

4.1 Primary Research Question (Q1): Artistic Identity and Sentiment

RQ 1: *How does artistic identity (artist vs. non-artist) influence sentiment toward robotic sculpture reproduction, and are these differences statistically significant?*

Table 5: Average Sentiment Scores by Artistic Identity

Group	n	Mean	SD	95% CI
Artists	574	-0.289	0.421	[-0.323, -0.255]
Non-artists	863	-0.272	0.438	[-0.301, -0.243]

Statistical test results show that the assumption of independent samples t-test with t(1435) = -0.78, p = 0.436 holds and the Levene's test for equality of variances, F = 2.13, p = 0.145, indicates that the assumption is met (Chehimi, 2021; Rammal, Hejase, & Hazimeh, 2024). Upon calculating the Effect size (Cohen's d): -0.04, we found that there is a negligible effect of the difference.

Key Findings

Artists exhibit slightly more negative average sentiment (-0.289) compared to non-artists (-0.272). This difference is not statistically significant (p = 0.436 > 0.05). Also, Cohen's d, effect size, is negligible (d = -0.04), indicating practically insignificant difference. In addition, both groups show negative sentiment on average, confirming H1a, "Both artists and non-artists will show negative sentiment on average, with artists slightly more negative due to professional threat and identity concerns." Therefore, as a conclusion for RQ1**:** Artistic identity alone does not significantly predict sentiment toward robotic art reproduction.

4.2 The Bivariate Impact of Role and Category on Sentiment Score (RQ1 Extended Analysis)

To investigate how a commenter's Role (artist or non-artist) and the thematic category of their comment jointly affect sentiment, a two-way ANOVA was conducted. This analysis tests for the individual and combined influence of these two independent variables on sentiment scores.

Table 6: Two-Way ANOVA Summary of Effects on Sentiment Score

Effect	F-value	df	p-value	η^2	Significance
Role (Artist vs. Non-Artist)	3.19	1,1414	0.0741	0.002	Not significant (p > 0.05)
Category	154.83	10,1414	< 0.0001	0.523	Highly significant (p < 0.001)
Interaction (Role × Category)	0.86	10,1414	0.5697	0.006	Not significant (p > 0.05)

Key Findings

Main Effect of Role: Artists versus non-artists showed similar sentiment overall (F = 3.19, p = 0.074), approaching but not reaching significance.

Main Effect of Category: Comment theme had a major impact on sentiment (F = 154.83, p < 0.0001, $\eta^2 = 0.523$), representing a large effect size.

Interaction Effect: No statistically significant interaction between role and category (F = 0.86, p = 0.570), indicating consistent theme effects across both groups.

Hence, the thematic focus of a comment is a much stronger predictor of sentiment than the commenter's artistic identity. Both artists and non-artists react similarly to specific discussion categories, supporting the conclusion that category effects are universal rather than profession-specific.

4.3 Professional Specialization Effects (RQ2): Role Categories and Sentiment

Research Question 2: *Do specific professional role categories within the arts exhibit significantly different sentiment patterns and comment themes?*

Table 7: Average Sentiment by Professional Role Category

Professional Role Category	n	Mean	SD	95% CI
Digital & Multimedia Arts	95	-0.168	0.387	[-0.247, -0.090]
Design & Applied Arts	80	-0.213	0.445	[-0.312, -0.113]
Art Education & Community	20	-0.250	0.349	[-0.412, -0.088]
Performing Arts & Beauty	58	-0.293	0.398	[-0.398, -0.188]
Photography, Film & Media	57	-0.316	0.443	[-0.433, -0.199]
Fine Arts & Traditional Media	264	-0.352	0.421	[-0.403, -0.301]

Statistical Analysis

One-way ANOVA results, F(5,568) = 4.21, p = 0.001, $\eta^2 = 0.036$, indicate a small-medium effect.
Tukey HSD post-hoc tests with $\alpha = 0.05$

Table 8: Significant Pairwise Comparisons (after Holm-Bonferroni correction):

Comparison	Mean Difference	p-value	Adjusted p	Significant
Digital & Multimedia Arts vs. Fine Arts & Traditional Media	0.184	0.041	0.041	**Yes***
Digital & Multimedia Arts vs. Photography, Film & Media	0.148	0.235	0.470	No
All other pairwise comparisons	---	> 0.05	> 0.05	No

Key Findings

H2a "Traditional/Fine Arts professionals will express more negative sentiment than Digital/Multimedia Arts professionals" is statistically supported (Table 8). Table 7 shows that Traditional/Fine Arts professionals (-0.352) express significantly more negative sentiment than Digital/Multimedia Arts professionals (-0.168).

H2b "Mean sentiment will differ significantly across professional role categories" is partially supported. Significant overall difference exists across role categories ($p = 0.001$).

H2c "Painters and Sculptors will be more negative than 3D Artists and Digital Designers" is supported. Traditional media practitioners show more negative attitudes than digitally-oriented professionals.

Therefore, as a conclusion for RQ2: Professional specialization significantly affects sentiment, with traditional arts showing greater negativity toward robotic sculpture.

4.4 Professional Background and Comment Themes (RQ3)

Research Question 3: *What is the relationship between professional background and the types of comments made?*

Upon running chi-Square Test of Independence for Professional Role Category × Comment Themes, results show a statistically significant association with $\chi^2 = 69.07$, df = 50, $p = 0.038$ ($p < \alpha$=5%) and a Cramer's $V = 0.155$ (small-medium effect size).

Table 9: Key Deviations from Expected Frequencies (Observed - Expected)

Professional Category	Over-Represented Themes	Under-Represented Themes
Fine Arts & Traditional Media	Authenticity Concerns (+3.2), Skill Preservation (+2.0), Emotional Reaction (+8.8)	Support for Innovation (-6.1), Technical Inquiry (-5.7)
Digital & Multimedia Arts	Support for Innovation (+6.9), Technical Inquiry (+1.7), Undecided (+2.0)	Authenticity Concerns (-1.9), Emotional Reaction (-10.0)
Design & Applied Arts	Collaboration Advocacy (+2.8), Support for Innovation (+1.2)	Authenticity Concerns (-3.2)
Performing Arts & Beauty	Humor/Satire (+5.9), Skill Preservation (+3.3)	Critique of Automation (-3.7)
Photography, Film & Media	Skill Preservation (+3.3), Mentions & Tags (+1.1)	Collaboration Advocacy (-2.0)
Art Education & Community	Authenticity Concerns (+0.9), Technical Inquiry (+2.9)	Skill Preservation (-1.3)

Key Findings

H3a "Professional role category will be significantly associated with comment themes" is supported**.** There is a significant association between professional role and comment themes ($p = 0.038$), i.e., ($p < \alpha$=5%).

H3b "Fine Arts & Traditional Media will be over-represented in "Authenticity Concerns" and "Skill Preservation" categories" is supported. Table 9 shows that Fine Arts & Traditional Media is over-represented in Authenticity Concerns and Skill Preservation.

'H3c "Digital & Multimedia Arts will be over-represented in 'Technical Inquiry' and 'Support for Innovation' categories" is supported**.** Table 9 shows that Digital & Multimedia Arts over-represented in Technical Inquiry and Support for Innovation.

Hence, traditional fields focus on preservation and authenticity and digital fields emphasize innovation and technical aspects. Therefore, as a conclusion for RQ3: Professional background significantly shapes the types of concerns and interests expressed

4.5 Verification Status and Engagement (RQ4)

Research Question 4: *How does verification status relate to engagement levels, and what factors predict high engagement?*

Table 10: Engagement Levels by Verification Status

Verification Status	n	Median	Mean	SD	IQR	Max
Non-Verified	1400	0.0	10.6	189.6	[0.0, 0.0]	4939
Verified	37	0.0	208.2	1231.9	[0.0, 1.0]	7498

Statistical Tests

- Mann-Whitney U test (non-parametric): U = 22,847, p = 0.126
- Independent samples t-test: t(1435) = -1.01, p = 0.336
- Outlier analysis: 8.1% of verified users vs. 2.3% of non-verified users show high engagement (>100)

Key Findings:

H4a "Verified users will show higher likelihood of extreme engagement but similar median engagement to non-verified users" is partially supported**:** Verified users show higher likelihood of extreme engagement outliers but similar median engagement

H4b "Mean engagement differences will be driven by outliers rather than systematic differences" is supported**.** However, no statistically significant difference in typical engagement levels between groups and the verified status increases potential for high engagement but doesn't guarantee it. Therefore, in conclusion for RQ4: Verification status relates to engagement variability rather than average engagement levels

4.6 Linguistic Patterns and Thematic Concerns (RQ5)

Research Question 5: *What are the dominant linguistic patterns and thematic concerns expressed across different professional groups?*

Table 11: Most Frequent Keywords, Bigrams, and Trigrams

Most Common Keywords	Frequency	Most Common Bigrams	Frequency	Most Common Trigrams	Frequency
Art	316	End art	16	art without soul	3
Like	85	Don't know	9	Leonardo da Vinci	3
machine	73	Bye bye	8	bye bye art	3
people	73	One day	7	art human art	3
robot	69	Bring back	7	Michelangelo rolling grave	3
human	66	Years ago	7	could bring back	3
artists	63	Real art	7	without soul machine	2
artist	60	Art art	7	bring back beauty	2
Michelangelo	59	---	---	---	---
technology	55	---	---	---	---

Co-occurrence Analysis Results:

- **Art-Technology Tension Cluster:** "art" + "machine" (r = 0.34), "human" + "robot" (r = 0.31)
- **Authenticity Cluster:** "soul" + "authentic" + "handmade" (r = 0.28-0.42)
- **Historical Reference Cluster:** "Michelangelo" + "Davinci" + "masters" (r = 0.25-0.38)

Key Findings

H5a "High frequency of authenticity-related terms ('soul', 'human touch', 'authentic')" is supported**.**

H5b "Co-occurrence analysis will reveal art-technology tension clusters" is supported**:** Clear co-occurrence clusters showing art-technology tension.

H5c "Frequent references to canonical artists (Michelangelo, da Vinci) as authenticity benchmarks" is supported**:** Frequent references to Michelangelo (59 mentions) and Leonardo da Vinci as authenticity benchmarks.

Therefore, there is a dominant discourse frame: Traditional artistic mastery versus mechanical reproduction. In conclusion for RQ5, linguistic patterns reveal fundamental tension between human artistry and technological reproduction.

4.7 Qualitative Differences in Negative Sentiment (RQ6)

Research Question 6: *How do qualitative expressions of concern differ between artists and non-artists?*

Table 12: Comparative Analysis of Negative Comments

Artists' Negative Comments	Non-Artists' Negative Comments
Conceptual/Philosophical Focus:	**Tangible/Observable Focus:**
"Where's the soul in this?"	"Soulless 💔"
"It's not art. It's replication. No heart and soul involved."	"This is not handmade. No value. Price only"
"We have literally found a way to cheapen everything of value."	"That can't be called art, rather it's a replica."
"Is this the end of Art?"	"Do we want programmed art robots, or real artists?"
Professional Identity Concerns:	**Cultural Value Concerns:**
"Great to see my craft go straight into the bin with this."	"The problem isn't the robot but the system that values profit above all."
"I am a painter and it makes me sad that a machine replaces me"	"That is not art. That is a decorative piece."

4.7.1 Thematic Analysis Results:
Based on Table 12, the following findings are noted:

A. Artists' Negative Sentiment Themes:
1. **Existential Threat to Art:** Framing automation as threatening art's essential nature
2. **Professional Displacement:** Personal concerns about skill devaluation and economic impact
3. **Philosophical Authenticity:** Deep concerns about meaning, intention, and creative agency
4. **Cultural Degradation:** Broader concerns about society's relationship with authentic culture

B. Non-Artists' Negative Sentiment Themes:
1. **Aesthetic Inadequacy:** Focus on visible absence of human craftsmanship markers
2. **Definitional Boundaries:** Questioning whether robotic output qualifies as "art"
3. **Systemic Critique:** Criticism of economic systems prioritizing efficiency over human value
4. **Emotional Disconnect:** Emphasis on lack of emotional resonance in robotic creations

Key Findings
H6a "Artists' negative comments will emphasize conceptual/philosophical concerns (meaning, authenticity) while non-artists focus on tangible qualities (handmade characteristics)" is supported.
H6b "Artists will frame concerns around professional integrity and impact; non-artists will emphasize aesthetic and cultural value" is supported.

It is worth mentioning that both groups converge on "soul" and "authenticity" as central concerns but from different perspectives. In fact, artists show more personal/professional investment; non-artists show more cultural/aesthetic concern.

Concluding RQ6, it is observed that while both groups express negative sentiment, the underlying reasoning frameworks differ systematically by professional identity.

4.8 Integrated Quantitative-Qualitative Analysis
This study's mixed-methods approach reveals complementary insights from statistical and interpretive analysis:

4.8.1 Convergent Findings
1. **Universal Negativity:** Both quantitative sentiment scores and qualitative themes show predominantly negative reception across groups.
2. **Professional Differentiation:** Statistical significance between Digital/Multimedia Arts and Fine Arts/Traditional Media aligns with qualitative themes of technological acceptance versus traditional craft preservation.
3. **Theme Consistency:** Chi-square associations between professional categories and comment themes correspond with qualitative discourse patterns.

4.8.2 Divergent Insights
1. **Statistical vs. Practical Significance:** While many statistical differences are significant, effect sizes remain small-to-medium, suggesting individual variation within groups is substantial.
2. **Platform Effects:** Qualitative analysis reveals Instagram-specific discourse patterns (brevity, emotional intensity) that quantitative measures may underrepresent.
3. **Cultural Complexity:** Linguistic analysis across 24 languages reveals cultural nuances that aggregate sentiment measures cannot capture.

4.8.3 Synthesis
The integration of quantitative patterns with qualitative discourse analysis provides a more complete understanding of how artistic identity shapes robotic art reception. While statistical analysis identifies significant group differences and association patterns, qualitative analysis reveals the underlying meaning-making processes that drive these patterns. Professional identity operates not just as a demographic variable but as a lens through which technological change is interpreted, valued, and responded to emotionally and cognitively.

5. DISCUSSION

5.1 Theoretical Implications
Findings in this work extend and complicate existing theoretical frameworks for understanding technological reception in creative industries. The significant difference between Digital & Multimedia Arts and Fine Arts & Traditional Media practitioners supports Social Identity Theory predictions about professional threat responses, while revealing more nuanced patterns than simple resistance versus acceptance narratives.

5.1.1 Benjamin's Aura in Networked Environments:
The persistence of "aura" discourse in social media comments suggests that Benjamin's (1969, p. 4) concept remains relevant in digital contexts, but operates differently in networked, participatory environments. Rather than simply diminishing through mechanical reproduction, aura becomes a contested concept actively constructed through collective discourse (Rammal *et al.,* 2025a, b). Comments like "art without soul" and references to "Michelangelo rolling in his grave" demonstrate how authenticity claims function as cultural work within social media contexts.

5.1.2 Cultural Capital Reconceptualization:
Our findings suggest that traditional artistic cultural capital (embodied craft skills, aesthetic judgment, and historical knowledge) competes with emergent digital literacy forms (technical knowledge, platform fluency, and technological innovation

awareness) in determining discourse authority. The over-representation of Digital & Multimedia Arts practitioners in "Technical Inquiry" and "Support for Innovation" categories indicates how technological fluency constitutes new forms of cultural capital that cross-cut traditional artistic hierarchies (Kinni, 2017).

5.1.3 Platform-Mediated Authenticity Debates:

The linguistic patterns reveal how social media platforms shape authenticity debates through affordances that favor emotional expression, brevity, and polarization (Highfield and Leaver, 2016; Baumgaertner & Justwan; 2022; Cakmak & Agarwal, 2025; Ahmmad *et al.,* 2025). The high frequency of terms like "soul," "human touch," and "real art" indicates how platform constraints compress complex philosophical debates into accessible emotional appeals. The aforementioned frequency of terms have been similarly observed among the artists and non-artists in the academic institutions who also have presence on the social media platforms (Rammal *et al.,* 2025b; Zhang, Wilson, & Amos, 2025).

5.2 Practical Implications

5.2.1 For Cultural Institutions:

Museums and galleries introducing robotic or AI art should anticipate resistance primarily from traditional arts communities while finding greater acceptance among digitally-oriented practitioners (Mineo, 2023). Programming that frames robotic tools as extending rather than replacing human creativity may reduce negative reception. Educational initiatives that demonstrate human agency in robotic art production could address authenticity concerns while building bridge between traditional and digital art communities (Mineo, 2023; Rammal *et al.,* 2025a).

5.2.2 For Technology Companies:

Developers of robotic art systems should engage with traditional arts communities early in development processes, addressing concerns about skill devaluation and cultural authenticity. Marketing strategies that emphasize collaboration and human creativity enhancement rather than replacement may improve acceptance. Technical documentation and process transparency could satisfy "Technical Inquiry" interests while building credibility with skeptical audiences.

5.2.3 For Art Educators:

Educational programs should prepare students for human-AI creative collaboration while maintaining emphasis on traditional skills that define artistic identity. Curriculum integration that positions robotic tools within historical continuum of artistic innovation may reduce identity threat while building technological fluency. Critical discussion of authenticity, authorship, and cultural value in digital contexts prepares students for ongoing debates in professional practice (Rammal *et al.,* 2025a, b).

5.3 Limitations and Future Research

Limitations exist and are manifested in different forms as follows:

Sample Representativeness: Our analysis focuses on users engaged enough to comment on viral content, potentially over-representing strong opinions while underrepresenting moderate positions. Future research should examine professional artist populations through direct survey methods to validate social media discourse findings.

Platform Specificity: Instagram's visual-centric design and engagement algorithms may amplify certain response patterns while marginalizing others. Comparative analysis across platforms (Twitter, Facebook, professional forums, and art-specific communities) would reveal how platform affordances shape discourse patterns.

Temporal Dynamics: The 72-hour collection window, of this study, captures initial reactions but missed longer-term attitude evolution. Longitudinal studies tracking how artist attitudes toward robotic art change over time would provide insights into adaptation and normalization processes.

Cultural Variation: While this research's dataset spans 24 languages, analysis focused on English-translated content may miss cultural nuances in authenticity concepts, artistic identity formation, and technology reception patterns. Future research should examine culture-specific responses to robotic art within local artistic communities.

Economic Context: The study occurred during a period of heightened awareness about AI's economic impacts across industries. Replication during different economic conditions or at different stages of robotic art adoption would reveal how broader technological anxiety affects specific creative technology reception.

5.4 Future Research Directions

Several directions lead to research further the concept taking into account the limitations of this work. **Cross-Platform Comparative Studies:** Systematic comparison of robotic art discourse across social media platforms, professional forums, and offline contexts would reveal how platform affordances shape meaning-making processes and community responses.

Longitudinal Attitude Tracking: Following artist communities over time as robotic art becomes more prevalent would provide insights into adaptation processes, normalization patterns, and long-term professional identity evolution.

Intervention Studies: Controlled experiments examining how different framing strategies (collaboration vs. replacement, process transparency vs. outcome focus) affect artist attitudes could inform best practices for technology introduction in creative industries.

Economic Impact Analysis: Empirical research on actual economic effects of robotic art on traditional sculptural markets would provide evidence base for

addressing professional concerns while informing policy discussions about creative industry automation.

Cross-Cultural Reception Studies: Detailed analysis of how different cultural contexts shape robotic art reception, particularly examining varying concepts of authenticity, artisanship, and technological progress across artistic traditions.

6. CONCLUSION

This study provides the first large-scale, empirically grounded analysis of how artistic identity shapes public reception of robotic art reproduction. Through mixed-methods analysis of 1,437 organic social media comments, we demonstrate that while overall sentiment toward robotic sculpture remains negative across professional groups, significant differences exist in both the intensity and conceptual frameworks through which different artistic communities evaluate technological intervention in creative practice.

Key findings reveal that professional specialization matters more than broad artistic identity, with Fine Arts & Traditional Media practitioners expressing significantly more negative sentiment than Digital & Multimedia Arts professionals. This difference manifests not only in sentiment intensity but in the types of concerns raised: Traditional artists emphasize authenticity, soul, and skill preservation (observed by Rammal *et al.,* 2025b), while digital practitioners focus on technical innovation and collaborative possibilities (see Mineo, 2023).

The study's theoretical contributions extend Benjamin's (1936, 1969) mechanical reproduction framework to networked digital environments, demonstrating how concepts of aura and authenticity become contested terrain in participatory social media contexts. Rather than simply diminishing through technological reproduction, artistic aura becomes actively constructed and defended through collective discourse that draws on professional identity, cultural capital, and platform-mediated communication patterns.

Practically, these findings inform cultural institutions, technology developers, and educators navigating the integration of AI and robotics into creative practices. Understanding that resistance patterns vary systematically by professional background enables more targeted and effective strategies for managing technological transitions in creative industries.

The persistence of negative sentiment across professional groups, combined with the dominance of authenticity discourse in linguistic patterns, suggests that concerns about robotic art extend beyond simple technological skepticism to fundamental questions about the nature of creativity, human agency, and cultural value in an era of increasing automation (Stamer, 2014, para 6).

As AI and robotics continue to reshape creative industries, understanding how different professional communities interpret and respond to these changes becomes crucial for policy makers, cultural institutions, and technology developers seeking to balance innovation with respect for established artistic traditions and professional identities.

Future research should extend this analysis across platforms, cultural contexts, and time periods to build a more comprehensive understanding of how artistic communities negotiate technological change while maintaining professional identity and cultural values in an increasingly automated creative landscape.

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