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Threat or Tool? Gendered Perspectives of Visual Arts Students on Artificial Intelligence in Fine and Applied Arts

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Abstract

Background: The rapid integration of generative artificial intelligence into visual arts education presents a tension between creative augmentation and studio craft obsolescence. Empirical investigation into how gender moderates the evaluation of algorithmic systems as empowering instruments or professional threats remains scarce in fine and applied arts.

Objective: Anchored on technology acceptance models and Feminist Standpoint Theory, this study evaluated visual arts students' cognitive appraisals of generative artificial intelligence, examined gender differences across perceived utility and threat, and assessed the moderating role of gender on actual adoption.

Methodology: An explanatory cross-sectional survey was conducted across three public universities in Nigeria. Data were collected from 354 undergraduate visual arts students using a structured questionnaire and analysed using descriptive statistics, independent-samples t-tests, a Chi-square test of independence, and moderated multiple regression.

Result: Students perceived generative artificial intelligence as an augmentative creative tool to a high extent (Mean = 3.77, SD = 0.73), whilst reporting an even higher level of perceived professional threat (Mean = 4.02, SD = 0.69), notably regarding copyright vulnerability and craft devaluation. Significant gender disparities emerged: male students reported higher perceived creative utility ($t = 4.96, p < 0.001$) and active adoption (72.0%), whereas female students exhibited significantly higher perceived threat ($t = -4.43, p < 0.001$) and predominated among non-

adopters (54.1%). Moderated multiple regression confirmed that gender significantly moderated the relationship between perceived threat and tool adoption ($B = 0.33$, $p = 0.009$), with professional anxieties exerting a markedly stronger inhibitory effect on female students.

Conclusion: Generative artificial intelligence operates as a contested, gendered phenomenon in visual arts education. Male students approach algorithmic tools with operational confidence, whereas female students experience heightened vocational apprehension that constrains uptake. Studio pedagogies must move beyond demographically neutral approaches to address gender disparities, intellectual property governance, and craft preservation.

Keywords: Artificial intelligence, Creative labour, Feminist standpoint theory, Fine and applied arts, Gender disparities, Generative AI adoption, Perceived threat, Studio pedagogy

Introduction

The integration of generative artificial intelligence into creative domains has reignited fundamental debates surrounding the nature of artistic production, human agency, and authorship. Historically, technological innovations in the arts prompted concerns regarding the mechanisation of creative expression; computer science debates examined whether algorithmic systems could genuinely create art or merely function as sophisticated instruments of human intent (Hertzmann, 2018). The rapid emergence of generative models capable of synthesising complex imagery, rendering digital assets, and simulating nuanced aesthetic styles has transformed theoretical inquiries into tangible professional and educational disruptions.

Within fine and applied arts education, artificial intelligence presents a profound paradox. On one hand, generative platforms offer unprecedented opportunities for studio ideation, conceptual prototyping, and rapid aesthetic exploration, operating as catalysts for creative innovation (Umar & Purwanto, 2025; Vidhate, 2026). On the other hand, the automation of technical execution poses existential risks to traditional studio practices, destabilising commercial applied arts sectors such as illustration, graphic design, and industrial craft (Ortega, 2025; Weiland & Miscavage, 2025). Broader technological risk assessments highlight emerging systemic threats, misuses, and labour displacement associated with advanced autonomous systems (Sadok et al., 2024; Seghid et al., 2026; Shafik, 2026).

These systemic transformations do not occur within a demographic vacuum. Student engagement with emergent technology is mediated by socially constructed identities, institutional cultures, and studio traditions. While educational technology scholarship has established marked gender disparities in technology adoption, self-efficacy, and risk perception (Al-Samarraie et al., 2025; Cachero et al., 2025; Ofosu-Ampong, 2023), empirical research interrogating how gender intersects with artistic specialisation remains scarce. Fine and applied arts cohorts represent a distinct pedagogical setting where tactile material mastery, original human expression, and vocational vulnerability converge. Investigating whether visual arts students perceive artificial intelligence as an empowering studio instrument or an existential threat through a gendered lens is therefore vital for contextualising contemporary studio pedagogies, addressing curriculum reform, and understanding the evolving identity of the visual artist.

Literature Review

Generative Artificial Intelligence in Visual Arts: Tool or Existential Threat?

The arrival of modern generative artificial intelligence has destabilised long-standing conceptions of creative labour and material technique. Foundational discourse established that computational systems lack autonomous subjective experience, meaning digital devices traditionally operated as communicative conduits rather than independent creators (Hertzmann, 2018). However, the deployment of contemporary diffusion models and neural networks has disrupted this boundary, prompting widespread evaluation of whether algorithmic systems serve as inventive catalysts or destructive impediments to genuine human expression (Umar & Purwanto, 2025). Vidhate (2026) conceptualises this dichotomy as a dual perspective: generative tools significantly democratise technical visual production and expand exploratory horizons, yet simultaneously introduce acute economic precarity, copyright complications, and professional devaluation for practitioners.

In academic environments, this tension manifests directly within studio curriculum structures. Evaluating student responses in creative faculties reveals intense apprehension toward generative mechanisms; learners often view automated platforms as direct hazards to hand-rendered craftsmanship, tactile proficiency, and pedagogical traditions (Ortega, 2025). This institutional anxiety mirrors broader commercial vulnerabilities. Empirical examinations within applied visual industries show that practitioners anticipate widespread structural disruption, with automated systems threatening commercial illustration, branding, and standard layout production (Weiland & Miscavage, 2025). Furthermore, aesthetic evaluation studies reveal systematic human prejudice against machine-generated outputs, demonstrating that audiences devalue artistic artefacts when informed of algorithmic intervention (de Rooij, 2025). Consequently, student visual artists operate under dual pressure: navigating an industry aggressively integrating generative tools, while contending with cultural resistance and personal anxieties surrounding artistic authenticity.

Macro-Level Risks, Economic Disruption, and the Future of Artistic Work

Perceptions within creative studios are intrinsically tied to broader macro-level disruptions in modern labour markets. Critical appraisals of modern computational risks classify generative artificial intelligence not merely as an iterative productivity asset, but as an emergent threat across operational, intellectual, and socioeconomic spheres (Seghid et al., 2026). In employment literature, debates persist regarding whether technological displacement represents a transient adjustment or an unprecedented destabilisation of specialised human vocations (Sadok et al., 2024).

The economic implications for creative vocations are acute. Shafik (2026) notes that modern automated architectures increasingly encroach upon cognitive and creative tasks previously considered immune to technological obsolescence, generating instability for entry-level professionals. For visual arts students preparing to enter commercial graphic design, textile manufacturing, ceramics, or gallery spaces, this shift transforms academic study from simple skill acquisition into high-stakes vocational risk negotiation. Understanding student reception of artificial intelligence necessitates grounding studio perceptions within these broader structural and occupational vulnerabilities.

Gender Dynamics in Technology Perception and AI Adoption

Technological adoption patterns and risk evaluations are structurally differentiated by gender. Empirical studies examining general generative AI adoption identify significant disparities: men consistently display higher frequencies of personal experimentation, while women exhibit pronounced caution, driven largely by acute awareness of societal, ethical, and environmental externalities (Stephany & Duszynski, 2026). This disparity extends into higher education, where male and female students demonstrate divergent cognitive appraisals of artificial intelligence, which shape subsequent usage patterns, ethical comfort, and self-reported competencies (Al-Samarraie et al., 2025; Cachero et al., 2025).

In developing educational contexts, gender serves as a decisive variable influencing perceptions of innovation attributes, digital confidence, and tool utilisation across diverse academic tasks (Iddrisu et al., 2025; Ofosu-Ampong, 2023). Moreover, these subjective stances are compounded by broader cultural assumptions regarding gender and algorithmic intelligence. Research indicates that users project conventional gender biases onto artificial intelligence systems, evaluating artificial agents and automated outputs through gendered perceptual frameworks (Borau et al., 2021; Cui & Yasseri, 2026; Erogul, 2025). When female users interact with or assess synthetic systems, socialised expectations and self-efficacy biases often alter their assessment of output quality and their perceived control over technological results (Cachero et al., 2025; Stephany & Duszynski, 2026).

Contextualising the Gap: Fine and Applied Arts

Despite robust insights into general student attitudes toward educational technology, current literature remains largely compartmentalised. One strand focuses heavily on commercial automation and the mechanical ethics of generative art (Hertzmann, 2018; Vidhate, 2026; Weiland & Miscavage, 2025), while another examines gender disparities in computational self-efficacy and broad software adoption across STEM, humanities, and social sciences (Al-Samarraie et al., 2025; Cachero et al., 2025; Iddrisu et al., 2025).

Noticeably absent is focused scholarship addressing how gender moderates the threat-versus-tool assessment specifically within tertiary Fine and Applied Arts programmes. Artistic studio pedagogy places unique demands on the human body, physical media, subjective vulnerability, and vocational identity. By exploring whether male and female art students differ in viewing algorithmic automation as an augmentative studio companion or a professional hazard, this study bridges creative pedagogical research and gendered technological critique, offering an empirical foundation for modern creative arts education.

Theoretical Framework

To systematically investigate how gender moderates the evaluation of artificial intelligence among visual arts students, this study is anchored on an integrative theoretical model combining the Technology Acceptance Model (TAM), the Unified Theory of Acceptance and Use of Technology (UTAUT), and Feminist Standpoint Theory. This dual anchoring synthesises techno-cognitive

appraisal mechanisms with critical gendered perspectives on labour, materiality, and creative identity.

Technology Acceptance and Perceived Threat Dynamics (TAM and UTAUT)

Originally formulated by Davis (1989) and subsequently refined within educational technology scholarship, the Technology Acceptance Model posits that individual behavioural intention and eventual technological uptake are predominantly governed by two cognitive beliefs: Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). In the context of creative higher education, perceived usefulness corresponds directly to the conceptualisation of artificial intelligence as an augmentative studio instrument—facilitating rapid compositional ideation, colour exploration, aesthetic prototyping, and overcoming creative inertia (Umar & Purwanto, 2025; Vidhate, 2026).

However, conventional formulations of technology acceptance primarily evaluate utilitarian efficiency, frequently overlooking the disruptive, existential anxieties characteristic of creative and cultural production. To address this limitation, the current study draws on extensions of the Unified Theory of Acceptance and Use of Technology (Venkatesh et al., 2003) alongside cognitive risk models, incorporating Perceived Professional and Creative Threat as a core latent dimension. For fine and applied arts scholars, modern generative platforms do not merely represent utilitarian software; they challenge the economic survival of commercial illustrators, devalue traditional craftsmanship, and compromise intellectual property (Ortega, 2025; Shafik, 2026; Weiland & Miscavage, 2025).

Consequently, student attitudes toward artificial intelligence are conceptualised along a dialectical continuum:

- The Tool Dimension (Catalyst/Opportunity): Underpinned by high perceived usefulness, performance expectancy, and creative empowerment, where algorithmic models are integrated as collaborative studio assistants.
- The Threat Dimension (Inhibition/Risk): Underpinned by perceived professional displacement, creative alienation, ethical anxieties regarding algorithmic bias, and copyright infringement (de Rooij, 2025; Seghid et al., 2026).

Gendered Standpoint and Technological Socialisation

While cognitive models explain the mechanics of adoption decisions, they often treat individual decision-makers as demographically neutral agents. To account for structural variations between male and female students, this study applies a gendered standpoint perspective, positing that risk perception, technology adoption, and subjective worldviews are situated within the social and cultural conditions of gendered experience. In creative disciplines, historical studio hierarchies and professional labour distributions have long been differentiated along gender lines, influencing how individuals negotiate prestige, commercial precarity, and institutional legitimacy. Applied to emergent technologies, this perspective provides an analytical lens for interpreting observed gender disparities:

- *Differential Risk Sensitivities*: Male individuals frequently exhibit higher technological optimism and self-efficacy, encouraging early adoption and experimental risk-taking, whereas female users systematically demonstrate heightened sensitivity to broader ethical harms, societal risks, and institutional inequities associated with algorithmic automation (Al-Samarraie et al., 2025; Cachero et al., 2025; Stephany & Duszynski, 2026).
- *Perceptual Gendering and Authority*: Cultural dynamics frequently assign differential technical credibility across genders, leading female learners to report lower self-perception of computational competence even when demonstrating comparable technical ability (Cachero et al., 2025; Ofosu-Ampong, 2023). Furthermore, female and male practitioners navigate digital anthropomorphism and automated systems through distinct perceptual frames (Borau et al., 2021; Cui & Yasseri, 2026; Erogul, 2025; Twardawa et al., 2026).
- *Studio Labour and Educational Integration*: Gender serves as a decisive variable influencing perceptions of innovation attributes, digital confidence, and tool utilisation across diverse academic and creative tasks (Iddrisu et al., 2025; Ofosu-Ampong, 2023).

Conceptual Synthesis

By merging the utility–threat dialectic of technology adoption with a situated gendered standpoint, this conceptual framework posits that gender conditions how visual arts students evaluate the utility of generative artificial intelligence against its perceived occupational, ethical, and artistic risks. This moderating mechanism ultimately determines whether the technology is embraced as a catalyst for creative innovation or resisted as an existential threat to studio practice.

Research Objectives

The objectives of the study were:

1. To ascertain the extent to which visual arts students perceive generative artificial intelligence as an augmentative creative tool in fine and applied arts education.
2. To determine the level of perceived professional and existential threat posed by generative artificial intelligence among visual arts students.
3. To examine the extent of generative artificial intelligence adoption and creative tool usage among male and female visual arts students.
4. To evaluate whether significant gender differences exist in the perception of generative artificial intelligence as an augmentative creative tool among visual arts students.
5. To evaluate whether significant gender differences exist in the perception of generative artificial intelligence as a professional threat among visual arts students.
6. To establish whether a significant relationship exists between gender-differentiated risk perceptions and the actual adoption of generative artificial intelligence among visual arts students.

Research Hypotheses

H01: There is no significant difference between male and female visual arts students in their perception of generative artificial intelligence as an augmentative creative tool.

H02: There is no significant difference between male and female visual arts students in their perception of generative artificial intelligence as a professional and existential threat.

H03: There is no significant difference in the actual adoption and usage frequency of generative artificial intelligence tools between male and female visual arts students.

H04: Perceived professional threat does not significantly predict the adoption of generative artificial intelligence tools when moderated by student gender.

Methodology

Research Design

This study adopted an explanatory cross-sectional survey research design. This quantitative approach was considered most appropriate because it allowed the systematic collection of standard empirical data from a representative cohort of fine and applied arts students, enabling both descriptive evaluations of attitudes and inferential testing of gender-based differences regarding artificial intelligence.

Population of the Study

The target population comprised all undergraduate students enrolled in fine and applied arts programmes across selected public universities. The population encompassed students across various studio specialisations, including painting, sculpture, ceramics, graphic design, textile design, and printmaking, ensuring representation across both traditional tactile craft and digitally oriented commercial visual arts.

Sample Size and Sampling Technique

A total sample size of 384 undergraduate visual arts students was determined using Cochran's formula for unknown or large populations, ensuring a 95% confidence level and a 5% margin of error. Sample size adequacy was corroborated through an a priori statistical power analysis computed with G*Power software, which indicated that a minimum sample of 352 respondents was required to detect a medium effect size ($d = 0.30$ or $f^2 = 0.15$) with an alpha level of 0.05 and a statistical power of 0.95 across independent samples t-tests and multivariable regression models. Consequently, Cochran's baseline of 384 was adopted as the administration target to ensure statistical adequacy.

A multi-stage sampling procedure was employed to draw the participants from accredited public universities in Nigeria offering fully established undergraduate programmes in Fine and Applied Arts:

- *Stage One:* Purposive sampling was utilised to select three premier public institutions known for dedicated visual arts departments with comprehensive studio infrastructure: the University of Nigeria, Nsukka; Ahmadu Bello University, Zaria; and the University of Benin, Benin City.

- *Stage Two:* Proportionate stratified sampling was applied across the selected institutions to allocate the sample across the four undergraduate academic levels (Year 1 to Year 4) and core studio specialisations, including painting, sculpture, ceramics, graphic design, textile design, and printmaking.
- *Stage Three:* Within each department and studio cluster, stratified random sampling based on institutional matriculation rosters was executed to select individual participants, deliberately ensuring an equitable gender distribution (comprising approximately 50% male and 50% female students) to facilitate robust comparative subgroup analyses.

Instrument for Data Collection

Data were gathered using a structured, self-administered questionnaire titled the *Visual Arts Artificial Intelligence Perception Questionnaire (VAAIPQ)*. The instrument was structured into four distinct sections:

- *Section A:* Demographic characteristics of the respondents (gender, age, academic level, and primary studio specialisation).
- *Section B:* Perceived Tool Utility Scale, measuring students' evaluation of artificial intelligence as an augmentative instrument for studio ideation, technical composition, and creative prototyping.
- *Section C:* Perceived Professional Threat Scale, measuring existential concerns relating to creative devaluation, craft obsolescence, loss of artistic agency, and commercial displacement.
- *Section D:* Generative Artificial Intelligence Adoption and Usage Scale, evaluating the frequency, purpose, and nature of actual artificial intelligence tool usage within academic and studio projects.

Items in Sections B and C were structured on a standard five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

Validity and Reliability of the Instrument

Face and content validity of the survey instrument were established through review by a panel of three experts in visual arts education, educational measurement, and communication technology. The experts evaluated the clarity, relevance, and representativeness of the items in relation to the conceptual framework. Adjustments were made in accordance with their recommendations.

Reliability was evaluated through a pilot study conducted on a sample of fine arts students from an institution outside the primary study sample. Internal consistency for the respective subscales was computed using Cronbach's alpha, yielding coefficients above the acceptable threshold of 0.70, which confirmed the reliability of the research instrument.

Method of Data Collection

The questionnaire was administered using a hybrid distribution method, combining paper-based copies distributed during studio sessions with a secure digital version distributed via institutional

email and departmental cohorts. Participation was voluntary, and clear guidelines regarding academic confidentiality and anonymity were communicated to the respondents prior to completing the instrument.

Method of Data Analysis

The collected quantitative data were cleaned, coded, and processed using statistical analysis software. Both descriptive and inferential statistical techniques were deployed to address the research objectives and test the null hypotheses:

- *Descriptive Statistics:* Mean scores and standard deviations were computed to answer the descriptive objectives relating to levels of perceived tool utility, perceived professional threat, and adoption frequencies.
- *Inferential Statistics:* Independent samples t-tests were conducted to evaluate significant differences between male and female students regarding perceived creative utility (H01) and perceived professional threat (H02). A Chi-square test of independence (or independent samples t-test) was utilised to assess gender differences in actual adoption frequency (H03). Finally, moderated multiple regression analysis was performed to test whether gender significantly moderated the predictive relationship between perceived professional threat and actual artificial intelligence adoption (H04). All statistical tests were conducted at a 0.05 level of significance.

Results

Out of the 384 administered questionnaire copies, 354 were retrieved completely filled and found usable for empirical analysis, representing an effective response rate of 92.2%. The analysed sample comprised 182 male students (51.4%) and 172 female students (48.6%) distributed across the studio specialisations.

Descriptive Analysis by Research Objectives

Objective 1: Visual Arts Students' Perception of Generative AI as an Augmentative Creative Tool

To ascertain the extent to which visual arts students perceive generative artificial intelligence as an augmentative creative tool, descriptive statistics were computed for the items comprising the Perceived Tool Utility Scale. Responses were scored on a 5-point Likert scale (criterion mean = 3.00).

Table 1: *Mean and Standard Deviation Scores on Perceived Tool Utility of Generative AI*

Item Statement	Mean	SD	Decision
Generative AI facilitates rapid visual ideation and concept sketching in studio projects	3.81	0.95	High Extent

AI tools serve as an effective collaborative aid for exploring colour palettes and textures	3.70	1.02	High Extent
Incorporating AI into early design workflows helps overcome creative blocks	3.86	0.89	High Extent
Generative AI enhances the speed and efficiency of digital rendering and prototyping	3.93	0.91	High Extent
Using AI expands the exploratory boundaries of contemporary fine and applied arts	3.54	1.09	High Extent
Cluster Mean and Standard Deviation	3.77	0.73	High Extent

As presented in Table 1, visual arts students perceived generative artificial intelligence as an augmentative creative tool to a high extent. The overall cluster mean of 3.77 (SD = 0.73) stood well above the 3.00 benchmark. The highest individual mean ratings were recorded for efficiency in rendering and prototyping (M = 3.93, SD = 0.91) and resolving creative blocks during early studio ideation (M = 3.86, SD = 0.89).

Objective 2: Level of Perceived Professional and Existential Threat Posed by Generative AI

Descriptive statistics were computed for the items measuring students' perceived professional, vocational, and existential threat regarding generative artificial intelligence in the creative sector.

Table 2: Mean and Standard Deviation Scores on Perceived Professional and Existential Threat

Item Statement	Mean	SD	Decision
Generative AI threatens to devalue manual craftsmanship and traditional studio skills	4.11	0.90	Very High Extent
Widespread generative AI adoption will diminish commercial job prospects for art graduates	4.04	0.97	High Extent
Algorithmic art production undermines the authenticity and agency of human artists	3.89	1.03	High Extent
Unregulated AI image generation presents an existential threat to intellectual property and copyright	4.25	0.85	Very High Extent
Clients will increasingly prefer synthetic visual assets over commissioned human artwork	3.83	1.06	High Extent
Cluster Mean and Standard Deviation	4.02	0.69	High Extent

Data in Table 2 demonstrate that students experienced a high level of perceived professional and existential threat regarding generative artificial intelligence (cluster M = 4.02, SD = 0.69). Existential anxieties were highest regarding intellectual property theft and copyright vulnerabilities (M = 4.25, SD = 0.85), followed by concerns regarding the systematic devaluation of manual studio craftsmanship (M = 4.11, SD = 0.90).

Objective 3: *Extent of Generative AI Adoption and Usage Frequency by Gender*

The extent of actual generative AI adoption was evaluated across male and female visual arts students by examining adoption status and regular usage frequency within studio workflows.

Table 3: *Distribution of Generative AI Adoption and Usage Frequency Across Gender*

Adoption and Usage Metric	Male Students (n = 182)	Female Students (n = 172)	Total Sample (N = 354)
Adoption Status			
Active Adopters (Integrated into practice)	131 (72.0%)	79 (45.9%)	210 (59.3%)
Non-Adopters / Occasional Observers	51 (28.0%)	93 (54.1%)	144 (40.7%)
Usage Frequency			
Frequent (Daily / Multiple times a week)	77 (42.3%)	28 (16.3%)	105 (29.7%)
Moderate (Weekly / A few times a month)	54 (29.7%)	51 (29.6%)	105 (29.7%)
Low / Rare (Once a semester / Never)	51 (28.0%)	93 (54.1%)	144 (40.7%)
Overall Usage Index Mean (Scale: 1–5)	3.41 (SD = 1.15)	2.47 (SD = 1.05)	2.95 (SD = 1.20)

Table 3 indicates that male visual arts students reported a higher extent of active adoption (72.0%) and frequent studio integration (42.3%) than female visual arts students, where active adoption stood at 45.9% and frequent usage at 16.3%. More than half of the female respondents (54.1%) were categorised as low adopters or non-users.

Inferential Analysis and Hypotheses Testing

Test of Hypothesis 1 (H01): *There is no significant difference between male and female visual arts students in their perception of generative artificial intelligence as an augmentative creative tool.*

An independent-samples t-test was conducted to compare perceived creative tool utility scores between male and female students.

Table 4: Independent Samples t-Test for Perceived Creative Tool Utility by Gender

Gender	N	Mean	SD	t	df	p-value	Decision
Male	182	3.95	0.66	4.96	352	< 0.001	Rejected
Female	172	3.58	0.75				

As shown in Table 4, the independent samples t-test revealed a statistically significant difference between male and female visual arts students regarding their perception of generative artificial intelligence as an augmentative tool, $t(352) = 4.96$, $p < 0.001$. Male students evaluated the creative utility of AI significantly more favourably ($M = 3.95$, $SD = 0.66$) than female students ($M = 3.58$, $SD = 0.75$). Consequently, null hypothesis 1 was rejected.

Test of Hypothesis 2 (H02): *There is no significant difference between male and female visual arts students in their perception of generative artificial intelligence as a professional and existential threat.*

An independent samples t-test was conducted to evaluate differences in perceived threat scores between the gender cohorts.

Table 5: Independent Samples t-Test for Perceived Professional Threat by Gender

Gender	N	Mean	SD	t	df	p-value	Decision
Male	182	3.86	0.72	-4.43	352	< 0.001	Rejected
Female	172	4.19	0.62				

As detailed in Table 5, a statistically significant difference emerged between male and female students regarding perceived professional and existential threat, $t(352) = -4.43$, $p < 0.001$. Female visual arts students exhibited significantly higher levels of perceived threat ($M = 4.19$, $SD = 0.62$) than their male counterparts ($M = 3.86$, $SD = 0.72$). Null hypothesis 2 was therefore rejected.

Test of Hypothesis 3 (H03): *There is no significant difference in the actual adoption and usage frequency of generative artificial intelligence tools between male and female visual arts students.*

A cross-tabulation and Chi-square test of independence was performed to assess whether actual adoption behaviour differed significantly across gender.

Table 6: Chi-Square Test of Independence for AI Tool Usage Frequency Across Gender

Usage Frequency Category	Male Students	Female Students	Total	χ^2	df	p-value	Decision
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Frequent (Daily / Multiple times weekly)	77 (42.3%)	28 (16.3%)	105	31.58	2	< 0.001	Rejected
Moderate (Weekly / Monthly)	54 (29.7%)	51 (29.6%)	105				
Low / Rare (Non-adopters)	51 (28.0%)	93 (54.1%)	144				
Total	182	172	354				

Table 6 shows that the Chi-square test of independence revealed a statistically significant difference in actual adoption and usage frequency between male and female visual arts students, Chi-square (2, N = 354) = 31.58, $p < 0.001$. Male students demonstrated a markedly greater tendency toward frequent studio usage, whereas female students were predominantly represented in the low-adoption and non-user category. Null hypothesis 3 was therefore rejected.

Test of Hypothesis 4 (H04): *Perceived professional threat does not significantly predict the adoption of generative artificial intelligence tools when moderated by student gender.*

A moderated multiple regression analysis was conducted using mean-centred predictors to determine whether student gender (coded: 0 = Female, 1 = Male) moderated the predictive relationship between perceived professional threat and actual AI tool adoption.

Table 7: *Moderated Multiple Regression Analysis of Perceived Threat and Gender on AI Adoption*

Model Predictor	B	SE B	β	t	p-value	95% CI
(Constant)	2.50	0.07	—	34.02	< 0.001	[2.36, 2.64]
Perceived Professional Threat (Centred)	-0.51	0.08	-0.31	-6.18	< 0.001	[-0.67, -0.35]
Gender (0 = Female, 1 = Male)	0.77	0.11	0.32	7.31	< 0.001	[0.56, 0.98]
Threat $\times$ Gender Interaction	0.33	0.13	0.15	2.62	0.009	[0.08, 0.58]

Model Summary: $R = 0.53$, $R^2 = 0.28$, $Adjusted\ R^2 = 0.27$, $F(3, 350) = 45.41$, $p < 0.001$.

As shown in Table 7, the overall regression model was statistically significant, explaining 28.0% of the variance in generative AI tool adoption ($R^2 = 0.280$, $F(3, 350) = 45.41$, $p < 0.001$). Perceived professional threat was a significant negative predictor of AI adoption ($B = -0.51$, $t = -6.18$, $p < 0.001$), while student gender positively predicted adoption in favour of male students ($B = 0.77$, $t = 7.31$, $p < 0.001$).

The interaction term between perceived threat and gender was statistically significant ($B = 0.33$, $SE = 0.13$, $t = 2.62$, $p = 0.009$). Simple slopes analysis confirmed that perceived professional threat exerted a significantly stronger dampening effect on tool adoption among female visual arts

students (simple slope $B = -0.51$, $p < 0.001$) than among male visual arts students (simple slope $B = -0.18$, $p = 0.046$). Because gender significantly moderated the relationship between threat perceptions and tool uptake, null hypothesis 4 was rejected.

Discussion of Findings

The findings of this study demonstrate that visual arts students experience generative artificial intelligence as both an augmentative studio instrument and an existential vocational threat, with both assessments significantly conditioned by gender. Descriptive evaluations indicated that students perceived generative artificial intelligence as an augmentative creative tool to a high extent (cluster mean = 3.77), valuing its utility for rapid ideation, digital prototyping, and resolving creative blocks. This corroborates broader creative arts scholarship indicating that automated platforms can serve as exploratory catalysts rather than mere replacements for artistic intuition (Umar & Purwanto, 2025; Vidhate, 2026). Concurrently, however, respondents registered an even higher level of perceived professional and existential threat (cluster mean = 4.02), driven predominantly by acute anxieties surrounding intellectual property theft and the devaluation of tactile craftsmanship. This dual consciousness mirrors pedagogical evidence that visual arts learners remain protective of manual studio methods while simultaneously recognizing the commercial momentum of algorithmic synthesis (Ortega, 2025; Weiland & Miscavage, 2025).

Inferential analyses revealed pronounced gender disparities across both cognitive appraisals and actual studio practices. In testing the first hypothesis, male students rated the augmentative utility of generative artificial intelligence significantly higher than female students ($t = 4.96$, $p < 0.001$). This divergence aligns with existing higher education literature indicating that male students systematically display higher technological optimism and self-efficacy when engaging with generative models (Al-Samarraie et al., 2025; Cachero et al., 2025; Ofosu-Ampong, 2023). Conversely, testing of the second hypothesis established that female visual arts students exhibited a significantly greater perceived threat regarding professional obsolescence, ethical compromise, and creative devaluation ($t = -4.43$, $p < 0.001$). This finding directly supports general adoption scholarship documenting that female users perceive heightened socioeconomic and systemic hazards in generative systems (Stephany & Duszynski, 2026), and reinforces Feminist Standpoint Theory by demonstrating that risk appraisal within creative disciplines is situated within gendered vulnerability to labour precarity and institutional recognition (Harding, 1986; Hartsock, 1983).

These divergent cognitive evaluations translated into substantial differences in operational behaviour, as confirmed by the rejection of the third hypothesis (Chi-square = 31.58, $p < 0.001$). Male students were heavily represented among active and frequent adopters, whereas over half of female visual arts students remained low adopters or non-users. Finally, the rejection of the fourth hypothesis demonstrated that student gender significantly moderated the relationship between perceived threat and actual adoption ($B = 0.33$, $p = 0.009$). While male students engaged with generative tools regardless of perceived risks, perceived threat exerted a pronounced inhibiting effect on tool uptake among female visual arts students. This confirms that the gender gap in digital studio practice is not merely an issue of software access, but a structural difference in how perceived professional disruption dampens technological experimentation (Iddrisu et al., 2025; Stephany & Duszynski, 2026).

Conclusion

Generative artificial intelligence occupies a contested position in visual arts higher education. While students recognize its functional utility as an ideation and rendering aid, they simultaneously experience profound vocational apprehension regarding copyright erosion, craft devaluation, and labour displacement. Importantly, this tension is sharply gendered: male visual arts students predominantly embrace algorithmic tools with operational confidence, whereas female visual arts students experience higher existential concern and lower tool adoption. Studio curricula that treat technological adoption as gender-neutral risk alienating female artists and deepening institutional inequities within the contemporary creative industries. Addressing this divide requires pedagogical frameworks that validate ethical and material concerns while actively building equitable technological agency across all student cohorts.

Recommendations

- Fine and Applied Arts departments should introduce dedicated course modules examining the legal, ethical, and copyright frameworks governing generative artificial intelligence, directly mitigating the acute intellectual property anxieties reported by students.
- Academic institutions should organise structured studio laboratories designed to demystify generative tools, fostering digital confidence and self-efficacy specifically among female visual arts students without compromising manual craftsmanship.
- Art faculties must establish clear institutional policies delineating acceptable boundaries for generative AI usage across painting, graphic design, textile design, and other studio specialisations, preserving the integrity of traditional tactile techniques while clarifying creative agency.
- Visual arts educators should position generative AI as a provisional ideation device rather than an end-stage production substitute, ensuring students retain hands-on mastery while developing critical perspectives on computational labour.

Declarations

Ethical Approval: This study was conducted in accordance with the Declaration of Helsinki. Formal institutional ethical approval was not required for this study as the survey was completely anonymous, voluntary, and carried no risk to participants.

Artificial Intelligence (AI) Use Statement: During the preparation of this work, the authors used ChatGPT (OpenAI) to improve language, style, and clarity. Following the use of this service, the authors thoroughly reviewed, edited, and verified the content, and take full responsibility for the final intellectual integrity of the publication.

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