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Article

Artificial Intelligence Integration among Design Students in Malaysia

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Abstract: Artificial intelligence (AI) is rapidly reshaping the creative industry, yet little is known on how Malaysian design students cope with it. Existing studies on AI literacy tend to focus on science and technology fields, leaving a significant gap of the creative arts. This study tackles that gap by exploring how thirty final-year undergraduate graphic design students from Universiti Teknologi MARA (UiTM), Puncak Alam weave AI into their academic work. Framed by Expectancy–Value Theory (EVT), this study captured student perspectives through six focus group discussions (each 60–90 minutes long), probing their experiences, attitudes, and the perceived costs and benefits of using AI. The findings reveal selective adoption. For instance, while 93% of participants use ChatGPT to spark ideas, few explored design-specific tools like Adobe Firefly or Photoshop Beta. Students consistently praised AI for boosting efficiency and aiding brainstorming but expressed heavy reservations about its impact on authenticity and originality. A clear disconnect presented, with institutional policies lagging behind the rapid realities of the design industry, forcing students to depend on other sources for guidance. From these discussions, four central themes emerged: authenticity concerns, perceived benefits and costs, institutional misalignment, and demand for guidance. The study highlights the need for immediate AI literacy initiatives supported by workshops and ethical guidelines, as well as longer-term curriculum reform and lecturer training. A discipline-specific model of critical AI integration is recommended to ensure that student preparedness for industry demands while safeguarding the originality and cultural heritage central to the design profession.

Keywords: Artificial intelligence; graphic design; art and design; expectancy-value theory; AI literacy

Introduction

The rapid advancement of artificial intelligence (AI) has transformed the creative industries, including graphic design. AI is now embedded in tools, workflows, and professional standards (Liang, 2024; Zailuddin et al., 2024). While AI promises to enhance creative processes and introduce new modes of collaboration, it also challenges established practices and honed skills, raising concerns about authenticity and professional identity. Tasks that once were thought to be exclusive to human creativity is now automated, potentially devaluing creative labour that is difficult to quantify (Tien & Chen, 2024). A significant gap exists in understanding the AI literacy, awareness, and readiness of emerging graphic designers (Fleischmann, 2024). Contrary to STEM fields, little is known about how design students perceive and adopt AI, particularly in the Malaysian context.

In Malaysia, the integration of AI into higher education is still taking shape (Ahmad & Ghapar, 2019). Preparing graduates for an AI-driven workforce requires more than the ability to operate new software; it calls for critical literacy that combines technical skill with ethical reflection and creative judgment. Unequal access

to digital resources complicates this effort, influencing the opportunities students have to experiment with AI and echoing broader concerns about technological divides (Liao et al., 2025). Understanding how design students approach AI adoption therefore requires attention not only to technical confidence but also to the ways in which creative identity and institutional context shape their readiness.

Adoption of new technologies in education is also guided by factors beyond individual students. Universities, industries, and policymakers play a central role in determining how innovations such as AI are embedded in curricula and professional preparation (Xu et al., 2025). Within this landscape, student perspectives remain essential, as they directly shape learning approaches, creative processes, and eventual professional practice (Chan & Hu, 2023). This study addresses this gap by exploring the integration of AI among design undergraduates at Universiti Teknologi MARA (UiTM), Puncak Alam. Guided by Expectancy–Value Theory (EVT), it examines how students' experiences with AI tools reflect expectancy beliefs, task values, costs, and identity considerations that shape their adoption of emerging technologies in design education.

Literature Review

1. AI and Digital Literacy

The advent of artificial intelligence (AI) necessitates a significant evolution beyond traditional digital literacy. Digital literacy, classically defined as the ability to effectively use and critically evaluate digital technologies (Gilster, 1997), provides only a foundational framework. The proliferation of AI systems demands a more specialized and critical competency: AI literacy. Ng et al. (2021) conceptualize AI literacy as the set of competencies that allow individuals to understand, use, and critically reflect on AI technologies, encompassing both technical proficiency and crucial ethical considerations such as bias, privacy, and societal impact. This critical reflection is key; it moves beyond mere usage to a deeper interrogation of the technology's influence.

For creative fields like graphic design, AI literacy takes on a uniquely complex dimension. It must integrate technical fluency with the ability to critically evaluate AI-generated aesthetics, understand the complexities of intellectual property in AI-assisted work, and leverage AI as a collaborative tool in the creative process without ceding artistic authority (Cetindamar et al., 2022). The potential of AI in this context is indeed significant. For instance, Dehouche and Dehouche (2023) demonstrated that AI image generators like Stable Diffusion, with guided pedagogical oversight, can serve as valuable educational tools for teaching artistic genres, movements, and aesthetics. This suggests that when integrated thoughtfully and critically, AI can enhance rather than replace creative learning. This leads to an essential critical perspective highlighted by scholars such as Kim et al. (2022): there is a tangible risk that AI literacy initiatives focus solely on instrumental, skills-based training at the expense of fostering the critical reflection necessary for responsible and authentic creative practice. This "solutionist" perspective may overlook how AI integration fundamentally alters creative processes and professional identities rather than simply augmenting existing practices, a concern particularly acute in identity-focused disciplines like design.

2. AI in Malaysia

The Malaysian government has strategically recognized the imperative of AI literacy, launching significant initiatives to prepare its citizens for a digital future. The national program AI untuk Rakyat, launched in January 2024, aims to raise public awareness and understanding of AI through self-paced online modules available in multiple languages, an initiative that achieved over one million participants within its first six months (MyDIGITAL, 2025). Parallel to this broad national effort, the Selangor state government implemented the Future Skills for All (FS4A) program, which focuses specifically on digital economic growth and inclusive education through public-private partnerships designed to equip educators and underserved students with digital and AI competencies (MyDIGITAL, 2025).

While these national and state-level efforts indicate a strong top-down push for AI adoption and digital readiness, their focus is largely on general literacy and broad awareness. Its instrumental, skill-based

orientation misses the critical reflection that is core in creative disciplines, where students must grapple with questions of authorship, originality, and the meaning of human creativity in an AI-mediated world. A significant and unaddressed gap exists in understanding how these macro-level policies translate into specific pedagogical practices within distinct disciplines, particularly within creative education in public universities. Despite the profound implications and growing role of AI, research on its application within design studies remains few. A recent analysis of major academic databases revealed a significant lack of studies investigating the integration of AI into design education curricula (Tien & Chen, 2024). This absence is notable considering that design students encounter unique challenges in developing their professional identities. Their sense of authenticity and personal style are often perceived as threatened by AI, making the costs of adoption potentially higher than STEM fields.

3. Expectancy-Value Theory (EVT)

Expectancy-Value Theory (EVT) provides a strong psychological framework for understanding motivation, particularly in educational and technological contexts (Eccles & Wigfield, 2002). The theory posits that an individual's motivation to engage in a task is determined by their expectancy for success (belief in their ability to perform the task) and the value they assign to the task. Value is itself a multifaceted construct, including:

i. Attainment Value: The personal importance of doing well on the task.
ii. Intrinsic Value: The enjoyment or interest derived from the task itself.
iii. Utility Value: The perceived usefulness of the task for achieving future goals.
iv. Cost: The perceived negative aspects of engaging in the task, which can include effort, time, opportunity cost, and psychological cost.

EVT has been effectively and widely applied to understand technology adoption in education. Seminal and contemporary studies show that students' confidence in using digital tools (expectancy) and their perception of their usefulness for academic and career goals (utility value) significantly influence their engagement intentions and usage patterns (Bong, 2001; Wang et al., 2023). However, it is crucial to note that this body of study is predominantly situated in STEM or general education contexts. A clear and meaningful gap exists in applying and testing EVT within creative arts education, where motivational factors are deeply entangled with emotion, self-expression, and, most importantly, creative autonomy and professional identity. These factors can heavily influence perceptions of cost and value. In creative domains, cost calculations are not merely about time or effort; they encompass threats to artistic authenticity and professional value, suggesting that EVT requires modification and extension to fully capture the motivational dynamics at play in fields like design. By applying EVT in creative contexts, this study contributes to the literature by providing empirical data on AI integration within Malaysian creative education while extending theoretical understanding of how student attitudes towards AI reflect complex negotiations between technological utility, professional identity, and creative authenticity rather than simple skill-based adoption patterns. This study focuses on two key questions: (1) how students' confidence in using AI tools reflects their expectancy beliefs, and (2) how students' perceptions of AI's utility, intrinsic interest, and costs (including authenticity concerns) shape their adoption behaviours.

Methodology

This study adopted a qualitative design following Creswell and Creswell (2017) to explore the experiences and perceptions of artificial intelligence (AI) integration among design undergraduates. A qualitative approach was considered appropriate for its capacity to capture the layered and context-dependent meanings students assign to AI in both academic and creative practices. The focus was not on measuring frequency of use but on understanding how students made sense of AI in relation to their learning, creativity, and professional identity. Expectancy–Value Theory (EVT) served as the guiding theoretical lens, shaping the development of focus group protocols and informing the interpretation of students' beliefs, values, and behaviours related to AI.

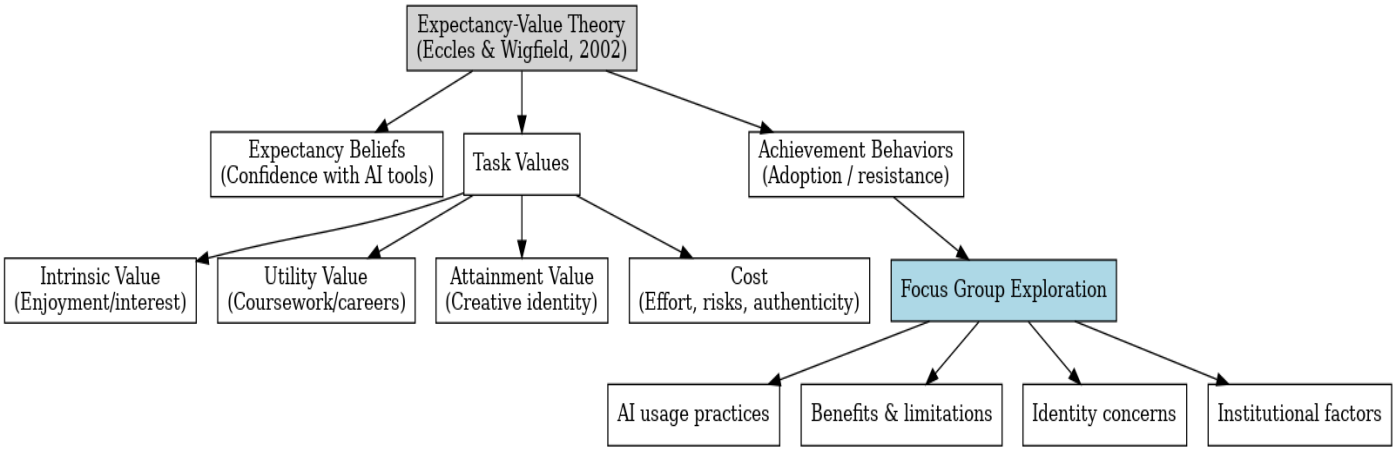

Figure 1. Research framework based on EVT

Participants were selected through purposive sampling. Thirty final-year undergraduates were recruited from the Faculty of Art and Design at Universiti Teknologi MARA (UiTM), Puncak Alam, across four majors within the graphic design programme: illustration (n = 7), advertising (n = 8), multimedia (n = 7), and graphic design (n = 8). The sample size decided based on saturation, the point where further data collection does not result in any more new information (Mocănașu, 2020). UiTM was selected as the research site because of its established role in creative arts education in Malaysia. The Faculty of Art and Design, formerly known as Kajian Seni Lukis & Seni Reka, began as Kajian Seni Lukis dan Seni Bina (Study of Fine Art and Architecture). An early effort by the institution to make design education accessible locally at a time when such opportunities were largely confined to overseas institutions (Perpustakaan Tun Abdul Razak, Jabatan Arkib Universiti, 2018). This long-standing history provides a meaningful context for exploring how design undergraduates are encountering and negotiating new technologies such as AI. Final-year students were chosen because they have completed most of the programme's coursework, including industry-facing assignments, and are at the cusp of transitioning into professional practice. Their perspectives therefore provide both retrospective reflections on AI in coursework and forward-looking considerations about employability and creative futures. While this approach generated rich insights, it also limited the study to more experienced students; the views of earlier-year cohorts may differ.

Two instruments were used in this study. First, a brief demographic and AI familiarity survey was administered before each focus group to establish baseline knowledge and usage patterns. The survey asked participants to indicate which AI tools they had used, with options including ChatGPT, Midjourney, Adobe Firefly, Perplexity, and others. This contextualised the focus group discussions by mapping general awareness levels. Second, a semi-structured protocol was developed to guide the focus groups. The protocol was informed by EVT and organised around four domains: (1) experiences of AI use in coursework and creative tasks, (2) perceived benefits and limitations of AI tools, (3) identity-related concerns such as authenticity and authorship, and (4) institutional factors such as curriculum, lecturer guidance, and policy restrictions. The protocol was piloted and refined to ensure clarity and relevance.

Data were collected through six focus group discussions (FGDs), each lasting between 60 and 90 minutes, conducted between October and November 2024. Discussions were held in accessible campus settings familiar to participants. Each session was audio-recorded with consent and transcribed verbatim. The group format allowed participants to build on one another's perspectives, highlight shared concerns, and also surface tensions where views diverged. The moderator encouraged open dialogue while ensuring coverage of the protocol domains, enabling both structure and spontaneity.

Thematic analysis was employed following Braun and Clarke's (2006) six-phase approach. Transcripts were read repeatedly for familiarisation, coded inductively, and progressively clustered into broader categories and themes. This iterative process continued until data saturation was reached, where no new insights emerged. To enhance trustworthiness, multiple strategies were employed: member checking with selected participants

to verify interpretations, peer debriefing with the supervising author to challenge assumptions, and maintenance of an audit trail documenting coding decisions, reflexive memos, and theme development.

Researcher reflexivity, defined as the ongoing critical self-evaluation of one's positionality and its influence on the research process (Berger, 2013), was an important consideration in this study. The researcher's status as a postgraduate student within the same faculty shared a disciplinary and generational background with the participants. This positionality, as noted by Berger (2013) facilitated entrée and rapport, encouraged candid discussion but also risked over-identification and projecting personal assumptions with participants' views. To address this, reflexive memos were written after each focus group to document assumptions, reactions, and evolving interpretations. By doing so, preconceptions can be 'bracketed'. Analytic decisions were regularly discussed with the supervising author, providing a more distanced perspective that helped mitigate bias. Ethical approval was obtained from the Research Ethics Committee of UiTM (reference REC/09/2024, PG/MR/467). The study was classified as minimal risk. All participants were briefed on the purpose and procedures of the study, their right to withdraw at any time, and the measures taken to ensure anonymity and confidentiality. Written informed consent was obtained prior to participation, and all data were stored securely and reported anonymously.

The Findings

The findings are presented in two stages. First, the background of the participants and the types of AI tools they reported using are outlined to provide context. Second, the thematic analysis is presented, highlighting the perspectives students shared during the focus group discussions.

Table 1. AI Tools Usage Among Participants

AI Tool	n (out of 30)	%
ChatGPT	28	93%
Perplexity	6	20%
Adobe Firefly	4	13%
QuillBot	2	7%
Microsoft Copilot	1	3%
Photoshop Beta	1	3%

The study brought together 30 final-year undergraduate students from the Faculty of Art and Design at UiTM. They represented the four majors within the graphic design programme: graphic design (n=8), illustration (n=7), advertising (n=8), and multimedia (n=7). This spread ensured that voices from across the different creative specialisations were heard.

When asked about their familiarity with AI, the students' responses pointed to a clear pattern. Almost all of them had used ChatGPT (93%), and often as an everyday academic tool for research, brainstorming, and academic writing tasks across their coursework while only a handful had experimented with visual AI applications such as Adobe Firefly or Photoshop Beta. This stark contrast reveals a strong leaning toward text-based tools, even among students whose disciplines are inherently visual and would seemingly benefit more from image-generation capabilities. Several factors contributed to this such as the zero-cost nature of ChatGPT compared to premium visual AI tools, familiarity of conversational interfaces versus more complex visual generation workflows, and the lack of institutional guidance on visual AI tools usage.

These usage patterns set the stage for the themes that follow (Table 2), showing how students negotiate the balance between utility, cost, and creative identity when working with AI. Thematic analysis of focus group discussions revealed four major themes that frame the design students' complex relationship with AI in design education: authenticity concerns, perceived benefits, institutional contradictions, and demand for guidance.

Table 2. Themes and Subthemes

Theme	Subthemes
Authenticity Concerns	Concerns over plagiarism; Threats to creative uniqueness; Risk of skill decline
Perceived Benefits of AI Tools	Ideation support; Improved workflow efficiency; Separation of brainstorming and execution
Institutional Contradictions	Restrictive academic policies; Gap with industry practices; Contradictory guidance on AI use
Demand for Guidance	Need for practical training; Desire for ethical clarity

Theme 1: Authenticity Concerns

Participants expressed strong concerns that reliance on AI may compromise originality and undermine their identity as creative practitioners. Several viewed AI-generated work as lacking "soul" or "signature," lacking the human touch that is distinct in their creative process and outcome. A large majority of participants are turned off from using AI in their artwork due to their artistic identity, with multiple stating it damages their ego. This raises questions of authorship and ownership. As one participant noted, *"If everything is generated, where is my creativity? It feels like cheating."* (P3, FGD1). Such anxieties reflect value conflicts, where the perceived utility of AI is offset by the cost of disappearing creative authenticity.

Theme 2: Perceived Benefits of AI Tools

Despite concerns, majority of the participants acknowledged AI's usefulness for brainstorming, rapid ideation, and automating repetitive tasks that can take up a significant amount of time in their creative process. ChatGPT in particular was widely adopted for research summaries, idea generation, and structuring assignments. A participant explained, "*When I'm stuck, ChatGPT gives me a starting point. It saves time.*" (P2, FGD3). However, reliance on text-based AI contrasted with low uptake of design-specific tools (e.g., Midjourney, Adobe Firefly). This suggests expectancy beliefs are stronger for general productivity tools, while uncertainty and lack of literacy limit engagement with visual AI.

Theme 3: Institutional Contradictions

Participants highlighted tensions between national policies promoting AI adoption and the limited integration of AI in their coursework. Several students noted that lecturers either discouraged AI use or lacked training to guide responsible practices while also mentioning the use of AI-aided or designed posters by the university seen on campus and social media. "*The university says we must embrace AI, but in class, we are told not to use it,*" (P1, FGD4) one student remarked. These contradictions reflect institutional gaps that hinder expectancy development and lower the perceived value of AI in formal learning.

Theme 4: Demand for Guidance

Across all groups, students emphasised the absence of structured rules on AI usage and ethics. They called for formal modules (elective or subject), workshops, and clearer assessment policies to ensure AI is used responsibly. As one participant explained, "*We need to learn the right way, not just figure it out ourselves.*" (P4, FGD1). This highlights students' recognition of AI's potential value and the need to catch up with the industry but also their concern about the costs of misuse, echoing EVT's emphasis on balancing utility and cost values.

Cross-Cutting Observations

Cross-cutting analysis revealed that concerns about creative authenticity were expressed consistently across all participant groups, suggesting these identity-related costs transcend individual demographic characteristics and reflect broader disciplinary concerns in creative education.

Discussion

This study explored the perceptions and adoption of artificial intelligence (AI) among design undergraduates at Universiti Teknologi MARA (UiTM) through the lens of Expectancy-Value Theory (EVT). The findings

reveal a strong contradiction: students' strong expectancy beliefs and recognition of AI's utility value for efficiency. Both are strongly held back by the high costs perceived to their creative identity and originality. This tension results in a strategic, bounded adoption process where AI is used early in their creative process particularly ideation but rarely for final execution. This discussion interprets these findings, outlining their contribution to understanding motivation in creative education and their implications for pedagogy.

1. Authenticity as a Cost Barrier

The crucial role that cost plays in the EVT equation for creative students were bigger than expected. Concerns that AI undermines originality and mirrors a form of "cheating" were not irrelevant but are fundamental threats to their developing professional identities. This aligns with global concerns that AI may dilute human originality (Fleischmann, 2024) but highlights that in educational settings, these concerns are acutely personal and motivational. Coincidentally, this is also resonated with the findings from craft education, where educators feared AI could lead to a 'homogenization of perspectives' and 'black-boxing creativity' (Vartiainen & Tedre, 2023). This introduces a necessary critical perspective: a purely instrumental, skills-based approach to AI literacy may worsen these fears. Effective integration must therefore include critical literacy which enables students to question AI's influence on aesthetics, authorship, and their future professional roles. This is imperative to reduce identity-related costs and realize AI's complete potential.

2. Expectancy and Text-Based AI Dominance

A second important observation is the strong preference for text-based AI (ChatGPT) compared to visual AI tools (e.g., Midjourney, Adobe Firefly), even though design fields are inherently visual. Students increased their use of ChatGPT because of its perceived availability, user-friendliness, and usefulness in various academic activities. ChatGPT is available on mobile, needs no specialized software or complicated interface expertise, making it an easy initial step. On the other hand, the implementation of visual AI tools was hindered by a mix of low expectations and high perceived expenses. Participants expressed frustration with the constraints of visual AI results, stating that they were easily identifiable as AI, stylistically uniform, and often did not align with their creative goals. However, they also acknowledge that this may fall on their own prompting abilities. This damaged their confidence (expectancy) in their ability to succeed with these tools. Additionally, institutional policies that either implicitly or explicitly deter AI usage in the classroom hinder the cultivation of essential expectancy beliefs for mastering complex visual AI. In the absence of official validation, support, or organized training from the institution, students view the effort and time needed to tackle the challenging learning curve as too great a sacrifice, resulting in avoidance. This discovery differs from integration approaches in Western design curricula (Zailuddin et al., 2024) and underscores a crucial deficit in directed educational access to relevant technology.

3. Institutional Contradictions

The perceived disconnect between national AI policies and restrictive classroom practices created significant confusion, effectively lowering the attainment and utility value of AI for formal learning. As Xu et al. (2025) note, such institutional inconsistency weakens technology adoption. Students encountered conflicting messages regarding the value of AI, which dampened their motivation to dive deeper into its potential. This situation compels students to depend on informal learning methods, strengthening the use of known resources such as ChatGPT and hindering the growth of a more comprehensive, design-focused AI proficiency. The institution, therefore, plays a crucial role not just as a regulator, but as a key source of efficacy-building support that is currently missing especially since scholars stated that the ubiquity of AI is likely to affect current job prospects (Alarie & Cockfield, 2021).

4. Toward Critical AI Pedagogy for Design

The call for structured guidance is the most direct implication of this study. International examples demonstrate that effective AI integration requires addressing both technical competencies and critical reflection on power, bias, and creativity redefinition (Vartiainen & Tedre, 2023). Students' desire to "*learn*

the right way" underscores a need for curricula that touches more than technical skills. In order to achieve critical AI literacy, students must be able to navigate ethical dilemmas, understand intellectual property, and use AI to enhance rather than replace their creativity. Furthermore, universities must resolve policy contradictions by developing clear, transparent guidelines that reflect real-world industry practices. Pedagogically, instructors should create supervised "sandbox" projects where students can safely explore AI collaboration, strengthening their expectancy with visual tools while critically examining costs and values under expert guidance. These efforts must be inclusive, acknowledging the gendered nuances in perception and other barriers faced by students from rural backgrounds.

5. Theoretical Extension: EVT in Creative Contexts

This study extends EVT to the creative arts, demonstrating that while the core components hold, their interaction is context-dependent. In this context, the cost factor holds significant weight, often surpassing high utility value and favourable expectation beliefs. This expense is deeply connected to professional identity and artistic integrity, a consideration significantly stronger than in STEM environments. This in essence, is the manifestation of an unresolved crisis of value in the age of AI. Tien and Chen (2024) identify the core task for design education as redefining 'the design values of human designers and artificial intelligence respectively' (p. 1). This study contributes to that redefinition by providing empirical evidence that for students, this value is intrinsically tied to authenticity and professional identity. Therefore, any theoretical or pedagogical model that fails to centrally address these identity-related costs will be insufficient in creative contexts. Consequently, for EVT to serve as a strong framework in creative education, models should be modified to recognize the increased importance of identity-related costs and the impact of institutional policy on the development of student expectancies.

Conclusion

This qualitative study employed Expectancy-Value Theory exploring how design students at Universiti Teknologi MARA (UiTM) Puncak Alam perceive and integrate artificial intelligence (AI) into their academic and creative practices. Findings revealed that students engage with AI selectively, valuing its utility for ideation but perceived high costs to their creative identity and originality. This tension results in a clearly bounded adoption process. Furthermore, a stark disconnect was identified between restrictive institutional policies and the AI-driven realities of the design industry, creating a fragmented learning environment reliant on informal channels. This study is not without limitations. Its focus on final-year students at a single institution limits the generalizability of the findings. The qualitative nature of the study, while providing depth, limits broad statistical inference. Future research should employ a mixed-methods approach with a larger, more diverse sample across multiple institutions. Longitudinal studies tracking students into the workforce and incorporating the perspectives of lecturers and industry stakeholders would also provide valuable deeper insight.

Essentially, the findings suggest two levels of action. In the short term, universities should provide structured AI literacy initiatives, including workshops and ethical guidelines. Alongside skill, this equips them with critical awareness of opportunities and risks. In the long run, lecturer training, curriculum reform, university policy and academic guidelines must align with industry practices to ensure graduate preparedness. The challenge is not whether AI can be integrated into design education, but how it can be harnessed as a collaborative partner. As Malaysia advances its national AI agenda, its design education must champion a discipline-specific model of critical literacy that can empower students to integrate emerging tools without compromising human-centric originality that remains the core of the profession. The ultimate objective is a combination that honours both technological innovation and artistic heritage.

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