Integrating ChatGPT into the Esquisse Task During Architectural Learning Studios at the University

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DOI: https://dx.doi.org/10.47772/IJRISS.2025.922ILEIID0020

Received: 22 September 2025; Accepted: 30 September 2025; Published: 22 October 2025

ABSTRACT

The esquisse, a quick design ideation exercise that tests students' ability to conceptualise, sketch, and communicate design concepts in a short amount of time, is a key component of architectural education. Although it is good at encouraging creativity and agility, many students struggle to come up with ideas, articulate them, and get beyond creative obstacles, especially in the early years of study. This study investigates how Universiti Teknologi MARA (UiTM) Sarawak's esquisse phase of studio learning incorporates ChatGPT, a conversational artificial intelligence application. The goals are to evaluate how ChatGPT contributes to better conceptual growth, a wider range of design concepts, and increased student self-assurance and communication abilities. Instead of using AI as a tool for post-design analysis, the innovation is in presenting it as an active ideation partner throughout the live design process. Students were able to improve their narrative clarity, broaden their conceptual vocabulary, and get ideas for different solutions by having reflective conversations with ChatGPT. Results show that design outcomes are more diverse, that ideation anxiety is lower, and that critique engagement is higher. By encouraging more inclusive and flexible learning environments and giving aspiring architects the tools they need to be creative and digitally literate, the study benefits society. The strategy might develop into an AI-enhanced studio platform or Learning Management System (LMS) plugin specifically for the architecture and design education markets from a commercialisation standpoint. This places the work at the nexus of innovative education, AI technology, and creative pedagogy.

Keywords: ChatGPT, architectural education, esquisse, artificial intelligence, studio pedagogy

INTRODUCTION

It is commonly acknowledged that studio-based learning is a key component of architectural education, where students hone their design abilities through iterative conceptualisation, sketching, and critiquing procedures. The esquisse task, a quick design ideation activity that encourages students to come up with innovative answers to design prompts in a limited amount of time, lies at the heart of this. Esquisse fosters spontaneity, flexibility, and fast decision-making—skills that are critical to the practice of architecture.

The exercise itself frequently poses difficulties. Many students struggle to come up with ideas fast, articulate them well, and remain confident when presenting their design concepts, especially in the early stages of their studies. This "creative block" issue increases performance anxiety, decreases design diversity, and restricts their capacity for critical discourse.

New avenues for enhancing creativity in design pedagogy have been made possible by recent advancements in artificial intelligence (AI), particularly in conversational platforms like ChatGPT. Although artificial intelligence (AI) has historically been used in post-design analysis, such as assessing structural efficiency or environmental performance, its potential as an active ideation partner is still not fully understood. With its

conversational capabilities, ChatGPT provides a way to help students with the ideation process itself, facilitating thoughtful discussion, vocabulary development, and conceptual growth.

In the architectural learning studios at Universiti Teknologi MARA (UiTM) Sarawak, this concept paper suggests incorporating ChatGPT into the esquisse work. The study makes the case that this kind of integration could improve design results, assist in overcoming student obstacles, and establish a new paradigm for AI-enhanced architectural education.

LITERATURE REVIEW

The Esquisse in Architectural Education

The esquisse has long been a feature of architectural teaching, notably in European and Asian cultures. Schön (1983) asserts that the quick sketch problem enables students to practise "reflection-in-action," which fosters the capacity for simultaneous thought and design. Although esquisse exercises promote creativity and agility (Anthony, 1991), a number of research show that students frequently struggle with conceptual fluency and time constraint (Goldschmidt, 2014). Esquisse not designed as an educational platform for assessment. It is a design tools primarily for creating 3D models.

Creativity Challenges in Studio Learning

According to other studies conducted in architectural studios, young students encounter "ideation block," which limits their ability to explore and forces them to rely on tried-and-true, safe solutions (Lawson, 2004). Even though critique sessions are beneficial, students who have hazy concepts may become intimidated (Anthony, 1991). This is in line with the requirement for encouraging scaffolding in design education, where technology might be helpful.

AI in Design and Education

From generative design in engineering (Akin, 2010) to adaptive tutoring systems in education (Luckin et al., 2016), the application of AI in creative fields has been expanding. However, post-design performance analysis, including energy modelling and structural optimisation, is the main area of use for AI in architecture education (Oxman, 2017). In the field of conceptual ideation support, very little has been investigated.

ChatGPT and Conversational AI in Learning

OpenAI's ChatGPT is a novel approach to AI communication using natural language processing. Research indicates that it can improve reflective learning, increase vocabulary, and lower anxiety by providing conversational assistance (Kasneci et al., 2023). ChatGPT's capacity to offer iterative feedback and encourage alternative thinking offers a special opportunity in design education, where concept articulation is just as crucial as generation.

DISCUSSION

ChatGPT's incorporation into the esquisse task sparks fresh discussions about how to strike a balance between machine aid and human innovation in architecture education. The conversation must also cover the wider ramifications for teaching, learning, and professional practice, even though the initial results point to beneficial contributions to student ideation and communication.

Opportunities for Enriched Learning

The most obvious possibility is to encourage students' self-confidence in their creative abilities. The esquisse frequently turns into a stressful task that reveals the design thinking weaknesses of inexperienced architecture students. ChatGPT lessens this cognitive strain by offering instant verbal cues and different viewpoints. Students are urged to think in different ways, which broadens their vocabulary of design terms.

Customising educational experiences is an additional potential. ChatGPT may interact with each student continually, tailoring its responses to the degree of detail and inquiry style provided, in contrast to traditional critiques where feedback is constrained by time and instructor availability. Quieter or less confident students are given equal opportunities to engage in design conversations thanks to this customised scaffolding, which improves inclusion.

The inclusion of ChatGPT also encourages digital literacy in artistic endeavours. As computational design, digital modelling, and AI-driven simulations become more integrated into architectural practice, exposing students to AI early on as an ideation partner helps them get ready for professional settings where technology fosters creativity.

Challenges and Risks

Despite its promise, a number of risks need to be taken into account.

Over-reliance on AI: Students run the risk of becoming overly reliant on AI recommendations, which would impair their capacity for independent thought. If ChatGPT is utilised carelessly, it may accidentally homogenise ideas rather than inspire originality.

Output quality and applicability: AI-generated content can occasionally be imprecise, ambiguous, or culturally unrelated. In the absence of critical analysis, students may include false ideas in their designs.

Authorship and ethical issues: It's unclear if concepts generated by AI qualify as original. It is necessary to clarify ownership and academic integrity concerns if ChatGPT plays a substantial role in concept development.

Access equity: Not every student may have equal access to dependable online resources. Those with restricted gadgets or internet may unintentionally be at a disadvantage if AI used excessively in teaching.

To overcome the over-reliance on AI, the approach for the esquisse task in the studio started without any AI tools assistance. Students are required to produce their esquisse models and need to explain their understanding on the product produced (Figure 1). After the presentations done, lecturers and another group of students will be giving their feedback and input on what they see from the esquisse produced. The incorporation of ChatGPT came after the task done where the student can see another point of view and helping them to develop their ideas further.

Pedagogical Implications

By incorporating ChatGPT into the curriculum, the lecturer's position is radically altered. Lecturers can refocus their attention on higher-order design critique, such as contextual integration, spatial quality, and theoretical foundation, rather than merely facilitating initial ideas. Studio culture could be improved by this shift, becoming less limited by early-stage creative barriers and more dialogical.

Additionally, ChatGPT might contribute to a more varied design discussion within criticisms. Students who previously hesitated to submit partial ideas (Figure 2) but now arrive with more developed concepts (Figure 3) make richer peer discussions and a more inclusive learning environment possible. However, this requires cautious guidance: educators must encourage pupils to regard AI responses as “suggestive inputs” rather than definitive solutions.

Future Directions

Beyond the esquisse, AI-enhanced design education holds great promise. ChatGPT may eventually be included into studio platforms or LMS plugins that monitor student development, modify prompts in response to performance, and even incorporate tools for visual or spatial design. Ideation may be further enhanced by combining conversational AI with generative design software, which offers multimodal feedback (text + sketch + data).

In order to determine if frequent usage of ChatGPT enhances or detracts from independent creativity, future research should incorporate longitudinal investigations. Studies that compare different institutions could also determine whether curriculum and cultural factors have an impact on how well AI works in studio instruction. Lastly, establishing ethical guidelines and best practices for integrating AI into creative fields would require cooperation between educators, technologists, and legislators.

Figure 1: Students explaining their esquisse.

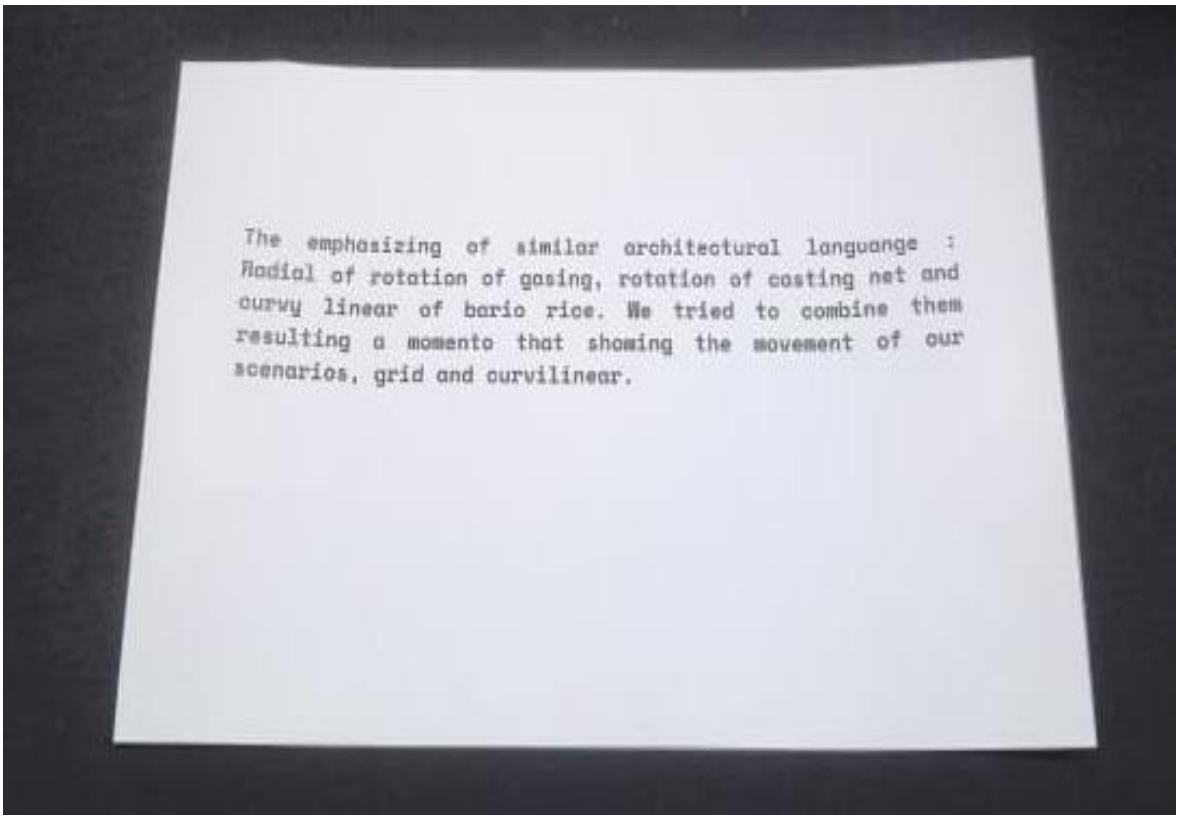

Figure 2: Initial Idea by the Student.

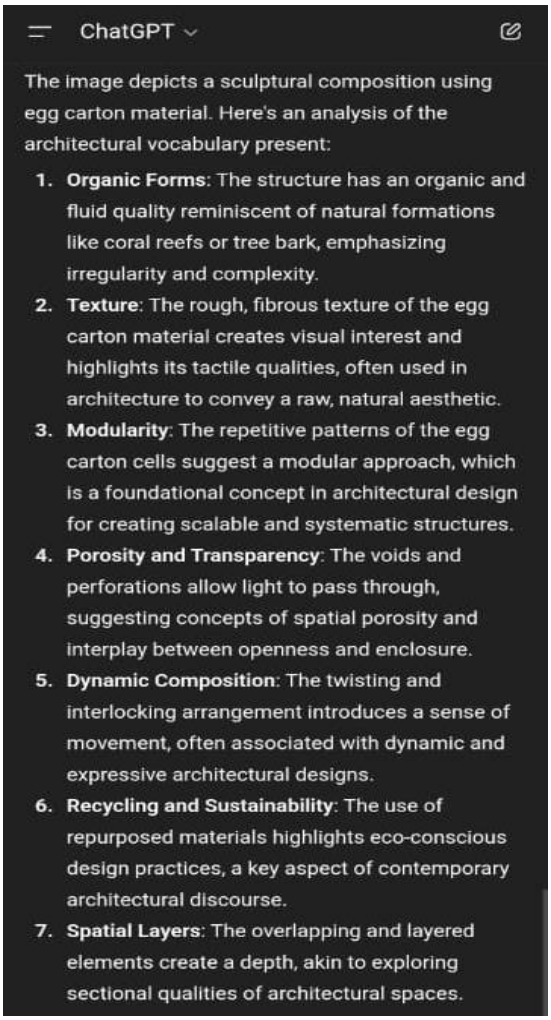

Figure 4: ChatGPT feedback as suggestive inputs

CONCLUSION

The use of ChatGPT into the esquisse job during architectural studio learning at UiTM Sarawak was suggested in this concept paper. Although the esquisse is still a useful teaching tool for encouraging creativity, agility, and communication, many students struggle to articulate their ideas, have limited conceptual range, and have ideation anxiety.

This study proposes a new method of studio education that blends digital scaffolding with human creativity by presenting ChatGPT as an active ideation partner. Research shows that although design studios encourage introspection and experimentation, students frequently require extra assistance when creating concepts and stories. At the same time, studies on AI in education show how technology may be used to reduce anxiety and customise learning. This initiative offers a novel approach to design learning by occupying the nexus of these domains.

More conceptual diversity, enhanced communication abilities, and less stress during ideation are among the anticipated results. However, difficulties like an excessive dependence on AI, moral dilemmas, and digital fairness issues need to be resolved with cautious direction and conscientious integration.

The study's importance ultimately rests in showing how AI may enhance conventional studio procedures rather than take their place. By incorporating ChatGPT into the esquisse, studio culture may change to become a more welcoming, adaptable, and technologically savvy setting. In addition to its immediate educational advantages, the strategy has the potential to be developed into AI-enhanced studio platforms or LMS plugins, which would broaden its influence into more commercial and instructional contexts.

To sum up, ChatGPT is a promising partner in architectural education that helps students get over obstacles to creativity and emphasises the importance of the human imagination in design.

ACKNOWLEDGEMENTS

The author would like to express gratitude to Universiti Teknologi MARA (UiTM) Cawangan Sarawak for providing the academic environment and support that made this study possible. Special thanks extended to the architecture studio students in year 3 semester October 2024 who participated in the exploratory sessions and offered valuable insights on the integration of ChatGPT into the esquisse task. Their openness to experimentation and constructive feedback has been central to shaping this concept paper.

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