



13th International Conference on Human Interaction & Emerging Technologies
Artificial Intelligence & Future Applications

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Integrating Generative AI in Design Education

A Structured Approach to Client-Centered Interior Design Visualization

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西交利物浦大学

CONTEXT

Generative AI (GAI) is transforming design education.

STATE OF THE ART

AI tools like Midjourney and DALL-E support rapid visualization (iterative variation) and design proposal refinement.

OBJECTIVES

Enhancing real-world simulation in architectural pedagogy to better prepare learners to the real market.

Feeling Good Inside Interior Spaces

How do designers understand clients needs?

This workshop aims to investigate how to structure an interior design project starting from the analysis of clients' requirements and expectations.

Participants will develop a complete design proposal through case study analysis, mood boards, space planning, and interior visualizations.

Face to face meetings with selected clients will better support the development of the design proposals. At the end of these 5-days activities participants will receive final feedback and comments by their clients.

Students will learn more about design conceptualization, interior functional analysis, mood board composition and space configurations through the help of cad drawings, 3d visualization, post-production and presentation dynamics.

Date: 19th to 23rd February 2024
Registration deadline: 20th January 2024
Place: DB102
Coordinator: GianMarco Longo
Contact: gianmarco.longo@xjtlu.edu.cn; silvia.albano@xjtlu.edu.cn
Involved cohorts: UG Y2 to Y4 + PG
Participation fee: 500 rmb



SCAN TO REGISTER

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WORKSHOP SERIES



PROBLEM

Traditional design education often lacks real-world client interaction and rapid iteration.

SOLUTION

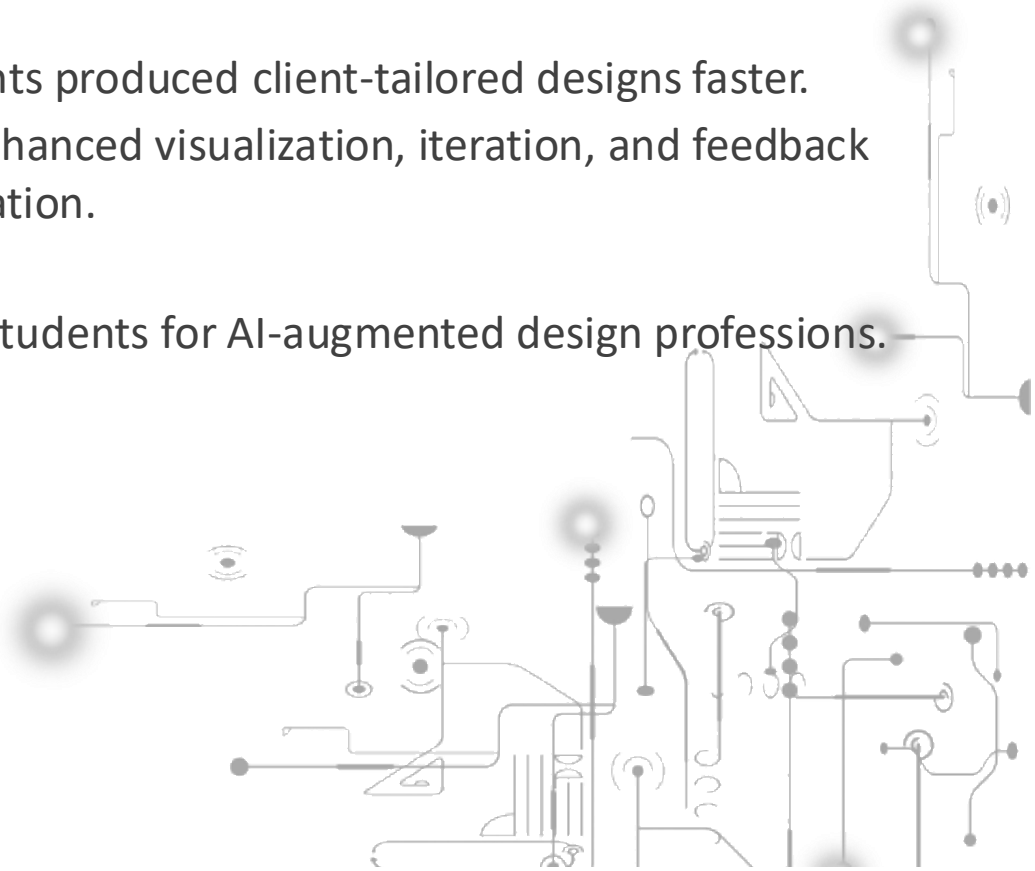
A 4-day workshop using GAI (Midjourney) to simulate professional workflows.

OUTCOMES

1. Students produced client-tailored designs faster.
2. GAI enhanced visualization, iteration, and feedback integration.

IMPLICATION

Prepares students for AI-augmented design professions.



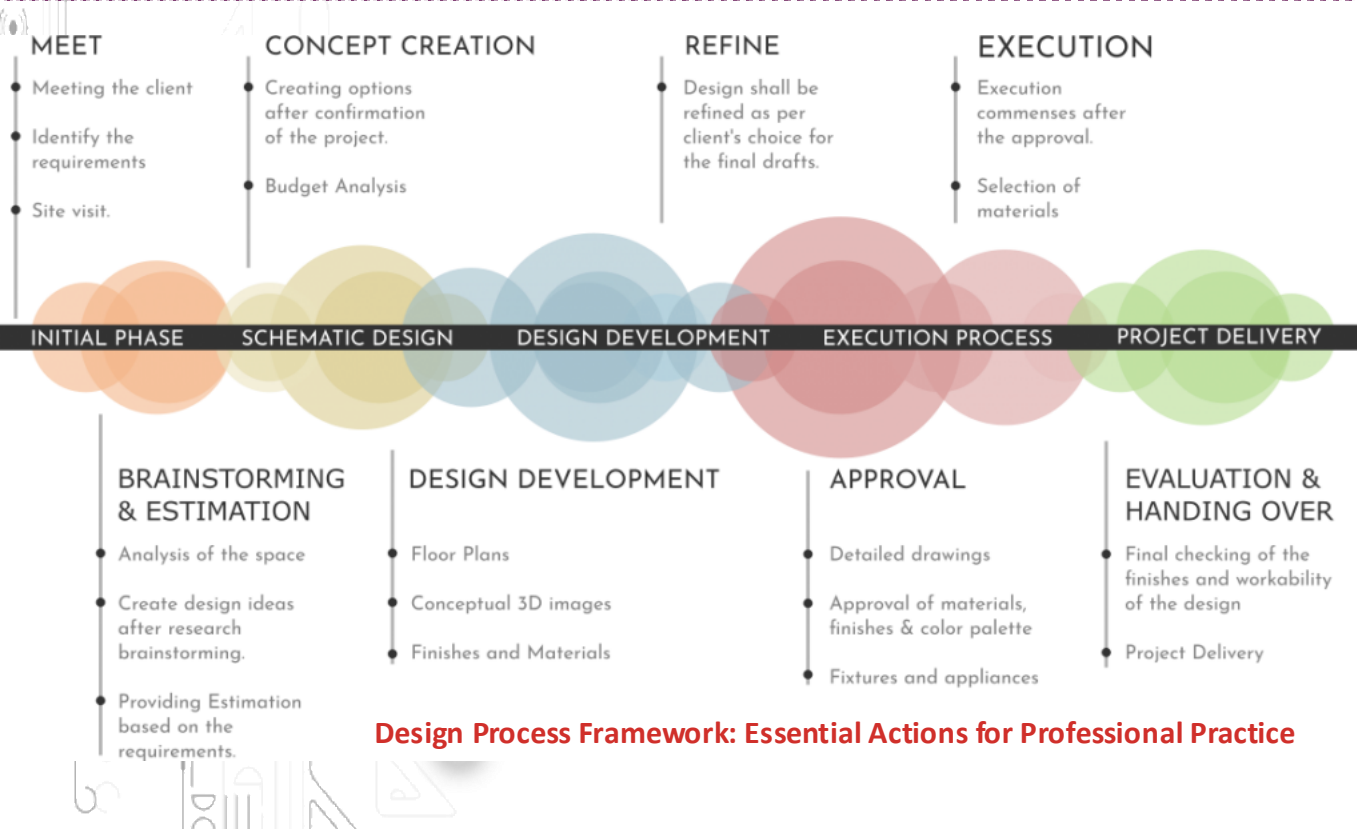
Theoretical Foundations:

Industry Shifts: AI tools (Midjourney, DALL-E) accelerate ideation, material exploration, and client communication (Burry, 2016; Schwartz et al., 2022).

Educational Gap: Students need exposure to AI-driven workflows to match industry demands (Araya, 2019).

Challenges:

Ethical concerns (data privacy, intellectual property – Floridi & Chiriatti, 2020).
Risk of over-reliance on AI overshadowing human creativity.



Research Questions:

1. How does GAI enhance students' ability to create **client-specific** design solutions?
2. How does GAI impact teaching **iterative design processes**?

Objectives:

Develop a structured GAI framework for education aligned to the official design process.

Evaluate student outcomes (client alignment, technical precision, adaptability) through a professional perspective.

The Design Process

Analysis

Identify the brief and requirements
Analysis of the space
Create design ideas after research/brainstorming

Design Development

Floor plan-Elevation-Space Reference
Finishing and Materials

Communication

Booklet definition and finalization

Concept Creation

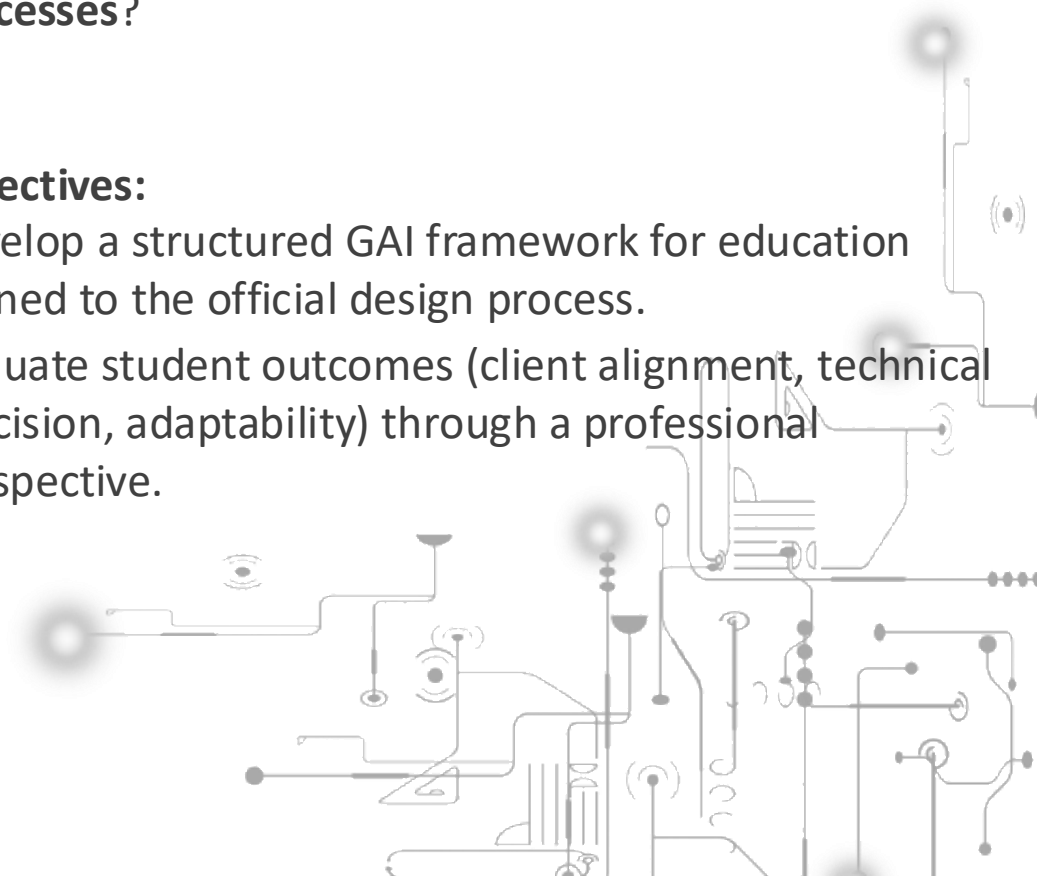
Creating options after client feedback
Mood or Concept boards

Materiality

Material Plans and Elevation
Material and Functional Moodboard

Presentation

Client Face-to-Face meeting



Client Questionnaire

1

QUESTIONNAIRE:

HOUSEHOLD MEMBERS:

How many children:
Boy/Girl: Age:

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

KITCHEN:

What kind of kitchen do you need (american kitchen, island, L shape, ect.)?

HOME OFFICE:

Does any household member work from home? Yes / No
If yes, are there special needs? (ex. Lighting, soundproofing, computers etc.)?

Bathroom:

How many bathroom do you need?
Shower or bathtub?
Private bathroom or standard one?

Closet:

Wardrobe or walking closet?

DESIGN STYLE:

What "feeling" are you trying to achieve?
Transitional
Modern
Contemporary
Eclectic
Industrial
Nordic Minimal
Mid century style
Japanese

Special requirements:

Feel free to add any special needs/requests you would like to have

Workshop structure:

1. Pre-Workshop: Client questionnaires (data collection).

2. Day 1-2:

1. Client profiling (Miro for data mapping).

2. Initial AI-generated moodboards (Midjourney/ Miro).

3. Day 3-4:

1. Iterative refinement via client/tutor feedback.

2. Final presentations.

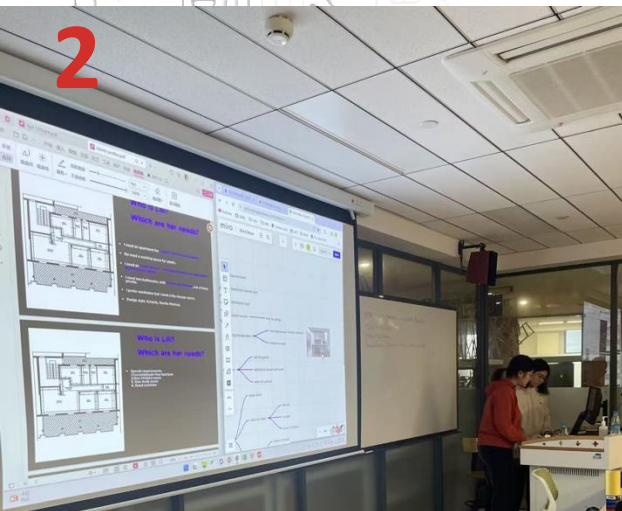
Tools:

Midjourney: For rapid visualization.

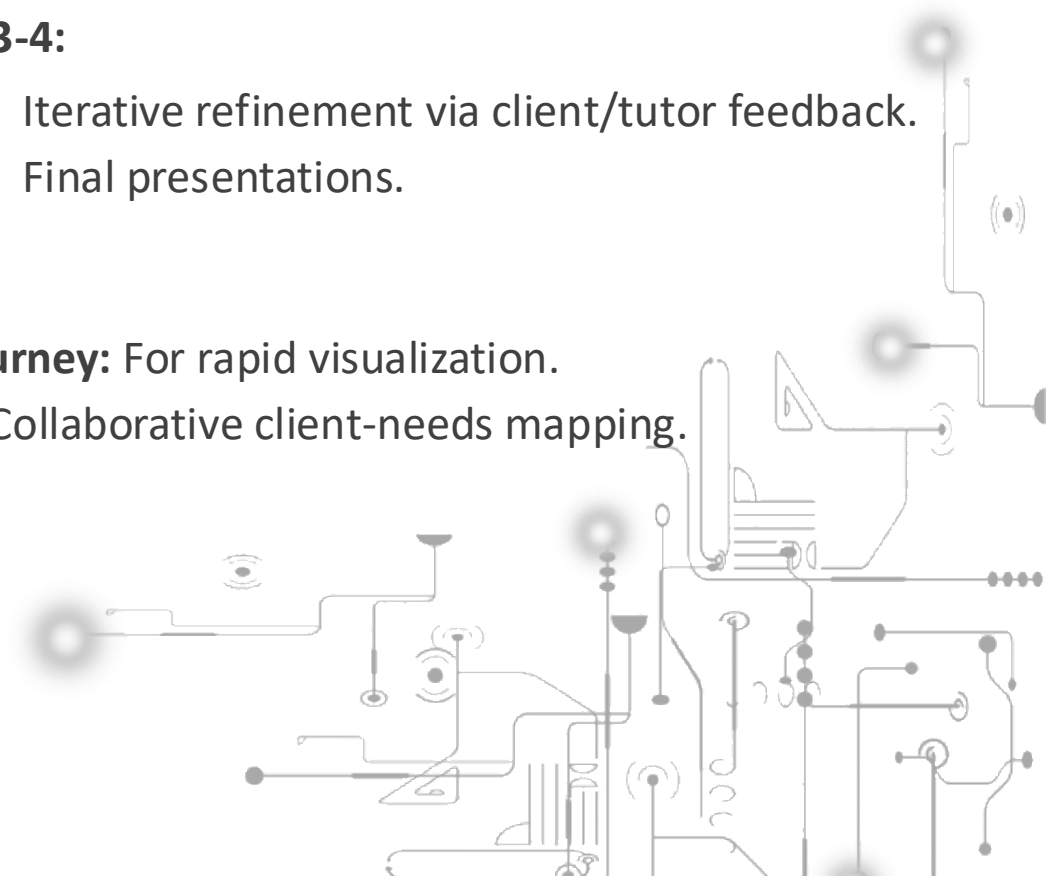
Miro: Collaborative client-needs mapping.

Client questionnaires template

2



Initial AI-generated mood-boards (Midjourney/ Miro)





Iterative refinement

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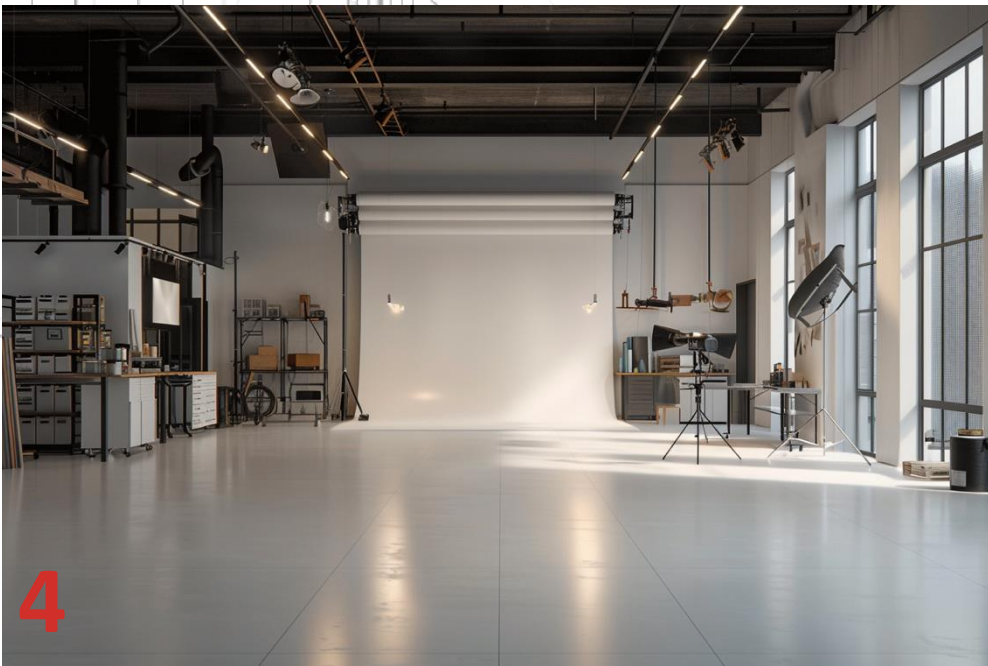
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Tools:

Midjourney: For rapid visualization.

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Initial AI-generated moodboards (Midjourney/ Miro).



Iterative refinement



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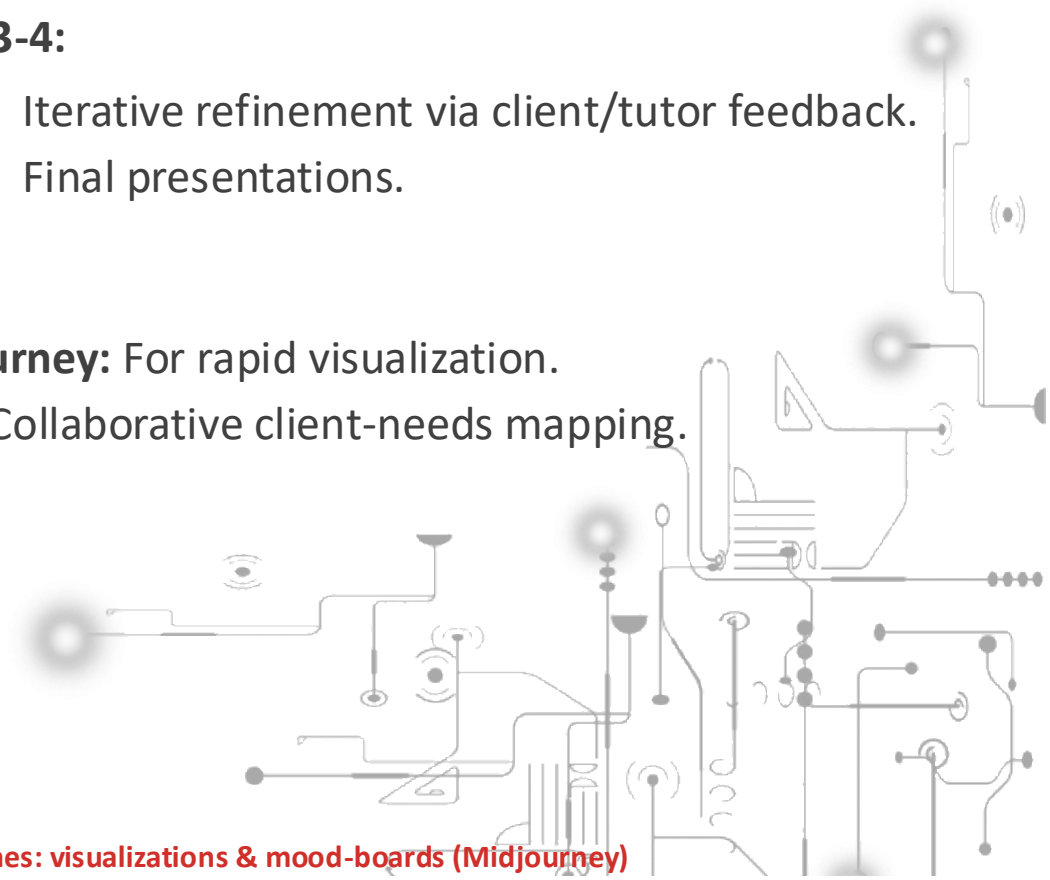
2. Final presentations.

Tools:

Midjourney: For rapid visualization.

Miro: Collaborative client-needs mapping.

Final outcomes: visualizations & mood-boards (Midjourney)



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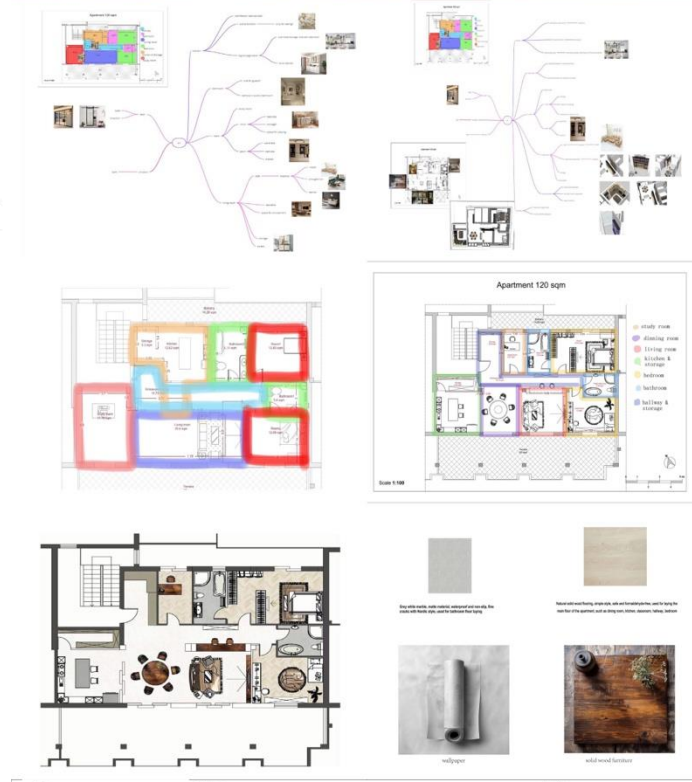


Feeling Good
 Inside Interior Spaces



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Miro

Function plan

Design plan

Material board

- Relax:** [Material samples]
- Color wood:** [Material samples]
- White marble:** [Material samples]

Design plan

Material board

- Relax:** [Material samples]
- Color wood:** [Material samples]
- White marble:** [Material samples]

AI VISUALIZATION

Multifunctional room—living room & kitchen

AI VISUALIZATION

Bedroom

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Ziyue Mo Mingpei.Sun

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Miro

Clients needs

- Living room: dancing&Yoga space, music space, sofa&projection screen.
- Kitchen: a storage, island table(for breakfast), dining space.
- Bathrooms: one shower/one bathtub. One of them private with two basins and the tub, the other with shower, both bathrooms with toilets.
- Master room: walk-in wardrobes, bedroom just for sleep.
- Kid's room: cabinet, play space, a desk for hand-made(face to window).
- One work space.

First design plan

Bubble plan

Function plan

Design plan

Material Board

Final Design Plan

Plane size

AI Visualization

Living room

Master room

Daughter's bedroom

Kitchen

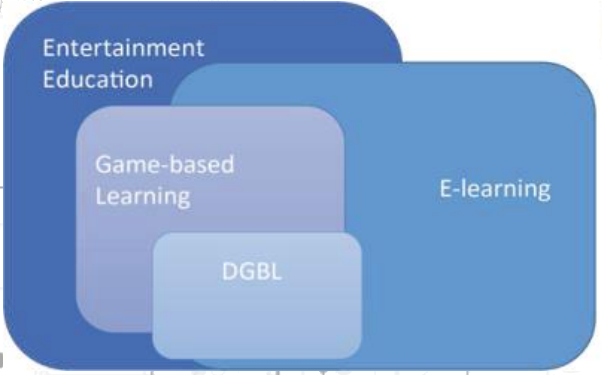
Work room

Public bathroom

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Shuyu.Shen Yuyou.Feng



DIGITAL PEDAGOGY

Pedagogical approach that utilizes interactive and immersive digital games

Development of critical thinking, engagement and decision-making skills for student-centered active learning

Roleplay

Methodological Approach



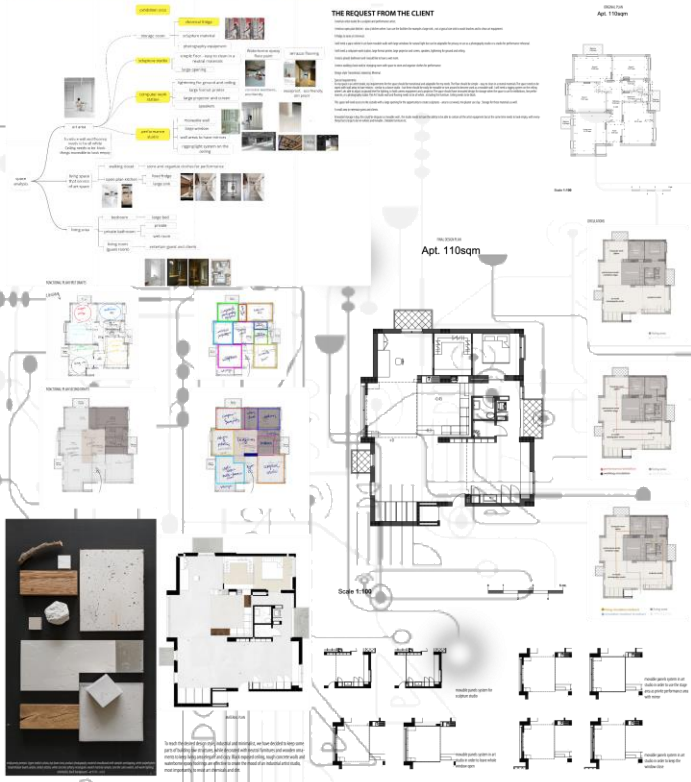
Students acted as junior architects.

Tutors provided guidance as design directors.

Feedback loops enhanced adaptability & problem-solving (professional environment)



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Tailored Solutions:

GAI enabled rapid alignment with client preferences (e.g., material palettes, spatial layouts).

Example: A student revised a design 3x in 2 hours using Midjourney.

Iterative Refinement:

Feedback loops (client + tutor) improved design precision (McNeil & Goodwin, 2022).

Professional Skills:

Students learned to balance creativity with client constraints and the workflow for generating iterative variations.



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Ruohu Qi

Xingtong Liu

Ziqi Zhai

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Enhanced Visualization:

GAI helped students explore spatial relationships dynamically (Floridi & Chiriatti, 2020).

Critical Thinking:

Role-playing as junior architects fostered decision-making under pressure.

Efficiency:

100% of students produced client-ready designs within the 4-day deadline.

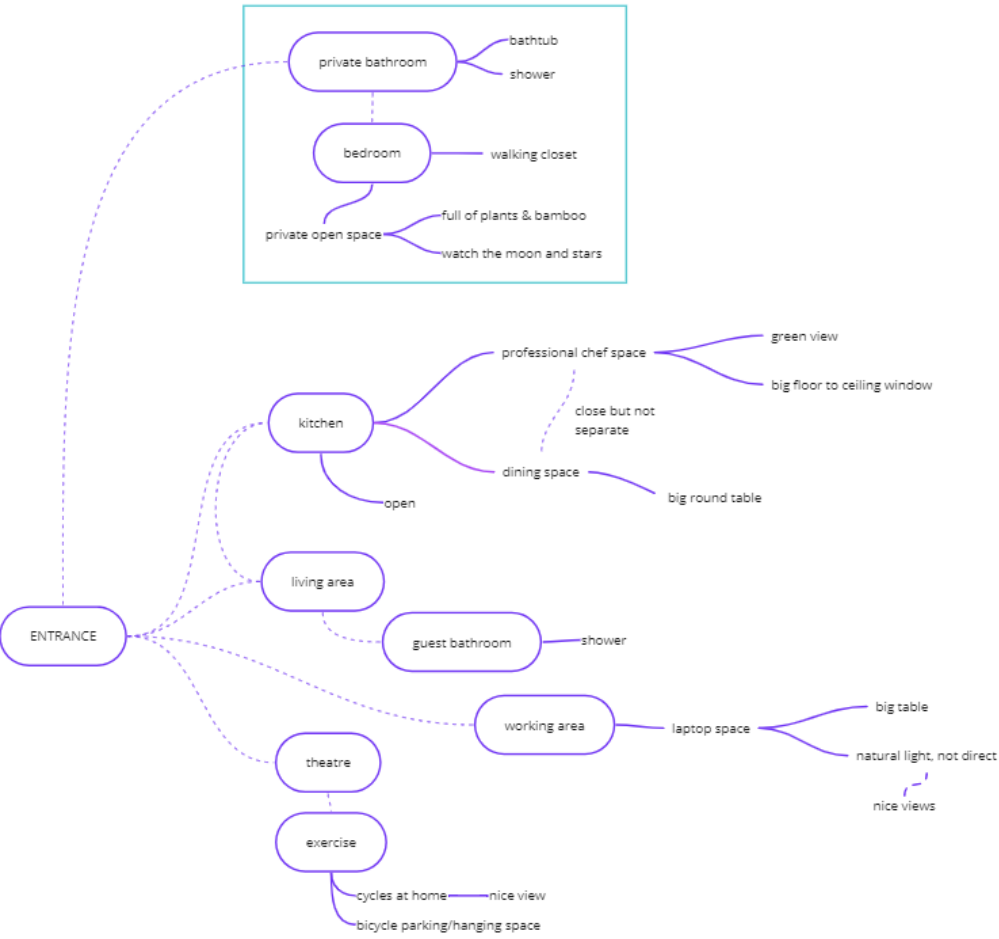


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Scope:

Limited to early design phases (moodboards/concepts).

AI Accuracy:

Some outputs required manual adjustment to match client expectations.

Time Constraints:

Longer workshops could explore complex stages (schematic design).



Future Work:

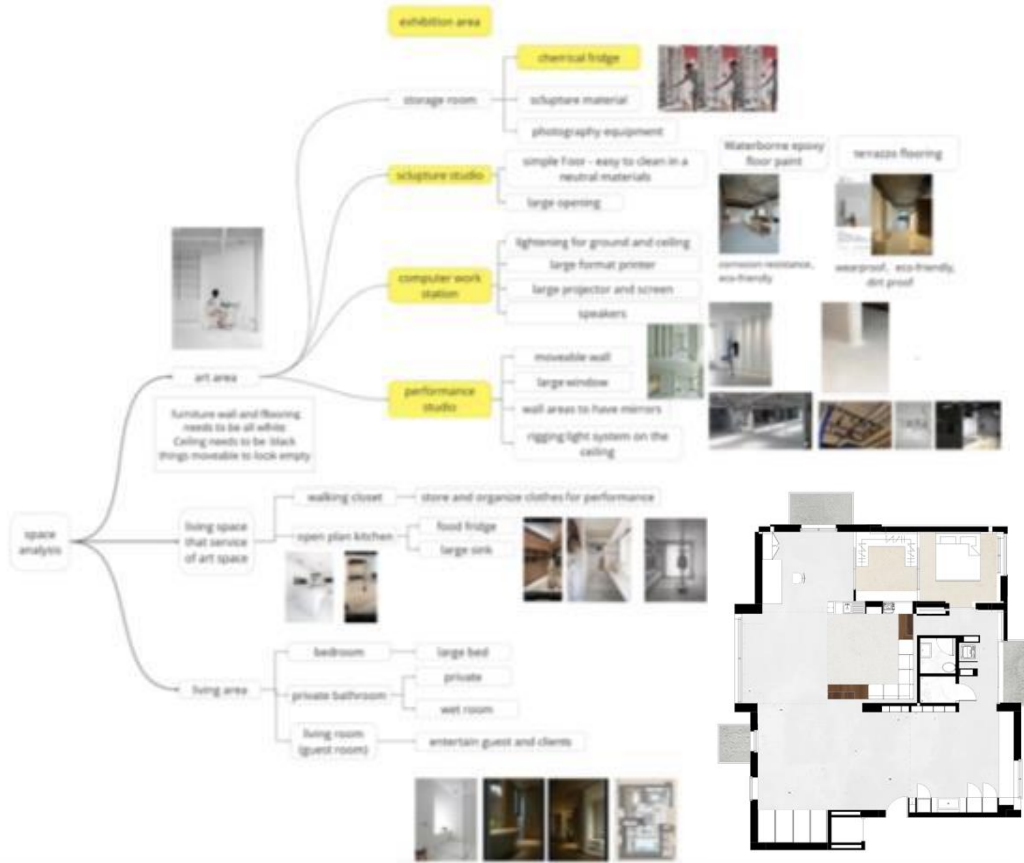
Integrate GAI into full-semester studios.

Explore AI in collaborative team projects (Dillenbourg et al., 2002).

Broader Implications:

Curriculum redesign to include AI literacy.

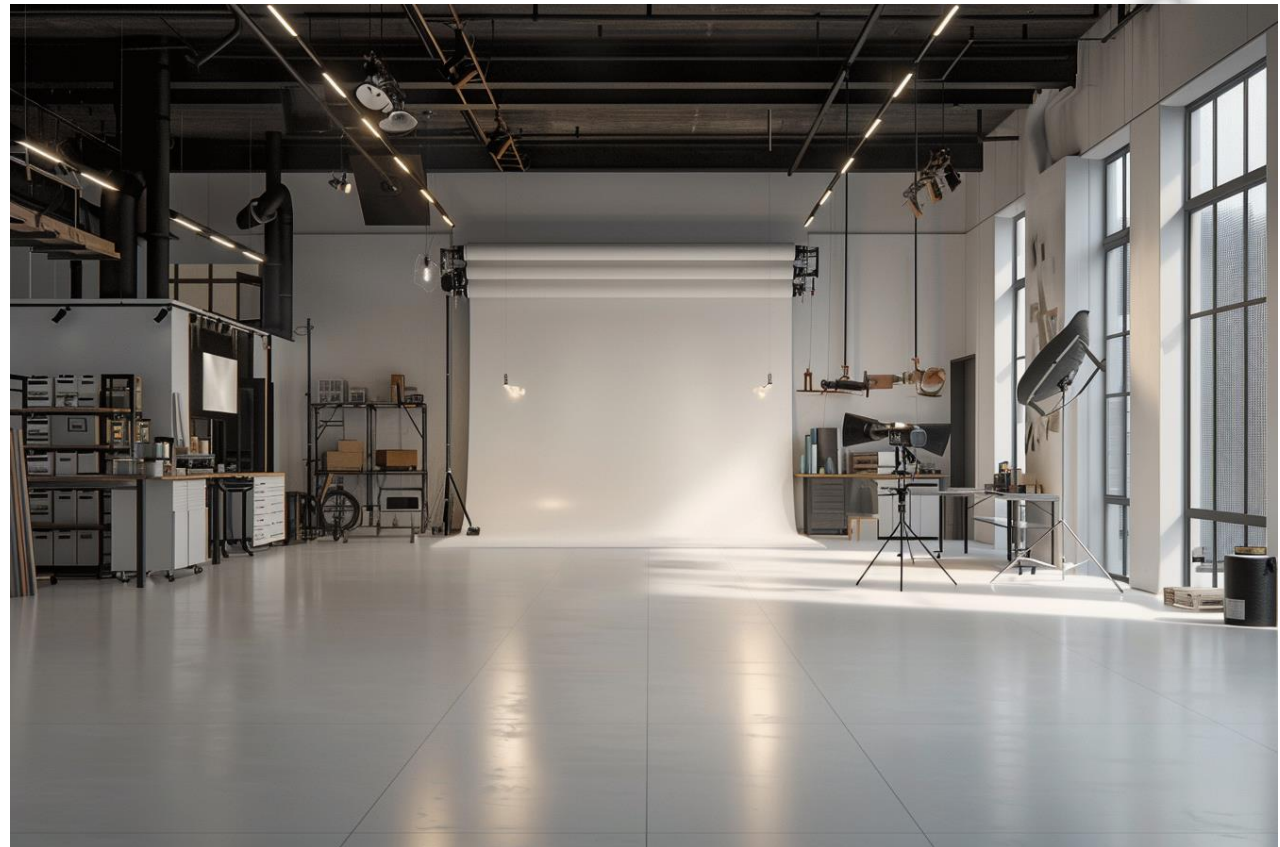
Ethical guidelines for AI in design education.



Summary:

GAI enhances **client-centered design** and **iterative learning**.
 Structured frameworks prevent over-reliance on AI.

"GAI prepares students to be adaptable, technologically skilled professionals who retain a human-centric approach."



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Thank you!