

# Interactive Learning in Fashion Design Education: Enhancing **Creativity** and **Engagement** with **AI**

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# Artificial Intelligence (AI) X Interactive Learning X Fashion Design X Creativity X Engagement

AI-generated motion featured a female model wearing plastic-like fabric outfit with gloves as the accessory. (Note. motion generated using Luma AI by Yu, 2024)





# Text-to-Image Generation

Text prompt for generating the image

Fashion outfit requirements:

Colour: White or other colour match with the outfit

Design detail: Small pieces made by glass or other materials linked by the edges

Trimming: Raw edges

Fabric: soft and see through

Silhouette: can take reference from organic shape. Like Zaha Hadid's architecture

Ornaments/accessory: pearls can be used to mock the tears to represent suffering

AI-generated image featured a female model wearing plastic-like fabric outfit with gloves as the accessory. (Note. Image generated using PolyU Stable Diffusion 3 by Yu, 2024)





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AI-generated image featured a female model wearing plastic-like fabric outfit with gloves as the accessory. (Note. Image generated using PolyU Stable Diffusion 3 by Yu, 2024)



# Text-to-Image




# Image-to-Motion



AI-generated image and motion featured a female model wearing plastic-like fabric outfit with gloves as the accessory. (Note. Image generated using PolyU Stable Diffusion 3; motion generated using Luma AI by Yu, 2024)

# Introduction



Interactive learning approaches, supported by technology and innovative teaching strategies, can significantly improve student engagement, creativity, and practical skills. By emphasizing interaction and collaboration, these methods move beyond traditional teaching to foster deeper understanding, ownership, and cognitive development. As a result, students develop critical thinking and problem-solving skills in a supportive community environment. This approach has been successfully applied across various disciplines in higher education.

(Senthamarai, 2018; Abdel Meguid & Collins, 2017; Abdelazim, Gaber, Adam, El-Ashkar & Abdelmalak, 2023; Asad, Hussain, Wadho, Khand, & Churi, 2021; Tomljenović, 2020; Iqbal, Naveed, & Ahmed, 2022; Vidal, Fenollosa Ribera, Ribal, Sanchis, García-Rupérez, Bes-Piá., et al., 2022; Eli, 2021.)

**Artificial Intelligence (AI)**

**X**

**Interactive Learning**

**X**

**Fashion Design**

**X**

**Creativity**

**X**

**Engagement**

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# Interactive Learning with the Integration of AI in Design Process



AI technologies like generative AI (GenAI) are revolutionizing design by optimizing ideation and enhancing productivity. Integrating AI into interactive learning fosters greater student engagement, creativity, and deeper insights through immediate feedback and collaborative exploration. This study investigates an AI-supported, interactive learning approach in fashion design, emphasizing the enhanced creativity, problem-solving skills, and active participation that AI can bring to students and instructors alike.

(García-Peñalvo, & Vázquez-Ingelmo, 2023; Sachs, 2023; Putri, & Maharani, 2023; Fan, & Li, 2023; Liu, & Huang, 2025; Ardianto, & Nababan, 2023, Ardianto, Susanto, & Mulyanto, 2024; Mirra, & Pugnale, 2021; Luckin, Cukurova, Kent, & Du Boulay, 2022.)



# Methodologies

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31

Final-year students (4-year undergraduate programme)

13

-week fashion and textile design course

3

Months (September to December 2024)

20-26

years old (M = 21.86, SD = 1.74)

90%

were female (N = 27)

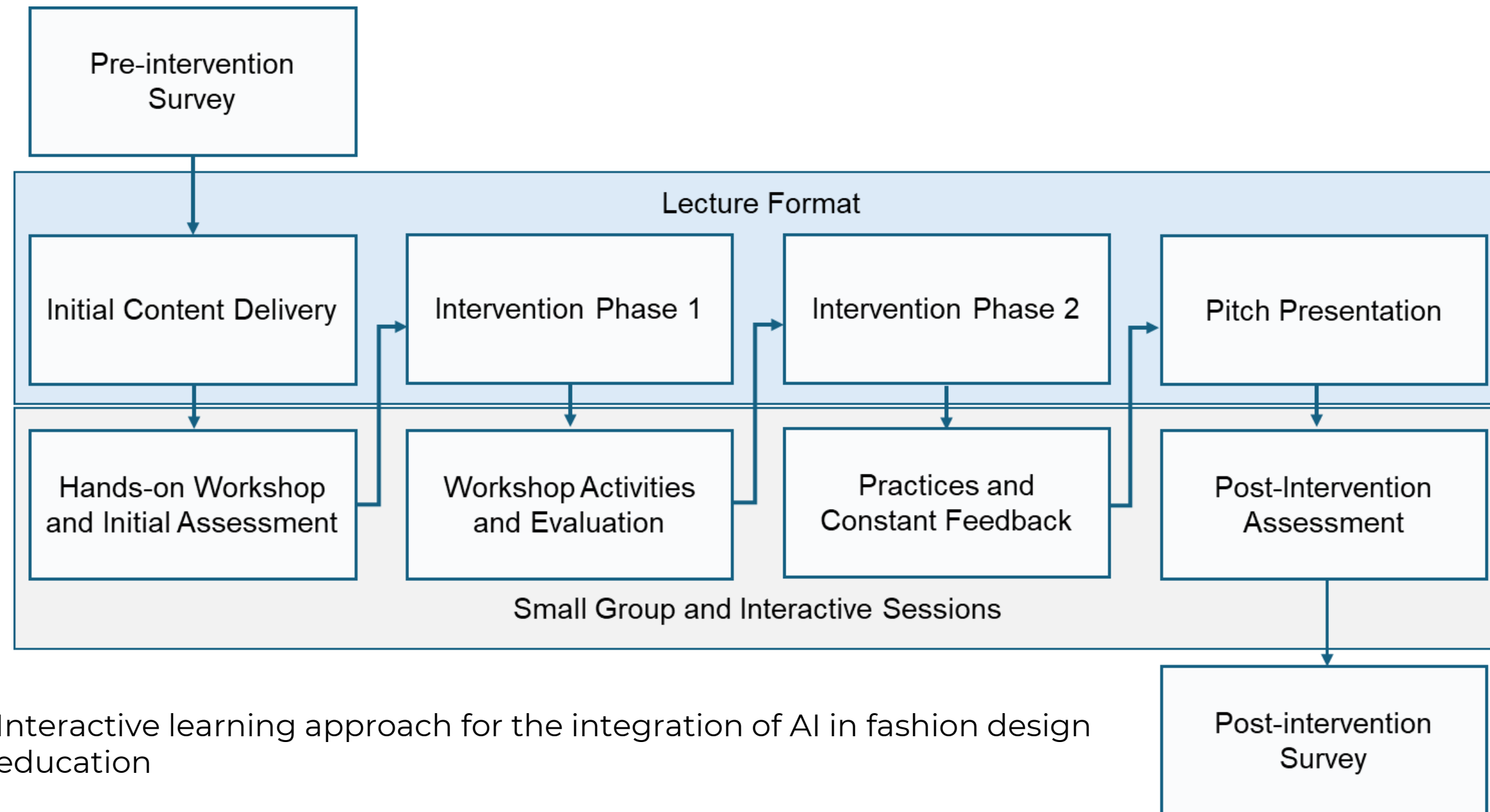
7%

were male (N = 3)

4%

did not indicate the gender (N = 1)

# Methodologies



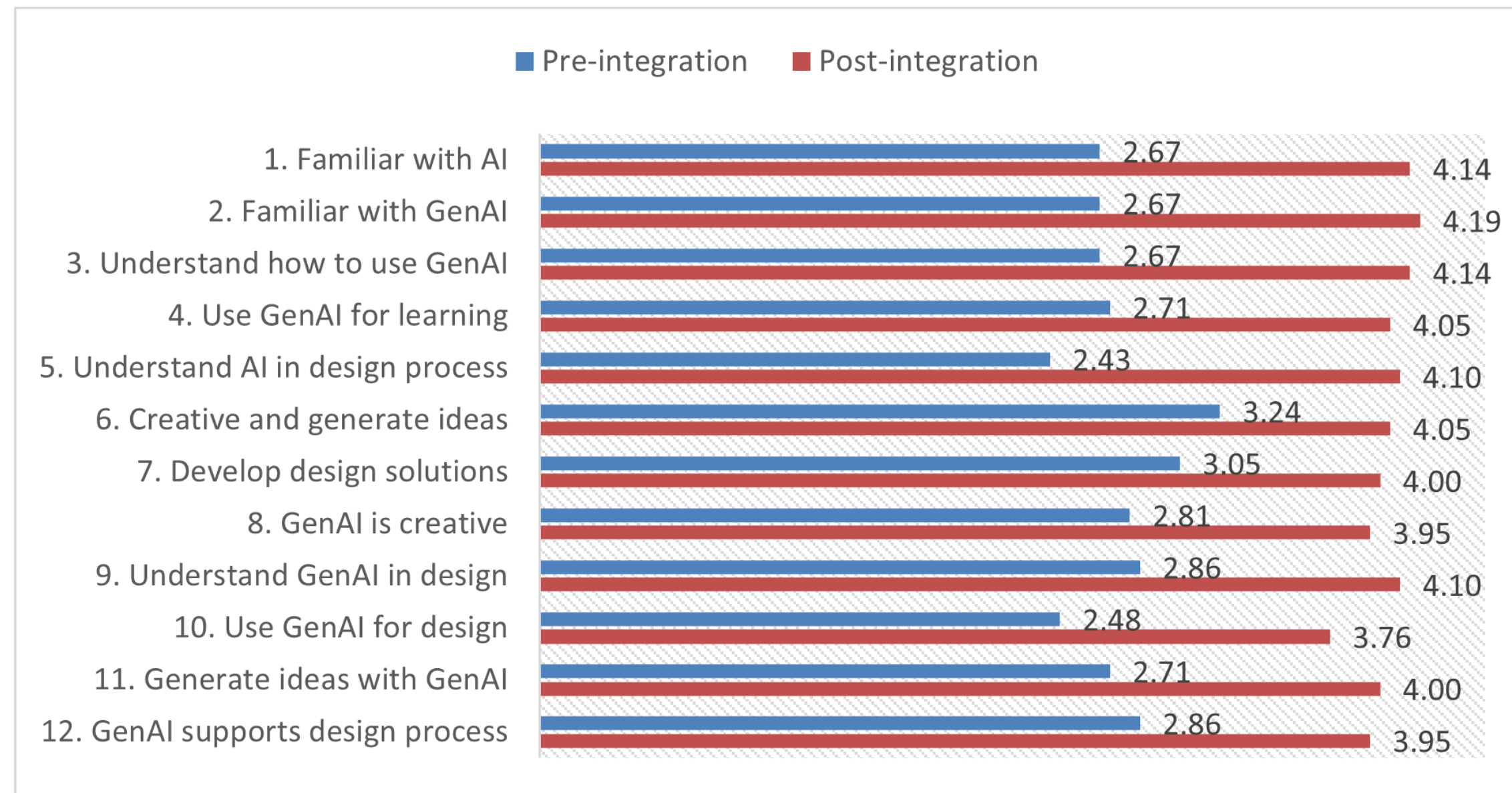
Interactive learning approach for the integration of AI in fashion design education

# Results and Discussion





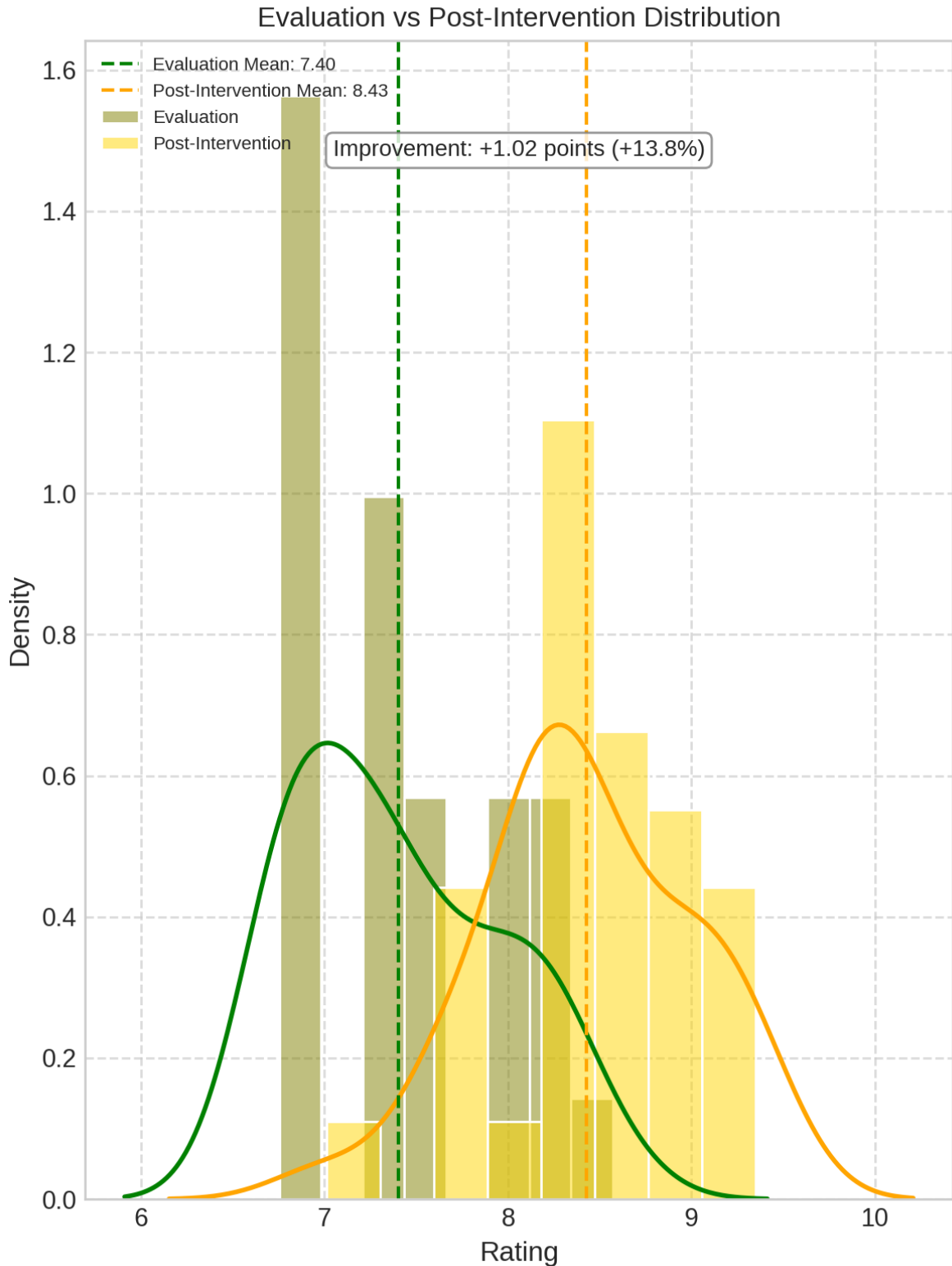
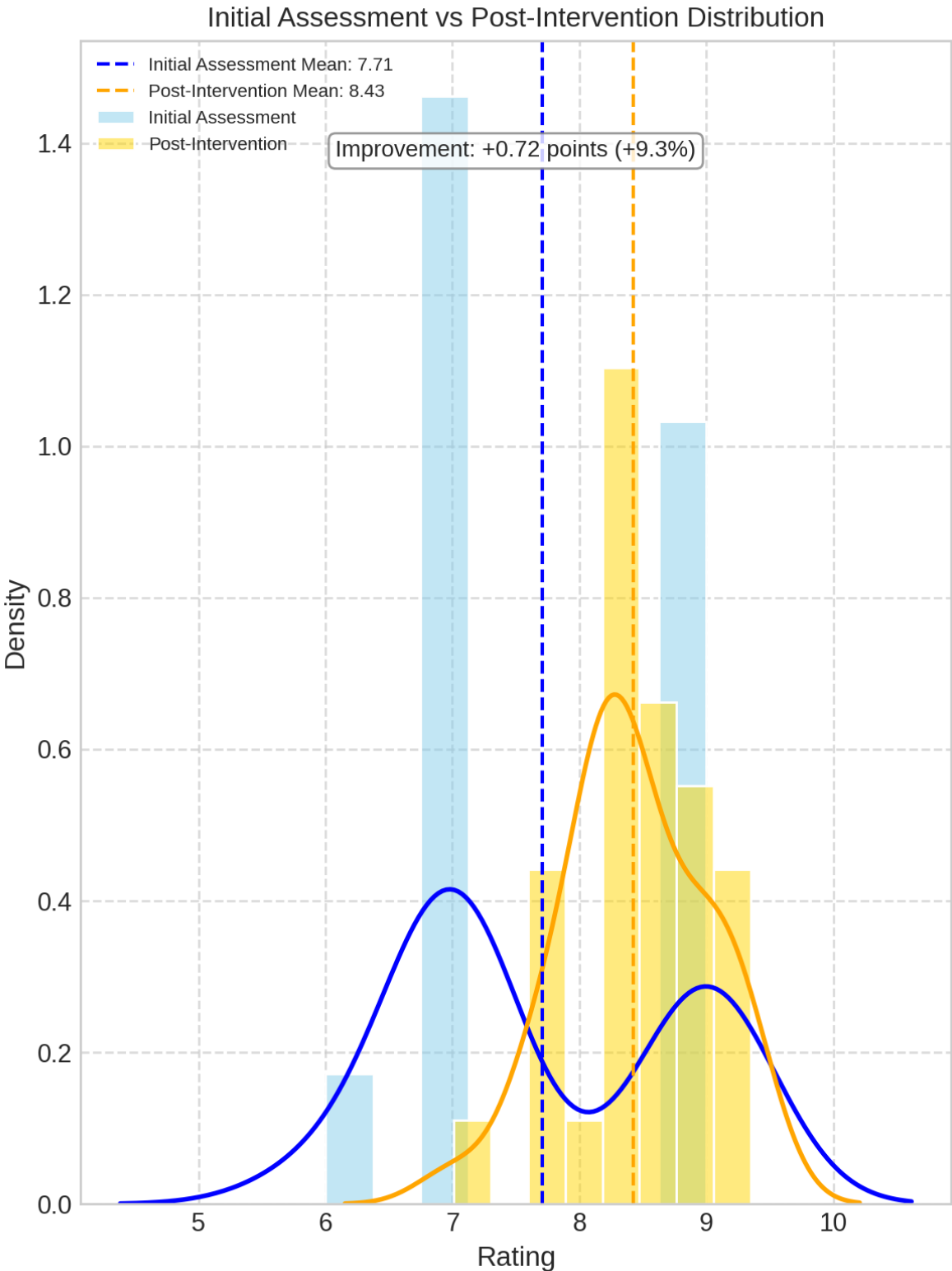
# Participants' Perception of the integration of AI into Fashion Design



Participants' responses to statements about AI before and after the integration of AI

# Effectiveness of Enhancing Creativity with Integration of AI and Interactive Learning Approach

Improvement between initial assessment and post-intervention assessment (left) and evaluation – post-intervention assessment (right)

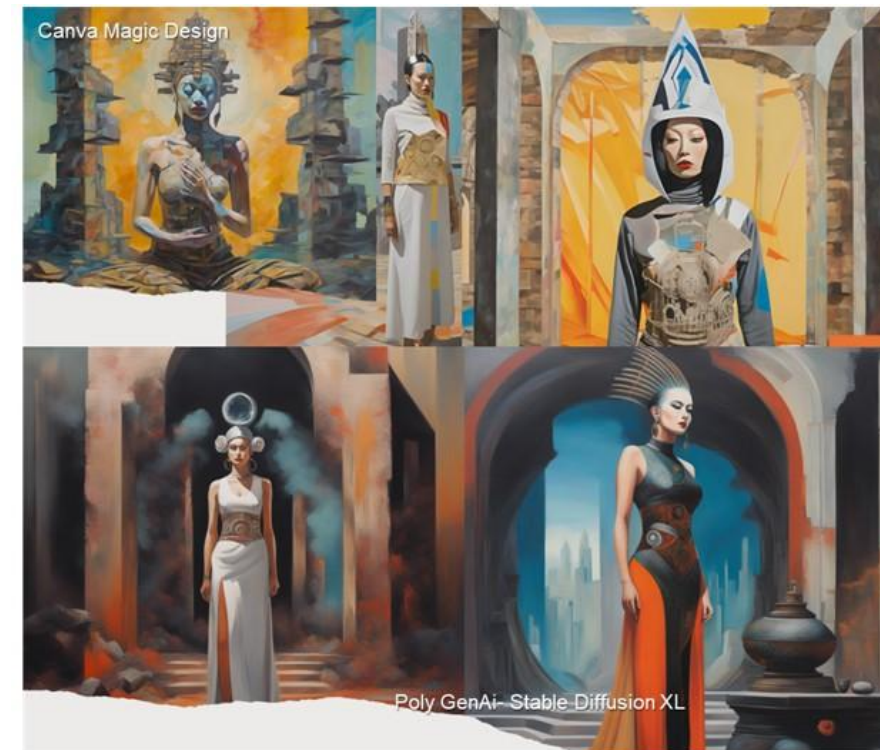


# **Visualisation of Participants' Fashion Design Process with AI and Interactive Learning Approach**





# Visualisation of Participants' Fashion Design Process with AI and Interactive Learning Approach



Prompt: A 2D abstract surreal painting performing a modern woman ask for death to get a second life. She is in a ruin and wearing a sustainable avant-garde outfit mixing the concept of Buddhism and futurism.



AI-generated images featured a unisex model wearing a haute couture womenswear. (Note. Image generated using Canva Magic Media, 2024)

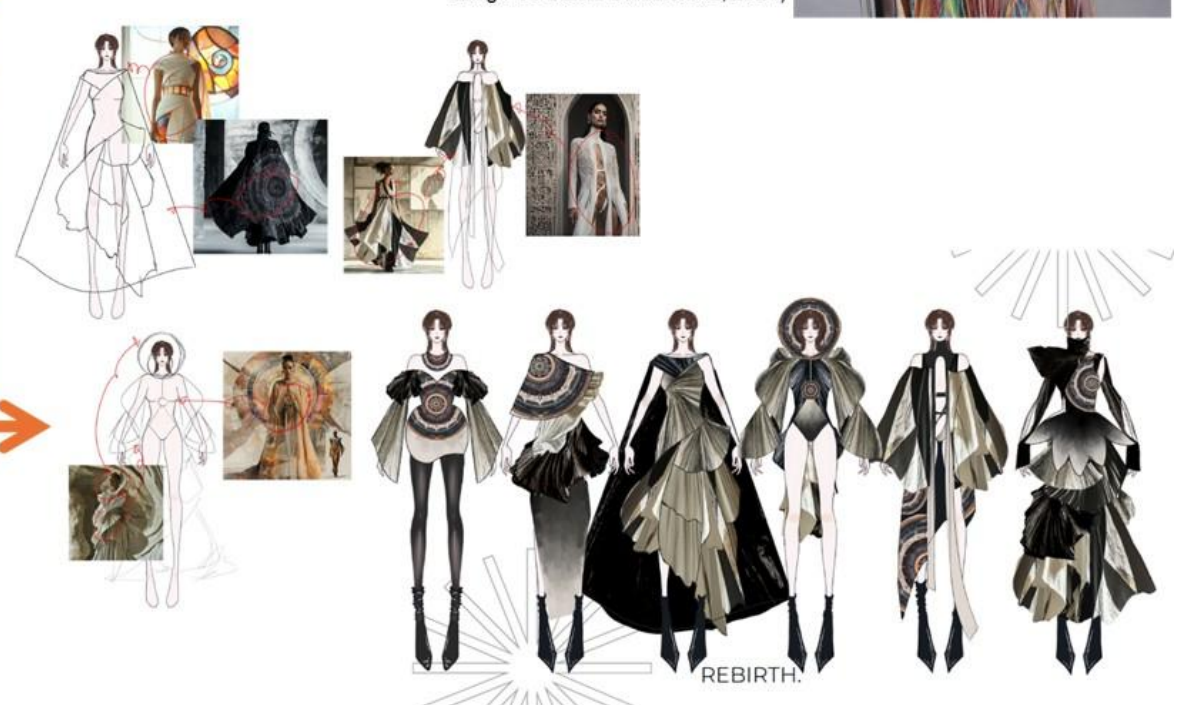
Prompt: A unisex model is dressed in a haute couture womenswear piece that explores the theme of seeking death to attain new life, representing the release of sin. The design features colorful thread-constructed line details on a solid-colored one-piece, with glamorous and mysterious cuts. This piece uniquely blends concepts from Buddhism and futurism, creating a striking visual narrative.

AI-generated images featured a unisex model wearing a haute couture womenswear. (Note. Image generated using Poe Stable Diffusion XL, 2024)



Prompt: a futuristic mandala giving sense of mystery.

Prompt: Create a fashion mood board inspired by rebirth, colourful threads design on top of a monotone one-piece, glamorous and mysterious cutting, blends concepts from Buddhism and futurism, futuristic mandala, natural dye, exaggerated cutting, avant-garde, digital art, hyper-realistic.



Participant A's design journey for the integration of AI into the fashion design process and her final collection



# Visualisation of Participants' Fashion Design Process with AI and Interactive Learning Approach



Stable Diffusion 3

Stable Diffusion XL

Prompt: The fashion collection in the image showcases a variety of designs with a distinct, modern aesthetic. The mood board includes gray scale and muted tones, with textures and images that evoke a sense of minimalism and industrial inspiration.

The previous image output is minimal without desired design details, Then I modified my text in colour and design detail (words in red)

**REVISED TEXT PROMPT**

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AI-generated images featured a female wearing plastic like fabric outfit with gloves as the accessory (Note, Image generated using PolyU Stable Diffusion 5, 2024)

Variation from the image output on left

**Image to Video**

Image output by other AI tool

AI-generated images featured a female wearing plastic like fabric outfit with gloves as the accessory (Note, Image generated using PolyU Stable Diffusion 5, 2024)

AI-generated video featured a female model wearing plastic like fabric outfit with gloves as the accessory (Note, Image generated using PolyU Stable Diffusion 5, 2024)

AI-generated video featured a female model wearing plastic like fabric outfit with gloves as the accessory (Note, Image generated using PolyU Stable Diffusion 5, 2024)

**Participant B's design journey for the integration of AI into the fashion design process and her final collection**

**Techniques & Craftsmanship**

Based on Bing's suggestion, I chose the techniques that best fit the image.

**Laser-cutting pattern (Fabric Sample as reference)**

**Laser-cutting (Negative Outcome)**

**Laser-cutting (Positive Outcome)**

**Random Laser cutting**

**Interlock circle pattern**

**Beaded tassels**

**Drapes with Laser-cutting fabric**

**Laser-cutting (Zentangle Pattern)**

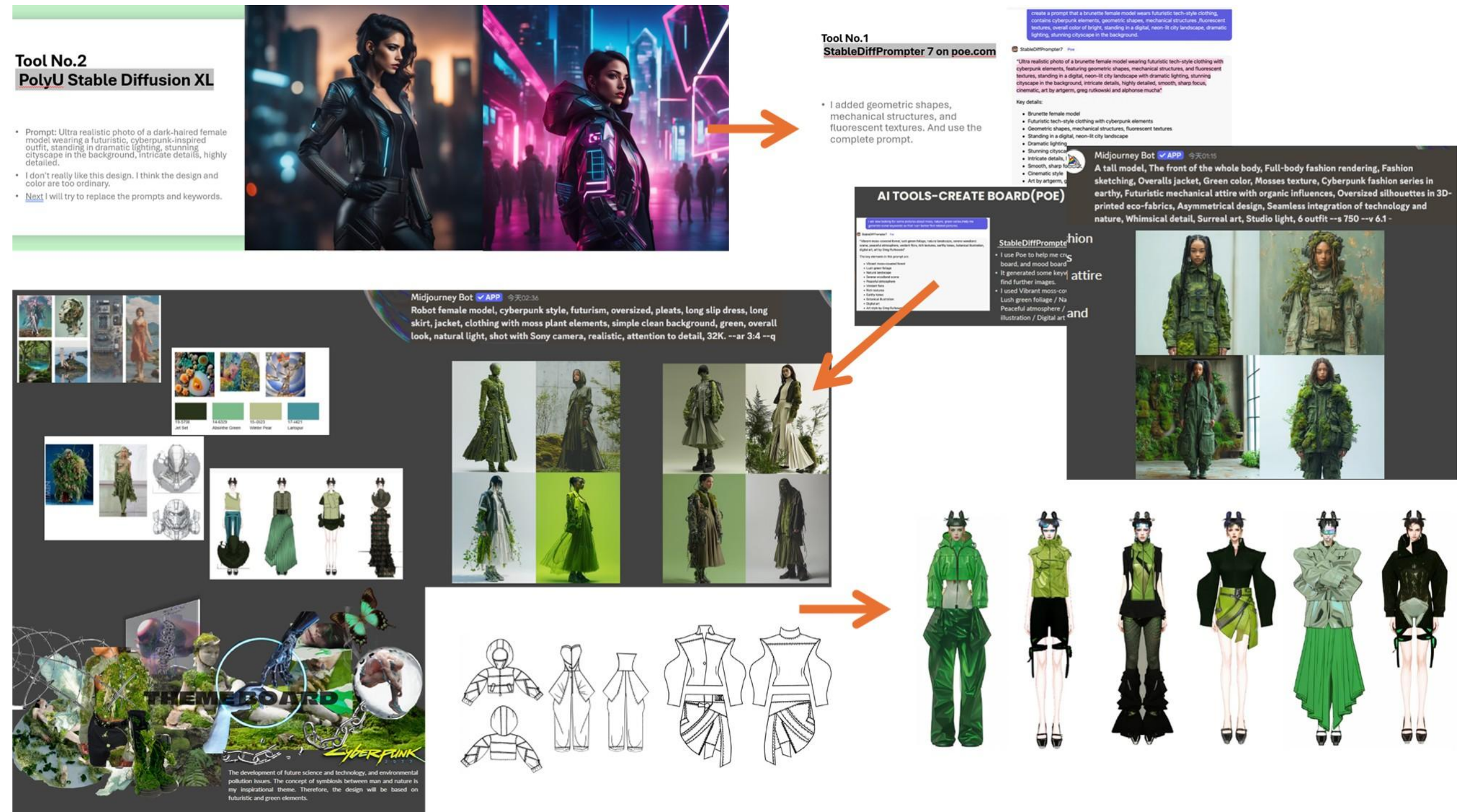
**Layering**

**Distressed Fabrics**



# Visualisation of Participants' Fashion Design Process with AI and Interactive Learning Approach

Participant C's design journey for the integration of AI into the fashion design process and her final collection





# Visualisation of Participants' Fashion Design Process with AI and Interactive Learning Approach



- They all faced **initial challenges** with AI's limitations (e.g., generic outputs, unknown databases), but ultimately found AI **beneficial for inspiration and efficiency**.
- Refining prompts, incorporating personal creativity, and maintaining unique styles were crucial for **successful AI integration** in their design processes.
- AI served as a **powerful assistant**, providing fresh perspectives and rapid creativity; however, the designers' personal touch and creativity remained central.
- Balancing AI capabilities with human creativity is essential for innovative and meaningful designs.

# Conclusion



- Integrating AI with interactive learning in fashion design **enhances student creativity, collaboration, and confidence** in GenAI.
- Over the 13-week intervention, participants **transitioned** from seeing AI as **undefined** to recognizing it as an **efficient design tool, improving creative outcomes**.
- Despite initial challenges, they balanced AI's capabilities with their own unique styles, underscoring the tool's **potential** as a **design assistant**.
- These findings highlight AI as a transformative force in creative industries, **expanding possibilities for innovation**.
- Future research could explore long-term effects and specific industry applications of such AI-based interventions.

# Acknowledgment

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# Thank You.

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