

Exploring the Intersection of AI and Graphic Skills: Transforming Urban Planning and Design Education

RESEARCHED AND WRITTEN BY:
Valentina Giordano, Rebecca Koh and Ziru Huang
The Bartlett School of Planning, UCL
In Collaboration with UCL Changemakers

In a rapidly changing digital environment, understanding how to positively and ethically incorporate AI into education is not just a trend but a vital requirement. Our project, part of the **UCL Changemakers Dialogue** initiative, investigates the profound impact of AI on education, particularly in the field of urban planning and design. As there was limited previous research on using AI in non text based education in areas such as graphic skills, we explored producing AI-generated renders on Microsoft Copilot (DALL-E), Canva, and OpenArt.AI for planning and urban design, as well as tools like Generative Fill in Adobe Photoshop AI for image modification.

Our efforts have two main objectives: to assess the current student use and potential of AI tools in teaching Graphic Skills at the Bartlett School of Planning (BSP), and to develop resources and guidance for integrating AI into graphic skills education through the BSP Graphic Skills Portal.



1. RESEARCH QUESTION & METHODOLOGY

How beneficial is generative AI in the context of urban design graphic skills, particularly when creating renders and plans for modules' tasks?

Initiation - attend CM briefing (14 Feb), organise kick off meeting with students (28 Feb) to understand the aims for the project, agree on a way to communicate, build a broad framework and timeline for the project.

Planning - desktop-based research to identify a range of AI design software, establish which tools can be useful in an urban design and planning contest, agree outputs.

Execution - using the new AI tools and testing them out together with the aim of selecting one or more appropriate ones for inclusion on the BSP Portal and teaching; design and produce guidance; meet and/or catch up regularly.

Monitoring - monitor progress against the plan and/output revise the timeline to accommodate for unexpected delays or changes; engage other students (perhaps through a workshop or presentation)

Close (28 of June) -report back to CM via a <5 min discursive video where staff and students can both reflect on our learning to be shared more widely + a short online form

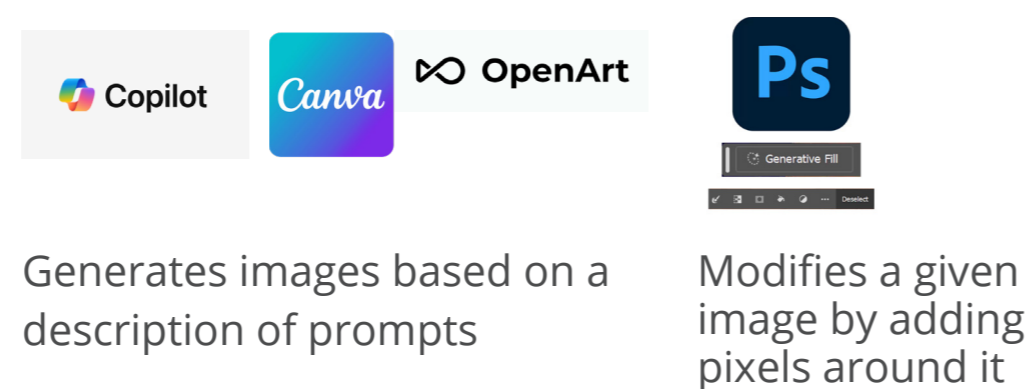


3. AI TESTING: BRIEF, PROMPTING & PLATFORMS

Urban Design Brief:

- To suggest urban design interventions to improve the livability, inclusivity and accessibility of a Public Square in London
- To be illustrated in the form of a render or plan of suggested interventions

Platform Tested:



4. KEY FINDINGS: OPPORTUNITIES

1 Graphic Style: Realistic but Futuristic Glow



Fig 1. Range of AI generated images using a range of prompts such as: 'A accessible and inclusive social space with activity space and grass patches'

- AI Image generators hold great potential in generating realistic and high quality renders of public space showing urban design interventions, with realistic scale, lighting and proportion.
- It also attempts to respond to key words such as 'inclusive' through adding people in wheelchairs in the generated image.
- However, AI generated images consistently exhibit a futuristic, utopian glow and predominantly showcase axonometric views, making it challenging to depict different perspectives like top or street views.
- This can result in very polished looks that may not be applicable in certain contexts such as Night depictions.

2 Best Use: Inspiration & Conceptualisation



Fig 2a. Testing with different prompts can result in generating structures that one would not have originally thought of which can inspire the design.

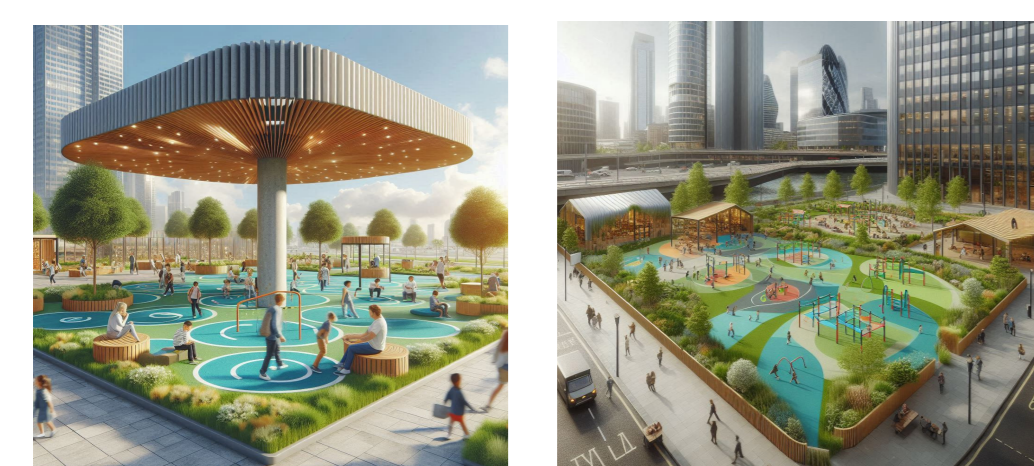
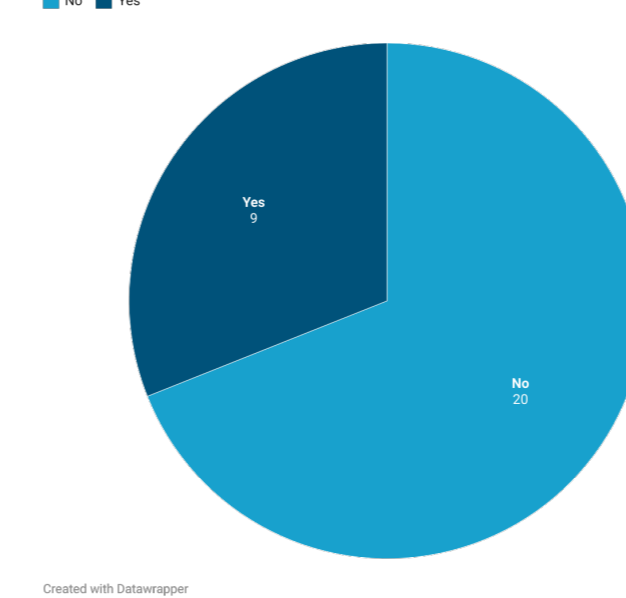


Fig 2b. Examples of images that were generated with prompts to create a 'playspace' for multigenerational well-being.

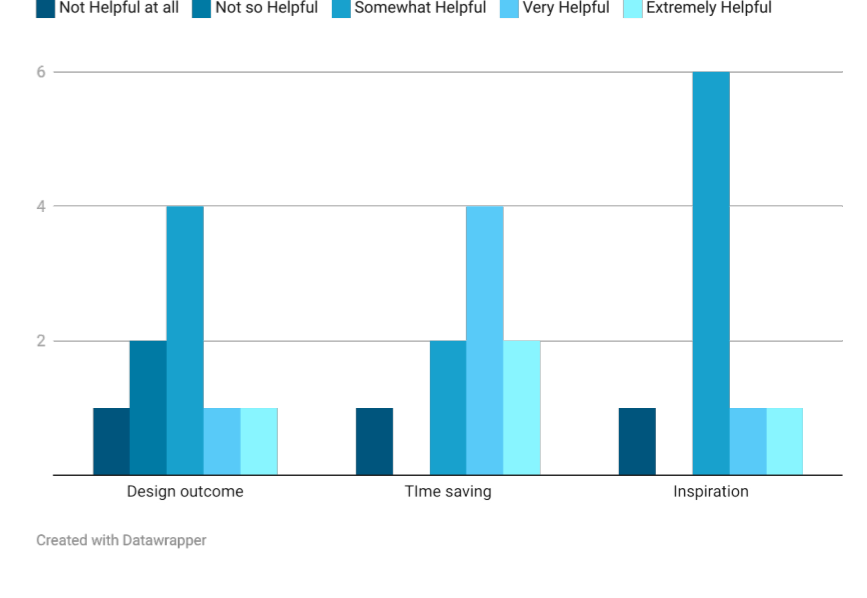


2. SURVEY RESULTS - HIGHLIGHTS

Have you ever used AI in Graphic Skills?



How Helpful is AI in Graphic Skills?



- Students currently lack the necessary expertise to use AI to complete the entire task.
- Students take ethical considerations into account when using AI for module assignments.
- Concerns about AI misuse in the realm of graphic skills are currently largely unfounded.
- Introducing AI into the curriculum has great potential, as many students lack the expertise or awareness to use AI purposefully and appropriately



5. LIMITATIONS

1 Comprehension of Prompts



Fig 3. A street view render and axonometric plan both with features making the square not accessible and inclusive such as the varying levels and steps

- AI Image Generators are unable to comprehend the instructions in the prompt fully, but rather generate the image based on key words found in the prompt instructions.
- For example, when asked for a public square "without steps, to improve wheelchair accessibility into the square, an image with steps was generated.

2 Translation of Image to Plan



Fig 4a. Showed 'hand-sketching' instead of the image generated in that style

Fig 4b. Removed the hands & changed to top down angle but is rotated, not indicating North

Fig 4c. In the correct style and angle. However, not applicable to site and is not based off personal design

Fig 4d. Generated a photo-like render instead of sticking to the style the prompt instructed

- Prompt:** Generate a hand sketched map of a plan from top view of a inclusive and accessible small public square with benches for eating and working and shade and greenery. The square should be wheelchair friendly and have bicycle parking. It should be located near British library in London

- Limitations:**
 - Lacked understanding of 'top view'. Only edited after multiple prompts.
 - Did not generate a plan from the image previously generated

3 Generating from Precise Geolocation



Fig 5. Images generated with the prompt: "Generate a render of an inclusive and accessible public square outside Kings cross St Pancras train station in London, United Kingdom".

- Resembles Kings Cross-like architecture and draws inspiration from British Gothic architecture to form surrounding buildings but does not use specific satellite images.
- This prevents base images from being place-based and does not acknowledge the existing structures of the site.

4 Editability & Perspectives



Fig 5. Only certain sections of the image were selected to be 're-generated' by the AI. However, they were still not extremely responsive to prompts.