

ChatGPT and Ideation

Study on the effect on design student’s creativity and creative process.

RQ1 How do designers approach ideation and inspiration search with ChatGPT?	RQ2 How does ChatGPT influence designers’ creative confidence, exploration, and outcomes?	RQ3 How does ChatGPT affect designers’ critical appraisal of ideas?
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Methodology

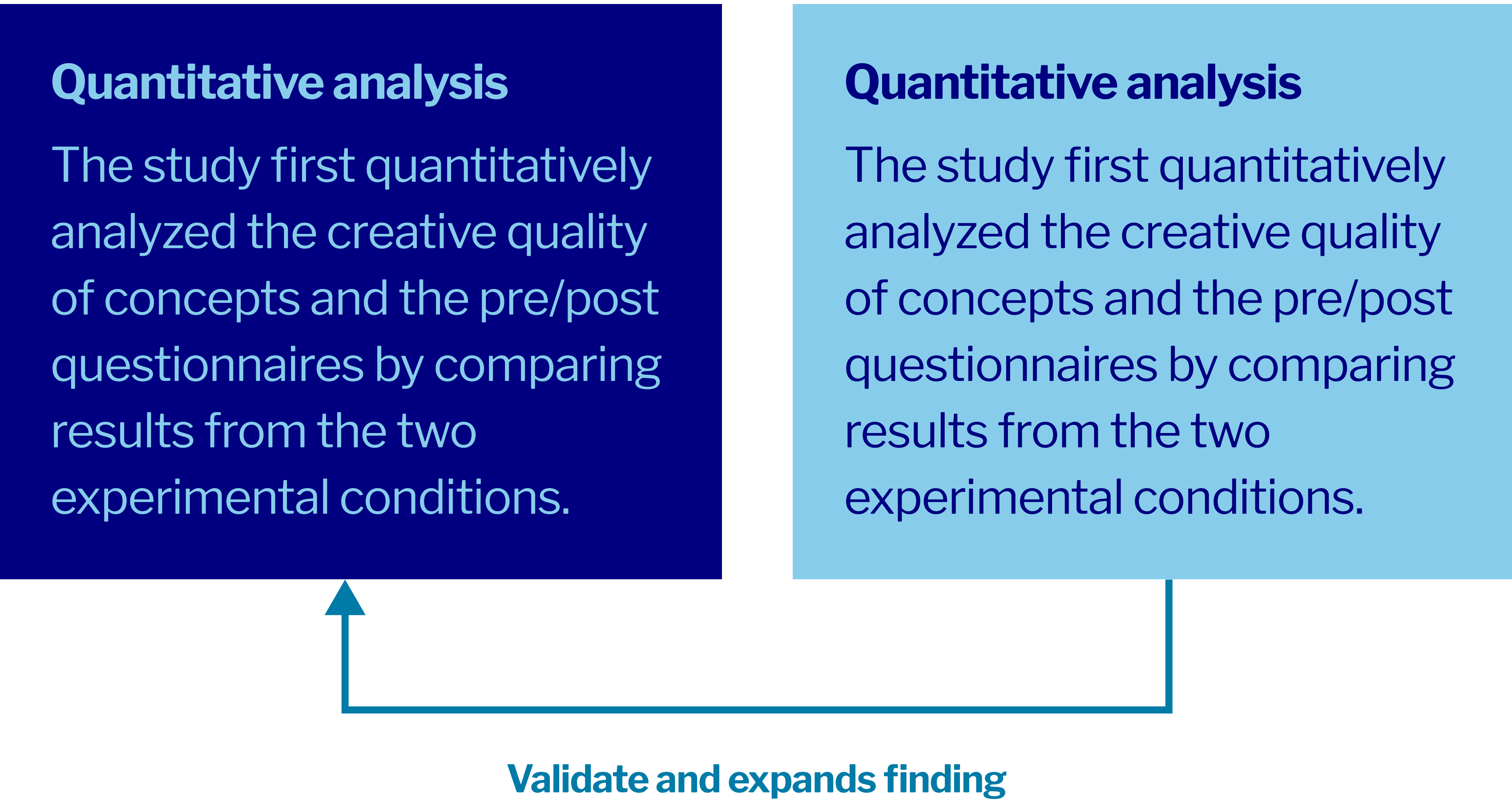
Participants



Within-group experiment

Experiment included two conditions: ideation with no GenAI use and using ChatGPT. The data collected per participant included three design concepts per condition, a pre-experiment questionnaire and one post-reflection questionnaire per condition and their chatGPT transcript. Lastly, 5 students that volunteered were interviewed.

Mixed-methods approach



Creativity is vital in design, driving innovative problem-solving. While ChatGPT was not specifically designed to foster creativity, its growing use in creative contexts raises concerns about fixation effects, reduced creative abilities, and homogenized outputs. This study aims to explore ChatGPT's impact on designers' workflows and creativity, seeking to balance human originality with machine-assisted innovation.

Key findings

ChatGPT proved helpful in kickstarting ideation and refining ideas, providing quick access to concrete and detailed inspiration. However, its use often discouraged analog and diverging methods, integral to creative exploration. Students frequently fell into copy-paste behavior due to closely related outputs, and the requirement for specific prompts forced convergent thinking, misaligned with the goal of generating diverse ideas.

While ChatGPT enabled rapid generation of abundant ideas and provided technical and contextual reminders, the results often lacked novelty and constrained the creative freedom typical of early ideation. The detailed, closely-related outputs reduced creative thinking, flow, and energy, and significantly hindered problem space exploration. Students took a more passive role, feeling less engaged and less ownership of their outcomes, which eroded their creative confidence. Despite perceiving ChatGPT as thorough, they rated it less useful due to struggles with achieving desired outputs, and there was no significant difference in the creativity of concepts generated with or without ChatGPT.

There was no significant difference in students’ reported critical appraisal of ideas between conditions, though their familiarity with the problem and ChatGPT influenced their evaluations. A notable tendency for students to confidently share ideas with ChatGPT indicated a lack of awareness about data use and ownership concerns. These findings suggest the need for more education on AI tools to ensure students critically engage with and understand the implications of their interactions.

General recommendations

To enhance critical engagement and creativity, this study recommends balancing AI with traditional ideation methods, fostering intentional use of AI, and promoting broader exploration. Educators should teach prompt design and encourage active manipulation of AI outputs, while products can integrate features like visual translations, adjustable abstraction levels, and interactive prompts to support creativity. Designers are urged to use AI outputs as starting points, maintaining active engagement and reflecting on their alignment with creative goals to ensure originality and deeper exploration.