GENERATIVE AI IN STATISTICS EDUCATION: A BIBLIOMETRIC AND EMPIRICAL APPROACH

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KEYWORDS: Generative AI, Statistics anxiety, Statistics education, learning design, AI literacy

INTRODUCTION

The integration of generative AI into education has sparked growing interest, particularly in disciplines like statistics and data science, where many students — especially those from non-quantitative backgrounds — face learning challenges. While AI tools are increasingly adopted, the research landscape is fragmented, and guidance for educators and researchers remains limited.
This study adopts an emerging design approach to explore and synthesise the evolving literature, aiming to inform both curriculum development and future research. Our aims are to:
(1) map the existing literature using bibliometric methods to identify and visualise the current intellectual structure of generative AI-related research in statistics education;
(2) complement this with findings from an empirical study investigating students' perceptions of AI use in an assessment context, providing a foundation for educators and instructional designers to align AI capabilities with inclusive, learner-centred teaching strategies in statistics.

METHODS

The bibliometric component employs VOSviewer and the Bibliometrix package in R to systematically review and visualize the publications on Generative AI in statistics education. The analysis focuses on themes such as student motivation, support for non-quantitative learners, personalised feedback, AI-enabled engagement, and evolving role of generative AI in statistics teaching and learning. In parallel, the empirical component involves a student survey captures experiences of AI use in a tertiary statistics subject. Findings from both components aim to deepen understanding of how generative AI is shaping pedagogical practices and learner experiences in statistics education.

CONCLUSION

This emerging design study responds to the growing need for structured guidance in navigating AI's role in statistics education. By identifying influential studies, theoretical shifts, and research gaps, we aim to inform curriculum development and pedagogical strategies. The resulting conceptual framework and tool will support educators and researchers in understanding and applying AI effectively—particularly for diverse learners with limited mathematical confidence.