
EXPLORING GENERATIVE AI'S POTENTIAL FOR CURRICULUM MAPPING

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BACKGROUND

Higher education increasingly focuses on developing both disciplinary knowledge and cross-cutting competencies. Explicitly integrating competencies in curricula ensures transparent curriculum design and supports effective assessment of both disciplinary and cross-cutting knowledge and skills. The mapping process is time-intensive and requires both pedagogical and subject matter expertise. It is possible that generative AI (genAI) can be used as a tool to assist in curriculum mapping efforts.

AIMS

This study explores genAI competency mapping to learning objectives in an introductory sustainability unit (graduate level). This application remains significantly under-explored; applications in course development are emerging. The objective was to compare gen-AI mapping to subject matter experts.

DESIGN AND METHODS

This is a single case study of the Global Challenges and Sustainability (graduate level). GenAI and human experts were prompted to map learning objectives to sustainability competencies and cognitive level. Comparative analysis identified where and how mapping aligned.

ANTICIPATED RESULTS

We predict strong alignment between human analysts for both competency and cognitive level due to deep pedagogical understanding. We predict moderate alignment between human and genAI analysis of alignment for competencies. While genAI can process text and identify keywords from the competencies it may miss nuanced contextual understanding possessed by human analysts. However, we predict weak alignment for cognitive level between human and genAI analysis. Determining cognitive level requires deep inferential reasoning about the intended learning and implied complexity. GenAI might struggle with the contextual understanding needed for an accurate analysis of the level of cognitive demand intended for a specific learning objective.

CONCLUSIONS

We anticipated that current genAI capabilities allow use for course mapping efforts reviewed by human analysts but is not yet a substitute for human content knowledge and expert judgement.

Generative AI Use Statement

Gemini was used as part of the editorial process when drafting this abstract, particularly in improving word economy to achieve the 1-page limit expectation for the submission.

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