



Exploring student perspectives on AI-generated feedback using a Socratic method chatbot

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Presentation abstract

The integration of Artificial Intelligence (AI) in educational settings has opened new avenues for enhancing student learning. This study investigated the use of a generative AI chatbot, trained to provide feedback using the Socratic Method, in a Business Management programme. Recent literature highlights the transformative potential of AI in education, particularly in fostering personalised learning experiences and supporting critical thinking (Gökçearsan et al., 2024; Lee and Moore, 2024; Mustafa et al., 2024). Understanding student perspectives on AI-generated feedback is crucial for optimising its use in learning development. This study aimed to evaluate the effectiveness of AI feedback in promoting critical thinking and its acceptance among students. Previous research has shown that AI chatbots can enhance learning by providing timely and relevant feedback, though challenges such as limited interaction and potential for misleading guidance remain (Banihashem et al., 2024; Gökçearsan et al., 2024; Guo et al., 2024). A qualitative approach was employed, utilising a focus group with n=14 final-year undergraduate students on a Business Management pathway. The generative AI tool was piloted to provide feedback on student drafts for summative coursework. The quality of feedback was assessed based on its accuracy, relevance, timeliness, and effectiveness in fostering critical thinking. Data was analysed using thematic analysis, a method well-suited for identifying and interpreting patterns within qualitative data (Nowell et al., 2017; Braun and Clarke, 2022). The Socratic Method, known for its effectiveness in promoting critical thinking through questioning, was employed as the feedback mechanism (Buckingham Shum, 2024). The study revealed that students found AI-generated feedback useful and relevant for improving their work and identifying knowledge gaps, thereby promoting deep learning. The Socratic Method used by the AI encouraged deeper

engagement with their work, unlike the straightforward answers typically provided by other chatbots. However, students preferred tutor feedback.

Keywords: generative AI; student feedback; student perspectives; Socratic method.

Community response

Prior to the presentation a poll was conducted with the attending delegates (N=27) on their perceptions of integrating an AI-driven Socratic chatbot in their practice for enhancing learner experience of formative feedback. The question also prompted delegates to consider potential challenges they may anticipate in implementation. The results revealed a cautious but open-minded approach. The responses highlighted several overarching themes, which strongly resonate with existing peer-reviewed literature in higher education.

Uncertainty and the need for information

A significant portion of respondents expressed a lack of familiarity with a Socratic style AI Chatbot tool. Comments such as 'I'm interested but the challenge is I don't know enough about it or the technical aspects of how to implement it', 'Not sure/unsure as I don't have the skills', and a simple 'What is that?' were common. Another delegate stated, 'I'm not sure exactly how this would work so not entirely sure what the challenges would be'. Upon analysis of these responses, it was evident that although delegates were familiar with the concept of AI in general, there appeared to be some knowledge gap with regards to awareness of nuanced application of AI tools and their customisation to respond in a particular manner to personalise learning in higher education.

Concerns about AI accuracy and impersonality

Another prominent concern revolved around the accuracy and reliability of AI-generated feedback, alongside a perceived lack of personalisation. One comment expressed caution about 'randomly generated responses', while another noted that 'accuracy requires quite a bit of testing of the model'. The concern about 'AI hallucinations' was specifically raised by a delegate with a STEM background. The tension between generic AI feedback and personalised human interaction also emerged, with one respondent believing 'humans can

always provide better feedback', although conceding that 'AI tools are fine for more generic feedback on student work'. Another delegate echoed this, suggesting students 'may find it engaging, but it might give feedback that is too generic'. These concerns align with higher education research indicating that AI chatbots, while providing detailed feedback, occasionally included irrelevant or contradictory information requiring student intervention, and that 'concerns persist about the reliability' and relevance of AI-generated feedback' (Fakour and Imani, 2025, p.5).

Potential for efficiency and ethical integration

Despite these reservations, some saw the potential for AI to alleviate workload pressures and acknowledged its growing presence in education. One delegate mused, 'if I can use AI to generate some feedback and tweak it to suit each essay, I can have more time and energy for other areas of my job'. This pointed to a pragmatic view of AI as a tool for efficiency, a finding strongly supported by higher education research. Furthermore, some delegates recognised that students were already engaging with AI, making it 'better to steer that engagement in a constructive direction'. One delegate stated, 'I would try integrating it. Not a big fan of AI, but I think we have to move with the times, and it's better to show students how to use AI for ethical learning'. However, the discussion also identified potential challenges, such as the comment that AI 'gets negative response from tutors, in that teaching is seen to be automated'. This highlights a fundamental concern about the perceived dehumanisation of the teaching process and a potential shift in the role of educators that requires careful consideration as AI becomes more prevalent.

Post-presentation discussion

Additional comments included finding the presentation 'interesting', 'innovative', and 'insightful' with one delegate stating that the session 'challenged their thinking on how a chatbot might extend learning opportunities beyond the formal physical teaching space for students'. Interestingly, one audience member shared similar work within their own institution with similarly positive findings yet there remains a 'reluctance' to adopt such an approach on a larger scale, further reflecting the concerns around the use of AI.

Next steps and additional questions

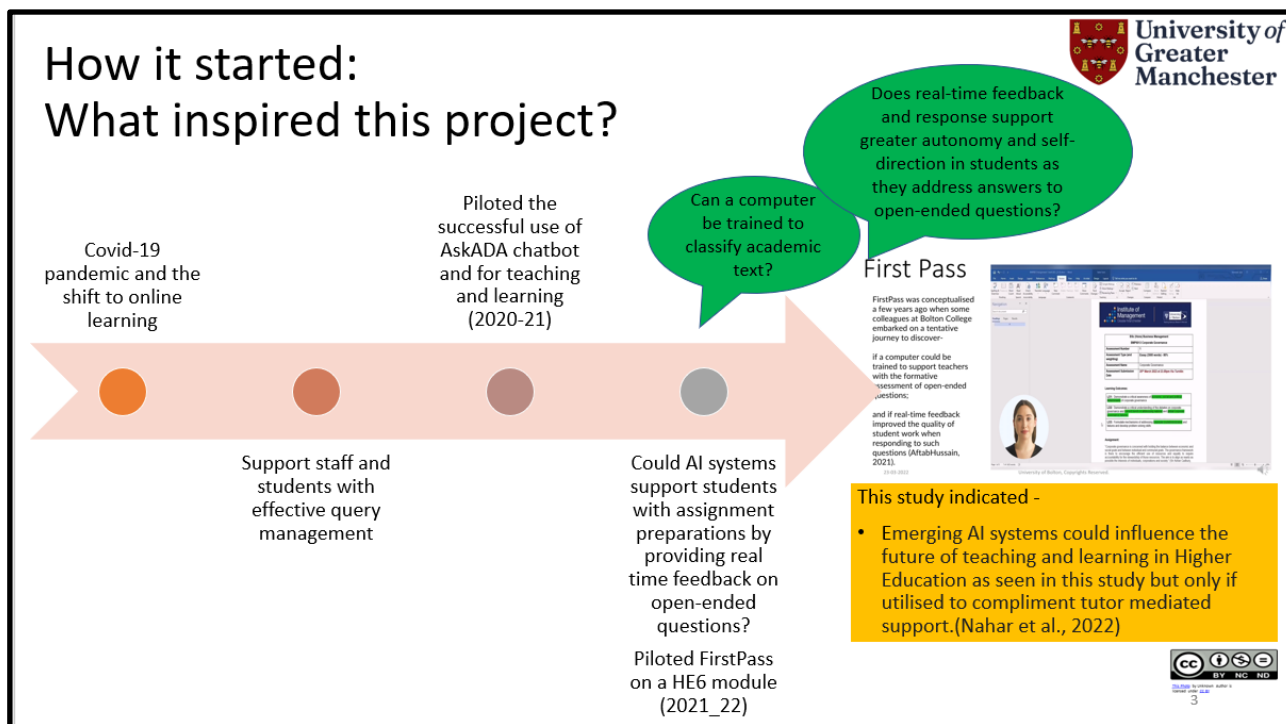
Following the presentation, it appeared that delegates were open to the idea of implementing an AI-driven Socratic Chatbot in general, for providing context specific feedback on draft coursework. However, there was still a sense of ‘unfamiliar territory’ requiring a tendency for a ‘cautious approach’ among some attendees. Questions ranged from ‘how long does it take to train the chatbot on the Socratic Method?’ and ‘did students still request tutor generated feedback and how often did this happen?’ to ‘did having a generative AI chatbot for formative feedback affect the relationship with students and trust on tutor approachability?’ Overall, the Q&A part of the presentation offered a rich opportunity to exchange perspectives on this relevant topic and opened an avenue to capture post-action reflection with contribution from the conference community.

Author’s reflection

Drawing upon the insights from the pre-presentation poll and the post-presentation discussion, my reflections below capture the possibilities of implementing an AI-driven Socratic Method chatbot for enhancing formative feedback experience whilst critically considering the multifaceted challenges and opportunities presented by AI integration in teaching.

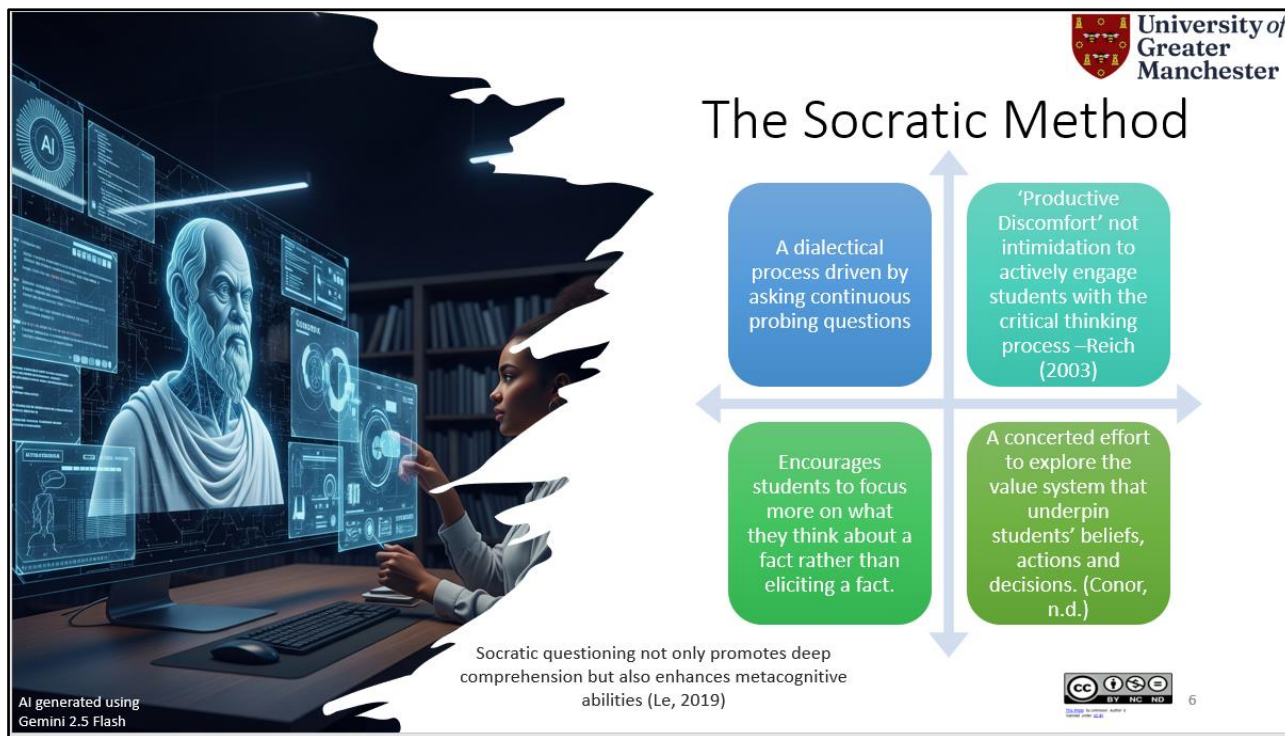
To offer some context for this reflection, the figure below illustrates the background of this project to indicate when it began and how it has informed the exploration of FirstPass.tech (a web-based tool designed for real-time formative feedback) in a generative AI era.

Figure 1. FirstPass.tech pilot study timeline.



Although the first pilot of FirstPass for formative feedback on draft summative coursework, was successful and positively received by students, it posed operational challenges for tutors as FirstPass worked on the basis of labelling context specific data under ‘classifiers’ which helped the software to identify patterns in responses associated with an assignment task and match it to predefined assessment criteria and instructions. This then enabled it to offer contextualised feedback to a student using FirstPass for formative feedback on draft coursework. The advent of generative AI has offered an efficient solution to the time onerous process of data labelling using classifiers. This opened an opportunity to initiate a second pilot study where FirstPass was introduced as an AI-driven Socratic chatbot to support students with formative feedback at scale. Figure 2 below explains the ‘Socratic Method’ that was used to train FirstPass by incorporating it in the prompt design.

Figure 2. The Socratic Method: how it works.

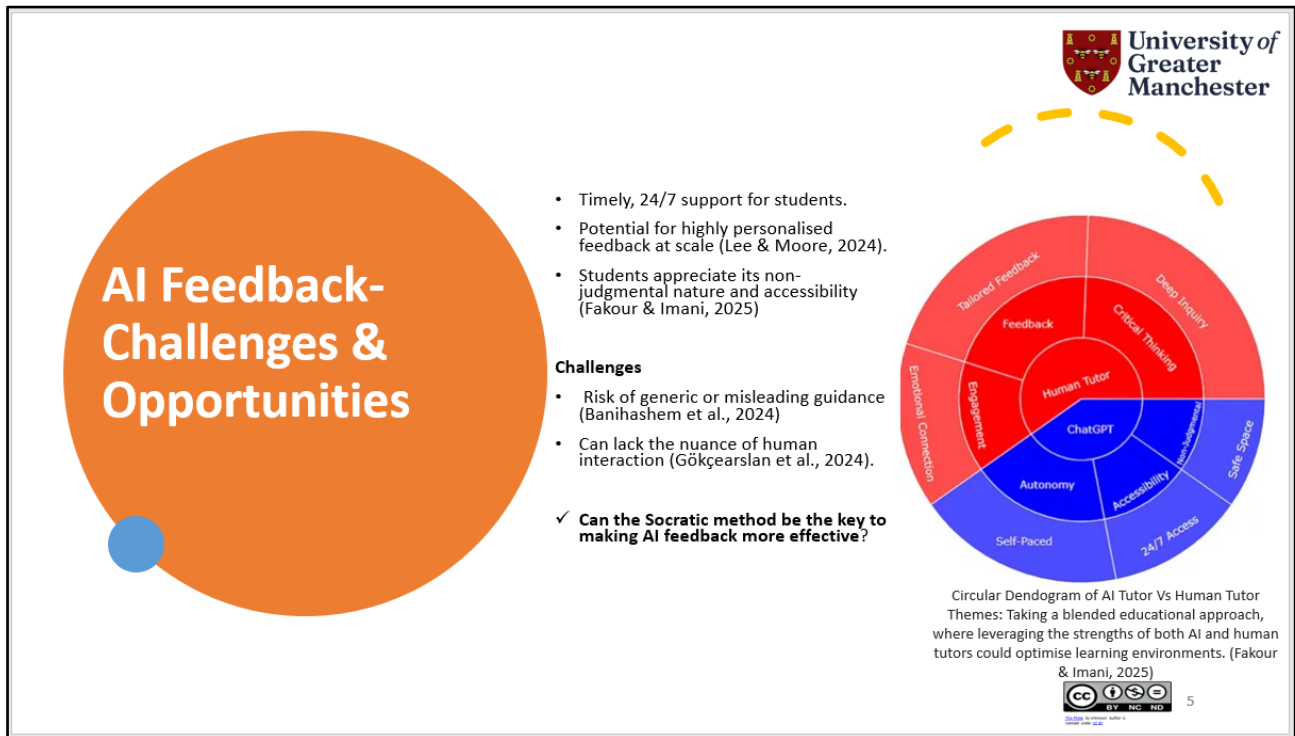


It is important to note here, prior to my presentation, it appeared not many delegates were familiar with the concept of applying the Socratic Method to train an AI chatbot although some were familiar with the Socratic Method of learning itself. The findings from the pre-presentation initial poll responses indicated an uncertainty and knowledge gap and reaffirmed a critical observation: prevalence of inequity in staff AI literacy. It also suggests that initial hesitation to adopt AI in education is likely to stem from a knowledge gap of foundational information and training to facilitate AI adoption in higher education rather than outright opposition. This resonates deeply, as the enthusiasm for innovative tools often outpaces fundamental understanding.

As Marín et al. noted, there is a 'low perception of AI in university teaching' coupled with a 'lack of confidence' (2025, p.1), underscoring the urgent need for training. My reflection is that without comprehensive professional development, as highlighted by Grace (2025) and Ren and Wu (2025) in their discussions on faculty preparedness and competencies, any integration efforts risk being met with apprehension rather than adoption. It is not enough to introduce the tool; we must empower educators with the literacy to truly understand its mechanisms, limitations, and pedagogical applications.

The concerns about AI accuracy and impersonality also struck a chord. Delegates' worries about 'randomly generated responses', 'AI hallucinations', and feedback being 'too generic' are critical and align with findings from current literature on student concerns about accuracy of AI feedback and research (Banihashem et al., 2024) noting that AI feedback could be 'irrelevant or contradictory' and lack the nuance of human interaction (Gökçearsan et al., 2024) as represented in Figure 3.

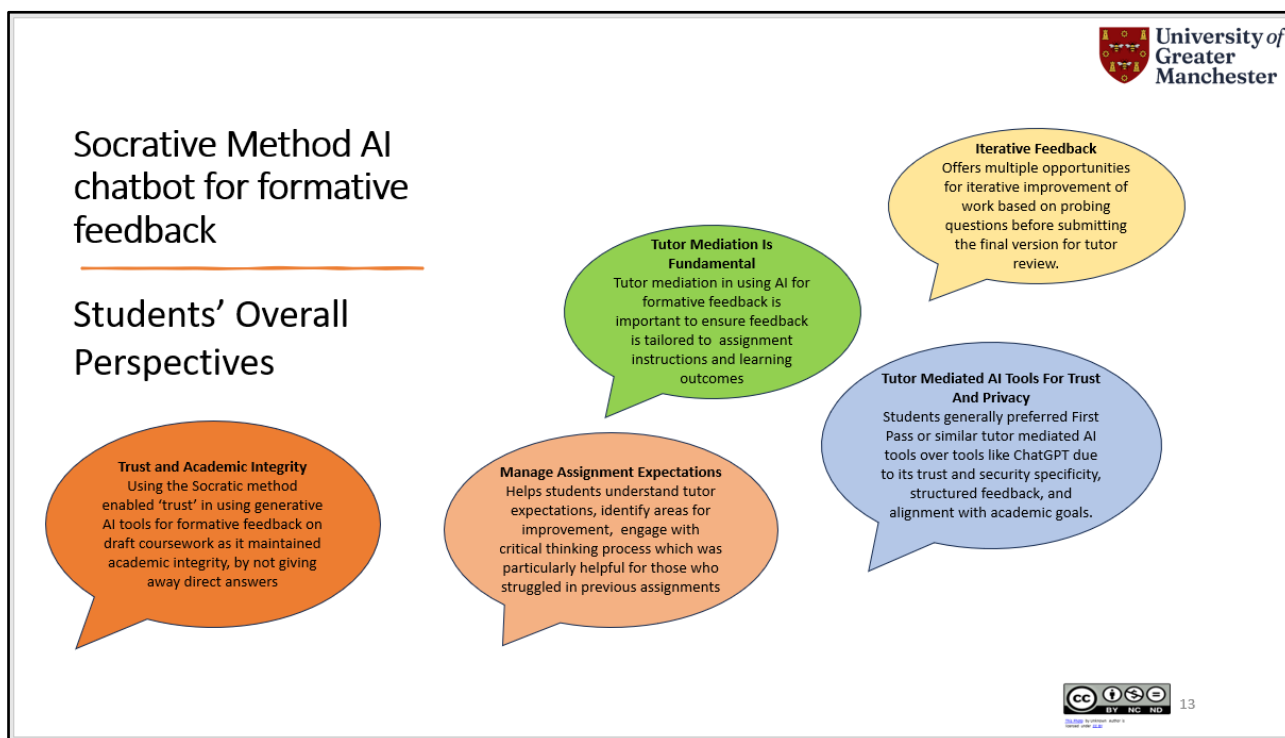
Figure 3. AI feedback: challenges and opportunities.



My reflection here is that while AI offers scalability, the core value of formative feedback lies in its personalised, nuanced, and human-centric nature. The challenge is to leverage AI for efficiency without diluting the quality or perceived value of the feedback. As educators, our role in guiding students to critically evaluate AI-generated responses becomes paramount, fostering their ability to discern and engage deeply, rather than passively accepting automated input. In the case of this project, although students were offered the opportunity to avail themselves of AI generated feedback, they also had the option to choose between working on AI feedback only or seeking tutor feedback in addition to AI feedback. Enabling this choice has offered a parallel opportunity for the students to critically engage with feedback literacy as a skill by comparing AI feedback with tutor feedback and reflecting on their own self-regulated learning and actions in the process.

Finally, the theme of potential for efficiency and ethical integration presents a compelling, yet complex, duality. Delegates’ hopes for AI to ‘generate some feedback and tweak it to suit each essay’ and free up time echo Schwarz (2024) findings on AI’s impact on academic workloads. There is a clear desire to harness AI for administrative relief. However, accompanying apprehensions about ‘teaching being automated’ and the ethical considerations around ‘data privacy, security, and algorithmic bias’ are equally significant (see also Li et al., 2024). It was clearly evident from the findings in this study that, students see potential in AI generated feedback as summarised in Figure 4. However, there is also a clear emphasis on the selection and application of AI tools to be ‘tutor mediated’ in order to ensure students feel they can ‘trust’ its use in addition to a preference for AI tools that are trained in pedagogically informed mechanisms that foster active learning and uphold academic integrity.

Figure 4. Students’ perspectives on the Socratic AI chatbot for formative feedback.



Integration of AI is not merely a technological decision but a profoundly ethical and pedagogical one and AI solutions should be sought that genuinely enhance, rather than diminish, the human element of teaching and learning. This involves transparent implementation, robust ethical frameworks, research informed pedagogic underpinning, and an ongoing dialogue with both faculty and students to navigate the evolving landscape of responsible AI application in higher education. Ultimately, the success of AI in higher

education hinges not just on its capabilities, but on our collective ability to thoughtfully and ethically integrate it into practices that prioritise meaningful human interaction and critical engagement.

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The authors did not use generative AI technologies in the creation of this manuscript.

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