Enhancing student engagement through Generative AI chatbots in large business cohorts

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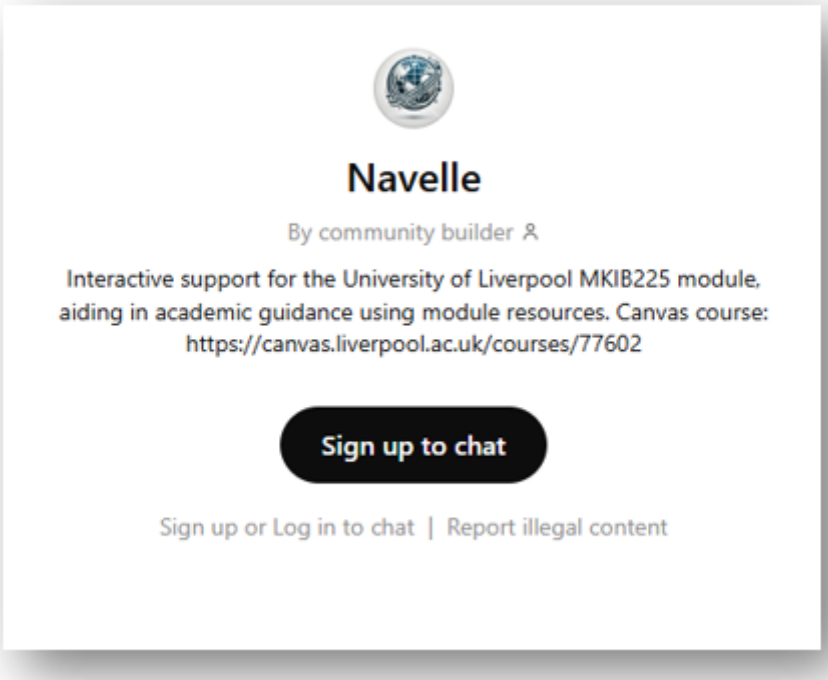
Please briefly describe the activity undertaken for the case study

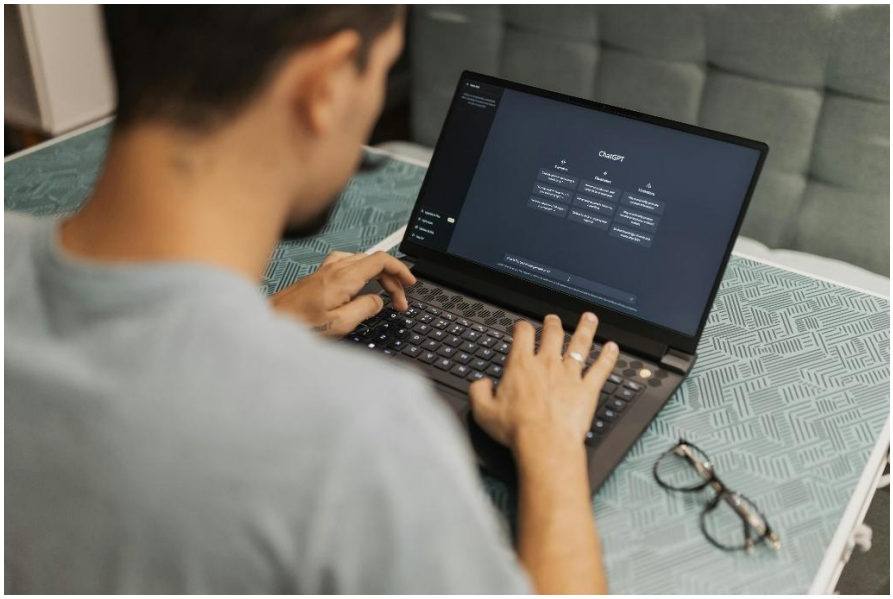
The challenge of sustaining student engagement and motivation in large cohorts has become increasingly pronounced in higher education. Modules enrolling several hundred students present difficulties for academic staff, who often cannot provide timely responses to individual queries or personalised support. Against this backdrop, we explored the potential of generative artificial intelligence (GenAI) as a scalable, innovative intervention to enhance learning and the student experience. This case study reports on two implementations of custom GPT-based chatbots in large undergraduate business modules, reflecting on lessons learned and how this work aligns to the Liverpool Curriculum Framework (LCF).



How was the activity implemented?

The first implementation occurred in a final-year core business module with 457 students. A bespoke chatbot using OpenAI's custom GPT framework, trained on course-specific materials such as lecture slides, FAQs, and assessment briefs. The tool was accessible via a link within the Canvas module site and was accompanied by explicit guidance on its appropriate use. In addition, students attended a guest lecture from an external expert on large language models, covering both opportunities and limitations of such systems. Importantly, the chatbot's introduction was framed as an exercise in AI literacy: students were encouraged to evaluate its answers critically, compare them against official course resources, and develop fact-checking skills as part of their engagement.

While uptake was promising, with 264 queries recorded over the semester, averaging 0.58 queries per student, but sustained engagement was limited. Students tended to use the chatbot for one-off clarifications rather than as an integrated part of their study routine. Barriers included the need to navigate to an external site, lack of seamless integration into the virtual learning environment (VLE), and the limited perceived value once initial questions had been addressed.



The second implementation, conducted in a second-year business module with 265 students, sought to address these limitations. The chatbot was rebranded as Navelle, with a deliberately humanised persona co-designed with students to foster familiarity and trust. Responses were more closely aligned to the module pedagogy through instructor input, matching the tone, examples, and frameworks used in teaching. Crucially, an interactive workshop was held mid-semester in which students were invited to use Navelle in real time, critique its responses, and suggest improvements. This participatory design activity strengthened student ownership of the tool while simultaneously deepening their reflection on AI's role and limitations in higher education.

This second implementation recorded 245 recorded queries across the semester, equating to an average of 0.92 queries per student, a significant increase of engagement than in the first case, despite the smaller cohort size. More importantly, qualitative feedback indicated that students began to integrate Navelle into their study routines, even referring to it in class discussions. These outcomes suggest that embedding the chatbot within the pedagogy and involving students in its co-design significantly boosted acceptance and sustained use.

Has this activity improved programme provision and student experience, if so, how?

The deployment of AI chatbots in these large modules had several positive impacts. Behaviourally, the provision of 24/7 support encouraged students to seek help at the point of need, rather than waiting for staff availability. Cognitively, Navelle provided context-sensitive explanations and resources, supporting deeper understanding of concepts and frameworks. Emotionally, students reported reduced anxiety and greater confidence, describing the tool as a "safety net" that supported independent problem solving.

The activity also advanced AI literacy by encouraging students to engage critically with AI outputs. Through guided reflection and co-design, students learned to balance the benefits of AI assistance with awareness of its limitations, gaining transferable skills that will serve them in future academic and professional contexts.

From a staff perspective, the chatbot reduced the volume of routine queries, enabling teaching teams to concentrate on higher-level academic mentoring. While the technology was not a substitute for human interaction, it functioned effectively as a complementary first line of support.

Did you experience any challenges in implementation, if so, how did you overcome these?

The initial implementation highlighted several challenges. Access was a key issue: the requirement to log in to an external platform created friction, discouraging sustained use. A second issue was the limited analytic capability of the platform, which hindered detailed evaluation of engagement patterns. A third challenge was the gradual decline in usage after initial novelty effects wore off, highlighting the need for clearer communication of the chatbot's ongoing value.

The second implementation addressed these challenges through a more student-centred approach. Rebranding the chatbot with a persona, aligning its responses to the instructor's pedagogy, and involving students in participatory workshops all served to

normalise the tool as part of the course culture. This fostered ownership and trust encouraging repeated use, helping to embed Navelle into student study practices.

How does this case study relate to the Hallmarks and Attributes you have selected?

The activity demonstrates strong alignment with the Liverpool Curriculum Framework's value, hallmarks, and attributes.

Inclusivity (Core Value): The provision of 24/7, on-demand support improved accessibility for students with diverse schedules, backgrounds, or confidence levels.

Research-Connected teaching: Students were introduced to current debates around AI in education, linking their learning to innovative research and wider disciplinary developments.

Active learning: The interactive workshop placed students at the centre of tool evaluation and design, engaging them in reflective, collaborative activities that deepened understanding.

Authentic assessment: Engagement with Navelle mirrored real-world applications of AI, supporting students in building critical skills for future workplaces.

Graduate Attribute: Confidence: Students developed resilience by experimenting with modern technologies, articulating their learning, and developing a sense of agency.

Graduate Attribute: Digital Fluency: By critically evaluating AI outputs and reflecting on ethical use, students enhanced their digital literacy and developed practical skills for navigating AI-rich environments.

Graduate Attribute: Global Citizenship: Consideration of ethical and societal implications encouraged students to see themselves as responsible actors in an interconnected, AI-pervasive world.

How could this case study be transferred to other disciplines?

Although implemented in business modules, the approach is readily transferable to other disciplines. In STEM contexts, chatbots could provide support for laboratory procedures or coding tasks. In humanities, they might guide students through writing processes or interpretive frameworks. Professional programmes could employ them to simulate workplace scenarios or assist with placement preparation. The core principle, which is co-designed, pedagogy-aligned AI chatbots enhancing engagement, reducing learning barriers g, and fostering digital fluency, is not discipline specific.

If someone else were to implement the activity within your case study, what advice would you give them?

Colleagues considering similar interventions may wish to reflect on several recommendations emerging from this work. First, prioritise co-design: involving students in branding, testing, and refinement creates ownership and strengthens engagement. Second, embedding the chatbot within teaching activities prevents it from being seen as an isolated novelty and ensures its value is reinforced through pedagogy. Third, explicit attention to AI literacy is essential: students must be supported to engage critically and ethically with AI outputs. Fourth, reducing friction by embedding chatbots into existing digital environments, such as the institutional VLE, is key to ensuring regular use. Finally, evaluation should be iterative and participatory, using both analytics and student feedback to refine the tool.

Conclusion

This case study demonstrates the potential of generative AI chatbots to enrich the student experience in large cohorts through personalised, accessible, and timely support. The evolution from the first to the second implementation illustrates that technology alone is insufficient; success depends on thoughtful pedagogical integration, co-design with students, and emphasis on inclusivity and digital literacy. Aligned with the Liverpool Curriculum Framework, this initiative exemplifies research-connected teaching, active learning, and authentic engagement, while cultivating graduate attributes like confidence, digital fluency, and global citizenship.